



Undergraduate Catalog
2020-21

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University Calendar

Fall Semester, 2020

August 31-September 1
Advising Days
September 2, Wednesday
Classes Begin at 8 a.m.
September 7, Monday
Labor Day Recess
October 21-23
N/A
November 25, Wednesday
Thanksgiving Recess Begins at Noon
November 30, Monday
Classes Resume
December 14-17
Final Examination Week
December 19, Saturday
Semester Ends-Commencement

Spring Semester, 2021

January 7-8
Advising Days
January 11, Monday
Classes Begin at 8 a.m.
January 18, Monday
MLK Day Recess, Convocation and Activities
March 5, Friday
Spirit Day - No Classes
March 8-12
Spring Break
March 15, Monday
Classes Resume
April 26-29
Final Examination Week
May 1, Saturday
Semester Ends-Commencement

Summer I, 2021

May 10, Monday
Classes Begin at 8 a.m.
May 31, Monday
Memorial Day Recess
June 30, Wednesday
Session Ends
June 26, Saturday
Commencement

Summer II, 2021

July 1, Thursday
Classes Begin at 8 a.m.
July 4-5, Sunday/Monday
Independence Day Recess

Fall Semester, 2021

August 30-31
Advising Days
September 1, Wednesday
Classes Begin at 8 a.m.
September 6, Monday
Labor Day Recess
October 20-22
Fall Break
November 24, Wednesday
Thanksgiving Recess Begins at Noon
November 29, Monday
Classes Resume
December 13-16
Final Examination Week
December 18, Saturday
Semester Ends-Commencement

Spring Semester, 2022

January 6-7
Advising Days
January 10, Monday
Classes Begin at 8 a.m.
January 17, Monday
MLK Day Recess, Convocation and Activities
March 4, Friday
Spirit Day - No Classes
March 7-11
Spring Break
March 14, Monday
Classes Resume
April 25-28
Final Examination Week
April 30, Saturday
Semester Ends-Commencement

Summer I, 2022

May 9, Monday
Classes Begin at 8 a.m.
May 30, Monday
Memorial Day Recess
June 29, Wednesday
Session Ends
June 25, Saturday
Commencement

Summer II, 2022

June 30, Thursday
Classes Begin at 8 a.m.
July 4, Monday
Independence Day Recess

August 20, Friday
Session Ends-No Commencement Exercises

August 19, Friday
Session Ends-No Commencement Exercises

Western Michigan University Strategic Plan

The Western Michigan University Commitment

With adoption of its first strategic plan in 2012, the University embraced three basic tenets developed to describe its identity and provide guideposts for the future. In 2016, the University launched The Gold Standard 2020, a refined and expanded five-year version of its strategic plan, those three tenets remain at the very core of all that WMU is and aspires to be. The University is learner centered, discovery driven, and globally engaged. Every goal that it sets and every challenge it tackles is intended to maintain and enhance those three tenets. The Gold Standard 2020 is a planning tool for the future that is premised on that basic understanding.

As a premier, comprehensive, public research University, WMU will use this plan to recruit and nurture talented minds wherever they will be found. The University strives to add value to the lives of its learners and continuously improve the quality of its programming to meet the needs and expectations of the communities it serves. The strategic plan reflects a campus-wide commitment to academic rigor, service, inclusivity, collaboration, economic development, sustainability, and good stewardship of institutional resources.

As an extension of the original Gold Standard, the Gold Standard 2020 is an affirmation of the University community's commitment to the values of shared governance, transparent and timely communication, and accountable and responsible behavior within an ethical, compassionate, diverse and respectful environment.

Western Michigan University has embraced the challenge of strategic planning to ensure that it will be a premier educational environment that provides opportunity for a diverse and globally representative community of learners. Those learners will be part of a setting in which discovery and innovation are used to enhance the economic vitality of the communities served and make the world a better and more hospitable place.

Mission

Western Michigan University is a learner-centered, research university, building intellectual inquiry and discovery into undergraduate, graduate, and professional programs in a way that fosters knowledge and innovation, and transforms wisdom into action. As a public university, WMU provides leadership in teaching, research, learning, and service, and is committed to enhancing the future of our global citizenry.

Vision

Nationally and internationally recognized, the University aspires to distinguish itself as learner centered, discovery driven, and globally engaged.

Learner centered

Western Michigan University is a university where every member of our community is responsive to and responsible for the education of our students. We challenge and engage all members of our community with a university experience that creates skilled, life-long learners.

Discovery driven

Western Michigan University offers experiences that enable discovery, and promote creativity and research. We are committed to pursuing inquiry, disseminating knowledge, and fostering critical thinking that encourages life-long learning. Our scholarship creates new knowledge, forms a basis for innovative solutions, leads to economic development, and makes substantial contributions to society.

Globally engaged

Western Michigan University impacts the globe positively. We are a community of learners committed to human dignity, sustainability, social responsibility, and justice. Our campus embraces a diverse population of students, faculty and staff who develop learners and leaders who are locally oriented and globally competent, culturally aware and ready to contribute to world knowledge and discovery.

The Gold Standard 2020 Embraces Five Strategic Goals

The University Strategic Plan guides the way for the next several years and allows time for meaningful institutional goals to be achieved. Developing the goals, objectives and strategies that will serve the University community both now and in the future, demands that the University undertake honest, thorough and ongoing examinations of the challenges and risks the institution faces. This strategic plan acknowledges that both risk and opportunity must be balanced, assessed and reassessed and includes the mechanisms to meet those demands. Both risks and opportunities must be prioritized as time passes, and resources must be allocated according to that prioritization.

Objectives and strategies have annual benchmarks to measure progress and allow for responsiveness to internal and external changes impacting WMU. Institutional Effectiveness Measures will be used to monitor critical University functions, as well as provide evaluation for continuous quality improvement throughout the Strategic Plan's implementation and resource allocation processes.

Upon formal adoption of the strategic plan by the University's Board of Trustees, the document will become Western Michigan University's roadmap into the future. Annual monitoring to ensure benchmarks are met will take place. Each unit and vice presidential area are expected to integrate the goals and objectives of the strategic plan into daily work.

Learner Success

Goal #1: Ensure a distinctive and supportive learning experience that fosters success.

WMU fosters learners who are critical thinkers, knowledge expanders, and solution providers. WMU students are provided a broad range of learning opportunities in a respectful, healthy, and safe living-learning environment focused on student success. Curricular and co-curricular opportunities encourage engagement, prepare learners for the globalized world, and enhance student retention and degree completion. Each learner is encouraged to synthesize and translate WMU experiences into a unique Signature defining who they are as learners, professionals, leaders and globally engaged citizens.

Objective 1.1: A learner-centered culture maximizes student retention and degree completion.

Objective 1.2: The learning experience prioritizes critical thinking, application, and experiential learning.

Objective 1.3: Learning experiences are heightened through innovative and responsive co-curricular learning opportunities.

Objective 1.4: International learning experiences prepare all learners for the globalized world.

Objective 1.5: University community advances and sustains a respectful, healthy, and safe campus.

Objective 1.6: The student living-learning environment enhances learning, personal development, and engagement in campus communities.

Academic Excellence

Goal #2: Promote innovative learning, discovery, and service.

WMU pursues academic excellence through innovative approaches to learning, discovery, and service. WMU embraces collaboration and leverages resources to offer academic programs that are responsive to the needs of all students and society. A distinguished faculty and support staff offer high quality curricula in graduate and undergraduate education. Instruction is delivered through high-impact practices in learning platforms that meet the needs of contemporary learners.

Objective 2.1: WMU's academic programs respond to student and global needs through innovative, high quality curricula.

Objective 2.2: The strategic hiring and retention of a distinguished faculty and staff ensures academic excellence, enhances innovation in discovery and pedagogy, and elevates the University's stature.

Objective 2.3: Academic excellence will be maintained through the execution of best practices.

Objective 2.4 WMU will be positioned as leader in quality graduate education.

Objective 2.5: The delivery of learning platforms and locations reflect the breadth and diversity of enrollment that is supportive of the University's mission and strategic goals.

Objective 2.6: Faculty research, scholarship, and creative activities enhance innovative teaching and discovery.

Discovery and Collaboration

Goal #3: Progress as a Carnegie-classified higher research doctoral university that advances new knowledge and value-added discovery.

WMU is flexible and responsive to the ever-changing demands of the world. To meet the needs of society, WMU investigates, develops, and produces new knowledge; contributes to technological and economic advancement; and elevates the human condition through community outreach and engaged scholarship.

Objective 3.1: WMU strengthens its position as a Doctoral University: Higher Research Activity in accordance with Carnegie Classification criteria.

Objective 3.2: WMU's strengths in research and engaged scholarship create mutually beneficial partnerships that impact significant scientific, economic, and social problems.

Objective 3.3: WMU's outreach is attentive to local and world needs.

Inclusive Excellence and Equity

Goal #4: Promote a diverse, equitable, and inclusive University culture to ensure social sustainability and accessibility.

WMU cultivates a diverse and inclusive community that recognizes the value of each individual and helps ensure civility and respect for all people. In doing so, WMU embraces diversity as a community value in which all stakeholders are prepared to understand the complexity of issues and perspectives needed to offer solutions to world challenges. A system of accountability and purposeful institutional reflection will promote a high level of social sustainability.

Objective 4.1: A system of continuous accountability and evaluation contributes to a culture of inclusive excellence.

Objective 4.2: A diverse student, faculty, and staff population enriches the learning and working environment.

Objective 4.3: WMU models a welcoming, accessible, and supportive university culture.

Objective 4.4: WMU advances as a viable setting for social sustainability.

Sustainable Stewardship

Goal #5: Advance economic and environmental sustainability practices and policies.

WMU supports a culture of sustainability by modeling practices and policies that result in increased flexibility to respond to economic and environmental challenges. Allocation of resources will be transparent and in accordance with strategic planning priorities creating stability across funding cycles, respecting the individual needs of all students and employees, reducing our environmental footprint, and relying on evaluation and accountability to ensure continuous improvement. A robust communication system will effectively promote the University distinctive mission to enhance marketing, advocacy and investment in WMU.

Objective 5.1: WMU continues to be a leader in responsible utilization of financial and human resource management, process, and deployment.

Objective 5.2: WMU utilizes available financial strategies to optimize enrollment management.

Objective 5.3: WMU is a national leader in achieving environmental sustainability.

Objective 5.4: Effective marketing and communication promotes the University's distinctive mission.

Objective 5.5: Community support, advocacy, and philanthropic giving advance WMU

Learner Success

Goal #1: Ensure a distinctive and supportive learning experience that fosters success.

Objective 1.1: A learner-centered culture maximizes student retention and degree completion.

Strategies

- Operationalize and integrate evidence-based retention practices to increase first-year student retention.
- Develop advising and retention efforts appropriate to the needs of sophomore, junior, and transfer students.
- Improve support programming to help students with varying levels of academic preparation.
- Enhance training to help WMU employees recognize how their roles can/do support student success.
- Develop and operationalize best practices that promote persistence and degree completion of graduate students.

Objective 1.2: The learning experience prioritizes critical thinking, application, and experiential learning.

Strategies

- Coordinate and promote off-campus, non-classroom, internship, and service-learning opportunities for all students.
- Enhance career preparation services and provide more opportunities for professional development to boost post-graduation student success.
- Use the development and articulation of learning outcomes in training and mentoring student employees to further their workforce readiness.
- Promote greater involvement of undergraduate and graduate students in research and creative activities.

Objective 1.3: Learning experiences are heightened through innovative and responsive co-curricular learning opportunities.

Strategies

- Develop and implement the *Signature Designation* to support student engagement and distinction.
- Continue implementation and development of programming to increase student financial literacy.
- Facilitate participation in benefit-supported learning opportunities for all employees.

Objective 1.4: International learning experiences prepare all learners for the globalized world.

Strategies

- Increase feasibility of broad-based participation in study abroad programs and other globally focused learning opportunities.
- Implement the faculty-adopted *internationalize education* initiative.
- Provide enhanced living-learning support for the growing number of international students at WMU.
- Increase recruitment of University employees with international experience and expertise.
- Facilitate intercultural understanding through greater interaction between domestic and international students.

Objective 1.5: University community advances and sustains a respectful, healthy, and safe campus.

Strategies

- Implement proactive outreach and intervention programs to enhance mental health and physical well-being of all students, faculty, and staff.
- Promote collegiality through greater inter- and intra-departmental collaboration.
- Implement recommendations from the *Title IX Sexual Misconduct and Safety Survey* to ensure a safe and supportive environment for all stakeholders.
- Reinforce campus safety through informed modification in University policies and physical environment.

Objective 1.6: The student living-learning environment enhances learning, personal development, and engagement in campus communities.

Strategies

- Revitalize University facilities to enhance informal space for student learning, personal development, and interaction with others.
- Plan for a self-sustaining, award-winning student center known for its vibrancy, responsiveness, and aesthetic appeal.
- Renovate aging facilities to create neighborhood environments that add value to the University experience.
- Support and develop a championship athletic culture that promotes institutional pride and community connectedness, and also enhances the University experience for all stakeholders.

Academic Excellence

Goal #2: Promote innovative learning, discovery, and service.

Objective 2.1: WMU's academic programs respond to student and global needs through innovative, high quality curricula.

Strategies

- Increase flexibility within the curriculum development process to better respond to a rapidly changing world.
- Revise general education curricula to respond to the needs of the 21st century student.
- Develop and utilize University-wide student learning outcomes for University planning and assessment.
- Develop stronger connections across colleges and among external constituents to facilitate interdisciplinary opportunities.
- Identify and support growth in the number of programs that achieve national or international distinction.

Objective 2.2: The strategic hiring and retention of a distinguished faculty and staff ensures academic excellence, enhances innovation in discovery and pedagogy, and elevates the University's stature.

Strategies

- Promote academic excellence and innovative discovery through strategic investment in personnel.
- Structure and align technology and operations to advance information resources and pedagogical innovations.
- Support and recognize faculty and staff engagement in their professional disciplines.
- Develop an operational succession plan for faculty, staff, and administrators.

Objective 2.3: Academic excellence will be maintained through the execution of best practices.

Strategies

- Increase systematic assessment of student learning for continuous improvement of curricula.
- Create and sustain a culture that supports the use of high impact practices for instruction in all academic units.
- Enhance opportunities for instructional staff to engage in learning communities.
- Incorporate early alert technology and holistic advising to support student success.
- Advocate for proposed capital outlay projects, such as the College of Aviation expansion.

Objective 2.4 WMU will be positioned as leader in quality graduate education.

Strategies

- Develop appropriate financial support strategies to assist graduate students.
- Improve data systems to monitor, review, and assess graduate student success.
- Strengthen the capacity of graduate programs to educate and graduate a diverse population of contemporary learners in a timely manner.
- Promote cross-discipline learning and research opportunities to enhance the educational experiences of graduate students.
- Provide relevant engagement opportunities and student support resources to meet the unique needs of graduate students.

Objective 2.5: The delivery of learning platforms and locations reflect the breadth and diversity of enrollment that is supportive of the University's mission and strategic goals.

Strategies

- Expand and optimize WMU's recruitment and delivery of educational opportunities to new, targeted demographics and strategic geographic regions.
- Implement a comprehensive enrollment management plan to maximize program capacity and achieve academic program goals.
- Maximize use of technology to increase convenience and expand boundaries for delivery of degree programs.
- Engage in new, non-traditional pathways to degree completion.

Objective 2.6: Faculty research, scholarship, and creative activities enhance innovative teaching and discovery.

Strategies

- Develop efficient mechanisms to gather and distribute faculty, staff, and student scholarship and discovery data.
- Establish clear expectations for faculty engagement and support of student research and creative activities.
- Strategically align staff and faculty expertise and strengths with available resources at the unit level to promote learning and discovery.
- Align support resources to increase discovery activity for all faculty in all disciplines.

Discovery and Collaboration

Goal #3: Progress as a Carnegie-classified higher research doctoral university that advances new knowledge and value-added discovery.

Objective 3.1: WMU strengthens its position as a Doctoral University: Higher Research Activity in accordance with Carnegie Classification criteria.

Strategies

- Expect University centers and institutes to stimulate externally funded research and creative activities through interdisciplinary discovery, encouraging innovation, and widespread dissemination of scholarship.
- Support implementation and accountability of discovery communities to increase both the aggregate and per-capita level of research activity supportive of a Carnegie-classified Doctoral University: Higher Research Activity.
- Foster a culture of collaboration by developing effective infrastructure for faculty and staff to share their expertise and research across disciplines and regional research entities.
- Enhance the delivery of doctoral programs to increase the number of doctoral degrees awarded.
- Enhance information technology and data management infrastructure to support research.

Objective 3.2: WMU's strengths in research and engaged scholarship create mutually beneficial partnerships that impact significant scientific, economic, and social problems.

Strategies

- Foster investment in student, staff and faculty innovation, infrastructure and entrepreneurship.
- Actively support technology and knowledge transfer in partnership with WMU spin-off companies, industry, and community.
- Develop curricular programs that will contribute to incumbent and future workforce needs.
- Establish engaged scholarship systems to support research likely to impact public policy and community-based endeavors.
- Expand mechanisms for the dissemination of research and scholarship to stakeholders and the community at large.
- Continue to leverage resources through effective relationships with WMed and WMU Cooley, local affiliates, and global partnerships.

Objective 3.3: WMU's outreach is attentive to local and world needs.

Strategies

- Develop and implement a renewed *Campus Compact Action Plan*, dedicating the University to work with other institutions to advance the public purposes of higher education.
- Review and improve outreach practices and policies to achieve the *Carnegie Community Engagement Reclassification* by 2020.
- Operationalize a unified vision to support the University's public engagement mission.
- Develop rigorous, systematic evaluations of all outreach and community engagement programs to increase impact in conjunction with community agencies' planning initiatives.
- Know, measure, tell, and increase WMU's economic impact and social value.
- Assist all students with developing meaningful connections in their local and global communities.

Inclusive Excellence and Equity

Goal #4: Promote a diverse, equitable, and inclusive University culture to ensure social sustainability and accessibility.

Objective 4.1: A system of continuous accountability and evaluation contributes to a culture of inclusive excellence.

Strategies

- Foster a shared understanding of University-wide definitions pertaining to diversity, equity, and inclusion.
- Improve accountability to inform and advance equity, inclusivity, and accessibility, at every level of the University.
- Ensure viable, safe avenues to report instances of inequitable behavior.

Objective 4.2: A diverse student, faculty, and staff population enriches the learning and working environment.

Strategies

- Understand and work to remove systemic institutional barriers for recruitment, retention, and degree completion of students from historically underrepresented groups in higher education.
- Employ institutional strategies so that hiring and retention practices encourage diversity in all its forms.
- Continue to create opportunities for affinity groups to gather and develop a sense of community.

Objective 4.3: WMU models a welcoming, accessible, and supportive university culture.

Strategies

- Expand educational and cultural programming to increase equity mindedness of all stakeholders.
- Support professional development opportunities for all stakeholders that promote global understanding and cultural humility.
- Promote human resource practices and programming that meet the needs of WMU employees to enhance workplace engagement.
- Implement changes in student service facilities that create a barrier-free, welcoming environment for a diverse population.

Objective 4.4: WMU advances as a viable setting for social sustainability.

Strategies

- Provide services and support networks that function to create a sense of place that provides a viable setting for human interaction, communication, and cultural development.
- Identify and appropriately resource staffing levels in critical areas to support quality learner-centered service.
- Offer and encourage participation in professional skills training to increase employee retention, advancement, and workplace satisfaction.
- Develop and maintain a motivated workforce through leadership by example and recognition for contributions that exceed expectations.
- Support strategies to foster faculty, staff, and student responsibility as active participants in University governance.

Sustainable Stewardship

Goal #5: Advance economic and environmental sustainability practices and policies.

Objective 5.1: WMU continues to be a leader in responsible utilization of financial and human resource management, process, and deployment.

Strategies

- Expand use of a resource-effective integrative review processes for all programs and services.
- Leverage multiple revenue streams to support clearly defined University goals and responsible budget forecasts.
- Expand and improve integrated data-driven information systems for decision-making.
- Promote transparency and University accountability in all institutional systems.
- Prioritize the maximum utilization of facilities and fixed resources in campus planning and scheduling.
- Develop proactive practices to meet the pace of change in emerging technology.

Objective 5.2: WMU utilizes available financial strategies to optimize enrollment management.

Strategies

- Develop regionally competitive tuition models for academically qualified students.
- Utilize innovative and competitive financial aid strategies to maintain the fundamental principle of providing access to an affordable, quality education for all admitted students.
- Implement new strategies at the program level that enhance yield of admitted students.
- Incorporate effective forecasting models that anticipate and respond to changes in regional, national, and global factors in managing enrollment.

Objective 5.3: WMU is a national leader in achieving environmental sustainability.

Strategies

- Maintain a leadership position in conservation efforts to reduce energy consumption and costs.
- Work with community partners to recycle, reuse, and reduce waste.
- Increase the number and scope of green programs that maximize return on University investment.
- Increase opportunities for sustainability education.
- Promote responsible acquisition and use of natural resources, increasing green space on campus.

Objective 5.4: Effective marketing and communication promotes the University's distinctive mission.

Strategies

- Develop and execute an external and internal communication plan that effectively engages all stakeholders and reflects the shared narrative of the University.
- Define and disseminate a coherent and consistent brand identity to local, national, and global markets.
- Engage in new digital strategies that increase access to all stakeholders and advance the recruitment of prospective students and families.
- Implement a transformational wayfinding plan to improve navigation to and within WMU campuses.

Objective 5.5: Community support, advocacy, and philanthropic giving advance WMU.

Strategies

- Provide services that effectively connect and engage WMU's global network of alumni and friends as advocates for the University.
- Raise external support for student scholarships, named professorships, innovation infrastructure, capital projects, and other University-identified priorities.
- Utilize WMU's strategic plan and University-wide accomplishments to articulate WMU's narrative and value to potential donors.
- Engage in development and promotion communication to increase donor retention and employee annual giving.

Enterprise Risk Management and Strategic Planning

Built into the 2020 University Strategic Plan are a number of specific strategies that directly address challenges identified in the planning process. Since these challenges affect all aspects of Western Michigan University's mission and operations, they should be a critical tool in the implementation and oversight of the plan. This approach integrates risk management into the strategic deliberations of senior leaders and board members, positioning the University to accomplish its long term goals and objectives. The Gold Standard 2020 will begin the implementation process by focusing on how the challenges may impact achievement of the University strategic goals.

Admissions

Admission Policies

Western Michigan University admits students whose educational backgrounds indicate a high probability for success in college work. Applications received after the below deadlines may be changed to a subsequent term.

Fall: First-year students (main campus):

- Early Action*: December 15
- Rolling Admission: June 1
- All other student types and campuses: August 15

*Students who complete their application file by the Early Action deadline will be considered for admission scholarships and receive priority consideration for the Lee Honors College.

Spring: All student types and campuses: January 1

Summer I: All student types and campuses: May 1

Summer II: All student types and campuses: June 15

First-Year Applicants

A first-year applicant is a student who is applying for admission and who has not attempted or earned any college credit after graduating from high school (or earned equivalent).

Whether students apply online or have a one-on-one onsite admission, the major factors considered in the admission decision are grade point average, rigor of curriculum, and trend of grades. Other variables, such as letters of recommendation, extra-curricular activities, and essay/personal statement are reviewed and may be used in the admission decision and/or the scholarship or Lee Honors College invitation processes. If submitted, ACT/SAT test scores may be used in the admission decision process.

WMU strongly recommends that applicants complete a rigorous college preparatory curriculum that would include minimally: four years of English; three years of mathematics, including Algebra II and higher (fourth year preferred); three years of social sciences; three years of science (at least two from biology, chemistry or physics); and two years of foreign language.

Offers of admission made to students still in high school are conditional pending graduation from high school and the University's review of final senior year grades. Poor performance may result in a change of admission status or withdrawal of the admission offer.

Transfer Applicants

A transfer applicant is someone who has graduated from high school (or earned equivalent) and who enrolled in at least one college-level course after high school (or earned equivalent).

In reviewing applications from prospective transfer students, the University bases decisions on previous college coursework completed at each institution attended, as well as the trend of the most recent grades. If fewer than 24 hours have been completed at the college level, a high school transcript are also required for review. Applicants may also submit an ACT or SAT test score if the student believes it will positively influence the admission decision.

Offers of admission made to students currently enrolled at another college or university are provisional, pending successful completion of work in progress. Poor performance may result in a change in admission status or withdrawal of the admission offer.

Readmission

Students who make an initial enrollment at WMU but do not return the following semester/term will have three semesters of valid admission status in which to re-enroll, providing they left in good standing and do not enroll at another higher education institution. After three semesters, students in good standing and with no college work since leaving WMU may reactivate their admission status by reapplying as a returning student.

Students who leave the University in good standing, are gone for more than one year and/or subsequently take additional college work must reapply as a returning student and have official transcripts sent from each institution attended after leaving the University. The readmission decision will be made under existing transfer admission standards.

Dismissed students applying for readmission must reapply as a returning student and have official transcripts sent from each institution attended after leaving the University. The University requires evidence that the causes of past academic problems have been removed before approving readmission. An authorized college advisor will provide approval based on receipt of application, transcripts and demonstrated evidence of removal of past academic problems. University students who have been dismissed will normally not be readmitted for at least one fifteen week semester.

Admission Procedures for Domestic Students

First-Year Applicants

Students with no previous college work since receiving a high school diploma or equivalent should complete the first-year application. This includes currently enrolled high school students participating in Early/Middle College or dual enrollment courses. To be considered for first-year admission, applicants should follow the steps below:

- Complete the WMU online application at wmich.edu/apply or the Common Application and pay the \$40 non-refundable application fee.
- Request an official high school transcript to be sent to WMU. Official transcripts are sent directly from the school to WMU either physically via mail or electronically through a third-party service such as Parchment. If the applicant wishes for an ACT or SAT to be used in the admission decision process, they must make arrangements to take the examinations of the ACT or the SAT. Results can be sent directly to Western Michigan University (ACT College Code 2066; SAT College Code 1902) from the respective testing agency or submitted in the application as self-reported test scores. Official scores will be required prior to enrollment. Please see the Test Score Policy section below for more information.
- For those who have completed a General Educational Development (GED) Test or other state-recognized high school equivalency tests, submit official GED scores instead of a high school transcript.
- Students enrolled in early-middle college must also send official college transcripts for review as part of the admission application if college courses and grades are not included on the high school transcript.

When to Apply

Fall entry: Students should submit applications for fall semester during the fall preceding their enrollment. High school students may apply for first-year admission after completion of the junior year. Applications that are complete (application, official transcript, and application fee or waiver) and received by December 15 will receive priority consideration for scholarships and invitation to the Lee Honors College. Applications must be complete (application, official transcript, and application fee) by June 1 to be considered for fall entry.

Spring or Summer Entry: Applicants are strongly advised to submit all materials (application, fee, transcripts) at least two months prior to their desired entry term. Applications and materials received after the below deadlines may be changed to a subsequent term:

Spring (January): January 1

Summer I (May): May 1

Summer II (June): June 15

Test Score Policy

In response to the COVID-19 pandemic, Western Michigan University has adopted a test-optional admission policy for students applying for any 2021 entry term. Test-optional means that students have the choice to submit an ACT or SAT if they believe it make their admission application stronger. ACT/SAT test scores may be required to be considered for admission scholarships. Visit the Office of Admissions website (wmich.edu/admissions) for details.

In the interest of promoting college access and providing admission decisions in a timely fashion, WMU uses self-reported test scores for the initial admission decision process.

Superscoring

When considering applicants who take either the ACT or SAT test more than once, Western Michigan University will use the highest subscores from any test date to superscore the total (SAT) or composite (ACT) score. That score is what will be used for admission and scholarship consideration. Only scores from the same test type will be used - subscores cannot be mixed between the ACT and SAT. Superscoring will be calculated by:

- ACT: Average of the highest section score on English, Math, Reading, and Science
- SAT: Sum of the highest section score on Math and Evidence-Based Reading and Writing

WMU does not have a preference between the two tests and does not use the writing portion of the tests.

Official Test Scores:

Scores can be sent directly from the testing agency or included on an official high school transcript.

Students may request official test scores from the appropriate testing agency:

- ACT: Use WMU school code 2066
- SAT (College Board): Use WMU school code 1902

WMU will not accept emailed or faxed test score reports, or any score report from a student or family. Discrepancies between self-reported and official scores may result in admission and/or scholarship offers being revoked.

Admission Interviews

In order to make the best possible decision for an individual student, an admissions counselor may require a personal interview to clarify or explain parts of the application materials.

Advanced Placement

The Advanced Placement Program (AP) of the College Board provides the opportunity for students to earn college credit while still in high school. WMU awards credit for all AP areas. To learn what AP exam score is required for credit in a subject, visit wmich.edu/registrar/students/advising/students-advising-ap for detailed information. For those wishing to participate, have AP send a score report to WMU, College Code 1902.

International Baccalaureate

Western Michigan University awards credit for IB higher level (HL) exam scores of 5 or better. Visit wmich.edu/registrar/students/advising/students-advising-ib to obtain information about the IB higher level subjects granted credit.

Early-Middle College

Students enrolled in an early-middle college program are considered first-year students with advanced standing and should follow the first-year application process. Official college transcript(s) are required prior to notification of an admission decision if college courses and associated grades are not included on the official high school transcript. Applicants are subject to first-year enrollment policies including scholarship eligibility, housing consideration, and orientation requirements.

A final transcript showing acceptable grades must be received within the first term of enrollment at Western Michigan University. See "credit evaluation" portion in "transfer applicants" section for transfer credit policies.

Dual Enrollment

Students dual enrolled in high school, but not part of an early/middle college are not required to submit college transcripts at the time of application provided the courses and associated grades are included on the high school transcript. However, an official college transcript must be received to receive credit for any college coursework. See "credit evaluation" portion in "transfer applicants" section for transfer credit policies.

Notification of Status

The University notifies first-year applicants of their admission status on a rolling basis. When all materials are on file and the Admissions Committee acts, students will receive written notice. The decision may be to admit; to request additional grades, or an interview; defer the decision to a later date; or to ask the applicant to begin at another school and transfer to the University after establishing a successful college record.

Admission of students to first-year status while they are still in high school is conditional upon their graduation from high school and the University's review of their final grades. Poor performance in the senior year may cause a change in admission status or withdrawal of the admission offer.

Alpha Program

The Alpha Program is a conditional admission academic support program for first-year students. The program provides developmental academic advising, alerts students to University resources, and requires attendance at skill-building workshops.

Consideration is given to those students who do not meet WMU's regular admissions criteria but who have demonstrated the potential for college-level work. The Office of Admissions determines eligibility of applicants for admission as Alpha students. Selected students and their parents or guardians are required to sign a program contract accepting conditions of admissions.

Western Success Prep Preparation

The Alpha Western Success Preparation (WSP) bridge week includes an intensive five-day class designed to give some Alpha Program students a head start on a great first year at Western Michigan University. WSP is held the week before Fall Welcome. When WSP concludes, students will transition seamlessly into the Alpha Program Welcome and Fall Welcome with all of the first-year students. Students will receive one credit upon completion of the program. Selected Alpha students are recommended to WSP and will be notified by the Alpha Program separately from an offer of university admission.

Orientation

The mission of the Western Michigan University Orientation program is to provide a comprehensive experience which will aid new students in their transition to the institution, expose new students to the educational opportunities within WMU, integrate new students into the academic and campus life of the institution, increase the retention rate of new students, assist parents and families of new students to understand the University environment and services, and enhance parental awareness of issues facing college students.

Orientation is required for all incoming first-year students, regardless of entry term. All first-time students will meet with an academic advisor and register for courses at orientation. With the exception of Medallion students who participate in "Honors First" and early/middle college students, incoming first-year students are not allowed to register for classes prior to attending Orientation.

Transfer Applicants

Students who have started or completed college coursework in the fall term immediately after high school graduation or any later term are considered transfer applicants. To be considered for admission, transfer students should:

- Complete the online application at wmich.edu/apply and pay the \$40 non-refundable application fee;

- Request that each college attended send an official transcript directly to the Office of Admissions at WMU. Transcripts delivered by the student in a college-issued, sealed envelope may also be accepted as official provided they are received within 90 days of the print date. Transcripts sent by the student cannot be accepted as official. Failure to report all colleges attended is considered a fraudulent application and may subject an admitted applicant to dismissal, in addition to disqualifying the applicant from receiving transfer credit for work at schools not reported. Applicants currently enrolled at another institution should have a partial transcript sent to WMU. A final transcript showing acceptable grades must be received within the first term of enrollment at WMU; and,
- If less than 24 credit hours (39 quarter/term hours) have been completed at the time of application, applicants must also submit an official high school transcript unless two years have elapsed between high school graduation and the requested WMU entry date. Students with fewer than 24 hours have the option to submit an ACT or SAT test score if the applicant believes it will make their application stronger. Please see the Test Score Policy section below for more information. Students who complete a high school equivalency such as GED must submit official scores.

When to Apply

Applicants are strongly advised to submit all materials (application, fee, transcripts) at least six months prior to their desired entry term. Applications and materials received after the below deadlines may be changed to a subsequent term.

Fall: August 15
 Spring: January 1
 Summer I: May 1
 Summer II: June 15

Test Score Policy

In response to the COVID-19 pandemic, Western Michigan University has adopted a test-optional admission policy for students applying for any 2021 entry term. Test-optional means that students have the choice to submit an ACT or SAT if they believe it make their admission application stronger. Visit the Office of Admissions website (wmich.edu/admissions) for details.

In the interest of promoting college access and providing admission decisions in a timely fashion, WMU uses self-reported test scores for the initial admission decision and scholarship awarding process.

Superscoring

When considering applicants who take either the ACT or SAT test more than once, Western Michigan University will use the highest subscores from any test date to superscore the total (SAT) or composite (ACT) score. That score is what will be used for admission and scholarship consideration. Only scores from the same test type will be used - subscores cannot be mixed between the ACT and SAT. Superscoring will be calculated by:

- ACT: Average of the highest section score on English, Math, Reading, and Science
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Official Test Scores:

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Students may request official test scores from the appropriate testing agency:

- ACT: Use WMU school code 2066
- SAT (College Board): Use WMU school code 1902

WMU will not accept emailed or faxed test score reports, or any score report from a student or family. Discrepancies between self-reported and official scores may result in admission to WMU being revoked.

Notification of Status

The University notifies transfers of their admission status on a rolling basis. When all materials are on file and the Admissions Committee acts, students receive notification. The decision may be to admit, to hold a decision for work in progress at another institution, or to suggest a student complete more and/or better work before being admitted.

Admission of students attending another institution is provisional, dependent upon successful completion of the work in progress.

Credit Evaluation

Students Transferring to WMU

Students admitted to WMU will receive an evaluation of their previous college work, showing courses transferred with WMU equivalencies. Course equivalencies for Michigan's public community colleges and other institutions are available at wmich.edu/transfer/credit. Transferable courses completed at another college will be accepted for credit only, and only courses in which a "C" (or 2.00) or better was earned (as determined by WMU) will be eligible for transfer. Grades earned in those classes will be used only to determine admissibility to the University; they will not be recorded on the WMU transcript.

During the COVID-19 pandemic, high schools, colleges, and universities moved to online instruction and implemented a credit/no-credit or pass/fail grading system. For courses taken during this period of time, WMU will award transferrable credit for these courses provided:

- The student earned a "pass" or "credit" grade.
- The college or university indicates that students who earned a "pass" or "credit" grade is the equivalent of a "C" letter grade (2.00) or better.

Credit earned by examination transfers in some cases to the University. Students who have taken AP, IB, or CLEP examinations should have official score reports sent to the Office of Admissions. Credit is awarded based on exam scores and more information can be found at wmich.edu/transfer/credit.

Western Michigan University typically only accepts credit from institutions of higher education that are accredited by a regional accrediting agency, such as the Higher Learning Commission (HLC) or the Southern Association of Colleges and Schools (SACS). Credits completed at an institution that is accredited by some other national or specialized program accreditor may only be accepted upon review and approval by faculty from the appropriate department(s) or areas of study. In order to accept the credit, the approving department or program must outline the exact credits that will transfer for specific courses, or as a block, in a Memorandum of Understanding with the sending institution, and transcribed by WMU prior to the student beginning classes at WMU. WMU is responsible for all credit it transcribes, whether earned on campus or transferred from another institution. Per HLC policy, by transcribing transferred credit, WMU attests to the relevancy, quality, and rigor of the coursework completed at the other institution.

College credit from foreign institutions will be evaluated by the Haenicke Institute's International Admissions Services Office and transfer credit is awarded on a course-by-course basis depending on the result.

WMU Students Transferring Credit Back to WMU

All regulations and procedures concerning transfer of credit for new students also apply to WMU students who take work at other institutions to transfer back to WMU. Before enrolling at another institution, WMU students should discuss course selection with their WMU academic advisor to ensure transferability.

Advising/Registration

All admitted transfer students should make arrangements for an advising session with an appropriate WMU college advisor as soon as they have their admission materials and credit evaluation. All new transfer students receive a Transfer Advising Hold on their account until they have met with an advisor. During the advising session, students will learn how transferred courses apply to their WMU major and will select courses for registration. Registration may be completed after the advising session once the advising office removes the hold. Transfer students should meet with their advisor and register during the registration periods available to current WMU students and should not wait until just before the beginning of classes.

Orientation

For students starting at WMU in the fall or spring semester, a one-day Transfer Transition Program will cover vital information about campus facilities, academic expectations, University services, and student activities. Information about this program will be sent to students after admission.

Admission Procedures for International Students

The International Admissions and Services (IAS) at the Haenicke Institute for Global Affairs handles the CELCIS Pathway, undergraduate and graduate applications for admission. In addition, the IAS conducts international student orientation programs for new students, coordinates international student activities, issues immigration documents, provides immigration advice, enforces immigration compliance of students and scholars, authorizes international travels of students, and serves as a liaison between students and their financial sponsors and between students and their academic program offices.

International students interested in seeking admission to Western Michigan University should apply online at wmich.edu/internationaladmissions.

To qualify for admission, international students must show evidence of their English language proficiency, and that they are academically and financially capable of successfully completing their studies on a full-time basis. Before an international student can be fully admitted and a Certificate of Eligibility for a visa is issued, the student must:

- Complete an online application at wmich.edu/internationaladmissions/apply.
- Provide complete and official transcripts of secondary, undergraduate, and post-graduate studies (if completed) as well as copies of diplomas, certificates or degrees earned. These must be translated into English and list course titles and grades (marks) received for each. Upload scanned copies for admission purposes and follow up with official copies of the documents sent directly from the school(s) to International Admissions and Services, Western Michigan University, 1903 W Michigan Avenue, Kalamazoo, Michigan 49008-5246 U.S.A.
- Provide proof of adequate funding per academic year. This funding amount includes tuition and fees, room and board, books, and health insurance. Personal/family savings must be verified by a bank statement. If sponsored by a government, or other agency, an official letter must be submitted showing that the scholarship is valid for use at WMU, and indicating beginning and ending dates of validity. Complete costs for undergraduate students may be viewed at wmich.edu/internationaladmissions/apply/undergraduates#costs.
- Provide a copy of passport I.D. page.
- Provide proof of English proficiency. Students who have completed their studies in an English-speaking country are exempt from taking the test. Following is the list of countries that WMU considers as English speaking: wmich.edu/internationaladmissions/proficiency.

The following tests and scores are accepted at Western Michigan University as measures of English proficiency:

- **Test of English as a Foreign Language (TOEFL)** A minimum score of 71 iBT is required.
- **Michigan English Test (MET)** A minimum score of 48 is required.
- **General Certificate of Education O-Level Pass** in English with grade of A, B, or C from one of the five British-based examining boards.
- **International English Language Testing System (IELTS) Academic Module.** A minimum score of 6.0 is required.
- **International Baccalaureate (IB)** A grade of 5 in English at the Higher Level.
- **Successful completion of ELS Level 112** from one of the ELS Language Centers.
- **Pearson Test of English Academic Module.** A minimum score of 45 is required.
- **DUOLINGO:** 95
- **SAT EBRW:** 500
- **European Framework of Reference for Languages (CEFR):** B2
- **CELCIS:** Successful completion of the advanced plus level and instructor recommendations from CELCIS, Western Michigan University's ESL program. A prospective student may enroll in CELCIS until achieving the required TOEFL score for academic enrollment or completion of the advanced plus level with instructor recommendations.

Applications for admission from applicants classified as international students (wmich.edu/apply/international) must be submitted no later than June 15 for the Fall Semester, October 15 for the Spring Semester, and March 15 for the Summer I Session.

TUBERCULOSIS TESTING

International students coming from high risk countries as identified by the World Health Organization are required to complete TB testing at the Sindecuse Health Center. Please check for details and to find out if your country is included in the list at: wmich.edu/healthcenter/clinic/services/tb.

INTERNATIONAL STUDENTS ARE REQUIRED TO HAVE HOSPITAL, MEDICAL AND SURGICAL HEALTH INSURANCE

All international students are required to carry health insurance. There is no University-sponsored program. International students must show proof of coverage including effective dates and a copy of the insurance card, front and back within the first week of their classes. WMU health insurance requirements and insurance recommendations can be found at: wmich.edu/internationaladmissions/insurance. The insurance coordinator is available to assist students via email at ias-insurance@wmich.edu.

Nontraditional Admission Programs

Non-degree Admission

Students who do not seek a degree and only wish to take classes should request this admission status. Students who have been enrolled in any academic institution within the preceding five years must meet the same admission requirements and follow the same admission procedures as degree-seeking students. **Acceptance for non-degree status does not constitute degree admission to WMU.** If a non-degree admitted student subsequently decides to apply to a specific WMU degree program, the applicant will be expected to meet all University and program-specific admission requirements. The time period for any "Non-degree Admission" status may not exceed four years from the time such admission status is granted. Applicants for non-degree admission:

- Should complete a regular application for admission and indicate non-degree status for program choice;
- May register for any course for which the prerequisites and/or course restrictions have been met; and
- May enroll in subsequent terms for up to four years in non-degree status, providing they meet University probation and dismissal standards (see Academic Standards in the Registration, Records, and Regulations section of this catalog).

Certain University courses and financial aid may not be available to non-degree students.

Non-degree Undergraduate Certificate Program

Admission to an undergraduate certificate program is typically for students who are **not** seeking an undergraduate degree. Hence, applicants will obtain "Non-degree Admission." Students seeking non-degree status who have been enrolled in any academic institution within the preceding five years must meet the same admission criteria as degree-seeking students. **Acceptance for non-degree status does not constitute degree admission to WMU.** If a non-degree admitted student subsequently decides to apply to a specific WMU undergraduate degree program, the applicant will be expected to meet all University and program-specific admission requirements. The time period for any "Non-degree Admission" status may not exceed six years from the time such admission status is granted. Applicants for non-degree admission should:

- Complete an Application for Undergraduate Admission along with a non-refundable application fee of \$40;
- Request that each academic institution attended within the preceding five years send an official transcript to the Office of Admissions;
- Register for any course for which the prerequisites and/or course restrictions have been met; and,

- Enroll in subsequent terms for up to six years in non-degree status, providing they meet University probation and dismissal standards.
- Be a high school graduate or have earned the equivalent degree.

Certain University courses and financial aid may not be available to non-degree students. Courses taken for an undergraduate certificate program may be counted towards a subsequent WMU undergraduate degree program, if approved by the appropriate academic advisor and/or academic program unit.

If the requirements of an undergraduate certificate are embedded within the courses a student has taken to complete a degree program, a student must apply for the certificate at the time of graduation from the bachelor's degree. In the case where a student completes some of the requirements of an undergraduate certificate upon graduation, the student may return at a later date (in accordance with current University Policy), complete the requirements for the certificate and be awarded the certificate.

Individual certificate programs may allow transfer credits for no more than half the program.

Guest Students

Students who are currently in attendance and in good academic standing (at least a 2.00 grade point average) at another college or university may apply to Western Michigan University to take classes as a guest student. Guests should work with their home institution in advance to determine the appropriate classes to be taken at WMU. Guest admission does not constitute degree admission to WMU. Students seeking Guest status should use the guest application available from the Office of Admissions website: wmich.edu/apply.

High School Dual Enrollees

Students who wish to take courses at the University while still in high school should submit a High School Dual Enrollment application (available from the Office of Admissions website). The application requires approval from a high school official and a parent/guardian. Eligibility requirements are:

Ninth-Eleventh grade with an overall grade point average of at least 3.00, or senior with an overall grade point average of at least a 2.75.

Admission as a high school dual enrollment student does not constitute admission as a degree seeking student. Students who wish to continue their studies at WMU and apply for degree admission must follow the first-year application process and meet regular admission standards.

Project Scope (Senior Citizens' Opportunity Program in Education)

The following are the key features of the Senior Citizen's Opportunity in Education Program:

- Senior citizens (persons 62 years of age or older) may qualify.
- Enrollees may register in one regularly scheduled class, tuition free, each semester or session on a seat-available basis during the drop/add period (in the Office of the Registrar). The late registration fee is waived.
- Enrollees may not register for credit.
- Only academic facilities necessary for the performance in class are accessible to SCOPE participants. SCOPE enrollees do not have access to normal services available to regular students such as the Sindecuse Health Center, Student Recreation Center, student discounts, etc. Special identification cards are issued to SCOPE participants.
- The admission application fee is waived because regular, degree-seeking admission is not extended to enrollees.
- Special course fees for materials, trips, etc. are assessed.
- Specific courses may not be available to SCOPE students due to space availability.

In the event the account is referred to a collection agency, the student will be responsible for any collection costs, collection fees, and collection charges and/or legal fees incurred in collecting the account balance (in addition to the fees assessed per #6 above).

Questions concerning current fee schedules should be directed to the Office of the Director of Accounting Services.

The University reserves the right to withdraw, revoke, and/or cancel an admission decision for any reason, and at any time, it deems warranted. This right shall also apply in instances when the University acquires information about an applicant or student after an admission decision is made.

Admission to Western Michigan University is non-discriminatory.

Accelerated Graduate Degree Program

Three year bachelor programs and five year bachelor-to-masters programs give students the opportunity to accelerate their time to degree as well as the opportunity to get ahead in their careers. Contact college advising offices for more information.

Tuition and Fees

Tuition

For the current tuition and fee rates, go to wmich.edu/registrar/tuition. These rates are subject to change without notice by action of the Board of Trustees.

Residency Policy of Western Michigan University

The governing board at each university in Michigan has the authority to establish a residency policy for admissions and/or tuition and fee purposes. Therefore, residency policies will vary between institutions and are independent of those used by the State to determine residency for purposes such as income and property tax liability, driving and voting.

Any Western Michigan University undergraduate student who has been admitted as a degree seeking student and began enrollment as of the Spring 2017 semester or earlier, may apply for in-state resident status for any semester/session in which they are enrolled in on-campus courses by completing a residency application in accordance with University procedure. Graduate students may apply for in-state resident status for any semester/session in which they are enrolled in on-campus courses by completing a residency application in accordance with university procedure.

Any Western Michigan University undergraduate student who has been admitted as a degree seeking student and began enrollment effective with the Summer 1 2017 semester or later, will have their residency status determined at the time of admission and it will remain the same throughout the student's enrollment at Western Michigan University.

Since a student normally comes to Western Michigan University for the primary purpose of attending the University rather than to establish a domicile in Michigan, one who enrolls in the University as a non-resident shall continue to be deemed a non-resident, unless and until the student demonstrates that his/her previous domicile has been abandoned and a Michigan domicile established.

Domicile is defined as the place where an individual's true, fixed and permanent home and principle establishment is and to which the individual returns whenever absent from the University. Twelve consecutive months of physical presence immediately preceding the first day of classes is a strong indicator of domicile.

A. Residence of Student

A student may be considered domiciled in Michigan if the student is in continuous physical presence in this state for one year (12 consecutive months) immediately preceding the first day of classes of the term for which resident status is sought and intends to make Michigan his/her permanent home and has no domicile elsewhere. The year of continuous presence is never the only criterion used for determining in-state residency status and, by itself, will not qualify a student for residency status for tuition paying purposes at Western.

B. Residence of Parents

The domicile of a dependent student is presumed to be the same as that of the student's parents. Regardless of whether the parent is the student's custodial parent, a dependent student with one or both parents domiciled in Michigan, according to Western's Residency Policy, is presumed to be eligible for resident status as long as the student has not taken steps to establish a domicile outside of Michigan or any other action inconsistent with maintaining a domicile in Michigan.

The domicile of a dependent student's legal guardian(s) has the same evidentiary effect as that of a dependent student's parent(s), and references to parents in this policy shall include legal guardians, only when the student is the dependent of the legal guardian, and such guardianship has been established due to complete incapacity or death of the student's natural parent(s). A parent's inability to provide funds necessary to support a college education does not qualify as complete incapacity.

A dependent student who is living in Michigan and who is, according to Western's Residency Policy, permanently domiciled in Michigan would maintain resident status if the parents leave Michigan provided: (1) the student has completed at least the junior year of high school prior to the parent's departure; (2) the student remains in Michigan, enrolled as a full-time student in high school or an institution of higher education and (3) the student has not taken steps to establish a domicile outside of Michigan or any other action inconsistent with maintaining a domicile in Michigan.

C. Residence of Spouse

The residence of a student who otherwise would be classified as a non-resident will follow that of his/her spouse if the spouse qualifies as a resident for tuition-paying purposes.

D. Michigan High School Enrollment and Graduation

A Michigan high school graduate who completes his/her senior year at a Michigan high school, remains physically present in Michigan immediately following high school graduation to the first day of classes of the term in which the student is enrolled in on-campus courses, and provides the required State of Michigan tax documents of parent(s) or guardian(s) (for dependent student) or student (if independent) qualifies as a resident student for tuition and fee purposes at Western.

E. In-state Tuition for Military and Dependents

Western Michigan University will grant in-state tuition to all individuals who are eligible for VA educational benefits.

Western Michigan University will also grant in-state tuition to all individuals who are not eligible for VA educational benefits but have honorably served or are serving in the Reserve or Active Components of the U.S. Armed Forces.

Western Michigan University will additionally grant in-state tuition to dependents of those individuals who have honorably served or are serving in the Reserve or Active Components of the U.S. Armed Forces, but would otherwise not be eligible for VA educational benefits. For this purpose, a child is a dependent as defined by IRS income tax regulations. This term also includes a spouse, widow or widower of a service member or veteran who has honorably served.

F. Individuals Holding Visas

International students attending on a student visa of F1, J1, or M1 and H (work) visas are in Michigan on a temporary basis. By definition, these students are not able to establish a permanent domicile in Michigan and should not apply for Michigan resident tuition unless they qualify for residency under another provision of this policy such as residence of spouse.

Persons entitled to reside permanently in the United States may be eligible to obtain resident status. These individuals must still prove that they have established a Michigan domicile as defined in this policy. Currently, individuals will qualify under this classification only if they hold and can provide one of the following: 1) a fully processed Permanent Resident Alien Card or passport stamp verifying final approval by the filing deadline established for the applicable term 2) an I-94 card with "Refugee" designation; or 3) an A, E (primary), G or I visa.

G. Migrant Worker (Seasonal/Agricultural Employment)

If an independent student, or the parent of a dependent student, has been employed as a migrant worker in Michigan for a minimum of two (2) months each year for three (3) of the five (5) years prior to the date of the proposed in-state classification or for a minimum of three (3) months each year for two (2) of the five (5) years prior to the date of the proposed in-state classification, the student shall be classified as resident. Proof and verification of employment is required. A migrant worker in Michigan is defined as one who travels to Michigan to pursue agricultural or related industry employment.

H. In-State Tuition Rates Required by Law

Western Michigan University will comply with all state and federal laws that require a student to be classified as a Michigan resident for the purpose of tuition and fees.

I. Misrepresentation and Falsification of Information

Students who provide false or misleading information or who intentionally omit relevant information on their admissions application or the residency application or any other document relevant to residency eligibility may be subject to disciplinary and/or legal measures. Decisions made based upon misrepresented or falsified information may be revoked.

J. Appeal Process

Any student may appeal the decision on their residency application by following the prescribed appeal process. Failure to comply with the procedure shall constitute a waiver of all claims to reclassification or rebates for the applicable semester/session. The student will receive a written response on the appeal request. The decision on the residency appeal shall be the final recourse within the University.

K. Required Documentation

A student must provide the following documentation when applying for residency.

- A copy of their valid Michigan driver's license **and** a copy of the Michigan driver's license of the person(s) upon whom the applicant is basing the claim to resident eligibility.
- Verification of U.S. citizenship or of visa status if the applicant was born outside of the United States. This verification may be based upon information already provided by the student to the University through the admission process.
- Any other documentation requested by the University that is deemed necessary to support the applicant's claim to residency eligibility.

When applicable, applicants claiming in-state residency will be asked to provide documentation verifying the 12-month consecutive domicile requirement of Western's policy. Types of documentation that may be requested include proof of employment, proof of Michigan personal income taxes being withheld, copies of recent Michigan and federal tax returns and W2 or 1099 forms, and enrollment verification at a Michigan school, if applicable. Additional documentation may also be requested. The application procedure for residency specifies additional detail on the nature of documentation that is required. In addition, the documentation provided must apply to the person(s) upon whom the applicant is basing the claim to resident eligibility.

L. Initial Residency Classification

A student enrolling at Western for the first time shall be classified as a resident or non-resident for tuition paying purposes. The student is responsible for reading the Residency Policy and to register under the proper residency classification. Admissions reviews the residency classification at the time of application. If an application does not denote residency status, a status of non-resident will be assigned. If an applicant indicates Michigan residency on the admissions application and Admissions questions this status then the applicant will be classified as a non-resident. Additionally, if an applicant previously attended Western as a non-resident and reapplies for admission, he/she will be classified as a non-resident at the time of readmission. Questions raised regarding a student's Michigan residency do not necessarily mean that the student will be ineligible for in-state residency. It simply means that the student's circumstances must be documented by completing an application for a change in residency status.

M. Establishing a Michigan Domicile

The circumstances and activities described in sections A through H above may demonstrate Michigan domicile, though not conclusive or exhaustive, they may lend support to a claim of eligibility for resident status.

The following circumstances, standing alone, shall not constitute sufficient evidence of domicile to effect classification of a student as a resident under these regulations; however, they do provide some supporting evidence.

- A Michigan's driver license
- Enrollment in a Michigan educational institution
- Michigan employment
- Payment of Michigan income or property taxes
- Ownership of property in Michigan
- 12-month lease in Michigan

- Presence of relative(s) in Michigan (other than parent(s) for dependent student)

N. Administration of the Policy

The Office of the Vice President for Business and Finance will administer this policy and is authorized to establish procedures to effectuate and interpret the Residency Policy. The Vice President and Associate Vice President for business and Finance may grant residency status based upon the use of professional judgment in applying this policy.

Residency Application Submission Dates

You **must be registered for on-campus classes** for the semester/session that you are applying for a change in residency status. Your application **must include your WESTERN IDENTIFICATION NUMBER (WIN)**. Applications for residency reclassification for tuition-paying purposes must be received in the Accounts Receivable Office, Western Michigan University, 1903 W. Michigan Avenue, Kalamazoo, MI 49008-5210 according to the schedule below.

Application for:	Earliest Date to Turn in Application:	Deadline Date to Turn in Application:
Spring Semester	December 1	First Day of Classes
Summer I Session	April 1	First Day of Classes
Summer II Session	June 1	First Day of Classes
Fall Semester	August 1	First Day of Classes

Applications are generally processed within a three week time period. Incomplete information and/or lack of required documents could result in immediate denial and/or delay the processing of your application. All official actions concerning the review of your residency application for tuition-paying purposes will be sent to you at your WMU email address.

Additional information on residency policy and regulations are available at wmich.edu/accounts-receivable/students/residency.

(Policy as approved 1/24/2017)

Auditing Courses, Tuition for

Students who audit courses (who register for classes but do not desire credit) are governed by the same regulations and tuition and fees as students desiring credit.

Drop, Withdraw and Tuition Refund Policy

Students who reduce their number of credit hours or withdraw from Western Michigan University may be eligible for a refund. The date for refund purposes will be determined based on the date when a course was dropped or withdrawn in GoWMU or the date the Registrar's Offices received a request.

Students dropping a class before census are eligible to receive a 100% refund. There is a 24-hour grace period provided to students who drop a class that meets for the first time on, or after, census. Students who withdraw from all their classes after census may qualify for a 90%, 50% or 25% refund. The percentage is based on dates published in the Academic Calendar.

During fall and spring semesters, student who withdraw from some, but not all, of their classes may qualify for a 50% refund based on the dates published in the Academic Calendar. No refunds are available for partial withdraws after census during summer sessions.

Students who drop or withdraw from any or all classes and are eligible for a refund will receive the refund within 30 days of the drop or withdraw date. Withdrawing from classes may affect current and future financial aid, veteran benefits and academic

standing. Please consult your academic advisor, Financial Aid or VA certifying official before reducing credit hours or withdrawing.

Complete Withdrawal from All Courses, Effect on Tuition

The Registrar's website should be consulted for the refund policy that pertains to complete withdrawal, for a particular semester or session.

Students completely withdrawing from all classes **must** enter this information into GoWMU or by going to the Registrar's office during the official drop/add days in order to process their withdrawal and assure a refund. The withdrawal date for refund purposes will normally be determined by the date that the Registrar receives a withdraw request.

Students who are unable to access the registration system due to a hold on their account can withdraw in the Registrar's Office. If the student is not on campus, they can contact the Registrar's Office at (269) 387-4300 for assistance.

Student Fees Other Than Tuition

Admission Application Fee

A non-refundable fee of \$40 must accompany each application for admission.

Admission Validation Deposit

Entering Students: A \$100 deposit applicable to fall student fees is required for all admitted beginner and transfer students. The deposit must be paid by May 1 for those admitted before that date, and upon admission for those admitted after that date. The deposit is not refundable after May 1. Detailed information is provided on the Certificate of Admission from the Office of Admissions and Orientation.

Class Fees

Some courses have class-specific fees for which the student will be responsible. These fees will be viewable in the course section on the Course Offerings page.

Collection Fees

In addition to the tuition and fees, in the event the account is referred to a collection agency, the student will be responsible for any collection fees, which may be based on a percentage at a maximum of 39% of the debt, and all costs and expenses, including reasonable attorney fees, that WMU incurs in such collection efforts.

Enrollment Fee

For all students registered in on-campus courses, the enrollment fee incorporates all required fees with the exception of the student organizations' assessment fee and the sustainability fee into a single per capita assessment. The enrollment fee for students registered in on-campus classes can be found on wmich.edu/registrar/tuition.

Extended University Programs Fees

Regional Location Courses

A \$20 per course technology fee will be assessed for courses taken at regional sites.

Online Education Courses

A \$60 per credit hour support fee will be charged for all undergraduate students. Graduate students will be charged a \$20 per course technology fee.

Students enrolled in a combination of courses on the main campus and online, who fall in the flat rate credit hour range, may see an adjustment on their account to reflect the flat rate (less the online support fee of \$60/credit hour). The \$20 per course EUP technology fee will not be charged for the undergraduate online courses.

Flight Instruction Fee

Fees for flight instruction courses in the College of Aviation range broadly. For specific course fee information, consult the College of Aviation.

Refund of flight instruction fees will be made in accordance with the policy established by the College of Aviation. For specific course fee information, consult the College of Aviation.

International Student Fee

Undergraduate international students enrolled Summer I 2017 and later will be assessed \$750 for each fall and spring semester. Undergraduate international students enrolled Spring 2017 or earlier will be assessed a \$25 fee for each fall and spring semester.

Undergraduate international students enrolled Summer 1 2017 and later will be assessed a \$374 fee for each summer session. Undergraduate international students enrolled Spring 2017 or earlier will be assessed a \$12.50 fee for each summer session.

Graduate international students will be assessed a \$25.00 fee each fall and spring semester.

Graduate international students will be assessed a \$12.50 fee each summer session.

Late Add Fee

Students who are not registered for at least one class the day after census will be charged a late fee of \$100 per course. For the specific dates that this fee begins see wmich.edu/registrar.

Lee Honors College Program Fee

Lee Honors College students are assessed a program fee of \$100.00 per semester during the fall and spring semesters. This fee enables the Lee Honors College to offer additional honors-style courses, reduce the number of large classroom courses, and to attract the highest quality instructors.

Liability Insurance Fee

Students enrolled in courses requiring participation off-campus for field experience or practicums will be charged a liability insurance fee. This fee will be assessed each semester/session. Students registered in classes that require more than one type of liability insurance will be charged for each type one time.

Student Assessment Fee

A student assessment fee (SAF) of \$42.00 per semester (Fall and Spring) and \$21.00 per session (Summer I and Summer II) will be collected from all undergraduate and graduate students at the time of registration. This assessment is for the support of student organizations and agencies. The student organizations and agencies use this money to enhance the out of classroom experience on campus.

Sustainability Fee

In 2010 the Western Student Association (WSA) voted in favor of introducing a sustainability fund fee of \$8.00 per semester and \$4.00 per summer session. The funds are to be used to enrich course offerings, create student green jobs, support a Sustainability Office, support student-driven initiatives, and provide research grants, fellowships, scholarships, and awards for students. A student-majority committee will work in consultation with the President's University-wide Sustainability Office and the Vice President for Student Affairs to determine the appropriate allocation process.

Transcript

Complete information on how to obtain a Western Michigan University transcript and transcript fees can be found at wmich.edu/registrar.

Residence Hall and Dining Fees

For current rates, go to wmich.edu/housing.

These fees and rates are subject to change without notice by action of the Board of Trustees. The Board of Trustees reviews annually the room and dining rates and may increase the rates if, in its opinion, such an increase is necessary.

Newly admitted undergraduate students are automatically sent information about residence hall offerings for the semester they anticipate coming to the University. Individuals returning to the University as re-entries, and newly admitted graduate students, will receive information by return mail upon requesting details from the Manager of Residence Hall Facilities, Student Services Building. Residence hall accommodations are not automatically made as a result of admission to the University.

Student Financial Aid

Financial assistance is available for those who qualify. At Western, we encourage every student to apply for federal financial aid FIRST. Federal financial aid is the best, most cost-efficient way to pay for college. Financial aid comes in several forms. Your aid package may include a grant, which is "free money" you don't have to repay. It can also include Federal Work-study and federal student loans. Federal student loans offer the lowest interest rates and allow you to defer repayment. Your parents can also help with expenses by applying for a Federal Parent PLUS Loan for Undergraduate Students. This loan is another type of financial aid. Other types of financial aid may come from private sources.

The information in this section is based on the 2019-20 award year criteria. Should federal, state, or university regulations and procedures change, Student Financial Aid will administer programs according to updated regulations.

We are dedicated to meeting the needs of our diverse and talented campus community by providing excellent customer service in an accurate and timely manner through the use of advanced technology and a knowledgeable staff. To view the most current information about opportunities and application procedures, visit the Student Financial Aid website at wmich.edu/finaid. If you have questions, you may visit Bronco Express in the lower level of the Bernhard Center, email finaid-info@wmich.edu or call (269) 387-6000.

Types of Financial Aid

Grants

These financial aid programs provide free assistance to eligible undergraduate students.

Federal Pell Grant - Provides grants up to \$6,195 per academic year to eligible undergraduate students who have not obtained a bachelor's degree.

Federal Supplemental Educational Opportunity Grant (SEOG) - A federal grant with limited funding and is not repaid. Provides grants to eligible, undergraduate students who have not obtained a bachelor's degree. Funds are limited and the amount may vary.

WMU Grant - Based on financial need and provides grants up to \$2,000 per academic year to eligible, undergraduate students.

Teacher Education Assistance for College and Higher Education (TEACH) - Provides federally funded grants of \$3,764 per academic year (\$16,000 total for undergraduate programs) to full-time juniors and seniors who are enrolled in TEACH-eligible programs. In exchange for receiving a TEACH grant, students must agree to serve as a full-time teacher in a high-need field in a public or private elementary or secondary school that serves low-income students. As a recipient of a TEACH grant, students must teach for at least four academic years within eight calendar years of completing the program of study for which they received a TEACH grant. If students fail to complete the service obligation, all funds received from TEACH grants will be converted to a Federal Direct Unsubsidized Loan. Students must then repay this loan to the U.S. Department of Education. Students will be charged interest from the date the grants were disbursed.

Scholarships

Medallion Scholarships - The full Medallion Scholarship can be used toward graduate studies at WMU. For more details, visit wmich.edu/medallion.

New Student Scholarships - Offered at the time of admission. All students are considered for these offers when they are admitted. Scholarships are based on full-time enrollment and are offered for fall and spring semesters. For information and questions regarding these scholarships, please contact the Office of Admissions at (269) 387-2000, or visit wmich.edu/admissions/scholarships.

Transfer Scholarships - There are a variety of scholarship opportunities available to students who are transferring to WMU. For complete and up-to-date details, visit wmich.edu/transfer/cost.

WMU Scholarships for Currently Enrolled Students - For complete and up-to-date information about scholarship opportunities, please visit wmich.edu/admissions/scholarships.

Federal Work-Study

Federal Work-study is a need-based financial aid program funded by the Federal Government and Western Michigan University. It is offered to eligible students who are enrolled at least half-time during the period of their employment. Unlike grants and scholarships, Federal Work-study offers are earned and paid through the payroll process in the form of a bi-weekly paycheck. Federal Work-study offers and amounts are subject to eligibility requirements and fund availability. Early application is very important. For more information, visit the Federal Work-study website at wmich.edu/finaid/workstudy.

Loans

These financial aid programs are designed to assist students, allowing them to borrow at a lower interest rate with opportunities to defer principal payments and possibly interest payments until after enrollments ends. Federal interest rates are subject to change and were current as of the time of publication.

Federal Direct Subsidized (FDS) Loan - Allows undergraduate students with financial need to borrow funds on an annual basis with a fixed interest rate of 4.53 percent. The annual amount is dependent upon cost of attendance, expected family contribution, grade level, and other resources received. Payments are deferred as long as a student is enrolled at least half-time. Borrowers pay an origination fee of 1.059 percent that is deducted from each disbursement. Repayment of the loan plus interest begins six months after the student ceases to be enrolled at least half-time.

Federal Direct Unsubsidized (FDU) Loan - Allows undergraduate and graduate students to borrow funds on an annual basis with a fixed interest rate of 4.53 percent. The annual amount is dependent upon cost of attendance, grade level, and other resources received. Interest accrues while the student is enrolled in school and the student has the option of paying the interest payments or letting the interest payments be added to the loan amount. Loan principal payments are deferred as long as a student is enrolled at least half-time. Borrowers pay an origination fee of 1.059 percent that is deducted from each disbursement. Repayment of the loan plus interest begins six months after the student ceases to be enrolled at least half-time.

Federal Direct Parent PLUS Loan - Not based on need and allows parents of dependent students to borrow funds on an annual basis with a fixed interest rate of 7.08 percent. The annual amount is dependent upon cost of attendance and other resources received. Repayment of interest and principal payments are due within 60 days of the last disbursement of the loan. Deferment options are available by contacting the Direct Loan servicer. Borrowers pay an origination fee of 4.236 percent that is deducted from each disbursement. Borrowers must pass a credit check. Dependent students whose parents have been denied a PLUS Loan due to an adverse credit history may borrow additional FDU Loan funds.

Private Alternative Loans - Available through a variety of private loan programs. These loans supplement financial aid. Each program will vary. For more information about how to choose a private loan lender, visit wmich.edu/finaid/loans/private.

Procedures

Applying for Financial Aid

To receive any federal aid, most state aid, and WMU need-based grants, you will need to complete the Free Application of Federal Student Aid (FAFSA) which can be found online at studentaid.gov. Remember, you MUST reapply each year to receive aid. Some aid programs have limited funding, so be sure to apply early. You can apply for the upcoming year beginning Oct. 1. The FAFSA-filing deadline to qualify for Michigan state aid is March 1. When completing FAFSA, please enter school code 002330 when prompted to make sure we receive your information. Some scholarships require a FAFSA to be completed by

March 1. Other types of aid are offered until funds are exhausted, so apply as early as possible. Returning students should file a renewal FAFSA each year as well.

The FAFSA gathers income, asset and other information from the parents and students. This information is used to establish the student's Expected Family Contribution (EFC). The EFC determines a student's need-based eligibility versus the cost of attendance (COA). The COA is based on tuition, fees, books, supplies, housing, food, transportation and personal expenses. Financial aid may be offered up to the cost of attendance. The amount of need-based aid may be affected by other financial aid resources. The cost of attendance, net price calculator and a personal budget worksheet can be found on our website wmich.edu/finaid/costs.

Along with the FAFSA, other documents and processes may be required before an offer notice or payment is processed. Notification of these additional requirements will be emailed to the students through their WMU email address. Students may also check on the status of their financial aid online through GoWMU at any time.

Offer Process

Student Financial Aid automatically considers applicants for all types of federal, state, and institutional grants, Federal Work-study, and loans. Any scholarships, stipends, or other resources will be assessed first before offering need-based financial aid. Additional eligibility factors will be considered in determining the type and amount of aid in the offer package.

In general the eligibility factors that are reviewed are citizenship, residency, class and grade level, enrollment hours, semesters of enrollment, degree status, default status, academic merit and satisfactory academic standing.

Most financial aid programs require a minimum enrollment equivalent of half time. Offers are initially based on full time enrollment; however, payments to the student's account will be based on actual enrollment.

Any additional resources, changes to funding or regulations may affect student's financial aid offers. If the information received affects student's financial aid offers, a revised offer letter will be emailed to the student's WMU email address.

Payment Process

Disbursement of financial aid payments to a student's WMU account begin as early as 10 days before the beginning of the semester assuming all requirements have been met. Payments are disbursed based upon program eligibility requirements and enrollment. Payments will be applied to tuition, fees, housing, food and other authorized charges. Any excess funds remaining will be refunded to students (or parents if requested for the Federal Parent PLUS Loan) via direct deposit or a mailed check. For complete details on the refund policy and procedures, please visit wmich.edu/accounts-receivable/refunds.

Maintenance Requirements

In accordance with federal and state regulations, Student Financial Aid must monitor academic progress toward graduation. Standards of satisfactory academic progress are applied to all students who wish to establish or maintain financial aid eligibility at Western Michigan University, regardless of whether or not they have received financial aid funds in the past. SAP is monitored semester by semester. Students must:

- Complete at least 67 percent of attempted hours at WMU.
- Maintain a minimum 2.00 cumulative grade point average by the end of the second academic year as an undergraduate.
- Complete all degree requirements (this includes credit hours transferred to WMU) within 150% of the minimum numbers of credits to graduate (i.e. $122 \text{ minimum} \times 150\% = 183 \text{ credits}$).

The standards are established to encourage students to progress toward their educational objective and complete their degree within a reasonable time frame and with the least amount of loan debt. If the standards are not met, students are not eligible for most types of financial aid. Students who lose financial aid eligibility and who have experienced unusual circumstances may submit a written appeal with the documentation to Student Financial Aid to be considered by an appeal committee.

Withdrawing or Dropping from Courses

Financial aid recipients considering a partial or complete withdrawal should discuss their plans with a Financial Services Specialist first. Make an appointment by calling Bronco Express, (269) 387-6000.

Financial aid recipients who drop some classes during the drop/add period (or indicate having never attended some classes) may lose some or all financial aid eligibility. Financial aid recipients who drop all classes prior to the start of the semester (or having never attended any classes) are no longer eligible for financial aid for that semester. All scholarships, grants, loan payments and refunds of financial aid must be returned to Western Michigan University.

A federal financial aid recipient who completely withdraws from all classes after the beginning of the semester will have the amount of federal aid earned up to that point determined by a specific formula. If more federal aid was received than earned, the excess must be returned. The amount of federal aid earned is determined on a pro-rata basis. For example, if 30 percent of the semester is completed, 30 percent of the federal aid is earned. Once a student has completed more than 60 percent of the semester, all of the federal aid is earned.

Admittance Status

Students must be admitted to a degree-seeking program or an eligible certificate program to receive most types of financial aid. Students who are admitted to WMU in a non-degree program are not eligible for federal or state financial aid programs but may be eligible for other types of financial aid such as alternative loans.

Eligibility

A student who wants financial aid must meet certain eligibility requirements. The student must be a regular admitted, degree-seeking student enrolled in courses at WMU. Once the student has completed degree requirements, he is no longer eligible for aid. Guest students are not eligible. Certificate programs are not eligible, except for the Specialty Program in Alcohol and Drug Abuse. Students who are completing hours for professional teacher certification are eligible for undergraduate loans.

International Students

International students are not eligible for federal or state aid. There may be scholarships or grants available through WMU departments. International students may also be eligible for an alternative loan if a U.S. citizen that is credit-worthy is willing to co-sign the loan.

Consumer Information

As a consumer, students have the right to certain disclosures and information per federal regulations. Students may view a list of rights and responsibilities, as well as other consumer disclosures related to financial aid on our website at wmich.edu/finaid/resources/consumerinfo.

A request for printed information may be submitted in writing to:

WMU Student Financial Aid
1903 W. Michigan Avenue
Kalamazoo, MI 49008-5337

Degrees

The Board of Trustees, on recommendation of the Faculty and President of Western Michigan University, confers the following degrees:

Baccalaureate Degrees

Bachelor of Arts
Bachelor of Business Administration
Bachelor of Fine Arts
Bachelor of Music
Bachelor of Musical Arts
Bachelor of Science
Bachelor of Science in Engineering
Bachelor of Science in Nursing
Bachelor of Social Work

Graduate Degrees

Master of Arts
Master of Business Administration
Master of International Development Administration
Master of Fine Arts
Master of Music
Master of Public Administration
Master of Public Health
Master of Science
Master of Science in Accountancy
Master of Science in Engineering
Master of Science in Medicine
Master of Science in Nursing
Master of Social Work
Specialist in Education
Doctor of Audiology
Doctor of Education
Doctor of Occupational Therapy
Doctor of Philosophy
Doctor of Physical Therapy

Undergraduate Majors

Majors by College

College of Arts and Sciences:

Students selecting a communication or psychology program will be placed in the "Pre-Communication" (CMUP) or "Pre-Psychology" (PRPP) program respectively until requirements have been met. See the Department of Communication or Department of Psychology section for complete information on admission requirements.

AASJ American and African Studies

ANTJ	Anthropology
MAAJ	Applied Mathematics
BCHJ	Biochemistry
BYLJ	Biology
BMLJ	Biomedical Sciences
BUCJ	Business-Oriented Chemistry
CHLJ	Chemistry
CHCJ	Chemistry: ACS Certified
CMUJ	Communication Studies
CRPJ	Community & Regional Planning
CJSJ	Criminal Justice Studies
DSCJ	Data Science
DMJJ	Digital Media and Journalism
ERLJ	Earth Science
ECLJ	Economics
ECNJ	Economics: BS Program
ENLJ	English
ENCJ	English: Creative Writing
RWSJ	English: Rhetoric and Writing Studies
ESSJ	Environmental and Sustainability Studies
FVMJ	Film, Video, and Media Studies
FHLJ	French
FSSJ	Freshwater Science and Sustainability
GNWJ	Gender & Women's Studies
GCMJ	Geochemistry
GGLJ	Geography
GGCJ	Geography: Climate Science
GGEJ	Geography: Environmental Analysis and Resource Management
GGFJ	Geography: Geographic Information Science

GGRJ	Geography: Regional
GGBJ	Geography: Urban, Regional and Environmental Planning
GELJ	Geology
GEPJ	Geophysics
GRLJ	German
GBLJ	Global and International Studies
HYLJ	History
HYGJ	Hydrogeology
IPCJ	Interpersonal Communication
JPNJ	Japanese
LTLJ	Latin
MHLJ	Mathematics
PHIJ	Philosophy
PHPJ	Philosophy: Professional and Applied Ethics
PHLJ	Physics
PSLJ	Political Science
PPPJ	Political Science: American Public Policy
PPIJ	Political Science: International and Comparative Politics
PPLJ	Political Science: Public Law
PSBY	Psychology: Behavioral Science
PSGJ	Psychology: General Psychology
PUHJ	Public History
RELJ	Religion
SOCJ	Sociology
SOPJ	Sociology: Social Psychology
SPLJ	Spanish
STAJ	Statistics
SCOJ	Strategic Communication
SCIJ	Strategic Communication: Diversity and Inclusion

SCLJ	Strategic Communication: Leadership and Teamwork
SCMJ	Strategic Communication: Media and Technology
SCPJ	Strategic Communication: Public Relations
SPMJ	Student Planned Major
SBRJ	Sustainable Brewing
TMLJ	Telecommunications and Information Management
TOUJ	Tourism and Travel

Coordinate Majors: (These are majors to be selected only along with a standard major.)

ESSJ	Environmental and Sustainability Studies
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College of Aviation:

Students selecting the Flight Science major in the College of Aviation will be placed in the "Pre-Flight Science program (PRFL)" until requirements have been met. See the College of Aviation section for complete information on admission requirements.

AFSJ	Aviation Flight Science
AMoj	Aviation Management and Operations
ATOJ	Aviation Technical Operations

Haworth College of Business:

Students selecting the Business Administration program will be placed in the "Pre-Business Administration" (PRBA) program until requirements have been met. See the Haworth College of Business section for complete information on admission requirements.

ACTJ	Accountancy
ADVJ	Advertising and Promotion
BUAJ	Business Analytics
LAWJ	Business Law
CMIJ	Computer Information Systems
DMEJ	Digital Marketing and eCommerce
ECBJ	Economics
ENTJ	Entrepreneurship
FINJ	Finance
FMKJ	Food and Consumer Packaging Goods Marketing
LBSJ	Leadership and Business Strategy

- FNPJ Personal Financial Planning
- HIBJ Health Informatics and Information Management
- HRMJ Human Resource Management
- ISUJ Integrated Supply Management
- MKTJ Marketing
- SBMJ Sales and Business Marketing
- TMBJ Telecommunications and Information Management

College of Education and Human Development:

Students selecting teacher certification programs/majors will be placed in one of the "Pre-Education" programs until requirements have been met. See the College of Education and Human Development section for complete information on admission and program requirements.

Students selecting Occupational Educational Studies will be placed in the "Pre-Occupational Studies" (PROE) major until requirements have been met.

- ATDJ Athletic Training Program
- BYSJ Biology: Secondary Education
- BESJ Business Education
- BEGJ Business Education: Group Major
- CHSJ Chemistry: Secondary Education
- CFDJ Child & Family Development
- ECEJ Early Childhood Professional Education Program
- EHDJ Education and Human Development
- ERSJ Earth Science: Secondary Education
- ISEJ Elementary/Middle School Integrated Science Education
- EMLJ Elementary/Middle School Language Arts
- MHEJ Elementary/Middle School Mathematics
- ESEJ Elementary/Middle School Social Studies
- EPEJ Elementary Professional Education Program
- ENSJ English: Secondary Education
- NDDJ Nutrition and Dietetics
- PXDJ Exercise Science

FSDJ Family Studies

FCSJ Family and Consumer Sciences Teacher Education, (Secondary)

FDDJ Fashion Merchandising and Design: Design and Development

FMEJ Fashion Merchandising and Design: Merchandising

FOSJ Food Service Operations and Sustainability

FHSJ French: Secondary Education

GRSJ German: Secondary Education

HESJ Health Education, School, (Secondary)

HYSJ History: Secondary Education

IDDJ Interior Design

TNSJ Industrial Technology Education, Non-Vocational (Secondary)

TVSJ Industrial Technology, Vocational (Secondary)

LTSJ Latin: Secondary Education

MHSJ Mathematics: Secondary Education

OEUJ Occupational Education Studies

PHEJ Physical and Health Education Teacher Education: K-12

PDEJ Physical Education, Teacher/Coach

PHSJ Physics: Secondary Education

PSSJ Political Science: Secondary Education

RCMJ Recreation: Recreation Management

RCSJ Recreation: Sport Management

ISSJ Secondary Integrated Science Education

SLSJ Social Studies: Secondary Education

SPSJ Spanish: Secondary Education

SELJ Special Education and Elementary Education: Learning Disabilities and Emotional Impairments K-12

WDLJ Workforce Education and Development

YCDJ Youth and Community Development

College of Engineering and Applied Sciences:

Students selecting engineering programs will be placed in a "Pre-Engineering" (PREG) program until requirements have been met. See the College of Engineering and Applied Sciences section for complete information on admission and program requirements.

ASPJ Aerospace Engineering
 CHGJ Chemical Engineering
 CIVJ Civil Engineering
 CEGJ Computer Engineering
 CENJ Construction Engineering
 CSIJ Computer Science
 CYSJ Cybersecurity
 EENJ Electrical Engineering
 EDTJ Engineering Design Technology
 UEMJ Engineering Management Technology
 GPRJ Graphic and Printing Science
 IEEJ Industrial and Entrepreneurial Engineering
 MFTJ Manufacturing Engineering Technology
 MEGJ Mechanical Engineering
 PPRJ Paper Engineering

College of Fine Arts:

Students selecting Graphic Design will be placed in the Art major until requirements have been met. See the Art section for complete information on admission requirements. Students selecting any other Fine Arts major will be placed in a pre-program until requirements have been met. See the departmental section for complete information on admission requirements.

ARTJ Art, B.A. program
 ARFJ Art, B.F.A. program
 AEFJ Art Education
 ARSJ Art Education, Secondary
 AHIJ Art History
 DACJ Dance: B.A. program
 DAFJ Dance: B.F.A. program
 GDFJ Graphic Design: B.F.A. program
 MATJ Multimedia Arts Technology - Music
 MSCJ Music
 MSMJ Music: BMA Degree

MUCJ	Music Composition
MCSJ	Music Education: Choral/General, Secondary
MISJ	Music Education: Instrumental, Secondary
MUJJ	Music Performance: Jazz Studies
MUIJ	Music Performance: Instrumental
MUKJ	Music Performance: Keyboard
MUVJ	Music Performance: Vocal
MUYJ	Music Therapy
MTFJ	Music Theatre Performance
APDJ	Product Design
TACJ	Theatre: Acting
TDTJ	Theatre: Design and Technical Production, B.F.A. program
TSMJ	Theatre: Stage Management, B.F.A. program
TSTJ	Theatre: Theatre Studies

College of Health and Human Services:

Students selecting any Health and Human Services program will be placed in a "Pre-Program" until all requirements have been met [i.e., Pre-Interdisciplinary Health Services (PRIH), Pre-Nursing (PRNG or PRPR), Pre-Occupational Therapy (PROT), Pre-Social Work (PRSW), and Pre-Speech Pathology and Audiology (PRSA)]. See the College of Health and Human Services sections for complete information on admission requirements.

HIHJ	Health Informatics and Information Management
HSSJ	Healthcare Services and Sciences
HAUJ	Healthcare Services and Sciences: Audiology Preparation
HBLJ	Healthcare Services and Sciences: Blindness and Low Vision Studies Preparation
HOTJ	Healthcare Services and Sciences: Occupational Therapy Preparation
HPAJ	Healthcare Services and Sciences: Physician Assistant Preparation
NURJ	Nursing
RNNJ	Nursing: RN Progression Track
PBJH	Public Health
SLHJ	Speech, Language and Hearing Sciences
SWKJ	Social Work

Extended University Programs:

Specific information about the programs listed below may be found in the Extended University Programs section of this catalog.

UNSJ University Studies

Other Curricula:

GST Guest Student

HSG High School Guest

NDU Non-degree, Undergraduate

SCP S.C.O.P.E.

UNV Undecided, University Curriculum

Students not selecting a curriculum will be placed in the Undecided, University Curriculum (UNV) program until a selection can be made. Students are encouraged whenever possible to select a specific curriculum.

Office of Student Transitions

Adrienne Fraaza, Interim Program Manager
Ellsworth Hall
(269) 387-2167

The Office of Student Transitions delivers programs designed to foster a learning environment that involves students academically and socially. Our programs encourage student persistence and retention through graduation from Western Michigan University. The FYE seminar, described below, is the credit portion of the Office of Student Transitions for all students new to the University.

The purpose of the FYE seminar is to develop an intellectually engaged and socially integrated first-year student. This greatly enriches academic and campus life and helps to positively impact university retention. The FYE seminar is available for first-year, first-time students only and has no prerequisites. The FYE seminar is offered fall semester.

FYE 2100 First-Year Experience (2 hours)

The First-Year Experience seminar is designed to help students develop a sense of responsibility for their own learning and will provide support during the first semester of transition to the University. This seminar will introduce students to University resources, academic expectations, the eight dimensions of well-being, and will foster community-building. Taught in a small group setting, students will interact with a faculty/staff member and a student leader either once or twice a week. The FYE 2100 seminar will include weekly class meetings, project-based assignments, written assignments, and attendance at selected University events and workshops. The importance of writing, critical thinking, communication, and study skills will be emphasized, as well as exploration of major and career opportunities. Students will earn a letter grade for this course.

University Curriculum

Deveta Gardner, Acting Director
1260 Ellsworth Hall
(269) 387-4410

University Curriculum/Exploratory Advising provides first-year students who wish to explore academic and career options with advising, assessment, and referral services designed to help them select a curriculum. The program is designed with sensitivity to students' developmental as well as academic needs.

Students in the University Curriculum/Exploratory Advising are assigned advisors who are specialists in academic planning, human development, and career planning. Help is provided for course selection, academic program planning, interpreting skills and interest assessments, exploring academic and career alternatives, and establishing goals.

In addition to academic advising and career counseling, opportunities available for students include:

- Career Exploration and Career Resource Center
- Skills and Interest Assessments
- Specially-designed freshman curriculum options suited to skills and interests.

University Courses (UNIV)

UNIV 1010 Freshman Seminar (1 to 3 hours)

This course is designed to assist students to encounter experientially, intellectually, and emotionally the various avenues of learning, and to foster the academic, personal, social, and career development of each student. The activities and assignments of the course aid students in the development of an intellectual awareness and provide the skills and self-management required for a successful transition from high school to the University. The course is intended to excite students about learning and living in the new and challenging world of Western Michigan University. **For first-year students only.**

UNIV 1020 Career Exploration and Development (1 hour)

This course is designed to help students through the career development process by assessing and developing skills in self-awareness, career awareness, decision-making, and planning. It will include activities to identify and explore the following areas: values, interests, career information, decision-making, university resources, and the world of work. Assignments will involve taking career assessments, written exercises, networking, resume development and career research.

UNIV 1030 Special Topics within Academic Success (1 to 3 hours)

UNIV 1030 is open only through instructor or department approval. The department overseeing UNIV 1030 will be the Center for Academic Success Programs. Courses will vary by topic and be chosen based on student need. The goals of the course will range from academic preparation for special populations, academic improvement, career exploration and skill building.

Undergraduate Certificate Programs

An undergraduate certificate is awarded for the satisfactory completion of a non-degree undergraduate program designed around a narrow, applied, and coordinated curriculum with a professional focus. Any new course that is developed for an undergraduate certificate program must be approved through the curriculum process. An undergraduate certificate program may be either multidisciplinary or uni-disciplinary in organization and may be taken separately or in conjunction with an undergraduate degree program. The undergraduate certificate is not an award of license, accreditation, or certification to render professional services; rather, it signifies that a student has satisfactorily completed an approved undergraduate certificate program curriculum. Certificates generally focus on necessary professional training requirements in a specific area of study and may serve as enhancements to existing undergraduate degree programs. Certificate programs will normally range from a minimum of 15 hours to a maximum of 24 credits/semester hours. However, individual certificate programs may exceed these boundaries commensurate with the breadth and depth of the program's topic (e.g., the needs of the intended professional training).

Delivery Methods

Undergraduate certificates may consist of traditional instruction, hybrid, or fully online instruction. Applicants should check with their academic advisor or program director of the academic unit for specific information regarding delivery methods in their choice of certificate programs.

Pre-Professional Programs

Every professional school has prescribed the nature and amount of academic work to be completed as a prerequisite to the professional training for a particular vocation. Four years of higher education are generally required by most professional schools for entrance. Western Michigan University is able to offer its students courses of study that meet the requirements for this pre-professional training. It should be noted, however, that the courses outlined are only suggested plans to illustrate in general the kinds of programs that pre-professional students should follow.

In every case, students should plan their course of study according to the requirements of the school to which they plan to attend for professional training.

It cannot be emphasized too strongly that the student should exercise care to make certain that the specific requirements of a particular school will have been met.

Pre-Health

Pre-Health Advisors

Megan Larson, Coordinator

Department of Biological Sciences

3447 Wood Hall

wmich.edu/arts-sciences/academics/pre-professional/pre-health

Pre-Health Pathway Advising is available for students who plan to eventually apply to one of the following programs, for which, a bachelor's degree is required:

- Pre-chiropractic
- Pre-dental
- Pre-forensic science
- Pre-medical (Allopathic)
- Pre-medical (Osteopathic)
- Pre-naturopathic medicine
- Pre-optometry
- Pre-pharmacy
- Pre-physical therapy
- Pre-physician assistant
- Pre-public health
- Pre-veterinary

Students who plan to apply to Health Professional Programs often major in Biomedical Sciences, Biology, or Biochemistry because many Pre-Health Program course requirements, such as biology, chemistry and physics, are also major requirements. However, students are not limited to these majors and are encouraged to work with a Pre-Health Advisor, early on, to ensure the best fit for their pursuits. Although the Pre-Health Advisor is continuously educated in a broad spectrum of school and program requirements, it is ultimately the student's responsibility to understand the specific requirements for application to such program(s). Together, with the Pre-Health Advisor, plans for completing admission requirements, co-curricular pursuits, admission tests, and program application are created via regularly scheduled meetings that should take place throughout the undergraduate experience.

Further resources, including advising contact information, are provided on the College of Arts and Sciences Pre-Health website: wmich.edu/arts-sciences/academics/pre-professional/pre-health.

Pre-Law

Pre-Law Advisors
Lindsey Millet
Thomas Mills
College of Arts and Sciences Academic Advising Office
2318 Friedmann Hall
(269) 387-4366

Though law schools do not require a specific major or degree program, they do recommend completion of an academically rigorous four-year bachelor's degree program. Courses in critical analysis, logical reasoning, and written and oral communications can be found in a number of majors. Some typical majors are English, business, political science, philosophy and history, but other disciplines can also be suitable majors. Pre-law students should discuss possible majors and major/minor combinations with their advisor to determine which one best suits them. It is very important that Pre-law students see their advisor on a regular basis for curriculum guidance.

Courses with a strong writing or oral communication component are ideal preparation, as are courses that require legal reasoning, like business law and constitutional law. Courses that allow the student a broader understanding of the structure and processes of government (such as national government, the legal environment, and judicial processes) are also valuable, as are those that focus on the American historical experience.

Students interested in pursuing the further study of law should see a Pre-law advisor as early as possible to select a curriculum.

Accreditation

University Accreditation

Western Michigan University is accredited by the Higher Learning Commission, 230 LaSalle Street, Suite 7-500, Chicago, IL., 60604-1411; Web site: www.hlcommission.org; Telephone: (800) 621-7440.

Disclosure of Academic Program Accreditation and Certification Status

The College of Education and Human Development at Western Michigan University is granted Accreditation at the initial-licensure level and advanced-level. Council for the Accreditation of Educator Preparation (CAEP), 1140 19th St NW, Suite 400 Washington, DC 20036 (202) 223-0077, www.caepnet.org. This Accreditation status is effective between spring 2020 and spring 2027.

The B.S.E. programs in aerospace, chemical, civil, computer, construction, electrical, industrial and entrepreneurial, mechanical, and paper engineering are accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Western Michigan University is an accredited institutional member of the National Association of Schools of Art and Design (or of NASAD).

The B.S. in Athletic Training (professional program) is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). The program has been placed on Probation as of February 1, 2020 by the CAATE, 6850 Austin Center Blvd, Suite 100, Austin, TX 78731-3101.

The B.S. in Aviation Flight Science is accredited by Aviation Accreditation Board International (AABI) under the Flight Education criteria, as well as certified by the Federal Aviation Administration as an FAA Part 141 Flight School and licensed by the State of Michigan Department of Transportation. The B.S. in Aviation Maintenance Technology/Aviation Technical Operations is accredited by Aviation Accreditation Board International (AABI) under the Aviation Maintenance criteria, as well

as certified by the Federal Aviation Administration as an FAA Part 147 Aviation Maintenance Training School. The B.S. in Aviation Management and Operations is accredited by Aviation Accreditation Board International (AABI) under the Aviation Management criteria.

The M.A. in Psychology (concentration in behavior analysis) and the Ph.D. in Psychology (concentration in behavior analysis) are accredited by the Association for Behavior Analysis International.

B.B.A. and M.B.A. programs in the Haworth College of Business are accredited by the Association to Advance Collegiate Schools of Business International. In addition, the B.B.A. and M.S.A. programs in accountancy are accredited by the Association to Advance Collegiate Schools of Business International – Accounting Accreditation.

The Center for English Language and Culture for International Students (CELCIS) at Western Michigan University is accredited by the Commission on English Language Program Accreditation (CEA) for the period 2016 through 2025 and agrees to uphold the CEA Standards for English Language Programs and Institutions. CEA is recognized by the U.S. Secretary of Education as a national accrediting agency. For further information about this accreditation, please contact the Commission on English Language Program Accreditation, 801 N. Fairfax St., Suite 402A, Alexandria, VA 22314, (703) 519-2070, www.cea-accredit.org.

The Ph.D. in Psychology (concentration in clinical psychology) is accredited by the Commission on Accreditation, American Psychological Association, c/o Office of Program Consultation and Accreditation, 750 First Street NE, Washington, DC 20002-4242, (202) 336-5979.

The M.A. in Coaching Sport Performance is accredited by the National Committee for Accreditation of Coaching Education (NCACE).

The M.A. in Counselor Education (concentrations in clinical mental health counseling; college counseling; marriage, couple and family counseling; rehabilitation counseling; and school counseling), as well as the Ph.D. in Counselor Education, are accredited by the Council for Accreditation of Counseling and Related Educational Programs.

The B.S. in Computer Science is accredited by the Computing Accreditation Commission of ABET, www.abet.org.

The Ph.D. in Counseling Psychology is accredited by the Commission on Accreditation, American Psychological Association, c/o Office of Program Consultation and Accreditation, 750 First Street NE, Washington, DC 20002-4242, (202) 336-5979.

Western Michigan University is an accredited institutional member of the National Association of Schools of Dance (or of NASD).

The B.S. programs in engineering design technology, engineering management technology, and manufacturing engineering technology are accredited by the Engineering Technology Accreditation Commission ETAC of ABET, www.abet.org.

The M.S. in Engineering Management is certified by the American Society for Engineering Management, asem.org/Graduate-Program-Cert.

The interior design program leading to the B.S. in Interior Design is accredited by the Council for Interior Design Accreditation, www.accredit-id.org, 206 Grandville Avenue, Suite 350, Grand Rapids, MI, 49503-4014.

Western Michigan University is certified for metal casting by the Foundry Educational Foundation (FEF).

Western Michigan University is an accredited institutional member of the National Association of Schools of Music (or of NASM).

The Bachelor of Science in Nursing (B.S.N.) and Master of Science in Nursing (M.S.N.) are accredited by the Commission on Collegiate Nursing Education, 655 K Street, NW Suite 750, Washington DC 20001, (202) 463-6930, www.aacnnursing.org/CCNE.

The B.S. in Nutrition and Dietetics and the dietetic internship-non-degree program are accredited by the Accreditation Council for Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics.

The M.S. in Occupational Therapy, offered in Kalamazoo and Grand Rapids, is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 6116 Executive Boulevard, Suite 200, North Bethesda, MD 20852-4929. ACOTE's telephone number c/o AOTA is (301) 652-2682.

The M.A. in Blindness and Low Vision Studies (concentrations in orientation and mobility and vision rehabilitation therapy), is accredited by the Accreditation Council of the Association for Education and Rehabilitation of the Blind and Visually Impaired (AER), 1703 N. Beauregard Street, Suite 440, Alexandria, VA 22311.

Effective April 30, 2019, the Doctor of Physical Therapy at Western Michigan University has been granted Candidate for Accreditation status by the Commission on Accreditation in Physical Therapy Education (1111 North Fairfax Street, Alexandria, VA, 22314; phone: 703-706-3245; email: accreditation@apta.org). If needing to contact the program/institution directly, please call (269) 387-7352 or email pt-info@wmich.edu. Candidate for Accreditation is a pre-accreditation status of affiliation with the Commission on Accreditation in Physical Therapy Education that indicates that the program is progressing toward accreditation and may matriculate students in technical/professional courses. Candidate for Accreditation is not an accreditation status nor does it assure eventual accreditation.

At its March 2020 meeting, the Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA) placed the Western Michigan University Physician Assistant Program sponsored by Western Michigan University on Accreditation-Probation status until its next review in March 2022. Probation is a temporary status of accreditation conferred when a program does not meet the Standards or when the capability of the program to provide an acceptable educational experience for its students is threatened. Once placed on probation, programs that still fail to comply with accreditation requirements in a timely manner, as specified by the ARC-PA, may be scheduled for a focused site visit and/or risk having their accreditation withdrawn. Specific questions regarding the Program and its plans should be directed to the Program Director and/or the appropriate institutional official(s).

The Master of Public Administration (M.P.A.) is accredited by the Network of Schools of Public Policy, Affairs, and Administration (NASPAA).

The Bachelor of Social Work (B.S.W.) and Master of Social Work (M.S.W.) are accredited by the Council on Social Work Education.

The Master of Arts education program in speech-language pathology and the doctoral education program in audiology at Western Michigan University are accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language-Hearing Association, 2200 Research Boulevard #310, Rockville, Maryland 20850, 800-498-2071 or 301-296-5700.

Western Michigan University is an accredited institutional member of the National Association of Schools of Theatre (or of NAST).

Copies of accreditation and certification documents are available for review upon request in the Office of Institutional Effectiveness.

Additional Specialized Program Recognition Leading to Post-Graduation Certification or Licensure of Students

Graduates of the following programs are eligible for initial teacher certification through the State of Michigan Department of Education:

Baccalaureate programs for preparation in art education (B.F.A. program); elementary professional education, elementary/middle school integrated science, language arts, math, and social studies; family and consumer sciences teacher education; health education: school; industrial technology, music education (B.M. program), occupational

education studies, secondary education; and special education and elementary education LD and EI K-12; and, the M.A. in Career and Technical Education.

Graduates of the following programs are eligible for advanced teacher certification or an endorsement through the State of Michigan Department of Education:

Master's programs in art education, educational foundations, educational leadership, English teaching, literacy studies, mathematics education, music education, physical education, school counseling, science education;

Educational specialist program in educational leadership; and

Doctoral programs in educational leadership, mathematics education, and science education.

Graduates of the B.B.A. in Accountancy are eligible to take the following exams, among others: Certified Public Accountant (CPA); Certified Management Accountant (CMA); Certified Internal Auditor (CIA); Certified Information Systems Auditor (CISA). The requirements to sit for the various professional exams differ by exam and state. It is each student's responsibility to determine the requirements for a particular exam. The student should be aware that the exam requirements may change over time.

The M.S. in Accountancy program enables graduates to acquire financial leadership skills and additional depth in accounting and related areas. It also allows students interested in public accounting careers to meet the American Institute of Certified Public Accountants' (AICPA) and State of Michigan educational requirements required to obtain a Certified Public Accountant (CPA) license. The State of Michigan requires a total of 150 hours of college credit to obtain a CPA license.

Individuals become eligible for BOC certification through a bachelor's professional athletic training program accredited by the Commission on Accreditation of Athletic Training Education (CAATE). Eligible candidates for the BOC exam must be endorsed by the recognized CAATE program director and be registered for their final semester prior to graduation from Western Michigan University with a B.S. in athletic training.

Graduates of the B.S. in Aviation Flight Science earn their Federal Aviation Administration (FAA) Commercial Pilot Certificate with Instrument, and Single- and Multi-Engine Land ratings. Additional optional flight certificates and ratings include the Certified Flight Instructor (CFI), CFI-Instrument, and CFI-Multi-Engine and Single-Engine Sea rating.

Graduates of the B.S. in Aviation Maintenance and Technology are qualified to take the Federal Aviation Administration (FAA) Airframe and Powerplant written and practical examinations required to earn the Federal Aviation Administration (FAA) Airframe and Powerplant Mechanic Certificate.

Graduates of the M.S. in Engineering Management earn the Certified Associate in Engineering Management (CAEM) credential.

The master's and doctoral programs in psychology (concentration in behavior analysis) are verified by the Association for Behavior Analyst International as meeting degree and coursework requirements to sit for the Board Certified Behavior Analyst® (BCaBA®) certification examination.

The B.S. in psychology (concentration in behavioral science) is verified by the Association for Behavior Analyst International as meeting degree and coursework requirements to sit for the Board Certified Assistant Behavior Analyst® (BCaBA®) certification examination.

The baccalaureate programs in child and family development, family studies, and youth and community development, and the M.A. in Family Studies – Family Life Education option are approved by the National Council on Family Relations (NCFR). Graduates of NCFR-Approved academic programs who have completed all courses with a grade of C- or better can apply to NCFR for Provisional or Full Certification through the Abbreviated Application Process. Applicants applying through the Abbreviated Application Process do not need to take the Certified Family Life Education (CFLE) Exam.

Graduates of the M.A. programs in clinical mental health counseling; college counseling; marriage, couple and family counseling; school counseling; and, rehabilitation counseling; as well as the Ph.D. in Counselor Education, are eligible to become Licensed Professional Counselors (LPC) in Michigan after first becoming Limited Licensed Professional Counselors (LLPC). The LPC is granted after 3000 hours of supervised experience (by an LPC) and a passing score on either the National Counselor

Examination (NCE) developed by the National Board for Certified Counselors (NBCC) or the Certified Rehabilitation Counselor Examination (CRC) developed by the Commission on Rehabilitation Counselor Certification. The NCE and CRCE are the State of Michigan Counselor License Examinations. Graduates from the clinical mental health counseling; college counseling; marriage, couple, and family counseling; and, school counseling concentrations are eligible to become Nationally Certified Counselors (NCC). Graduates from the rehabilitation counseling concentration are eligible to become Certified Rehabilitation Counselors (CRC).

Graduates of the M.A. program in Counseling Psychology are eligible to become Limited License Psychologists (LLP) in Michigan after first becoming Temporary Limited License Psychologists (TLLP). The master's level LLP is granted after 2,000 hours of supervised experience (by a doctoral level Licensed Psychologist (LP) and a passing score on the Examination for the Professional Practice of Psychology (EPPP). In Michigan, master's level Limited License Psychologists must practice under the supervision of a doctoral level Licensed Psychologist (LP).

The Ph.D. in Counseling Psychology prepares students to become fully licensed psychologists (LP). In Michigan doctoral graduates first apply for a doctoral level Limited License. The LP is granted after 2,000 hours of supervised experience (by a doctoral level Licensed Psychologist (LP) and a passing score on the Examination for the Professional Practice of Psychology (EPPP).

Graduates of all programs accredited by the Engineering Accreditation Commission of ABET are eligible to sit for the Fundamentals of Engineering (FE) Exam administered by the National Council of Examiners for Engineering and Surveying® (NCEES). This is the second of four steps to earning a professional license in engineering.

The CIDA-accredited program prepares students for entry-level interior design practice, for advanced study, and to apply for membership in professional interior design organizations. The B.S. in Interior Design granted by Western Michigan University meets the educational requirement for eligibility to sit for the National Council for Interior Design Qualification Examination (NCIDQ Exam). For more information about NCIDQ Exam eligibility visit: www.cidq.org/eligibility-requirements.

The B.M. in Music Therapy is approved by the American Music Therapy Association (AMTA) as meeting AMTA's standards of clinical practice. Graduates are eligible to sit for the national board certification exam administered by the Certification Board for Music Therapists (CBMT), to obtain the credential MT-BC (Music Therapist - Board Certified).

Students majoring in Public and Nonprofit Administration are eligible to earn Certified Nonprofit Professional (CNP) credential from the Nonprofit Leadership Alliance after completing additional requirements.

Graduates of the Bachelor of Science in Nursing (B.S.N.) pre-licensure program are eligible to take the National Council Licensure Examination for Registered Nurses (NCLEX-RN®) administered by the National Council of State Boards of Nursing, Inc. (NCSBN®).

The WMU Bronson School of Nursing has received endorsement from the American Holistic Nursing Certification Corporation, which is the credentialing body for holistic nursing. This endorsement enables graduates of the B.S.N. and RN-B.S.N. programs to be exempt from prerequisites should they choose to sit for the National Certification Examination in Holistic Nursing.

Graduates of the baccalaureate didactic program in nutrition and dietetics are eligible to sit for the Dietetic Technician, Registered (DTR) Registration Examination, a national credentialing examination, administered by the Commission on Dietetic Registration (CDR) of the Academy of Nutrition and Dietetics. Further, those graduates who successfully complete the post-baccalaureate, non-degree dietetic internship are also eligible to apply and take the Registered Dietitian (RD) Credentialing Examination administered by the Commission on Dietetic Registration (CDR) of the Academy of Nutrition and Dietetics. Beginning in 2024 the entry-level registration eligibility education requirements for the RD credentialing examination will change from a bachelor's degree to a minimum of a master's degree.

Graduates of the M.S. in Occupational Therapy are eligible to sit for the national certification examination for occupational therapists administered by the National Board for Certification in Occupational Therapy (NBCOT). After successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR). In addition, most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination.

Graduates of the M.A. in Blindness and Low Vision Studies (concentration in orientation and mobility and vision rehabilitation therapy), are eligible to sit for the Certified Orientation and Mobility Specialist (COMS) exam, and graduates of the M.A. in Vision Rehabilitation Therapy are eligible to sit for the Certified Vision Rehabilitation Therapist (CVRT) exam. Both exams are administered by the Academic for Certification of Vision Rehabilitation and Education Professionals (ACVREP).

Graduates of the B.B.A. in Personal Financial Planning who have completed FIN 3600 Risk and Insurance, FIN 4710 Applications in Personal Financial Planning, FIN 3720 Estate Planning, FIN 3730 Retirement Planning and Employee Benefits, and ACTY 3240 Introductory Tax Accounting are eligible to sit for the CFP® Certification Exam administered by the Certified Financial Planner Board of Standards, Inc.

Graduates of the Master of Science in Medicine (M.S.M.) in Physician Assistant are eligible to sit for the Physician Assistant National Certifying Examination (PANCE) administered by the National Commission on Certification of Physician Assistants (NCCPA).

Graduates of the M.S. in Engineering Management earn PDU's to sit for the Project Management Institute's® Certified Associate in Project Management (CAPM®) certification exam, and the Project Management Professional (PMP)® certification exam. WMU is a Registered Education Provider (REP) to the Project Management Institute®.

Graduates of the M.A. in Counselor Education (concentration in rehabilitation counseling) are eligible to sit for the Certified Rehabilitation Counselor (CRC) exam administered by the Commission on Rehabilitation Counselor Certification (CRCC).

Graduates of the Bachelor of Social Work (B.S.W.) are eligible to apply for the Michigan Limited License Bachelor's Social Work. Graduates of the Master of Social Work (M.S.W.) are eligible to apply for the Michigan Limited License Master's Social Work.

Graduates of the M.A. in Speech-Language Pathology and the Doctor of Audiology (Au.D.) are eligible to take the Praxis specialty exam administered by the Education Testing Service as required for the Certification of Clinical Competence from the American Speech-Language-Hearing Association. They are also able to apply for state licensure in the state in which they intend to practice. They should, however, consult the state licensing board for the specific requirements for that state.

Graduation and Academic Advising

Graduation Procedures

When a student satisfactorily completes all academic requirements for a degree, fulfills all financial and legal obligations to the University, and meets all relevant processing deadlines, the student is eligible for graduation and to receive the appropriate degree. An eligible student may graduate at the end of a semester or a session—in December, April, June, or August; however, a Commencement Ceremony is held only following Fall, Spring and Summer I terms. Students will only be allowed to participate in commencement if they are on track to complete their degree requirements by the end of the semester.

Students should contact their college advisor to receive approval to submit an application for graduation. Once cleared, students may apply in GoWMU. The deadlines for submitting the application are listed below.

The graduation audit, initiated by the submission of the Application for a Graduation Audit form, is a process by which a student's academic record is examined to make sure all University obligations and all academic requirements for the degree have been met. The audit is conducted by a graduation auditor in the Registrar's Office, and its outcome depends on the completeness and appropriateness of the materials contained in the student's academic record.

Graduation Application Deadlines and Fees

Fall Semester Graduation (December) - February 1

Spring Semester Graduation (April) - October 1

Summer I Session Graduation (June) - February 1

Summer II Session Graduation (August) - February 1

Graduation Fee - A \$55 fee will be applied to the student account when the application is submitted to the Registrar's Office.

Final Date for Completion of Work

All work taken either on or off the campus must be completed by graduation day. Students who fail to meet academic standards or complete all degree requirements will be removed from graduation lists automatically. Students should contact the Registrar's office to change their graduation date. No fee is charged for submitting a Change of Graduation Date form. **Under no circumstances** will any student be graduated with a class if his/her academic record does not show complete fulfillment of all requirements within thirty days after the established commencement date.

Graduation Requirements

General Requirements, Bachelor's Degree

Any curriculum leading to a bachelor's degree consists of at least 122 hours of credit. The student must meet the following requirements or their equivalent.

- The requirements in at least one of the University approved curricula must be fulfilled before graduation.
- The student must complete a major with a minimum of 24 hours and a minor with a minimum of 15 hours. A minor is required unless the major states otherwise. Specific departmental major and minor requirements may exceed these minimums; please refer to the departmental sections in this catalog that identify the specific major and/or minor requirements. Courses elected to satisfy requirements in one major and/or minor may not be counted again to satisfy requirements in another major and/or minor. However, courses used in cognates may be used to fulfill a major, minor, or other degree requirements at the discretion of the department granting the major and/or minor.
- Each student must complete the required WMU Essential Studies program. Students who are graduating with an Associate of Science degree from a Michigan two-year college are signatory to the Michigan Transfer Agreement

and only need to complete Level 3 (Connections), which requires one course in the Local and National Perspectives category and one course in the Global Perspectives category.

- A minimum grade point average of 2.0 must be obtained in any major or minor(s) presented for graduation. Individual colleges, departments, or programs may have additional University approved requirements including a higher minimum grade point average.
- A student must also have an overall University grade point average of 2.0 or higher to graduate. If a student fails to meet minimum University academic standards, he/she is placed on academic probation or is dismissed.
- Each student will fulfill all requirements of the Intellectual Skills Development Program as outlined in this section.
- Minimum residence requirements. All candidates must present a minimum of 30 hours through Western Michigan University. Ten of the last 30 hours must be taken through Western Michigan University. Correspondence credit and credit by examination may not be used to satisfy any of the minimum requirements. Individual colleges and departments may have additional residency requirements.
- A maximum of 8 hours of general physical education (PEGN) courses may be counted toward graduation.
- Students transferring from an accredited two-year institution must complete a minimum of 60 credit hours of the academic work required at an accredited four-year, degree-granting institution. Exceptions to this policy, for specific programs, can be approved only if there is a formal Memorandum of Understanding and articulation agreement, as approved by the Faculty Senate Undergraduate Studies Council, between Western Michigan University and the participating accredited two-year institution.
- Students may graduate under the WMU catalog in effect at the time of their initial registration or any succeeding catalog providing the catalog is not more than ten years old upon the completion of requirements for graduation. Students who have been gone from the University for ten years or more must enter the University under the catalog in effect at the time of re-entry. *For exception, see special policy under "Graduation Requirements-Bachelor of Science in Engineering" listed in the College of Engineering and Applied Sciences section of this catalog.*
- In cooperation with community colleges, a student who transfers to Western Michigan University within three years upon leaving the community college may elect to graduate under the WMU catalog in effect at the time of the initial registration at the two-year institution.

Requirements for Earning a Second Bachelor's Degree

WMU Graduates

Students wishing to pursue two or more baccalaureate degrees either concurrently or otherwise from WMU must also meet these minimum requirements:

- Completion of a minimum of 30 credits in residency beyond the requirements for the first degree.
- Completion of new major requirements as well as all specified University, college, and program requirements.
- Generally, no second degree will be granted from the discipline in which the first degree was earned. Rather than seeking a second bachelor's, students may enroll as post-baccalaureate students and have the completion of an additional major recorded on the transcript.
- NOTE: Program accreditation standards may impose additional requirements or limitations. Completion of certification requirements generally does not qualify the student for a second degree.

Non-WMU Graduates

Students who received a bachelor's degree from an institution other than Western Michigan University, must meet the following minimum requirements:

- Possession of a prior bachelor's degree from a regionally accredited college or university.
- Completion of a minimum of 30 credits in residency beyond the requirements for the first degree.
- Completion of new major requirements as well as all specified University, college, and program requirements, including WMU Essential Studies, and a minimum 2.0 grade point average.
- Generally, no second degree will be granted from the discipline in which the first degree was earned.
- NOTE: Program accreditation standards may impose additional requirements or limitations. Completion of certification requirements generally does not qualify the student for a second degree.

Major and Minor Requirements

A **major** is a sequence of related courses totaling a *minimum* of twenty-four hours. A **minor** is a sequence of related courses totaling a **minimum** of fifteen hours. However, since not all majors and minors require the same number of hours, students should consult the departmental advisor to be assured of the requirements.

- The student's major and minor will be the subject specialization, such as mathematics or accounting.
- Departmental requirements for a number of majors and minors are listed elsewhere in this catalog. Where requirements are not specified, students should consult the departmental advisors for approval of a major or minor program as soon as possible but not later than the student's reaching junior status.
- Most candidates for a degree must complete a major and a minor. If a minor is not required, it will be noted under the program requirements.
- In certain cases "group" majors and "group" minors are permitted. The student's academic advisor can explain the circumstances.
- Under certain conditions WMU Essential Studies courses may be counted toward major and minor requirements. (See departmental requirements.)
- The following courses are not to be counted as satisfying major and minor requirements:
 - a. Required professional courses in education.
 - b. Required courses in general physical education.
- A combination of foreign language courses, or of English or American Literature courses with a foreign language, is not a permissible method of constructing a major or minor.
- Mathematics courses may not be counted towards a science (physics, geography, or chemistry) major or minor sequence, but may be required to satisfy curricula requirements.
- Courses elected to satisfy requirements in one major and/or minor may not be counted again to satisfy requirements in another major and/or minor.
- Only approved majors and minors listed in the catalog can be placed on a student record.
- Any program change occurring after the last day of the drop/add period will be effective for the following semester or session.

Adding a Major or Minor to a Previously Awarded Degree

Students wishing to add an additional major or minor to a previously awarded Western Michigan University degree must meet the following requirements:

- Courses elected to satisfy requirements for the new major/minor were not used to satisfy requirements in the previous major/minor.
- The major/minor being added is active at the time it is added to the degree.

Students wishing to add an additional baccalaureate degree must satisfy the second bachelor degree requirements.

Intellectual Skills Requirements

The Baccalaureate degree at Western Michigan University includes proficiency in the intellectual skills of writing, reading, and quantification. In order to insure development of students' abilities in these skills, the University maintains an Intellectual Skills Development Program. New students entering WMU will participate in the program.

The first phase of the program occurs upon entry to the University, typically at Orientation, when student competencies are assessed via SAT or ACT scores and/or University-developed tests. Skills requirements for each student are determined at this time.

Writing

Students whose test results indicate weak writing skills must pass a *basic writing course* **before** proceeding to the required *college-level writing course*. All WMU students are required to pass a college-level writing course. Students who demonstrate superior writing skills may be exempted from the college-level writing course requirement.

Basic writing course option:

- ENGL 1000

College-level writing course options are:

- ENGL 1050
- BIS 1420 (Business students)
- IEE 1020 (Engineering and Applied Sciences students)

Reading

On the basis of test scores, certain students are required to pass LS 1040, Effective College Reading. This course is designed to improve comprehension, vocabulary, and study skills, and thus prepare students for further college work.

Quantification

On the basis of scores on a test of basic mathematical skills, certain students are required to pass MATH 1090. Students must earn a "C" or better in MATH 1090 in order to proceed to fulfill other mathematics requirements.

Guidelines for Writing, Reading, Quantification Skills

ENGL 1000, LS 1040, and MATH 1090 carry academic credit, and grades earned are included in calculating the student's grade point average. **The credits for these courses, however, constitute an additional graduation requirement beyond the total number of credit hours required for a student's curriculum.** Students who are placed into any of these courses must pass the course(s) before registering for their thirty-third credit hour at Western Michigan University.

Students who fail to demonstrate competency by test or by course by the time of enrollment in the thirty-third credit will be permitted to enroll only in the above-named skill-building course(s).

Students may resume regular course enrollment only after all entry-level competencies are demonstrated.

A college-level writing course must be completed before a student registers for the sixty-second credit hour at Western.

Intellectual Skills Requirements for International Students

Writing and Reading

Beginning undergraduate international students are placed into, or exempted from, English 1600/1610 or 3600/3610 based on the results of either the MTELP (Michigan Test of English Language Proficiency) or the TOEFL (Test of English as a Foreign Language). Scores of 75-84 on the MTELP or 500-549 on the TOEFL warrant placement into this language program.

The Diether H. Haenicke Institute for Global Education requires completion of the language program during the student's first enrollment period at WMU. The student may then proceed to fulfill the college-level writing requirement.

International students who are not required to take the language program will proceed to fulfill all Intellectual Skills requirements in writing, beginning with the college-level writing course.

Quantification

International students will fulfill all Intellectual Skills Requirements in quantification (see above).

Failure to enroll in the Intellectual Skills Program as outlined above will result in cancellation of admission.

Intellectual Skills Requirements for Transfer Students, Including International Transfer Students

Domestic and international transfer students will abide by the Intellectual Skills Requirements for transfer students. See immediately below for the specific requirements.

Writing

Students who transfer a college-level writing course of 2.7 or more semester hours credit (or a sequence of courses that satisfies the college-level writing requirement at the transfer institution), will be exempted from the writing assessment upon entry. These students will be considered to have met the Intellectual Skills Program college-level writing course requirement. All other transfer students will be placed into a remedial or college-level writing course according to assessment results.

Reading

Students who transfer twenty-six semester hours or more of credit with a GPA of 2.0 or better, or who transfer the equivalent of LS 1040, are exempted from the reading assessment upon entry. All other transfer students will have their reading skills evaluated by standardized test and will either place into or be exempted from LS 1040, Effective College Reading.

Quantification

Students who transfer a mathematics course at the level of MATH 1100 or higher are considered to have entry-level computation skills and need not take the computational skills assessment test upon entry. All other transfer students will place into or be exempted from MATH 1090 according to assessment results.

Computer Usage

A computer or technology usage requirement, if applicable to a student's curriculum, is described in the departmental or college sections of this catalog. Entering students should contact their college advising office for specific information concerning any applicable requirement and/or option for fulfilling the requirement.

Foreign Language Requirement

The Foreign Language Requirement for students who will graduate through the College of Arts and Sciences is described in the Arts and Sciences section of this catalog.

Non-degree Undergraduate Certificate Programs

Students should contact their college advisor to receive approval to submit an application for graduation. Once cleared, students may apply in GoWMU. The undergraduate certificate program of study will then be audited in the same manner as a degree program. For a student concurrently pursuing a degree program and an Undergraduate Certificate Program, the application should be submitted separately from the undergraduate degree application.

The student must apply, through the Registrar's Office, to be awarded as Undergraduate Certificate. The following general requirements must be met:

- Completion of the requirements, as stated on the program of study, of the Undergraduate Certificate Program with a "C" (2.0) or better average within a six-year period;
- A grade of "C" or better must be earned in every required course listed on the program of study; and
- Completion of departmental requirements, if any,

To signify that a student has satisfactorily completed an approved curriculum in an Undergraduate Certificate Program, a certificate of completion is awarded.

Graduation Rate

Number of first-time, full-time, degree-seeking beginning freshman, Class of 2013: 3,158.

After six years, the number (and percentage) of those in the Class of 2013 who graduated: 1,786 (56.6%).

Academic Advising

The faculty and administration of Western Michigan University believe that academic advising is a necessary part of undergraduate education. The University has committed many faculty and staff to this essential service, and strongly urges all students to make full use of the available resources in order to receive the best possible education.

All students should consult with their curriculum advisors who will help them plan their degree programs. Curriculum advisors offer academic advising, which includes WMU Essential Studies requirements, specific curriculum requirements, career opportunities, etc. In addition, they offer academic guidance, that is, exploration of alternatives and other educational possibilities. This is a useful and productive means of attempting to match a student's interests and abilities with an academic program. Curriculum advisors will make referrals to other advising facilities and departmental advisors when it is appropriate. *It should be emphasized that it is the student's responsibility to arrange to meet with curriculum and/or departmental advisors.*

A listing of curriculum advisors may be found on the advising Web site wmich.edu/registrar/students/advising. Students not certain of their curriculum or advisor should contact the Advising Office of the College to which they have been admitted. Students should refer to their Admission Certificates to find out to which curriculum and College they have been admitted.

Academic Advising for Freshmen Students

Freshmen students admitted for the Fall Semester will receive a written invitation to attend one of the Orientation sessions held during the summer. Attendance is mandatory. During this program, students will have the opportunity to meet with their curriculum advisors, at which time they will receive academic information and assistance in requesting classes for their first semester. Orientation provides comprehensive advising, as well as important campus information.

Students who have been admitted for Spring, Summer I or Summer II must make individual appointments for advising prior to registering. Appointments should be with curriculum advisors.

Academic Advising for Transfer Students

Transfer students should arrange appointments for advising shortly after admission.. Students will be advised as to how transfer courses apply to programs at Western, In addition, students will receive curriculum and major/minor advising, as well as Intellectual Skills Program advising. It is important that transfer students bring their most recent Credit Evaluations to these meetings. Transfer students are urged to obtain advising before registering for classes.

Academic Advising for Graduation

Students must receive approval from a college advisor before they are eligible to apply for graduation. Advisors will assist students with the application process, and students should visit regularly with their advisors to ensure that their progress toward degree completion conforms with all University and degree requirements.

College Advising Offices

College of Arts and Sciences
2318 Friedmann Hall, (269) 387-4366

College of Aviation

Aviation Education Center, (269) 964-6375

Haworth College of Business
2130 Schneider Hall, (269) 387-5075

College of Education and Human Development
2421 Sangren Hall, (269) 387-3474

College of Engineering and Applied Sciences
E102 Floyd Hall, (269) 276-3270

College of Fine Arts
2132 Dalton Center, (269) 387-4672

College of Health and Human Services
2125 Health and Human Services Building, (269) 387-2656

University Curriculum
203 Moore Hall, (269) 387-4410

Lee Honors College
Lee Honors College Building, (269) 387-3230

WMU Essential Studies

WMU Essential Studies is the required curriculum for all undergraduate students. Courses are designed to help students become fluent in change and driven to contribute, develop perseverance, and be ready for their future. Students develop the skills employers seek most in graduates—demonstrated complex problem-solving, critical thinking, creativity, responsible judgment, and decision-making.

The overall program targets essential skills, identified as learning outcomes, by integrating and applying them in content courses. Specific curriculum-wide learning outcomes include:

- Expand students' understanding of human cultures and the physical/natural world.
- Enhance intellectual and practical skills.
- Exercise personal and social responsibility.
- Exhibit integrative and applied learning.

An important feature of the program is the sequencing (where specified and practical) to ensure students are learning skills before developing and applying them. The program introduces and emphasizes content areas of diversity and inclusion, global awareness, critical thinking, and planetary sustainability.

The program is comprised of three levels: Foundations, Exploration and Discovery, and Connections. Within each level are course categories that have associated student learning outcomes. All student learning outcomes will be assessed at the end of each course. The program also incorporates outcomes for planetary sustainability and diversity and inclusion.

WMU Essential Studies is designed to help undergraduate students make more connections among courses and benefit from multi-layered content.

Level 1: Foundations (4 courses): Comprised of introductory or first-year courses, the four categories in this level build the essential skills students will need for success in college, careers, and life after graduation.

Level 2: Exploration and Discovery (6 courses): The six courses students select in Level 2, one from each category, will promote intellectual growth and personal responsibility. These courses may be taken at any point in the program, although WMU recommends taking them after Level 1 courses.

Level 3: Connections (2 courses): In this level, students will complete two courses that are the culmination of the WMU Essential Studies program. They are designed to widen students' perspectives; engage students in local, national, or global issues; and further develop skills introduced in Levels 1 and 2.

Diversity and Inclusion Requirement: Students will not only learn how diversity and inclusion impacts themselves and others, but also how to engage in meaningful interactions and understanding of the historical influences that impact today's world. To fulfill this requirement, students will select one course in Level 2 or 3 that has a Diversity and Inclusion outcome.

Planetary Sustainability Requirement: By analyzing the actions of community that promote or disrupt the well-being of the human and natural worlds over time, space, and culture, students will discover the interconnectedness of the human and natural worlds and the concept of sustainability. To fulfill this requirement, students will select one course in Level 2 or 3 that has a Planetary Sustainability outcome.

Successful completion of the program requires each student to complete:

- One course in every course category of the WMU Essential Studies curriculum.
- One course that addresses the "develop sensitivity to diversity and inclusion" required student learning outcome.
- One course that addresses the "develop practices for planetary sustainability" required student learning outcome.
- The program is designed for some course sequencing and ideally students will meet the following sequencing requirements;

a. Level 1 - Foundations course categories of *Writing and Inquiry and Engagement: Critical Thinking in the Arts and Humanities* must be completed as prerequisites for enrolling in Level 2 - Exploration and Discovery course category *Societies and Cultures*.

b. Level 2 - Exploration and Discovery course category *Societies and Cultures* must be completed as a prerequisite for enrolling in Level 3 - Connections course categories *Local and National Perspectives* and *Global Perspectives*.

- No more than three courses from any one prefix.

Students may receive credit in place of coursework, if the department offering the course provides credit by examination or an alternative demonstration of skills and knowledge, in accordance with the University's Credit by Examination Policy and Prior Learning Assessment Policy.

For more information see the WMU Essential Studies webpage: wmich.edu/essentialstudies.

WMU Essential Studies Requirements for Transfer Students

All students graduating from WMU must meet the requirements of WMU Essential Studies.

Students who have fulfilled the requirement of the Michigan Transfer Agreement (MTA) and are transferring from participating Michigan community colleges:

Colleges listed below have signed the Michigan Transfer Agreement. Transfer students from these schools whose transcripts have been appropriately identified and certified as having fulfilled the requirements of the Michigan Transfer Agreement by their respective community college will have satisfied WMU Essential Studies Level 1: Foundations and Level 2: Exploration and Discovery requirements. Such students only need satisfy WMU Essential Studies requirements of two Level 3: Connections courses; one in the Local and National Perspectives Category and one in the Global Perspectives Category.

Michigan community college Michigan Transfer Agreement (MTA) signators:

Alpena Community College
Bay de Noc Community College
Delta College
Glen Oaks Community College
Gogebic Community College
Grand Rapids Community College
Henry Ford College
Jackson College
Kalamazoo Valley Community College
Kellogg Community College
Kirtland Community College
Lake Michigan College
Lansing Community College
Macomb Community College

Mid Michigan Community College
Monroe County Community College
Montcalm Community College
Mott Community College
Muskegon Community College
North Central Michigan College
Northwestern Michigan College
Oakland Community College
St. Clair County Community College
Schoolcraft College
Southwestern Michigan College
Washtenaw Community College
Wayne County Community College District
West Shore Community College

Registration

Registration at Western Michigan University is conducted via the schedule and procedures as found on the Registrar's website, wmich.edu/registrar. This website should be consulted for information on registration dates, the priority registration schedule, drop/add dates, refund dates, final exam schedules, deadlines and methods of payment, and all policies related to registration.

Registration by students signifies an agreement to comply with all regulations of the University whenever approved by the University.

To begin registration, the student will log in to GoWMU at gowmu.wmich.edu and follow the script displayed. Students are not permitted to attend a course unless they are officially registered,

Priority Registration

Western Michigan University offers priority registration for each enrollment period as described on the Registrar's website. Students are encouraged to take advantage of priority registration but are cautioned that any subsequent change in their schedules should be made before the final day of the drop/add period. See the sections below for more information about changing registration schedules.

Forgiveness Policy

WMU undergraduate students who have not earned a degree and have not attended the University for at least four years, and have reapplied to the University, may apply for academic forgiveness through the Office of the Registrar. Students who are granted academic forgiveness may have work still applicable to their program counted toward graduation requirements, but grades will not be calculated in their grade point average. The WMU grade point average will be calculated from a minimum of twelve graded hours of work attempted **after** the reentry date. All other University regulations apply. As a matter of course, the Registrar will advise students granted forgiveness to meet with a college advisor.

Research Subject Protection and Registration

Students conducting research that involves human or animal subjects, biohazards, genetic materials, or nuclear materials/radiation **must have prior approval of the research proposal by the appropriate University board**, thus assuring compliance with the regulations for the protection of such subjects or for the use of such materials. There are no exceptions to this requirement. **Registration for courses in which research is conducted that requires such prior approval should not be attempted until the approval is granted by the appropriate University board.** The department requiring the course is responsible for assuring that the student has complied with federal, state, and WMU requirements. The student completing such regulated research for a course report, paper, project, or thesis must include the written approval or exemption letter from the appropriate board as an addendum to the report, paper, project, or thesis. For more information, call the Office of the Vice President for Research, (269) 387-8298.

University Tuition Scholarship Waiver

Undergraduate students interested in taking advantage of the *University Tuition Scholarship Waiver* must report to the Registrar's Office, Seibert Administration Building to pick up the authorization form.

Students who meet the following criteria are eligible to participate in this program:

- Must have previously *earned* thirty hours of credit from WMU.
- Must *presently* be enrolled and have paid for fifteen hours of credit for the semester they are seeking the tuition waiver.
- Must have an overall G.P.A. of 3.25 at Western Michigan University.
- Must be an undergraduate student in a degree program.

Undergraduate students who meet the qualifications may select **one** course per semester **outside their major, in under-enrolled courses, during the drop/add week only.**

Once the students have ascertained that they would like to participate in this program and meet all the criteria, they should go to the Registrar's office for the authorization form. The student will present the signed authorization card to Cashiering, 1270 Seibert Administration Building as their payment.

Withdrawing from or Adding Classes before the Final Date to Drop

Students may enroll in (add) any course through the first five days of classes of a semester or session. The final date for adding courses is published on the Registrar's website wmich.edu/registrar.

Only students who have a class that is not officially scheduled to meet during the five-day drop/add period will be given an additional opportunity to drop/add.

Students may withdraw (drop) classes through the fifth (5th) day of the semester or session and the course will not be reflected on the student's official transcript. **All withdrawals** received after the drop/add period will be reflected on the student's academic record as a non-punitive "W" (Official Withdrawal), as long as the withdrawal complies with the policy explained directly below.

Dropping Classes and Withdrawing from All Classes

Students may withdraw from one course, several courses, or all courses, without academic penalty from the day after the last day of the drop/add period for the semester or session, through the Monday of the tenth week (Fall/Spring semesters) and through the Monday of the fifth week (Summer I/II sessions). These withdrawals can be processed by the student online, through Go WMU. A non-punitive "W" will be recorded on the student's transcript for any classes the student withdraws from after the drop/add period.

Students are encouraged to discuss with their instructor before withdrawing.

Student should also be aware that there may be financial aid implications following a withdrawal. A withdrawal from any course or courses which changes a student's status from full time to part time may have insurance or other implications.

Withdrawal from a course at any time after the end of the student-initiated withdrawal period is effectively a grade change. As such it will be permitted only through the Grade Appeals Process, as described in the section Students Rights and Responsibilities, "Course Grade and Program Dismissal Appeals." To change an assigned grade to "W," documented hardship *must* be determined to have existed by a GAPDAC Hardship Assessment Panel, as described in the section Students Rights and Responsibilities, "Hardship Status".

Except for documented and exceptional circumstances, hardship petitions will not be accepted more than one year after the end of the term or session for which the hardship was documented. All petitions filed after the one year timeline must be granted an exception by the Office of the Provost prior to consideration by the Hardship Assessment Panel.

The student is strongly encouraged to consult with the University Ombuds before initiating a hardship-based withdrawal appeal.

After a semester or session has ended, a student wishing to withdraw from a course may file an appeal for a late withdrawal, as described in the Course Grade and Program Dismissal Appeals section, in the Student Rights and Responsibilities section of this catalog.

The Registrar's Office will record the drop or withdrawal if it has approvals as listed above.

Withdrawal time frame - Summary

1. From the end of drop/add period through Monday of the tenth week (Fall/Spring semesters) or Monday of the fifth week (Summer I/Summer II sessions):
 - Student can process the withdrawal online through GoWMU.
2. From the Tuesday of the tenth week (Fall/Spring semesters) through the end of the semester or the Tuesday of the fifth week (Summer I/Summer II sessions) through the end of the session:
 - Student must have signed approval of the instructor which requires that the student is passing and has a genuine hardship.
3. After a semester or session has ended:
 - Student may file for a late withdrawal.

Records

Identification Card

The Bronco Card is the student's photo identification card at WMU. In addition, the Bronco Card is the student's access card for the library, dining areas, Student Recreation Center, and computer centers and is a security access card for buildings on campus.

The Bronco Card also enables the student to ride for free on the Metro Bus Service on any route around the Kalamazoo area.

The Bronco Card has the size, look, and feel of a credit card. Included on the card are the student's picture and signature. On the back of the card is a magnetic strip, used for authentication.

The Bronco Card will serve the student as a University ID for as long as the student remains at WMU.

Name Change

Students may maintain academic records under the name used at the time of admission. However, any active student desiring to make an official name change must report to the Registrar's Office, third floor Seibert Administration Building to record the change. Legal proof is required.

Preferred Name

Western Michigan University recognizes that some students use first names other than their legal names to identify themselves. As an inclusive and diverse community, WMU allows students to use a preferred first name different than their legal name for certain purposes and records in the course of university business, communication, and education.

The legal name must still be submitted at the time of application and will continue to be used where required by law or university requirements. Appropriate WMU senior administration is authorized to make revisions, develop, manage and enforce guidelines to implement this policy to comply with the law, other university requirements, and collective bargaining agreements.

Students are expected to be respectful and appropriate in the use of preferred name. The use of the preferred name is not permitted to avoid legal obligations or for misrepresentation purposes. Any misuse can result in discipline as permitted under the Student Code. The University reserves the right to deny the use of or remove the preferred name if it deems the use is inappropriate.

Transcripts

A student's transcript from Western Michigan University is a document listing, at minimum, all courses taken and credit hours and grades earned in the courses.

Academic Regulations

Academic Standing

Notwithstanding the Academic Standing policy outlined below, a student admitted with Conditional Admission or Provisional Admission status must meet the specified performance level within the time frame identified in the letter of admission or may not continue to enroll in University courses. Further, the Academic Standing policy inherently presumes the student will first meet satisfactorily any obligations or requirements specified in the letter of admission before the Academic Standing policy shall have any effect on the continuing enrollment of the student.

- **Good Standing:** A student is in good standing whenever the student's overall grade point average is at least 2.0.
- **Warning:** Whenever the grade point average for any enrollment period is less than 2.0, but the overall grade point average is 2.0 or above, the student will be warned.
- **Probation:** The student will be placed on probation whenever the student's overall grade point average falls below 2.0. A student who is admitted (with Conditional Admission status) to the University on academic probation and receives at least a .01 grade point average, but less than a 2.0 grade point average at the end of the first enrollment period, will be placed on Final Probation. A first semester grade point average of 0.00 will result in Dismissal.
- **Probation Removed:** Whenever the conditions of Good Standing are restored, Probation will be removed.
- **Extended Probation:** The student will be placed on Extended Probation when, following a semester on probation, the student's overall grade point average is below 2.0 and the grade point average for the enrollment period is 2.0 or above.
- **Final Probation:** The student will be placed on Final Probation when, following a semester on Extended Probation, the student's overall grade point average is below 2.0 and the student's grade point average for the enrollment period is 2.0 or above.
- **Admitted on Probation:** An undergraduate student admitted to the University on academic probation who earns a first semester grade point average below the required 2.0 minimum, but as least 0.01, will be placed on final probation. A first semester GPA of 0.00 will result in academic dismissal. Once placed on final probation an undergraduate student must receive a cumulative GPA of at least 2.0 the next semester. Failure to do so will result in academic dismissal and enrollment in future classes will be prohibited.
- **Dismissal:** Students on Probation or Extended Probation who fail to achieve at least a 2.0 grade point average for the enrollment period, or students on Final Probation who fail to achieve a 2.0 overall grade point average will be dismissed from the University.

Student Attendance Expectation

Instructors are expected to establish and clearly communicate attendance expectations relevant to individual courses in the course syllabus. Course attendance expectations, where articulated, must be consistent with University policy. Students should always consult with the instructor to determine the potential impact of any absence.

It is recognized that occasionally it may be necessary for a student to be absent from a scheduled course activity for reasons beyond their control. Examples of such necessary absence include, but are not limited to religious observance, bereavement, illness, University sanctioned activities, and short-term military obligation. Examples of absence not considered necessary under this policy include but are not limited to work schedules or related events, vacations, trips, interviews, sports practice or optional events, and internship obligations.

The University expects each student to be responsible for class-related work missed as a result of a necessary absence; this work may be made up (or not) in some fashion at the discretion and direction of the instructor.

In all cases of possible accommodation for absence, it is expected that faculty will treat student requests with respect, and students must realize that only the instructor can excuse a student from a course requirement or responsibility, or assign make-up or alternative work.

When necessary absences can be anticipated, the student must inform the instructor of the situation as far in advance as possible and the instructor should strive to accommodate the student consistent with their class absence expectations. (Instructors should note that these expectations are easiest to apply equitably if they have been articulated in a syllabus.) Individual course policies may state expected notification periods. For unanticipated or emergency absences where advance notification to an instructor is not possible, the student should contact the instructor as soon as possible by e-mail, phone, or in person. The student must recognize, however, that simply informing the instructor is not the same as obtaining permission. It remains up to the individual instructor to decide if, and how, any work is to be made up. For this purpose, the student is responsible for initiating and maintaining communication with the instructor.

- **Religious Observance:** Instructors and students are expected to refer to the existing policy on absences related to religious observance: wmich.edu/policies/religious-observances.
- **Bereavement:** Reasonable absence during times of grief following the death of a close relative or friend is to be expected. Even when these events can be anticipated, the strong emotional consequences can lead to unpredictable behaviors or reactions. Instructors should assume the veracity of a request, especially when first contacted. Although some form of documentation may seem reasonable to request, in times of grief it may not be received or seen as a benign request. It is recommended that instructors perhaps consider reserving the right to request documentation at some future time, but begin by simply assuming a helpful attitude and trying to let the student move through the grieving process. As for duration of absence, instructors are expected to use reasonable judgment. The need to travel and the degree of responsibility may necessitate multiple class periods missed. Such absences are anticipated to be short term, one to three class periods per semester. Similarly, absences in the compressed summer terms may not be readily accommodated. If more time is needed, the students might need to be advised that making up the work may become prohibitive and other options (such as withdrawal or assigning an incomplete grade) might be discussed.
- **Illness:** Clearly, illness can strike anyone and result in a temporary inability to attend classes. Indeed, in the case of infectious illness, it is also in the best interests of all that a student not attend class. Instructors should use reasonable judgment in requesting documentation. Students should expect that documentation might be required, especially if the timing of absence coincides with exams, quizzes, or assignments. Instructors should also remain aware that often one can be quite ill but not seek medical attention and if students assert they could not attend class, one might waive a request for documentation (but this remains the instructors' prerogative). Such absences are anticipated to be short term, one to three class periods per semester. Similarly, absences in the compressed summer terms may not be readily accommodated. If more time is needed, the students might need to be advised that making up the work may become prohibitive and other options (such as withdrawal or assigning an incomplete grade) might be discussed.
- **University Sanctioned Activities:** Absences for University sanctioned activities, such as, but not limited to, athletic competitions, performances, and other similar organized activities that might conflict with classes are expected to be minimal since students can be aware of schedules during the registration process. One exception that sometimes arises is when travel is involved for formal competitive events. Students are expected to provide instructors, at the start of the term, with advanced, written notice of any and all potential conflicts with attendance and are responsible for making any necessary arrangements with the instructor. Such absences are expected to be minimal, one or two per semester. Similarly, absences in the compressed summer terms may not be readily accommodated. If more time is needed the students might need to be advised that making up the work may become prohibitive and other options (such as withdrawal or assigning an incomplete grade) might be discussed.
- **Short-Term Military Obligations:** The University recognizes that those who are actively serving in the Military Reserves or National Guard of the United States are required by their military contract to attend mandatory training. Any sequential or non-sequential absence may total no more than 15% of scheduled class meeting time. It is the responsibility of the student to inform the instructor at the beginning of the semester of the potential for mandatory military duty obligations. Students should expect that absences from heavier course loads may be more difficult, or not possible to recover from than absences from lighter course loads. Unique or variant exceptions should be dealt with in a negotiated manner between the student and instructor. In certain laboratory-based or intensive short-term courses, students can jeopardize their academic status with a number of absences, particularly in lab courses that cannot be made up later. In courses with extensive laboratory exercises, group projects, group performances, or participation requirements, equivalent exercises or assessments may not be possible, as determined by the instructor. Similarly,

absences in the compressed summer terms may not be readily accommodated. Students might need to be advised that making up the work may become prohibitive and other options (such as withdrawal or assigning an incomplete grade) might be discussed.

Military Reserve is a person who is currently serving in one of the following services:

- United States Army Reserve
- United States Navy Reserve
- United States Marine Corps Reserve
- United States Air Force Reserve

National Guard is a person who is currently serving in one of the following services:

- Michigan Army National Guard
 - Michigan Air National Guard
 - Army or Air National Guard of any other state or territory of the United States of America
- Department of Homeland Security Reserve is a person who is currently serving in the United States Coast Guard Reserve.

Course Grades and Grading System

The student receives one grade in each course taken. This grade combines the results of course work, tests, and final examinations. Grades are indicated by letters, to each of which is assigned a certain value in honor points per hour of credit, as shown in the table below.

Grade	Significance	Honor Points
A	Outstanding, Exceptional, Extraordinary	4.0
BA		3.5
B	Very Good, High Pass	3.0
CB		2.5
C	Satisfactory, Acceptable, Adequate	2.0
DC		1.5
D	Poor	1.0
E	Failing	0.0
X	Failure (Unofficial Withdrawal)	
W	Official Withdrawal	
I	Incomplete	

CR	Credit
NC	No Credit
AU	Audit (non-credit enrollment)

Credit/No Credit System

The regulations of a system supplementing the A, B, C, D, and E grading system for undergraduate students but not replacing it, except as the student wishes, are as follows:

- The name of the program shall be "Credit/No Credit."
- "Credit" will be posted for each undergraduate student who earns the grade of "C" or better. "No Credit" will be posted for any grade below a "C." Faculty members will not be notified whether a student is taking a course for a grade or for Credit/No Credit.
- A student may elect for "Credit/No Credit" any course approved for WMU Essential Studies or General Physical Education credit, as well as other courses not counting toward his/her major or specified in his/her curriculum as defined in the University *Undergraduate Catalog*. Intern Teaching, a required course, is, however, taken on a credit/no credit basis.
Acceptance of "Credit/No Credit" in required courses may be permitted on an individual basis by the head of the department or dean of the college requiring the course.
- A student may change **only** during the drop/add period from "Credit/No Credit" to letter grade or from letter grade to "Credit/No Credit."
- All undergraduate students, regardless of classification or probationary status, will be allowed to enroll "Credit/No Credit."
- "Credit/No Credit" courses, while counting toward a degree, will not be used to determine the overall grade point average (GPA) of the individual student.

Important: Students should be fully aware of the implications of this system for acceptance in graduate schools. It has been ascertained that most graduate schools will accept students who have elected to take courses on a "Credit/No Credit" basis, but that if courses taken on this basis are sufficient in number on the transcript, the Graduate Record Examination may be utilized to determine the student's acceptability. Graduate schools, in general, do tend to favor those applicants who have good letter grades on their transcripts.

"I" Incomplete

This is a temporary grade, which the instructor may give to an undergraduate student when illness, necessary absence, or other reasons beyond the control of the student prevent completion of course requirements by the end of the semester or session. **The grade of "I" (Incomplete) may not be given as a substitute for a failing grade.**

A grade of "I" must be removed by the instructor who gave it or, in exceptional circumstances, by the department chairperson. If the unfinished work is not completed and the "I" grade removed within one calendar year of the assignment of the "I," the grade shall be converted to an "E" (failure). **Students who receive an incomplete grade in a course must not re-register for the course in order to remove the "I."**

An instructor who assigns a grade of "I" will submit a Report of Incomplete Grade Form located on the faculty menu in GoWMU indicating the remaining requirement for removal of the incomplete grade and indicating the time allowed, if less than one full year. An email will be automatically generated to the student, the Registrar's Office as well as an e-mail confirmation sent to the instructor.

"W"—Official Withdrawal

A grade of "W" is given in a course when a student officially withdraws from that course or from the University before the final withdrawal date in the semester or session specified in the Registrar's website. The "W" is a non-punitive grade.

"X"—(Failure) Unofficial Withdrawal

The symbol "X" is used to indicate that a student has never attended class or has discontinued attendance and does not qualify for the grade of "I." The "X" will be computed into the student's grade point average, as a 0.0, the same as an 'E'.

Grade Change

A student who believes an error has been made in the assignment of a grade must follow the procedures described under "Grade Appeals" on the Ombudsman website wmich.edu/ombudsman. The policy describes the appeal procedures, the stages of appeal, and the time deadlines for submitting the appeal at the various stages. Faculty who determine outside of the student course grade appeals process, that an error was made in the assignment of a grade must submit a Change of Grade form (located on the faculty menu in GoWMU) within one calendar year of the original grade assignment and must provide a rationale for the change. Instructors should not provide additional work to student after the semester has ended and after a final grade has been assigned.

Grade Point Average

A grade point average is obtained by dividing the total number of honor points earned by the total number of semester hours of work for which the student is officially enrolled during any period. For example, a total of thirty-two honor points earned in a semester by a student officially enrolled for sixteen hours of work, gives a grade point average of $32 \div 16$ or 2.0 for the semester.

Honor Points

The number of honor points earned in a course is the number of semester hour credits given by the course multiplied by the honor points assigned to the grade earned in the course. (See the "Grading System" table above.) For example, a grade of B (3 honor points) in a 4 credit hour course gives 4×3 , or 12 honor points.

Prior Learning Assessment (PLA) Opportunities for Undergraduate Programs

Credit by Prior Learning Assessment (PLA)

Each academic unit responsible for offering an undergraduate program may, with the approval of its dean, establish a procedure for granting credit via PLA, including the use of portfolios or any other methods noted within this policy, for any undergraduate course. All credit by PLA is subject to the following regulations:

1. The academic unit which offers an undergraduate degree program, major, minor or certificate program shall determine if a PLA process may be used to obtain credit for a particular undergraduate-level course required by a degree program, major or minor in that academic unit.
2. All PLA applications will be administered, graded and/or reviewed, by no fewer than two faculty members. If the unit offering a given course for which PLA credit is sought, is different than the unit offering the undergraduate major, minor, core curriculum course or certificate program, then faculty from the unit teaching the course should conduct the review of the request for granting prior learning credit for the course. The review of requests for prior learning credit must be completed within one calendar year after the receipt of the request.
3. All PLAs shall be graded "Credit" or "No Credit." "Credit" will be posted on the transcript as "Credit earned by PLA" without letter grade or honor points. Such credits will be listed as completed credits for one or more courses within a given program, but not counted in the grade point average. Students who do not achieve a sufficient score to receive "Credit" will have no entry made on their transcripts.
4. Any credit awarded via PLA can be used to meet any University graduation requirements.
5. Credit awarded via PLA will be placed on a student's transcripts only after the student is admitted to a specific undergraduate degree program, major, minor or certificate program, although PLA request assessments may occur prior to such admission.
6. PLA credit earned at another university, whether awarded by examination or some other form of PLA, may transfer to WMU in accordance with the current policies governing transfer of credit.
7. The maximum number of total credits allowed to be granted via all forms of PLA must be a reasonable proportion of the credits or courses required to complete a student's program. This amount may vary per program; however, the

number of credits awarded via a WMU PLA assessment process may be no more than 45 undergraduate credits. For certificate programs, the maximum number of PLA credits awarded can be no more than one-half of the required credits (as rounded-up to include all credits for a given course).

8. The process to create a PLA opportunity, beyond that of solely examinations, for a given undergraduate degree program, major, minor or certificate program must be initiated by faculty from that degree program, major, minor or certificate program. The written procedures for granting credit for prior learning must be approved by the chair, director and college dean of the department and college that offers the degree program, major, minor or certificate program for which prior learning credit is requested. These written procedures must specify:
 - a. the specific courses for which PLA credit can be granted for a given degree program, major, minor or certificate program;
 - b. detailed learning outcomes for each of these courses;
 - c. rubrics that show how prior learning from previous work experience, training, course products or other learning experiences, as evidenced by an applicant via a portfolio or other means, will be evaluated against the learning outcomes for each specific course;
 - d. the overall review process including the number of reviewers and review completion timelines;
 - e. the detailed application process
 1. including when a PLA application can be made (e.g., before or after admission to a given degree program, major, minor or certificate program or while already taking classes in a specific degree program, major, minor or certificate program);
 2. how such an application is to be submitted (e.g., portfolio, credentials, demonstrations);
 - f. the maximum number of credits, and justification for such number, that an applicant could apply for PLA credit, not to exceed the university maximum amount for undergraduate PLA.
9. Each department with program faculty engaged in reviewing and approving credits via any type of PLA process, shall provide uniform data on such activities to the appropriate WMU entity for reporting and Higher Learning Commission (HLC) accreditation purposes.

Advanced Placement Program (AP)

Western Michigan University participates in the Advanced Placement Program (AP) of the College Board. Students who earn the required score on an AP exam will receive college credit in the appropriate subject. For information about AP score requirements and equivalent credit awarded at Western, visit wmich.edu/registrar/students/advising/students-advising-ap. Students should have College Grade Reports of their test scores sent to the Office of Admissions at Western Michigan University (college code 1902).

After AP College Grade Reports of examination scores are received and evaluated, the Office of Admissions will notify students of the specific decisions regarding any credit award. After students' enrollment at Western, the Office of the Registrar will post course credit to students' transcripts.

College Level Examination Program (CLEP)

This program provides the opportunity to earn college credit by examination in a variety of areas of study. There are two types of tests offered—general examinations and subject examinations. Western Michigan University's credit award policies for each type are noted below. Interested students should check with their WMU academic advisors before making testing plans. Official score reports of CLEP testing should be sent to Western (college code 1902) by the College Board. In reference to CLEP credit granted by Western Michigan University and the University's graduation requirements, CLEP credit is not applicable to the required hours completed at an accredited four-year, degree-granting institution.

General Examinations

1. Students may take the general CLEP examinations only before completing 24 credit hours after entering or re-entering WMU.
2. The following eligibility rules apply to students who wish to take the general CLEP examinations:
 - Students who have already received credit for a college writing class cannot receive credit by passing the College Composition examination.

- Students who have already received credit in a college mathematics course cannot receive credit by passing the College Mathematics examination.
- Students who completed a WMU course or transfer equivalent that applies to the General Education Distribution Area of Fine Arts, Social and Behavioral Sciences, or Natural Sciences cannot receive credit for the corresponding CLEP examination.

3. The following guidelines shall apply in the earning of CLEP credit.

- If a student passes the Humanities examination with a score of 50 or above, three hours of credit will be awarded in Area I (fine arts) of the General Education Program.
- If a student passes the Social Sciences and History examination with a score of 50 or above, six hours of credit will be awarded to Area V (social and behavioral sciences) of the General Education Program.
- If a student passes the College Composition examination with a score of 50 or above, three hours of credit for ENGL 1050 will be awarded in Proficiency 1 of the General Education Program.
- If a student passes the Natural Sciences examination with a score of 50 or above, three hours of elective credit will be awarded in Area VI (natural sciences) of the General Education Program, but will not satisfy the lab course requirement for Area VI.
- If a student passes the College Mathematics examination with a score of 50 or above, three hours of credit will be awarded in Proficiency 3 (mathematics) of the General Education Program.

Subject Examinations

CLEP subject examinations test specific knowledge areas and, unlike the general examinations, any Western student may take them and receive credit with appropriate scores. The University awards credit for only a limited number of the CLEP subject examinations. Students may not receive CLEP subject credit if they have already received college credit for an equivalent course. Visit the Office of Admissions website at wmich.edu/admissions/transfer-clep for detailed information about Western's score requirements and CLEP credit policy.

Comprehensive Examinations

Each department shall have the authority, with the approval of its dean, to establish a procedure for granting credit for any course in that department through comprehensive examinations. All comprehensive examinations should be administered by authorized personnel determined by the department. Each department should determine those courses for which the comprehensive examination procedure applies.

All credit by examination is subject to the following requirements:

- All credit will be posted as credit only, without grade or honor points. Students who do not achieve a sufficient score for credit will have no entry made.
- Credit by comprehensive examination in courses numbered 3000 or higher can be used to meet the requirement that one-half of all academic work must be completed at a four-year degree-granting institution.
- Credit by comprehensive examination can be used to meet all other University graduation requirements, except the minimum residence requirements.
- Credit by comprehensive examination can be posted only for admitted students who have either previous or current enrollment.
- All credit by comprehensive examination is normally considered undergraduate credit.

Final Examinations

The official final exam week is at the end of each fall and spring semesters. Exams for courses are to be given during that week at specific times other than the normal class meeting time. All final exams are held in the normal classroom unless other arrangements have been made with the Registrar's Office. Use of classrooms for review sessions must be scheduled through the Registrar's Office.

Regularly scheduled class meeting times are not held during final exam week. For courses having both lectures and labs, or discussions the time of the exam will be determined from the time of the first lecture period of the week. For courses having labs only the exam will be determined from the time of the first lab period.

Exam times for classes that begin on the half-hour will be the same as for classes which begin on the previous hour. The exam time for a class beginning at 9:30 a.m. would be scheduled with classes that start at 9 a.m., and the exam time for a class beginning at 2:30 p.m. would be with classes that begin at 2 p.m. Where all sections of a given class are given at one time the exam will be given during the mass exam time in the schedule per faculty instructions.

Exams for arranged class times are to be scheduled during final exam week at the convenience of the instructor and the student. The instructor will arrange the exam time for a course not covered by the exam schedule. Please contact the instructor for location and time.

If a student is assigned three or more exams on any single day of final exam week, University policy allows the student to arrange with their instructor(s) to reschedule one or more exams so the student will have no more than two exams scheduled on any single day of final exam week. Students should receive early notification from their instructors as to the dates, times and places of their exams. Students must make their requests to reschedule a final exam no later than 14 calendar days before the Monday of the final exam week, as designated by the final exam schedule.

A mass exam may be scheduled when multiple sections of the same course take the same exam at the same time. Permission to offer a mass exam may be granted by the chairperson of the department if certain criteria are met and if space is available as determined by the Office of the Registrar. Only the fall and spring semesters have a final examination week.

Full-Time/Part-Time Student Status

Full-time undergraduate students are defined by credit hours enrolled in a given semester or session as follows:

Fall/Spring Semester

Undergraduate 12 hours

Summer I/Summer II Session

Undergraduate 6 hours

Part-time undergraduate students are defined as taking fewer than twelve hours during a semester or fewer than six hours during a session.

Three-quarter time undergraduate students are defined as taking nine to eleven hours during a semester and five hours during a session.

University Housing has its own regulations on the definition of hours needed to be eligible for housing contracts. Students should contact the University Housing Office for this information wmich.edu/housing. The above definitions are Western Michigan University regulations and may or may not be accepted by other agencies.

Credit Hour Cap

All undergraduate student enrollments will not exceed 19 hours for the fall or spring semesters and will not exceed 10 hours for the summer I or summer II sessions.

These enrollment caps can only be increased for a given semester or session by prior permission from a student's college advisor.

Honors

Dean's List

To gain a place on the Dean's List for a semester, a student must:

- Have completed at least twelve semester hours of work **during** the fall or spring semester for letter grade.
- Have a grade point average of at least 3.50 for the semester.

To gain a place on the Dean's list for a Summer I or II session, a student must:

- Have completed at least six semester hours of work **during** the Summer I or Summer II for letter grade.
- Have a grade point average of at least 3.50 for the session.

Honors Upon Graduation

Honors are conferred upon graduating students who have displayed a high level of performance during their University career.

Recipients of honors receive their degrees:

- *Cum laude*: when their grade point average is 3.50 to 3.69, inclusive
- *Magna cum laude*: when their grade point average is 3.70 to 3.89, inclusive
- *Summa cum laude*: when their grade point average is 3.90 to 4.00, inclusive

In computing the grade point average for honors, the following rules will apply:

- All credits and honor points earned at Western Michigan University will be counted.
- All students must have earned at least fifty semester hours of course work at Western Michigan University which was graded by a letter grade and computed into the final cumulative grade point average.

The commencement program will list as candidates for honors, all students who have earned a grade point-hour average of 3.50 and have registered for 30 hours of graded WMU credit by the end of the first week of their final semester. Final determination of honors and level of awards will be based upon all work and will appear on the final transcript and diploma.

Independent Study

Independent Study refers to enrollment in an appropriately designated, variable-credit course for a specific plan of study, authorized and supervised by a designated, consenting faculty member.

Independent Study is not a substitute for regular courses, but an enrichment opportunity. Normally, it is a project designed to allow students to investigate an area of interest not within the scope of a regular course, to probe in more depth than is possible in a regular course, or to obtain an educational experience outside that normally offered by a regular course.

Since individual Independent Study projects are not normally reviewed through the usual departmental and University processes, it is essential that the academic adequacy of such projects be assured by some other means applied consistently throughout the University.

The following policy guidelines are intended to serve that function.

Proposals for Independent Study

Independent Study requires an adequate description of the work to be undertaken, requiring planning in advance of the registration period. Sufficient time, therefore, must be allowed for such planning and for obtaining the necessary faculty and administrative approvals.

While the Independent Study project is normally student-initiated, early interaction with faculty is essential in the development of a mutually acceptable project description. At a minimum, such a description should contain an outline of the study topic, specification of the work to be done and the materials to be read, the credit to be given, the type and frequency of faculty-student contacts, and a statement of the evaluative criteria to be used by the faculty member.

Approval Process

The faculty member must accept and approve the student and the project, and then submit the agreed-upon proposal on the appropriate University form to the department chairperson for approval. If the chairperson approves, information copies of the form must be submitted to the dean and the Registrar.

The granting of approval by the department chairperson may involve considerations, such as faculty workload, which go beyond the merits of the project.

Faculty Responsibility

Independent Study is basically a tutorial process, necessarily involving substantial faculty participation. In that respect, it should be distinguished from "credit by examination," a different option in which the role of the faculty member is primarily evaluative.

A student is on his/her own in Independent Study in that it involves no class meetings or formal lectures, but the faculty member is the responsible custodian of the project, obliged to provide guidance, assistance, criticism, suggestion, and evaluation, and shall be the instructor of record who is responsible for turning in a grade to the Registrar's Office.

Repeated Course

The following is the general University policy regulating repeated courses. Some academic Colleges, however, have a somewhat different policy regulating students in academic programs within those Colleges. You are advised to seek the counsel of the academic advisors in the College advising offices regarding the specific repeated course policy for that College.

Any course in which a student may have been enrolled more than once is considered a repeated course. A grade must be presented for each course, and any course first elected for a letter grade must be elected for a letter grade when repeated. If a student wishes to repeat a course taught by an overseas institution during WMU sponsored study abroad, the pre-approved WMU equivalent course may be repeated for credit if the student's department approves.

Only the most recent grade for a repeated course is used in calculating a student's grade point average. However, if a student receives a letter grade in the first enrollment and then enrolls again in the course and receives a grade of "W," "Cr," or "NC," the previous grade will remain in the grade point average.

The number of times a course can be taken is limited to three, although courses in which grades of "W," "Cr," or "NC" are received will not count as attempts in limiting the maximum number of times a student can register for a course. Appeals may be addressed to the department chairperson.

There is no limit on the number of different courses that can be repeated.

A repeated course is not removed from the student's record. All grades earned are shown on the transcript.

Many graduate and professional schools recalculate the grade point average using grades from all classes taken, including repeats, in determining eligibility for admission. This fact should be carefully considered by students who are attempting to increase their grade point average by repeating courses in which they have received a passing grade.

Repeated Courses in the College of Engineering and Applied Sciences

Students in the College of Engineering and Applied Sciences may enroll in a course that is required in their curriculum only three times. Any additional enrollments require prior written approval of their department chair.

GPA Revision for Change of Major

Undergraduate students may apply one time for a GPA Revision when changing a major. GPA Revision allows the students to request that up to three courses may be removed from the GPA Calculation. The courses must be from a declared major, prerequisite, or cognate in that major where the grade of E or X was earned. The courses also must be taken in the student's first three semesters at WMU. No other courses or grades may be considered for GPA Revision.

Undergraduate students seeking a GPA revision for a changed of Major must meet the following additional criteria:

- Have not earned a bachelor's degree from Western Michigan University.
- Have not previously received GPA revision for a change of major.
- The new major must be in a different department or academic unit.

Additional specific requirements for a GPA Revision are:

- A maximum of three courses may be removed from the student's GPA calculation, including repeats of the same course.
- Courses where there is a finding of responsibility for an academic integrity violation may not be removed from the GPA calculation.
- The credits earned for these classes will also be removed from the student's academic record.
- There will be no refund of tuition or fees for courses removed from the GPA Revision.
- All grades will remain on the official transcript and will not be calculated in the GPA or credits earned. However, the course work will still count towards the maximum time-frame for Satisfactory Academic Progress.
- The office of Financial Aid will determine how the proposed GPA revision impacts Satisfactory Academic Progress.

Students requesting a GPA Revision must contact the director of advising for the college in which the new major resides and obtain approval for the transfer.

Service-learning, Co-curricular Learning and Volunteerism

Service-learning, co-curricular learning and volunteerism are all forms of experiential learning that do not include financial remuneration. Experiential learning is an important aspect of a student's academic career and includes pedagogies that incorporate practical application and hands-on experiences into learning.

Service-Learning: Service-learning, while enrolled at Western Michigan University, is a mutually beneficial endeavor in which course learning objectives are met by addressing community-identified needs--putting academics into practice. The criteria for the service-learning course designation are as follows:

- Service project must enhance understanding of course learning objectives
- Students provide at least 15 hours of service during the semester. Project-based learning is determined by completion of project goals rather than number of hours. *Hours must be logged*
- Must include critical reflection of student's experiences
- Projects must serve a community-identified need
- Must be a reciprocal partnership among community partners, students, and professors/instructors/staff
- Projects must be arranged by university faculty or staff
- Only courses in which service-learning is required for all students will receive the service learning designation
- To receive the designation, the course must include the service-learning requirement every time it is taught

Co-Curricular Learning: Co-curricular learning, while enrolled at Western Michigan University, takes place outside formal academic studies. The criteria for co-curricular learning include:

- Learning objectives are determined by the organizing body, and are not associated with course content and objectives
- Number of hours is set by the organizing body-Registered Student Organizations (RSO's), Resident Assistants (RA's), other student groups, etc.
- Includes structured reflection
- Service enhances student learning and meets community needs

Volunteerism: Volunteerism refers to work done to give back to the community and may be completed by individual students or by organized group activities. It may be done on a voluntary basis or as required for an academic course, program or other campus organization while enrolled at Western Michigan University. Volunteerism:

- Is usually not related to an academic course
- Has no minimum or maximum number of hours; hours should be logged in GoRSO
- Does not necessarily include reflection

Students Rights and Responsibilities

University Policies, Statements and Procedures

In addition to the several policy statements articulated below, please note that the official version of all University policies is wmich.edu/policies.

Western Michigan University Student Code

The Student Code describes the boundaries of acceptable student behavior and is approved by the Board of Trustees. The Office of Student Conduct interprets and enforces the Student Code, which is found at wmich.edu/conduct/code.

Academic and Research Misconduct

The policies and procedures regarding student academic misconduct may be found in the student Code at wmich.edu/conduct/code.

The policies and procedures regarding research misconduct may be found at wmich.edu/policies/research-misconduct.

Except in situations which have specific additional requirements due to the project's funding, any student involved in alleged misconduct while conducting research for academic credit will go through the Academic Integrity process managed and facilitated by the Office of Student Conduct.

Animals on Campus

For rules regarding animals on campus, please see the Animals on Campus Policy, at wmich.edu/policies/animals-on-campus, and the Community Living Expectations/Residence Life Policy Book, at wmich.edu/housing/info/policies, for information relating to animals in Residence Halls and WMU apartments.

Course Grade and Program Dismissal Appeals

Course Grade Appeals

This section applies when a student wants to appeal a final course grade that has been recorded by the Registrar on the student's academic record. Appeal panels are assembled from the faculty under the authority of and by the Provost and Vice President for Academic Affairs or designate. Throughout this process, the Office of the Ombudsman is available to students and instructors for assistance on procedures and clarification of the rights of all parties.

The accepted bases of course grade appeal are:

- Grades were calculated or the program dismissal decision was made in a manner inconsistent with the University policy, the syllabus, or changes to the syllabus.
- The grade(s) was/were erroneously calculated.
- Grading/performance standards were arbitrarily or unequally applied.
- The instructor failed to assign or remove an Incomplete or to initiate a grade change as agreed upon with the student.
- Late withdrawal from class(es), after grades have been assigned, due to genuine hardship. (Students appealing on this basis should proceed by contacting the Ombuds Office and following the procedures for hardship determination wmich.edu/ombudsman/appeal-hardship)

A grade appeal cannot be made in response to a grade penalty assessed as a result of an official finding of responsibility for academic integrity violation(s). Such a finding will have been made through the procedures provided in the academic integrity policy.

The steps to be taken in appealing a grade are:

- **Informal meeting with instructor:** A student is encouraged to begin the appeal process by meeting with the instructor who assigned the grade. Such meetings often help students understand the grading practices of instructors and often lead to resolution of differences over grades.
- *Written appeal and conference with the academic unit chair/director:* A grade appeal must be in writing, in hard copy, and must be submitted to the academic unit chair/director. This appeal must be received by the academic unit chair/director within 20 business days of the last day of the semester or session in which the grade was recorded on a student's record. The Provost or designate may grant an extension should a genuine hardship arise (i.e., illness, death in the immediate family). The letter must identify the basis of the appeal and must state in detail why the student believes the grade should be changed. Following a conference with the student, the chair/director must respond in writing to the student with a copy to the instructor, their dean, and the Grade and Program Dismissal Appeals Committee (GAPDAC) within 20 business days. In this letter, the chair/director should confirm the meeting with the student, recap their discussion, and state whether the student has an appeal which meets the established criteria (A, B, C, or D above). If the situation appears to meet the criteria for appeal, the chair/unit director may recommend that the instructor reevaluate the student's work. *The chair/director cannot change the student's grade without the instructor's agreement.* **Note:** Grade appeals or other complaints based on charges of discrimination or sexual harassment should be taken to the Office of Institutional Equity or other office, pursuant to other University policies and procedures.
- *Appeal to committee:* After the chair has completed the response to the student's appeal, the student may appeal to the Grade and Program Dismissal Appeals Committee (GAPDAC). This appeal must be initiated within 20 business days completion of step 2. If the student has requested a meeting with the academic unit chair/director and has not been granted such a meeting within 40 business days of the student's request, the student may then initiate an appeal to GAPDAC. The student will initiate an appeal through the Office of the Ombudsman. When the Ombuds receives an appeal, the Provost or designate will schedule a meeting of GAPDAC using procedures determined by the Professional Concerns Committee (PCC) of the Faculty Senate. The GAPDAC will consist of three members drawn from a pool of faculty established for this purpose. In a grade appeal, both the student(s) and the instructor should provide a written statement describing the situation under consideration. An appearance to provide additional information at the appeal by either the instructor or student(s) may be requested by the appeals committee. *A GAPDAC can effectuate a grade change by majority vote.* The decision of the hearing panel is final and not subject to appeal.
- **Instructor unavailable to assign grade:** Circumstances may arise which may prevent an instructor from assigning a grade in a timely manner. In such instances, the academic unit chair/director will make reasonable efforts to contact and ask the instructor to supply a grade. If these efforts are unsuccessful, the instructor's academic chair/director will appoint another qualified faculty member to assign the grade.

Program Dismissal Appeals

This section applies when a student wants to appeal a decision to dismiss the student from an academic program for reasons other than charges of violations of academic integrity policies. Appeal panels are assembled under the authority of and by the designate of the Provost and Vice President for Academic Affairs. Throughout this process, the Office of the Ombudsman is available to students and instructors for assistance on procedures and clarifications of the rights of all parties.

The accepted bases of program dismissal appeal are:

- The program dismissal decision was made in a manner inconsistent with University policy or the program policy.
- The program dismissal procedures were not followed.
- Evaluation/performance standards were arbitrarily or unequally applied.

A program dismissal appeal cannot be made in response to an academic integrity or conduct dismissal from the University. The student's status, as dismissed from the program, will remain unaltered until a successful appeal is completed.

NOTE: A program dismissal appeal based on charges of discrimination or sexual harassment should be taken to the Office of Institutional Equity or other office, pursuant to the other University policies and procedures.

NOTE: A program dismissal based on genuine hardship should be addressed according to the University hardship policies.

The steps to be taken in appealing a program dismissal are:

- **Appeal to committee:** The student may appeal to a Grade and Program Dismissal Appeals Committee (GAPDAC). This appeal must be initiated within 20 business days of the notification of program dismissal. The student will initiate an appeal through the Office of the Ombudsman. When the appeal is received, the Provost or designate will schedule a meeting of a GAPDAC using procedures determined by the Professional Concerns Committee of the Faculty Senate. The GAPDAC will consist of three members drawn from a pool of faculty established for this purpose. In a program dismissal, the student appellant should attend the meeting of the appeal panel and must provide a written statement describing the grounds for appeal. A University representative from the program must attend the meeting and must provide a written statement describing the grounds for and circumstances of dismissal.

A GAPDAC may reverse or sustain a program dismissal by majority vote. The decision of the hearing panel is final and not subject to appeal.

Selection, Training, and Organization of Grade and Program Dismissal Appeal Committee

A Grade and Program Dismissal Appeal Committee (GAPDAC) will be drawn from a pool of faculty who are trained under procedures determined by the Professional Concerns Committee (PCC) of the Faculty Senate. For each appeal that requires review, a GAPDAC panel will be selected to hear the appeal and to decide the matter.

Each academic college shall provide a cohort of tenured or tenure-track faculty members to serve on the GAPDAC pool in proportion to its respective student credit hour production. Faculty members will serve three-year terms. It will be necessary to include in the pool those who can serve during summer sessions.

Each GAPDAC shall be composed of three faculty members, at least one of whom is from the college where the course or program in question resides. Each GAPDAC will elect a faculty member to chair the committee, and each GAPDAC must have all three members present to have a quorum. Procedures for selection of a GAPDAC will be constructed and administered by the PCC.

Faculty Oversight of Grade and Program Dismissal Appeals Committee

The PCC shall function as an oversight committee for reviewing and monitoring all University policies and procedures dealing with grade and program dismissal appeal issues. A report of all GAPDAC activities shall be made to the Faculty Senate Executive Board each year by the PCC, and recommendations for changes in policies and procedures regarding grade and program dismissal appeal issues may be part of that annual report. Such recommendations may result in modifications to these policies and procedures.

Diversity, Multiculturalism, Inclusion, and Non-Discrimination

President's Statement on Diversity, Multiculturalism, and Inclusion

As the president of Western Michigan University, I am proud to reaffirm our longstanding commitment to diversity and inclusion, and to our fundamental belief in the dignity and worth of every human being, no matter their race, ethnicity, gender, national origin, sexual orientation, socioeconomic status, age, physical attributes and abilities; and religious, political, cultural, and intellectual ideologies and practices.

It is our differences that enrich the human experience and make us stronger. As members of the WMU community, we carry a collective responsibility to create an environment where every person is appreciated and treated with civility and respect. That responsibility is ours not only because of the vibrant campus culture a diverse community creates, but also because of the power and strength that diverse perspectives, ideas and experiences bring to our society as a whole.

We will always honor higher education's role as a place that nurtures the open exchange of ideas and advances our constitutionally guaranteed freedom of speech and expression. However, we abhor attempts to use those freedoms to take us back to a darker time or place. Efforts to threaten, demean, or degrade one of us is an assault against our whole community. The strength of this campus is its people, and we will vehemently guard against expression that is rooted in hatred and the kind of

violence that should be abhorrent to every citizen. As an inclusive and welcoming campus, we cannot let such speech or actions go unchallenged.

The Board of Trustees took a significant step in reinforcing our dedication to inclusion by adopting a carefully developed Diversity and Multicultural Action Plan--the DMAP. The plan was intended to provide a framework and guidelines for us to continually update and revise as we work to fulfill the expectations we've imposed upon ourselves as well as uphold the laws of our nation. In addition, our University strategic Plan continues to advance, strengthen, and refine our commitment towards building a more diverse and inclusive University community.

Our institutional pledge to promote inclusive behavior is also reflected in the nondiscrimination policy adopted by the Board of Trustees. That policy prohibits discrimination or harassment that violates the law or which constitutes inappropriate or unprofessional limitation of employment opportunity, University facility access, or participation in University activities, on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, age, protected disability, veteran status, height, weight or marital status.

The University complies with applicable laws and regulations and pursues opportunities to engage in efforts within the law to maintain and support an environment that is welcoming to all. We will continue to secure the University's future success and fulfill the letter and the spirit of the law by:

- Recruiting students, faculty, and staff from every part of the nation and around the globe;
- Promoting discussion that is civil, courteous and respectful;
- Supporting initiatives that help the entire University community appreciate and value the benefits that come from being part of a campus where all are welcomed; and
- Ensuring that WMU becomes a school of choice by modeling inclusion not exclusion.

Together, we are stronger as a University and stronger as a campus community.

Edward Montgomery
President

Non-Discrimination and Sexual Misconduct

Western Michigan University prohibits discrimination or harassment which violates the law or which constitutes inappropriate or unprofessional limitation of employment opportunity, University facility access, admissions, or participation in University activities, on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, age, disability, genetic information, protected veteran status, height, weight, or marital status. Retaliation against any person or group who makes a good faith complaint or participates in a grievance, investigation or related processes is prohibited by law and policy.

The following 3 positions have been designated to handle inquiries regarding the non-discrimination policy;

- Assistant Director Compliance
- Associate Director/ADA Coordinator
- Director Title IX Compliance/Title IX Coordinator

The full non-discrimination policy is available at wmich.edu/policies/non-discrimination.

Contact Information:
Institutional Equity
1903 W. Michigan Ave
Kalamazoo, MI 49008-5405
(269) 387-6316
wmich.edu/equity

Inquiries or complaints concerning the application of federal law may be referred to the appropriate external agency:

Office for Civil Rights (Regional Office)
U.S. Department of Education
1350 Euclid Avenue, Suite 325
Cleveland, OH 44115-1812
Phone: (216) 522-4970
Fax: (216) 522-2573
DD: (800) 877-8339
Email: OCR.cleveland@ed.gov

Equal Employment Opportunity Commission – Detroit Office
Patrick McNamara Building, Suite 865
477 Michigan Avenue
Detroit, MI 48226
Phone: (800) 669-4000
Fax: (313) 226-4610
TTY: (800) 669-6820

The Family Educational Rights and Privacy Act

The Office of the Registrar is the institution's official custodian of educational records. This office also holds the final responsibility in the enforcement of the Federal Educational Rights and Privacy Act of 1974 (FERPA). Specific information may be found at wmich.edu/policies/ferpa-policy.

Minors on Campus

WMU has a Policy specifically addressing Programs and Activities Involving Minors. For the most up-to-date version, go to wmich.edu/policies/minors.

WMU's Office of Precollege Programming provides leadership and direction for individuals, programs and units at Western Michigan University involved in outreach with precollege students. If you are considering or are involved in any such programs and activities involving minors, the University Policy and information on how to participate are located at wmich.edu/precollege.

Reporting Criminal and Unethical Activities

Duty to Report Criminal Acts

The Western Michigan University board of Trustees' Policy on Duty to Report Criminal Acts is located at wmich.edu/policies/criminal.

President's Statement on Reporting Illegal and Unethical Activities

(December 8, 2011)

"This has been a fall rife with scandal and underlying tragedy for individuals connected with two of our sister institutions - Penn State and Syracuse. I write to share my views and opinions about the shortcomings illustrated in those situations. This is a topic of discussion and deep concern among all of us on this and every campus in the nation.

In reflecting on these sad and appalling national stories, it is important to reaffirm what I believe are the core responsibilities of every citizen in our University and broader communities. Above and beyond any misplaced desire to protect or preserve the reputation of an individual or an organization, it is imperative that we all remember our primary obligation is to protect and defend those among us who are most vulnerable. In the long run, our reputation and strength as an institution will only be enhanced by our commitment to come to the aid of victims and discipline any individuals who take advantage of the positions of trust in which we have placed them.

If you encounter a situation in which you see someone being victimized, or you encounter something you believe to be a crime, call our Department of Public Safety. Do this first. Afterward you can inform your supervisor. Our public safety officers are trained to determine the facts of any incident. Simply call (269) 387-5555 to alert the proper officials.

As is sometimes the case in any large organization, there may be a time when you hesitate to report a crime, because you worry that you or your position may be vulnerable. Much earlier this year, we decided to enhance our ability to receive information from faculty and staff about possible wrongdoing in a way that would address such concerns. We now have a contract with a highly respected company called Ethics Point that provides an anonymous website to report possible criminal or ethical violations. There is also a phone line that can be used to report wrongdoing. We had intended to publicize this option after the coming holiday break, but because of the timely nature of this tool and a strong statement issued by our Board of Trustees today, I want you to know the system is already in place.

If you feel the need to maintain anonymity and report a situation that is legally or ethically wrong, you may do so by going to wmuhotline.ethicspoint.com, select Make a Report in the top right menu and follow the prompts. To use the phone line, call (855) 247-3145. I suspect - and hope - we may never need this tool, but am mindful that, at nearly 30,000, we are a community the size of a small city and we might have someone who does not meet our exacting standards.

Thank you in advance for your commitment to ensure everything we do is accomplished using the strongest moral, legal, and ethical standards."

Clery Act Annual Report

The Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act requires availability of the annual security and fire safety compliance document to prospective students, faculty, and staff. It can be obtained from the website of Western Michigan University Department of Public Safety at wmudps.wmich.edu/AnnualSecurityReport.pdf.

University and Student Services

Complete and current information about University and Student Services may be obtained by visiting the University's website (wmich.edu). The services listed below are only a portion of those offered by the University to students, alumni, staff, and visitors.

Archives

The University Archives and Regional History Collections are located in the Charles C. and Lynn L. Zhang Legacy Collections Center on the Oakland Drive Campus. Staff collect, preserve, and make accessible records documenting the history of the University and of twelve southwestern Michigan counties. Holdings include: books, ephemera, newspapers, microfilm, photographs, oral history tapes, and manuscript collections. In addition, local public records from southwestern Michigan are on deposit from the Archives of Michigan. The collections are open to researchers. Faculty, staff, and students may make appointments for assistance with research. Faculty may schedule instructional sessions. Call (269) 387-8490 for information.

Athletics, Intercollegiate

The University is represented by men's teams in football, baseball, basketball, tennis, ice hockey, and soccer. Women's teams represent the University in basketball, cross country, golf, gymnastics, softball, tennis, indoor and outdoor track, soccer, and volleyball. Represented by the athletics mascot "Buster Bronco," WMU Athletics keeps every Bronco fan up to date through the official athletics website, wmubroncos.com.

Athletics are governed by the Athletic Board, which adheres to the policies and principles established by the National Collegiate Athletic Association (NCAA), Mid-American Conference (MAC) and National Collegiate Hockey Conference (NCHC). Western Michigan University is a member of the Mid-American Conference in all sports but Ice Hockey. Ice Hockey members are WMU, Colorado College, Denver, Miami (Ohio), Minnesota-Duluth, Nebraska-Omaha, North Dakota and St. Cloud State. Other members of the Mid-American Conference are Akron, Ball State, Bowling Green, Buffalo, Central Michigan, Eastern Michigan, Kent State, Miami (Ohio), Northern Illinois, Ohio, and Toledo.

Career and Student Employment Services

Career and Student Employment Services advises students regarding skill development, exploring career options and obtaining experience through employment. Services include drop-in career advising at the Career Zone, job listings for part-time, internship, and full-time employment. The office facilitates regular employer and alumni campus visits to participate in career fairs, visit classrooms, and provide mock interviews for students. Staff conduct workshops and seminars addressing current job market issues, linking academics to career paths, finding an internship or trending job search strategies.

For more information, visit the Career Zone, Monday through Friday, noon to 5 p.m., schedule an appointment in Handshake, visit wmich.edu/career or call (269) 387-2745. The office is located on first floor of Ellsworth Hall.

Counseling Services

Counseling Services provides short-term individual, couples and group counseling for a diverse student population. The counseling process can help students learn skills to cope with problems and develop new ways of thinking, which may lead to a healthier and more fulfilling lifestyle. Your time at Western Michigan University may include stress, complicated decisions or challenging situations. Counselors help students identify challenges and make changes to manage the emotional and social difficulties that might complicate college life.

How we work with you

Every student is unique, so we tailor our services to suit your particular needs. We collaborate with other clinicians at Sincere or outside care professionals to ensure counseling supports other care you receive.

We take a holistic approach when working with you to treat the whole person. Our counselors are licensed mental health professionals and graduate student trainees under close supervision.

Your first visit

An initial appointment may be made by stopping by the reception desk of Sindecuse Health Center. When you first come to the health center, you'll start with the receptionist on the main floor, check in at registration and then come upstairs to Counseling Services. **Intake hours are Mondays, Tuesdays, Wednesdays and Fridays from 8 a.m. until 4 p.m. and Thursday from 9 a.m. until 4 p.m.** Counseling Services is open between 8 a.m. and 5 p.m. on Mondays, Tuesdays, Wednesdays and Fridays and between 9 a.m. and 5 p.m. on Thursdays. Website: wmich.edu/counseling.

Eligibility

Counseling services are available to all enrolled WMU students with full- or part-time status, including those at regional campuses.

Confidentiality

Counseling Services respects your right to privacy. Your consent is required before any information is released to a third party. In accordance with the Health Insurance Portability and Accountability Act of 1996 (HIPAA), patient health information is maintained in confidence throughout Sindecuse Health Center and Counseling Services. Here is the privacy policy.

Counseling Services is committed to the need for confidentiality in client/counselor communication. Therefore, confidentiality of client information is maintained in a manner consistent with professional standards of ethical practice and conduct and legislative requirements in the state of Michigan. Copies of the Sindecuse Health Center policy on confidentiality may be obtained at the business office.

Disability Services for Students

Disability Services for Students advocates for and supports Western Michigan University students with disabilities as they seek to find reasonable academic, classroom and housing accommodations. DSS offers students support with advocacy, campus accessibility information, and referral to other campus and community agencies. DSS may also provide, but not limited to, classroom or academic adjustments including accommodation for classroom test, electronic text format and ASL sign-language interpreters. DSS offices also house the Autism Services Center and a rehabilitation counselor from the Bureau of Services for Blind Persons.

wmich.edu/disabilityservices (269) 387-2116

wmich.edu/autism/asc (269) 387-4349

www.michigan.gov/bsbp (269) 330-5336

Global Engagement Services

The Haenicke Institute for Global Education is the main driver of global engagement, promoting, administering, and housing many internationalization initiatives and services, with offices in Ellsworth Hall and the Faunce Student Services Building.

Diether H. Haenicke Institute for Global Education

Dr. MK Mohanan, Associate Provost
2425 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5245
Telephone: (269) 387-5890; FAX (269) 387-0630
wmich.edu/international

The Haenicke Institute for Global Education collaborates with colleges, departments, and interdisciplinary programs to promote global, international, and area studies throughout Western Michigan University. The Institute houses multiple centers and offices devoted to global engagement.

International Admissions and Services

Director
3110 Faunce Student Services
Western Michigan University
Kalamazoo MI 49008-5246
Telephone: (269) 387-5865; FAX (269) 387-5899
E-mail: oiss-info@wmich.edu
wmich.edu/internationaladmissions

Within the Haenicke Institute, the International Admissions and Services office handles admissions and special needs for international students. Services include:

- Processing of applications for admission
- Immigration advising
- Orientation program for newly arrived international students
- Coordination of international student organizations and activities
- Liaison between international students and financial sponsors

International students interested in seeking admission to Western Michigan University may access application information and an online application at wmich.edu/internationaladmissions/apply.

Immigration Compliance

Ms. Lee Ryder, J.D., Director of Immigration Compliance
3110 Faunce Student Services
Western Michigan University
Kalamazoo, MI 49008-5246
Telephone: (269) 387-5873; FAX (269) 387-5899

Immigration services for international scholars, international visitors and faculty are provided through the Immigration Compliance office of the Haenicke Institute.

Center for English Language and Culture for International Students (CELCIS)

Ms. Eva Copija, CELCIS Chair
0522 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5223
Telephone: (269) 387-4800; FAX (269) 387-4806
E-mail: celcis-info@wmich.edu
wmich.edu/celcis

As part of the Haenicke Institute, the Center for English and Culture for International Students (CELCIS), established in 1975, provides instruction in English as a second language for non-native speakers who will use English to study at an American college or university or in their workplaces.

CELCIS also offers a range of individually designed, short-term programs that may include English language training (at any level) and introductory studies in American culture.

CELCIS offers classes at varying English language proficiency levels which include: speaking and listening comprehension, grammar, academic reading and vocabulary building, academic writing, and research paper writing. Extra-curricular activities include conversation circles, volunteer opportunities, and various social, recreational, and cultural opportunities.

CELCIS operates three fifteen-week terms per year (fall, spring and summer). Successful completion of CELCIS meets the minimum English proficiency requirements for all undergraduate programs and most graduate programs at Western Michigan University.

Study Abroad

Dr. Lee M. Penyak, Director
2425 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5245
Telephone: (269) 387-5890; FAX (269) 387-0630
E-mail: study-abroad@wmich.edu
wmich.edu/studyabroad

Study Abroad offers more than 90 study programs in 40-plus countries, varying in length from a few weeks to a full academic year, and access to hundreds of programs administered by University-approved study abroad providers. Programs are available for undergraduates and graduates in a broad spectrum of disciplines for an academic year, one semester, or summer terms. Scholarships and grants are available, such as the President's Grant for Study Abroad that offers up to \$6,000 for foreign-language students seeking an overseas language-intensive experience, the Global Engagement Scholarship that offers significant funding to students participating in semester-length WMU study abroad programs to countries where English is not the native language, and the Haenicke Institute for Global Education Study Abroad Scholarship that provides need-based assistance to students who go on WMU faculty-led short term courses (3-credit minimum).

Students who undertake study abroad programs or conduct individualized research, field studies, internships or other experiences outside the United States that carry WMU academic credit, and/or under the direct auspices of WMU faculty, must register with WMU Office of Study Abroad.

Study Abroad also provides a number of important services to WMU students preparing to study, intern, or do research outside the United States. Services include orientation programs, insurance procedures, and current information about conditions in countries of destination. Study Abroad maintains an extensive research area and databases for programs offered by other colleges and universities. The office also serves as a contact point between WMU students overseas and the university.

International Research and Study Centers

Dr. Paulo Zagalo-Melo, Associate Provost
2425 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5245
Telephone: (269) 387-5890; FAX (269) 387-0630
wmich.edu/international

The Haenicke Institute hosts four international centers devoted to teaching, research, or outreach for a particular area of the world. Each center has as its mission the goal of furthering understanding and knowledge of a country or region. These centers contribute substantially to the global understandings of faculty and students at Western Michigan University, as well as members of the community.

Center for African Development Policy Research
Director
4245 Ellsworth Hall
Telephone: (269) 387-1945

The Michitoshi Soga Japan Study Center
Dr. Ying Zeng, Director
4271 Ellsworth Hall
Telephone: (269) 387-5874

Timothy Light Center for Chinese Studies

Dr. Ying Zeng, Director
4270 Ellsworth Hall
Telephone: (269) 387-3951

The Confucius Institute

Dr. Ying Zeng, Director
Dr. Yi Wu, Associate Director
4235 Ellsworth Hall
Telephone: (269) 387-3871

Office of Health Promotion and Education

The mission of the Office of Health Promotion and Education is to create a culture of wellbeing and social justice to enhance the success of all members of the campus community.

Guiding principles:

- Health and safety are essential for optimal intellectual, emotional, social, physical and spiritual development and to the academic mission of Western Michigan University.
- Health behaviors need to be addressed from both an individual and community context.
- Best practice standards of health promotion involve theory-based, data-driven needs assessment, program development and evaluation.
- The creation of healthy communities requires interdisciplinary partnerships involving health professionals, educators, artists, community leaders and community members working together to prevent or address critical health concerns.
- Creating healthy communities involves an integration of advocacy, education, service, community building and research.
- To be successful, community health initiatives must focus on key risks to health and involve a critical mass of community members whose engagement stimulates communication, trust, personal responsibility and shared interdependence.

Core Programs:

Alcohol and Other Drugs Risk Reduction Program

Evidence-based, environmentally-focused, comprehensive programming, resources, and advocacy for the prevention and reduction of alcohol and other drug related harms.

F.I.R.E. Sexual Assault Prevention and Education

F.I.R.E. (Fighting Ignorance and Rape through Education) is a group of nationally-certified peer educators committed to educating others in the WMU community about sexual assault, how and why it happens and what we can do to change our culture to prevent it. WMU Signature and academic credit are available.

FIRE Place Resource and Support Center

This center addresses sexual assault and other biased incidents by providing peer support, education, healing activities, referrals and reporting options for WMU students and employees.

Gentlemen United

Gentlemen United is a registered student organization and program for students with an interest in violence prevention. Members learn about and make a difference on the topics of masculinity, healthy relationships, violent ideologies, and bystander intervention.

Sexual Health Peer Education

Nationally-certified peer educators encourage other students to make healthy choices about sex and relationships through interactive presentations, awareness events, and individual consultations. WMU Signature and academic credit are available.

Western H.E.R.O.E.S.

Western H.E.R.O.E.S. is a bystander intervention program that encourages members of the Western Michigan University community to step up and create a safe and inclusive campus environment. The program empowers participants to overcome the bystander effect when they find themselves in situations where unhealthy behavior can lead to harm. Participants earn credit for WMU Signature.

Wellness Workshops

Professional health educators and peer educators offer multiple opportunities for interactive programming on a variety of wellbeing topics, such as stress management, self-care, healthy relationships and more. Participants earn credit for WMU Signature.

For more information, visit the website at wmich.edu/healthpromotion, call (269) 387-3263 or visit the office in room 3120 of Sindecuse Health Center.

Housing

Western Michigan University students may live on or off campus. Residence Life provides a variety of housing options to meet students' needs, including traditional residence halls, apartments, and learning communities. Living on campus offers convenience, the benefit of a community of peers, a safe environment, and support for the challenges associated with being a busy college student.

Housing sign up is online. Residence hall sign up begins in January. When you complete your housing contract determines when you self-select your residence hall room in May. The earlier you sign up, the more options are available to you. Apartment sign up is in February or March, depending on the complex, and students self-select their apartment unit. There is a lottery for Arcadia Flats and Western View apartments.

WMU Residence Halls, Spindler Hall, WMU Apartments (including the Western View)

For information, contact Residence Life, 3510 Faunce Student Services Building, Western Michigan University, Kalamazoo, MI 49008-5312. Telephone: (269) 387-4735; Fax: (269) 387-4786; E-mail: WMU-housing@wmich.edu; Website: wmich.edu/housing.

Office of Information Technology

The Office of Information Technology (OIT) offers a wide variety of technology-related services to students, faculty, and staff. These services include online collaboration tools, two-factor authentication, cable television, classroom technology, email, media services, internet connections and online information security education. Visit the information technology website at wmich.edu/it. Online secure transactions are handled through the University's portal, GoWMU, gowmu.wmich.edu. OIT provides student computing labs in the University Computing Center (UCC) and the Bernhard Center. The Technology Help Desk is your first point of contact to address issues or inquiries regarding computing, tablets or smart phones. To reach the Help Desk, call (269) 387-4357 or visit wmich.edu/helpdesk.

Multicultural Affairs for Students

Multicultural Affairs for Students (MAS) strives to ensure that students are given the full opportunity to discover and develop their talents, interests, and unique potential through our programs: Martin Luther King, Jr. Student Scholars Academy, Mentoring for Success, and the College Assistance Migrant Program, we provide a learning-centered environment that presents the context for intellectual, cultural, professional, and personal growth during the college experience. MAS fosters community development, leadership, and promotes a campus climate that respects and appreciates the history, culture, and traditions of all students.

For information, call (269) 387-4420, come to 2260 Ellsworth Hall or visit the website: wmich.edu/multicultural.

Online Education

As part of a learner-centered, research university, WMU Online Education offers a wide selection of courses and programs. Through Online Education, WMU provides access to high-quality education for those unable to travel to campus yet want to pursue or continue their academic goals. Online Education partners with academic colleges and departments to expand access to learning opportunities. Courses are offered through Online Education in the following formats:

- Online courses - No required face-to-face meetings. Delivery is completely online.
- Hybrid courses - A mix of online and face-to-face instruction, with at least 51 percent of the instruction online.
- Open Learning - Self-paced, undergraduate online courses with flexible start and end dates. Students have up to six months to complete the course.

Online Education provides expertise in and access to student support services, instructional design, on- and off-campus testing services, and course development and maintenance support to faculty.

3rd floor Ellsworth Hall
Telephone (269) 387-4200
Fax (269) 387-4226
wmich.edu/online

Parking and Vehicle Registration

Detailed regulations concerning the use of motor vehicles on campus is available from the Department of Public Safety's Parking Services. All students are eligible to park a motor vehicle on University property; however, they must first register their motor vehicle, motorcycle, and/or moped with Parking Services and pay a registration fee. Information concerning parking regulations, parking permits, and parking violations can be obtained by visiting Parking Services located at 2507 W. Michigan Ave (at the corner of W. Michigan Ave and Ring Roads near the traffic circle) or by telephoning (269) 387-4609 Monday through Thursday, 7:30 a.m. to 5 p.m. or Friday from 3:30 a.m. to 4 p.m. Visit our web page at wmich.edu/parking for complete rules and permit prices.

Police

Located at 511 Monroe Street, off the 1300 block of West Michigan Ave., the Department of Public Safety is accessible 24 hours a day, providing a full range of police services through the use of a uniformed patrol division, and a detective bureau. The Department of Public Safety is responsible for investigating all crimes and accidents occurring on University property and is committed to providing an environment conducive to the education of the students at Western Michigan University. Towards that goal, the department's various divisions and bureaus have coordinated their efforts to create and maintain a feeling of security and safety within the University community. Information can be obtained by visiting the webpage: wmudps.wmich.edu or the office. The Department's telephone number is (269) 387-5555 or 911 in an emergency. For non-emergencies, Kalamazoo County Consolidated Dispatch Authority may be reached at (269) 488-8911.

Publications

Established in 1916, the *Western Herald* (westernherald.com) is WMU's independent student-run news organization. All positions at the *Western Herald* are staffed by students. The *Western Herald* website operates 24/7 yearlong. The *Western Herald* prints weekly from September through May and is distributed in convenient news racks throughout campus. The *Western Herald* offers employment and volunteer opportunities. More information is available at herald-general-manager@wmich.edu.

The Office of Marketing and Strategic Communications produces the WMU News website, an online news source and events calendar that is updated daily and can be found at wmich.edu/news.

The Office of Marketing and Strategic Communications also produces the *W Magazine*, a quarterly publication distributed to alumni, donors, friends, faculty, staff and students. The magazine has a circulation of some 50,000 and focuses on new campus developments and initiatives, research and news of Universitywide importance.

Radio

WMUK-FM is the member-support public radio service of Western Michigan University (WMU). The main 102.1 FM signal broadcasts at 50,000 watts, primarily serving Western Michigan and Northern Indiana. This Station offers primarily NPR news and information, as well as local news and arts coverage. In 2020, WMUK launched a new 24/7 classical music service on 89.9 FM in Kalamazoo, which can also be heard on the HD2 channel of 102.1 FM. Both stations can also be live streamed at wmuk.org or via our mobile apps on iOS and Android.

WMUK is a non-profit public radio service and charter member of National Public Radio (NPR). The Station also offers programming from the BBC World Service, American Public Media (APM) and Public Radio International (PRI).

Since its founding almost 70 years ago, WMUK has served as a vital extension of the University's public service mission through its broadcast of award-winning local, national and international news and cultural programming to Kalamazoo and beyond. WMUK additionally provides comprehensive student internships through the WMU School of Communication.

WMUK is licensed to Western Michigan University's Board of Trustees. Major funding comes from Western Michigan University, listener support, business underwriting, and the Corporation for Public Broadcasting (CPB).

WIDR(FM), a 100-watt station operated by students, broadcasts on 89.1. Facilities of WIDR(FM) are located in 1501 Faunce Student Services Building. WIDR(FM) offers a unique opportunity for Western Michigan University students to gain experience in programming, promotion, and station operation. For more information, please visit the website at widrfm.org.

Sindecuse Health Center

Sindecuse Health Center offers high-quality, cost-saving health services by an experienced, multidisciplinary staff. Our board-certified clinicians offer evaluation and treatment for illness or injury to students, faculty and staff by appointment. In addition to clinical care and psychiatry, we serve the campus community with pharmacy, lab and x-ray, chiropractic care, physical therapy and massage therapy services. For students, we can serve as primary care physicians. We provide continuing care for ongoing concerns including therapeutic injections and allergy shots. Counseling services are available to students at no cost. The health center is accredited by the Accreditation Association for Ambulatory Health Care Inc. For more information, including insurance company participation, visit www.sindecuse.com.

Important Phone Numbers (Area code 269)

Information and appointments 387-3287

Counseling and Psychiatric Services 387-1850

Insurance 387-4219

Lab/X-ray 387-3245

Pharmacy 387-3301

Physical Therapy, Massage Therapy and Chiropractic care 387-3248

Sports Medicine Clinic 387-3248

Speech, Language, and Hearing Sciences

The Charles Van Riper Language, Speech, and Hearing Clinic is a service program provided by the Department of Speech, Language and Hearing Sciences for persons with communication disorders. It is located in the Unified Clinics at University Medical and Health Sciences Center, 1000 Oakland Drive. Students may take advantage of evaluation and therapy services by contacting the Clinic for an appointment. Telephone: 387-8047.

Student Engagement, Office of

The mission of the Office of Student Engagement is to engage campus, empower students and develop leaders. We welcome you as a valued member of our community and are excited to be a part of your learning and personal development. Currently, WMU has over 350 registered student organizations representing a diverse range of interests.

Our services include coordinating major campus wide events including Bronco Bash and Homecoming. We advise and provide resources to registered student organizations, and coordinate campus wide leadership development programs and certificates through a variety of different formats for individual student leaders at all skill levels. We provide support to the Office of Faith and Spiritual Development and Fraternity and Sorority Life. We are also home to the Student Media Group (student led radio and newspaper).

Research has shown that students who are involved will do better academically. Based on this research, we encourage students to become active members of our WMU community.

For detailed information, visit the website at wmich.edu/studentengagement or visit our office in 223 Bernhard Center.

University Libraries

WMU Libraries supports students whether they are on campus, studying abroad or learning online. We offer both print and online resources and in-person and virtual services, so students can get what they need anywhere, anytime. We have designed our services to be convenient for you. Our staff and librarians are experts in connecting you with information and services when you need help.

If you're on campus, our spaces make it easy for students to find a quiet place to study individually or host meetings with groups. Our facilities are open late and reserved just for WMU students after 9 p.m. most days.

At your WMU Libraries, you can:

- Access millions of resources online 24/7 or from our print collection at a library location. We can even mail books to you if you live outside of Kalamazoo.
- Make an online or face-to-face appointment with a librarian to talk about your research projects and assignments.
- Request materials from a global network of libraries through our interlibrary loan service. Items are delivered electronically or by mail for your convenience.
- Reserve a study room to meet with groups.
- Visit the Graduate Student Commons in Waldo Library for quiet space reserved for graduate students.
- Experience virtual reality technology and use it to explore the world and play games—or even create your own.
- Access computers, printers and advanced statistical and design software to complete your assignments.
- Use our multimedia editing studio to record and edit audio and video projects.

WMU's main library, Waldo Library, is both a casual gathering place and a dynamic academic center with late-night hours, a café, personalized expert help and a wide range of spaces and technologies.

Questions? Connect with us on campus or online. You can call, email, chat online or visit any of WMU Libraries' campus facilities: Maybee, Swain, and Waldo Libraries and Zhang Legacy Collections Center. Explore WMU Libraries today:

wmich.edu/library.

Phone: (269) 387-5059

Email/Chat: wmich.edu/library/contact

University Recreation

Student Recreation Center

(269) 387-4732

The Student Recreation Center (SRC) is a student-oriented, multi-use facility programmed, staffed, and financed by Western Michigan University students. Recreational, educational, and health promotion programs are provided for the benefit of all WMU students, faculty, staff, spouses, emeriti and alumni facility members. The facility includes an 8,000 square foot fitness/weight room, a recreational pool with attached swirl pool and saunas, a 45' climbing wall, indoor jogging track, 8 basketball courts, volleyball and badminton courts, indoor tennis courts, 9 racquetball courts, aerobics room, 2 multipurpose gyms and a cycling room.

Memberships are available on a Semester (fall/spring) and Session (summer I/summer II) basis. Facility tours are available during all building hours by stopping at the service desk or main office. Student access to the SRC is determined by enrollment fees paid, not credit hours registered. The access fee for the SRC is rolled into the enrollment fee. Students who pay the enrollment fee have access to the SRC for that semester or session.

Students involved in internships, student teaching or taking classes through Extended University Programs may not be assessed the SRC membership enrollment fee. Student should check their tuition invoice to determine payment of fee. Students NOT assess the fee have the option to purchase a membership at the SRC

Informal Recreation

Informal recreation permits individual choice of activity. Various facilities are available on a drop-in or reservation basis including basketball courts, volleyball courts, racquetball courts, tennis courts, squash court, indoor and outdoor tracks, fitness/weight room, and swimming pool. Other open recreation opportunities include badminton, table tennis, climbing wall, and wallyball. Equipment for various activities may be checked out with a valid Bronco ID card.

Outdoor Recreation

University Recreation also provides competition-style outdoor track, tennis courts, soccer fields, intramural fields and a sand volleyball court. Selected outdoor equipment may be available for checkout with a valid Bronco ID card from the SRC Service Desk.

Intramural Sports

Intramural Sports are available for students, faculty, staff, alumni and members of the SRC who are interested in competitive activities. The program offers both team and individual sports, including basketball, volleyball, soccer, softball, ice hockey, flag football, tennis, racquetball, in-line hockey, and much more. Intramurals provide opportunities for individuals to participate in sports experiences that will develop team building and leadership skills. Opportunities for leadership are available for students who wish to officiate contests.

Fitness Programs

University Recreation offers a variety of aerobics fitness classes to meet fitness needs of participants. Enthusiastic and energetic instructors will lead participants in classes that consist of a variety of cardiovascular activity, strengthening, flexibility, and relaxation exercises designed to meet the needs of all fitness levels. Passes are necessary for admission to all classes. Additionally, completion of the Physical Activity Readiness Questionnaire (PAR-Q) is required prior to initial participation.

Fitness Weight Room

Located in the SRC, the 8,000 square foot fitness/weight room contains a full line of variable resistance weight machines, treadmills, free weights, exercise bicycles, stair climbers and elliptical machines. Personal Trainers are available to instruct on proper use of the equipment and to provide exercise training guidelines to meet personal goals. Located by the indoor track are 45 cardio machines where participants can exercise.

Climbing Wall

Students can feel the excitement of scaling a 45-foot wall. The Climbing Wall is designed to challenge and teach participants about the unique sport of indoor climbing. Students may take a climbing clinic to learn the proper belay techniques or just drop by and climb. The wall is a top-rope system where climbers are harnessed in for safety.

Club Sports

Students who wish to compete or learn a new sport may join sport clubs. A sport club is a registered student organization (RSO), formed by individuals motivated by a common interest and desire to participate in a favorite sport activity. Sport clubs vary in focus and programming since student members manage the operation of the club and decide club activities. A sport club may be competitive, recreational, social or any combination of all of these formats. These clubs hold practices and compete against other schools. WMU offers 20 clubs ranging from Synchronized Skating, Sailing, Lacrosse, Rugby, Volleyball, Ice Hockey to Ultimate Frisbee.

For more information on services and specific days and times of programs, pick up a SRC Program Guide or call our membership desk at (269) 387-3115. Current information may also be found on the web at wmich.edu/rec.

Veterans' Assistance

The Office of the Registrar, on the third floor of the Administration Building certifies students under the G.I. Bill and its extensions. The Veterans' Certification Coordinator will assist any person who seeks certification, or application, to the Veterans Administration under applicable programs.

Students who wish to receive V.A. benefits must annually file a "V.A. Certification Form" outlining plans for enrollment for the coming year. Students are certified on the basis of attendance and academic progress toward a declared degree. Address changes are also to be reported to the Veterans' Certification Coordinator as soon as possible.

In addition to normal scholarship standards, students receiving benefits from the Veterans Administration are advised of their additional rights and responsibilities.

In-State Tuition for Active Duty Military Personnel and Their Dependents

Western Michigan University will grant in-state tuition to all individuals who are eligible for VA educational benefits. Western Michigan University will also grant in-state tuition to all individuals who are not eligible for VA educational benefits but have honorably served or are serving in the reserve or active components of the U.S. Armed Forces.

- If the student is a child of the Veteran, we require a copy of the Veteran's DD214 and a copy of the student's birth certificate as documentation for our records.
- If the student is a stepchild, we require a copy of the Veteran's DD214, a copy of the student's birth certificate and a copy of the marriage license as documentation for our records.
- If the student is a spouse of the Veteran, we require a copy of the Veteran's DD214 and a copy of the marriage license as documentation.

Priority Registration

All Veterans will receive priority registration each semester/session. They will be able to register for classes on the second day of registration each semester/session.

Compliance

A covered individual is any individual who is entitled to educational assistance under chapter 31, Vocational Rehabilitation and Employment, or chapter 33, Post-9/11 GI Bill benefits. Any covered individual is permitted to attend or participate in the course of education beginning the date on which the individual provides a certificate of eligibility to WMU and ending on the earlier of the following dates:

- The date on which payment from VA is made to the institution.
- Ninety days after the date the institution certified tuition and fees following the receipt of the certificate of eligibility.

WMU will not impose any penalty, including the assessment of late fees, the denial of access to classes or institutional facilities or the requirement of borrowing additional funds, on any covered individual because of the individual's inability to meet his or her financial obligations to the institution due to the delayed disbursement funding from VA under chapter 31 or 33.

Writing Center

The Writing Center, located at 1343 Ellsworth Hall Monday through Friday and in Waldo Library on Sunday nights, helps all Western Michigan University graduate and undergraduate students with any school, work, or personal writing task. We exist because every writer benefits from a live, trained reader. Our writing consultants, graduate and undergraduate students as well as adjunct instructors, are eager to serve as readers for WMU writers. Consultants are trained in the rhetoric of written, oral, visual, and electronic communications. We assist with assignments from any class, employment-search communications (résumés, cover letters, thank-you notes, etc.), scholarship essays, internship or personal statements, dissertation chapters, presentations, and more. We work with students enrolled in any WMU class at our main campus, at regional campuses, or online.

We are a welcoming resource for all students. And most importantly, our instructional assistance is free.

In a typical session, a consultant will meet a student one-on-one to offer feedback on the student's work, questions, or writing process. We also meet with groups of writers collaborating on projects. Some students ask for help getting started or planning their writing. Some work with us on writing anxiety, test taking skills, and proofreading strategies. Others ask questions about style guides (APA, MLA, Chicago Manual, etc.) or about a specific genre (lab reports, memos, proposals, grants, etc.). Others ask that we review a text and offer constructive feedback. Consultants and students may meet in person on our main campus, and we are available for telephone and email consulting for students who cannot come to campus.

The Writing Center offers 50-minute appointments or 25-minute drop-in sessions. Our online scheduler, found on our website, wmich.edu/writingcenter, allows students to make appointments and choose their consultant. Students must register to use our scheduler because we cannot sync our scheduler with students' Western Michigan logins and passwords. Students may also call us at (269) 387-4615 to make appointments, get directions, or ask questions. If they reach our voicemail, which may happen if we're talking to another client, students should always leave a message with their telephone number.

Our website lists our hours for each semester and summer session, which may change. During fall and spring semesters, we offer Sunday hours from 5 to 8 p.m. at our 1st floor Waldo Library location. Students who want help when the University is not holding classes may email the Writing Center director at kim.ballard@wmich.edu.

At the request of instructors or organization leaders, Writing Center staff will develop and present workshops in classes or meetings. We are also available for in-class writing assistance and are eager to collaborate with instructors to develop Rhetorical Reading Guides for their classes or to help them require students to use Personal Proofreading Guides.

Our consultants truly enjoy working with students on their writing and hope as many students as possible take advantage of our long-established resource. As part of the Center for Academic Success Programs (CASP), we are dedicated to helping students excel at Western Michigan University.

College of Arts and Sciences

College of Arts and Sciences

Carla Koretsky
Dean

James Cousins
Associate Dean

Heather Petcovic
Associate Dean

Mission of the College

Our mission is to ignite and sustain a passion for learning and discovery in the humanities, social sciences, and sciences, to help students, staff, and faculty succeed in life and contribute to the betterment of our local and global communities.

Vision of the College

Our vision is to achieve excellence in all aspects of learning and discovery across the humanities, social sciences, and sciences while fostering a climate of intellectual freedom, diversity, and inclusion.

Undergraduate majors

College of Arts and Sciences Interdisciplinary Programs

- Arts and Sciences Student Planned Major (SPMJ)
- Global and International Studies Major
- Social Studies Major - Secondary Education

Biological Sciences

- Biology
- Biomedical Sciences

Undergraduate minors

College of Arts and Sciences Interdisciplinary Programs

- Asian Studies Minor (18 hours)
- Climate Change Studies Minor (19-22 hours)
- Global and International Studies Minor (20 hours)
- Latinx and Latin American Studies minor (18 credit hours)
- Legal Studies Minor (18-19 hours)
- Medical Humanities Minor
- Modern European Studies Minor (18 hours)
- Race and Ethnic Relations Minor (18 hours)
- World Literature Minor (20 hours)

Biological Sciences

- Biological Sciences

B.S.

B.S.

Chemistry

- Biochemistry B.S.
- Business-Oriented Chemistry B.S.
- Chemistry B.S.
- Chemistry – ACS Certified B.S.

Communication

- Communication Studies B.A.
- Digital Media and Journalism B.A.
- Film, Video, and Media Studies B.A.
- Interpersonal Communication B.A.
- Strategic Communication: Undergraduate Certificate in Diversity and Inclusion
- Strategic Communication: Undergraduate Certificate in Leadership and Teamwork
- Strategic Communication: Undergraduate Certificate in New Media and Technology
- Strategic Communication: Undergraduate Certificate in Public Relations

Comparative Religion

- Comparative Religion B.A.
Economics
- Economics B.A./B.S.

English

- English B.A.
- English: Creative Writing B.A.

Chemistry

- Chemistry

College of Arts and Sciences

- Canadian Studies
- Climate Change Studies
- Legal Studies
- Medical Humanities
- Race and Ethnic Relations

Communication

- Communication
- Journalism
- User Experience/Human Computer Interaction

Comparative Religion

- Comparative Religion
Economics
- Economics

English

- English: Literature and Languages
- English Minor - Writing

•Rhetoric and Writing Studies B.A.

•Rhetoric and Writing Studies

Institute of the Environment and Sustainability

Institute of the Environment and Sustainability

•Environmental and Sustainability Studies* B.A./B.S.

•Environmental and Sustainability Studies

•Freshwater Science and Sustainability B.S.

•Sustainable Brewing B.S.

•Sustainable Brewing - Operations B.S.

Gender and Women's Studies

Gender & Women's Studies

•Gender and Women's Studies B.A.

•Gender & Women's Studies

Geography, Environment and Tourism

Geography, Environment and Tourism

•Geography B.S.

•Geography

•Geography: Climate Science B.S.

•Geography (with Social Studies Major)

•Community and Regional Planning B.S.

•Geography: Environmental Analysis and Resource Management B.S.

•Geography: Geographic Information Science B.S.

•Geography: Urban and Regional Planning B.S.

•Tourism and Travel B.A.

Geological and Environmental Sciences

Geological and Environmental Sciences

•Earth Sciences B.S.

•Earth Science

•Geochemistry B.S.

•Geology

•Geology B.S.

•Group Science for Geology Majors

•Geophysics B.S.

•Hydrology B.S.

History

History

•History B.A.

•History

•Public History B.A.

•Public History

•Social Studies: History (coordinate minor)

Institute of Intercultural and Anthropological Studies

Institute of Intercultural and Anthropological Studies

•African American and African Studies B.A.

•African American and African Studies

•Anthropology

Mathematics

•Applied Mathematics

B.A./B.S.

•Mathematics

B.A./B.S.

•Teaching and Learning Mathematics

B.A./B.S.

Philosophy

•Philosophy

B.A.

•Professional and Applied Ethics

B.A.

Physics

•Physics

B.S.

•Physics: Geophysics

B.S.

Political Science

•American Public Policy

B.A.

•International & Comparative Politics

B.A.

•Political Science

B.A.

•Political Science - Social Studies

B.A.

•Public Law

B.A.

Psychology

•Behavioral Science

B.S.

•General Psychology

B.S.

•Psychology

B.S.

Public Affairs and Administration

•Public and Nonprofit Administration

•Anthropology

Mathematics

•Mathematics - Elementary and Middle School teaching

•General Mathematics

•Actuarial Science

Medieval Studies

•Medieval Studies

Philosophy

•Philosophy

•Professional and Applied Ethics

Physics

•Astronomy

•Physics

Political Science

•Political Science

•Political Science (with Social Studies Major)

Psychology

•Psychology

Public Affairs and Administration

•Nonprofit Administration Minor

•Public Administration Minor

Sociology

Sociology

•Sociology	B.A.	•Criminal Justice
•Criminal Justice	B.A.	•Social Psychology
•Social Psychology	B.A.	•Sociology
Spanish		Spanish
•Spanish	B.A.	•Spanish
Statistics		Statistics
•Data Science	B.S.	•Data Analysis
•Statistics	B.S.	•Data Science
		•Statistics
World Languages and Literatures		World Languages and Literatures
•French	B.A.	•Arabic
•German	B.A.	•Canadian Studies (interdisciplinary)
•Japanese	B.A.	•Chinese
•Latin	B.A.	•French
		•German
		•German - Study Abroad
		•Japanese
		•Latin

*This major is to be selected only along with a standard major.

Any student completing a major or minor from the College of Arts and Sciences must earn a minimum of nine (9) credit hours toward their major and at least six (6) credit hours toward their minor from the degree-granting unit at WMU. Academic units within the college may set higher credit hour minima for their programs. Please consult the appropriate program for details.

Accelerated Degree Program with WMU Thomas Cooley Law School

Students with a declared major in the College of Arts and Sciences (CAS) who are accepted into the WMU Thomas Cooley Law School may enroll in an accelerated degree program, allowing them to count credits earned from their first-year law school courses toward both their law degree and their bachelor's degree.

Application for this program is required. Students should apply through the CAS Office of Undergraduate Advising. Minimum requirements include acceptance into the WMU Thomas Cooley Law School, junior or senior standing, and a cumulative undergraduate GPA of 3.0 or better. Applications will be reviewed by a joint admissions committee consisting of CAS advising staff, CAS faculty, and a representative from the CAS Dean's office, and representatives from Cooley Law School.

Students accepted into the program and admitted to the Cooley Law School can transfer back up to 18 hours of Cooley Law School credit to be used for the undergraduate degree. The following courses can be transferred to WMU for undergraduate credit:

CIVP 105 LECT - Civil Procedure I Credits: 3 hours
CONL 404 LECT - Constitutional Law I Credits: 3 hours
CONL 503 LECT - Constitutional Law II Credits: 3 hours
CONT 108 LECT - Contracts I Credits: 3 hours
CONT 213 LECT - Contracts II Credits: 3 hours
CRLP 107 LECT - Criminal Law Credits: 3 hours
PRSE 109 LECT - Property I Credits: 3 hours
PRSE 207 LECT - Property II Credits: 3 hours
TOEQ 106 LECT - Torts I Credits: 3 hours
TOEQ 304 LECT - Torts II Credits: 3 hours

All Cooley Law School coursework will be transferred to WMU as CAS 5100 - Topics in Legal Studies. Up to 18 hours of Cooley Law School credit may be applied to the CAS Legal Studies Minor.

Students in this program still need to complete their major requirements and their general education requirements, and still need a minimum of 122 credits to receive their bachelor's degree. Students interested in pursuing this option should contact the College of Arts and Sciences Office of Undergraduate Advising to learn more.

Academic Advising Office

Kevin Knutson, Director
Diana Blouin, Assistant Director
Jackie Bizzell, Academic Adviser
Elizabeth Cramer, Academic Advisor School of Communication
Megan Larson, Academic Advisor
Lyndsey Millet, Academic Advisor
Thomas Mills, Academic Advisor
Kayla Jo Mitchell, Administrative Assistant II
Nathan Robinson, Academic Advisor
Kylie, Schultz, Academic Advisor
McKenzie Vlieg, Academic Advisor
Sean Williams, Academic Advisor

2318 Friedmann Hall
(269) 387-4366
wmich.edu/cas/advising

Vision

Western Michigan University's College of Arts and Sciences Office of Undergraduate Advising strives to be nationally and internationally recognized by the College, University, and external communities for providing timely, accurate, and intentional advising.

Mission Statement

Our mission is to intensify student success by inspiring students to pursue meaningful learning experiences, by developing a network of committed, highly trained professionals, and by providing timely, consistent, and comprehensive support.

The College of Arts and Sciences Academic Advising Office at Western Michigan University, located in 2318 Friedmann Hall, provides general advising regarding university and WMU Essential Studies requirements, pre-professional programs and the College of Arts and Sciences Liberal Education Curriculum. The Academic Advising Office also offers introductory information about the programs, majors and minors available within the College of Arts and Sciences. Major and minor specific advising is offered by professional staff and faculty within each department in the College. Schedule an appointment with a College of Arts and Sciences Academic Advisor online at wmich.edu/arts-sciences/advising or by calling (269) 387-4366.

Student Success Services

Katie Easley, Program Manager of Student Success Services
Amy Degner-Petillon, Administrative Assistant II
Kelsey Harness, Bronco Study Zone Manager

Western Michigan University
3374 Rood Hall
(269) 387-4252
wmich.edu/student-success

The College of Arts and Sciences' Office of Student Success Services (S3) provides academic support to any student enrolled in Arts and Sciences courses via peer academic success coaching, drop-in course assistance, and the learning assistant program. The main S3 office is located in 3374 Rood Hall. Learning assistants provide course-specific support to undergraduate students. Peer academic success coaching pairs high-achieving undergraduates with students who desire to enhance their study strategies and receive one-on-one peer assistance. Drop-in tutoring at the Bronco Study Zone in 3374 Rood Hall and at the Math and Science Success Center (MSSC) in the Valley 2 residence hall offers immediate, on-the-spot support to students enrolled in a wide variety of Arts and Sciences courses.

Liberal Education Curriculum (LEC)

All students who graduate from the College of Arts and Sciences will be enrolled in the LEC.

Liberal Education Curriculum Requirements

All students at Western Michigan University must satisfy the WMU Essential Studies requirements. The Liberal Education Curriculum (LEC) expands these requirements as follows:

1. **World Language Requirement:**

Two semesters (6-8 hours) of the same world language or American Sign Language, or proficiency by exam.

2. **Critical Thinking Requirement:**

Students must complete a course approved for Critical Thinking. A list of these courses can be found in the WMU Essential Studies Foundations: Critical Thinking listings elsewhere in this catalog.

College Degree Requirements

1. **The Liberal Education Curriculum.** Students who enter in the 2005 and subsequent catalogs and who will graduate through the College of Arts and Sciences must complete the Liberal Education Curriculum (LEC) described here. Students who enter under the 2020 catalog are required to complete the new WMU Essential Studies Program.

2. **Majors and Minors.** Students who will graduate through the College of Arts and Sciences must have a stand-alone major (i.e., not a coordinate major) in the college and a minor in Arts and Sciences or any other college in the university. Students with two majors are not required to complete a minor.

To be admitted to any major in the College of Arts and Sciences, students should apply to the department or program as soon as possible and prior to completion of 35 semester hours. Transfer students with more than 35 hours should apply before matriculation. Students who are not yet admitted to a major may not be permitted to enroll in major core courses. Some departments have restrictive policies for admission to certain majors, as described in the departmental sections of this catalog, which may make it difficult to change curricula during the junior or senior year.

3. **The Credit/No Credit option** cannot be used in courses that fulfill the critical thinking and world language requirements of the Liberal Education Curriculum. Use of the Credit/No Credit option for courses in major and minor programs must follow the University policies.

Interdisciplinary Programs - College of Arts and Sciences

Bachelor of Arts

Global and International Studies Major

Global and International Studies Program

Susan Pozo, Director
Main Office, 2047 Moore Hall
(269) 387-5653
wmich.edu/globalstudies

One of the three pillars of our university's vision seeks to be "globally engaged". Global and International studies offers a broad, integrative approach to the study of global and international issues. The program is supported by the methods and theories of different disciplines, by language study, and through regional area expertise. It houses a family of interdisciplinary focus fields devoted to the study of global and international issues and major regions and cultures of the world, offering one undergraduate major and four minors. Course offerings for these programs are primarily in the College of Arts and Sciences, although other colleges may provide appropriate courses.

The global and international studies major is also designed to maximize opportunities for international study abroad and academic experiences outside of the United States. Extensive world language study is required in the major; and, although the minors can be completed without world language courses, most students include some in their programs, as appropriate. With advisor approval, courses taken at colleges and universities through study abroad, either in English or in other languages, may be integrated into the program requirements.

Students completing this major often seek employment in international business, government service or work with international organizations. Many students seek a second major with a world language.

Our minor programs include:

- Asian studies
- Global and international studies
- Latinx and Latin American studies
- Modern European studies

Students interested in area studies minors may also be interested in the Canadian studies minor offered through the Department of World Languages and Literatures.

Advising

Given the interdisciplinary nature of the program, it is very important that students work regularly with program advisors. Information about career choices, internships, graduate programs and second majors is also available from our office.

Academic Standards

Students must earn at least a grade of "C" in all courses counted for their major/minor.

Baccalaureate Writing Requirement

Students who have chosen a global and international studies major will satisfy the Baccalaureate Writing Requirement by successfully completing GIST 4900 - Senior Capstone Seminar in Global and International Studies.

Global and International Studies Major (39 hours)

Program requirements

- Minimum 39 hours, of which at least 23 hours must be in course work at the 3000-level or above
- Three courses from a set of eight core courses (15-18 hours)
- Selection of a focus field and a minimum of four courses in that focus field (12-16 hours)
- Completion of two courses in a world language beyond the 2010 level (6-8 hours)
Note: Courses taught in English cannot be used to satisfy this requirement
- At least one area studies course on a region in which the selected world language is spoken (3 hours)
- A study abroad, service learning or internship cognate (3-4 hours)
- Must include course selections from at least four different departments or course prefixes
- No more than 16 credit hours of transfer credit may be applied toward the major

No minor is required for students choosing the major, although a language or area studies minor is strongly recommended. Credits for the world language cognate requirement can also be applied toward a declared minor or major in a language.

Required core courses (15-18 hours)

- GIST 2000 - Introduction to Global and International Studies **Credits:** 3 hours
- GIST 4900 - Senior Capstone Seminar in Global and International Studies **Credits:** 3 hours

Note:

The Senior Capstone Seminar in Global and International Studies (GIST 4900) will also be used to satisfy the University's baccalaureate-level writing requirement.

Three courses chosen from:

- ANTH 2400 - Principles of Cultural Anthropology **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- ENVS 3000 - Introduction to Sustainability: A Local to Global Survey **Credits:** 3 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours
- HIST 2030 - World History since 1500 **Credits:** 3 hours
- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- REL 2000 - Thinking About Religion **Credits:** 4 hours
- SOC 3040 - Nonwestern World **Credits:** 4 hours

Focus field (12-16 hours)

Students will take four courses in a single focus field. Courses listed in each focus field represent only a sample of courses available. Courses other than those listed for the focus fields can be selected with advisor approval.

- GIST 3500 - Topics in Global Studies **Credits:** 1 to 4 hours

This course varies and may serve as one required course within the chosen focus field.

Identities and cultures in a globalized world

Explores issues of race, religion, nationality, ethnicity and gender. Considers the role identities play in shaping national and international ideas, actions, conflicts and policies. The following courses should be considered as options for discussion with an advisor.

- GWS 3480 - Gender and Plastic Bodies **Credits:** 3 hours
- COM 4740 - Intercultural Communication **Credits:** 3 hours
- ENGL 2110 - Folklore and Mythology **Credits:** 4 hours
- ENVS 3600 - Environment and Culture **Credits:** 3 hours
- FCS 3150 - Global Ecology of the Family **Credits:** 3 hours
- HIST 3640 - Modern Europe: Culture and Society **Credits:** 3 hours
- MUS 3120 - Explorations in World Music **Credits:** 3 hours
- PHIL 3500 - Foundations of the Modern Worldview **Credits:** 4 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours
- REL 3145 - Cults, Sects, and New Religions **Credits:** 3 hours
- SOC 3140 - Ethnic Relations **Credits:** 3 hours

States, security, and transnational governance

Explores the ways that the international states system, international non-governmental organizations, and other transnational organizations address the intersection between local and global issues. The following courses should be considered as options for discussion with an advisor.

- ECON 3800 - International Economics **Credits:** 3 hours
- ENVS 3400 - Environmental Policy **Credits:** 4 hours
- GEOG 2440 - Economic Geography **Credits:** 3 hours
- HIST 3790 - World War II in American and Japanese History **Credits:** 3 hours
- PADM 2000 - Introduction to Public and Nonprofit Service **Credits:** 3 hours
- PSCI 2500 - International Relations **Credits:** 4 hours

Inequality and social responsibility

Explores the origins and impact of economic and social disparities and the influences of race, gender and socioeconomic class on resource distributions. It seeks to understand the legal and ethical responses to these social differences, and the challenges it presents for peoples and governments. The following courses should be considered as options for discussion with an advisor.

- ANTH 2600 - Sex, Gender, Culture **Credits:** 3 hours
- ECON 3840 - Economic Development **Credits:** 3 hours
- ENVS 4150 - Environmental Law **Credits:** 3 hours
- GWS 3200 - Women, Globalization and Social Change **Credits:** 3 hours
- PHIL 3150 - Race and Gender Issues **Credits:** 3 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours
- SOC 3140 - Ethnic Relations **Credits:** 3 hours

Global health and environment

Focuses on the linkages between health and the environment and studies the challenges, opportunities and responsibility of sustaining healthy bodies, communities and environments. The following courses should be considered as options for discussion with an advisor.

- ANTH 3560 - Food and Culture **Credits:** 3 hours
- BIOS 1050 - Environmental Biology **Credits:** 3 hours
- ECON 3180 - The Economics of Medical Care **Credits:** 3 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- ENVS 2050 - Nature, Society, and Sustainability **Credits:** 4 hours
- GEOG 1000 - World Ecological Problems and Man **Credits:** 4 hours
- GEOS 3220 - Ocean Systems **Credits:** 3 hours
- HOL 2000 - Choices in Global Living **Credits:** 3 hours
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours
- PSCI 3060 - Environmental Politics **Credits:** 4 hours
- REL 3190 - Religion and Health **Credits:** 4 hours

Migration and population dynamics

Examines the movements of people and explores the economic, social, cultural, ethical, security, and policy ramifications of this mobility. The following courses should be considered as options for discussion with an advisor.

- ANTH 3470 - Ethnicity/Multiculturalism **Credits:** 3 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- LWIR 3000 - Immigration, Race and Ethnicity in the U.S. **Credits:** 3 hours
- PHIL 3150 - Race and Gender Issues **Credits:** 3 hours
- SOC 3140 - Ethnic Relations **Credits:** 3 hours
- HISP 2650 - Hispanic Culture in the U.S. **Credits:** 3 hours

Global communication, expression and information systems

Studies the forms of expression and production and circulation of ideas, images and information from comparative and global perspectives. It explores the role of technology, communication modes and the arts in defining global issues. The following courses should be considered as options for discussion with an advisor.

- ANTH 2800 - Language in a Global World **Credits:** 4 hours
- ART 2220 - Art of Africa, Oceania, and the Americas **Credits:** 3 hours
- COM 3400 - Global Media Literacy **Credits:** 3 hours
- ENGL 3160 - Storytellers **Credits:** 3 hours
- GEOG 1020 - World Geography through Media and Maps **Credits:** 3 hours
- GWS 1000 - Media and the Sexes **Credits:** 3 hours
- HIST 3060 - Technology and Culture **Credits:** 3 hours
- LANG 3750 - Global Issues through Literature and Film **Credits:** 3 hours
- MUS 3520 - World Music in Theory and Practice **Credits:** 4 hours

Self-Designed Focus Field

Offers students the option of arranging a set of courses to develop a thematic focus field. Students must petition the global and international studies program for approval of a self-designated focus field.

Study Abroad, Service Learning or Internship Cognate (3-4 hours)

Students must select an approved experiential learning opportunity, which may include an internship with a global focus or a study abroad program. The following courses may also be used to satisfy this requirement. The advisor may approve an appropriate substitute.

- ANTH 4900 - Archaeological Field School **Credits:** 6 hours
- GIST 4980 - Directed Research and Field Projects **Credits:** 1 to 6 hours
- HIST 4950 - Internship **Credits:** 3 to 9 hours
- PSCI 3900 - Field Work in Political Science **Credits:** 1 to 12 hours
- SPAN 4400 - Internship or Service with Spanish **Credits:** 2 to 3 hours

For study abroad programs visit:

brncosabroad.international.wmich.edu

World Language Cognate (6-8 hours)

The program requires at least two courses beyond the 2010-level in a single language other than the student's native language and appropriate to the chosen focus field. Courses taught in English cannot satisfy this requirement. Students whose native language is not English should consult the program advisor on fulfillment of the language requirement.

Area Studies Requirement (3-4 hours)

The program also requires one area studies course in the region in which the student's language choice is spoken. A study abroad program in a region corresponding to the student's language choice can be used to satisfy this requirement.

The following courses should be considered as options for discussion with an advisor.

Africa

- ANTH 3410 - Global Africa Past and Present **Credits:** 3 hours
- ECON 3880 - African Economies **Credits:** 3 hours
- ENGL 3140 - African Literature **Credits:** 3 hours
- GEOG 3860 - Geography of Africa **Credits:** 3 hours
- HIST 3880 - Introduction to African Civilization **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- Or other course offerings

Asia

- ANTH 3400 - World Cultures **Credits:** 3 hours
- ART 2230 - Introduction to Asian Art History **Credits:** 3 hours
- ECON 3870 - Studies in Asian Economies **Credits:** 3 hours
- ENGL 3130 - Asian Literature **Credits:** 3 hours
- GEOG 3900 - China, Japan, and Korea: Lands and Cultures **Credits:** 3 hours

- HIST 3760 - Modern East Asia **Credits:** 3 hours
- REL 2040 - Religion in India **Credits:** 4 hours
- Or other course offerings

Canada

- FREN 2750 - Francophone Culture **Credits:** 3 hours
- GEOG 3800 - United States and Canada **Credits:** 3 hours
- HIST 3300 - Canadian History and Culture **Credits:** 3 hours
- HIST 4010 - Environment and History **Credits:** 3 hours
- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- Or other course offerings

Europe

- GEOG 3830 - Geography of Europe **Credits:** 3 hours
- HIST 3360 - Women in European History **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3640 - Modern Europe: Culture and Society **Credits:** 3 hours
- PSCI 3400 - European Politics **Credits:** 4 hours
- PSCI 4400 - The European Union **Credits:** 3 hours
- REL 2080 - Religion in Europe **Credits:** 4 hours
- Or other course offerings

Latin America

- ANTH 3390 - Cultures of Latin America **Credits:** 3 hours
- ECON 3890 - Latin American Economies **Credits:** 3 hours
- GEOG 3810 - South America **Credits:** 3 hours
- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- SOC 3350 - Sociology of Contemporary Latin American **Credits:** 3 hours
- HISP 2750 - Latino Writing/Latino Culture **Credits:** 3 hours
- Or other course offerings

Middle East

- ARAB 2750 - Life and Culture of the Arabs **Credits:** 3 hours
- ANTH 3400 - World Cultures **Credits:** 3 hours
- ART 2230 - Introduction to Asian Art History **Credits:** 3 hours
- ECON 3870 - Studies in Asian Economies **Credits:** 3 hours
- HIST 3850 - Modern Middle East **Credits:** 3 hours
- REL 3325 - Muslim Cultures and Societies **Credits:** 4 hours
- REL 2070 - Judaism **Credits:** 4 hours
- Or other course offerings

Russia and Central Asia

- HIST 3490 - Ancient Near East **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours

Social Studies Major - Secondary Education

Major Requirements

- Minimum of 41/39 hours selected from disciplines listed below.
- Minimum of "C" in all course work required for the major, and minor
- Students selecting Social Studies major must have a minor in Geography, History, **or** Political Science.
- All course work at the 3000/4000-level must be completed within ten years of intern teaching.

Core Courses (30 - 32 hours)

- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- GEOG 1020 - World Geography through Media and Maps **Credits:** 3 hours
- GEOG 1050 - Physical Geography **Credits:** 4 hours
- or
- GEOG 2050 - Human Geography **Credits:** 3 hours
- HIST 2100 - American History to 1877 **Credits:** 3 hours
- HIST 2110 - American History since 1877 **Credits:** 3 hours
- HIST 2020 - World History to 1500 **Credits:** 3 hours
- HIST 2030 - World History since 1500 **Credits:** 3 hours
- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- or
- PSCI 2500 - International Relations **Credits:** 4 hours

Select one of the following:

- ECON 1000 - Economics for Elementary Education **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours

Electives (9 hours)

Students select three upper-level (3000/4000-level courses) from a minimum of two of the disciplines. Courses may not be in the student's minor area. If History is a discipline selected, at least one course must be designated writing intensive and selected from the list below.

- 3000/4000-level: GEOG, HIST or PSCI **Credits:** 3 hours
- 3000/4000-level: GEOG, HIST or PSCI **Credits:** 3 hours
- 3000/4000-level: GEOG, HIST or PSCI **Credits:** 3 hours

Writing Intensive and Baccalaureate Writing Courses - History

Writing Intensive Courses

Prerequisite: HIST 2900 or instructor approval.

- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours

Baccalaureate Writing Courses

- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
- HIST 4010 - Environment and History **Credits:** 3 hours
- HIST 4016 - History of Material Life **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours

Bachelor of Arts or Bachelor of Science

Arts and Sciences Student Planned Major (SPMJ)

The Student Planned Major provides students who wish to graduate from the College of Arts and Sciences the opportunity to pursue educational goals which cannot readily be accommodated in the College's disciplinary majors. Students in the SPMJ must complete the College's Liberal Education Curriculum and work with a College Advisor plus at least two board appointed faculty

advisors to create an individually tailored course of study of sufficient credit hours to meet general degree requirements. Any substitution to the LEC requirements must be approved by the College, the faculty advisors and one faculty member representing the area of the substitution. Students completing this major are eligible to receive either the B.A. or the B.S. degree depending upon the particular configuration of course work selected.

Any undergraduate student in Arts and Sciences in good academic standing is eligible to apply for the SPMJ. Students interested in this option should contact the Director of Advising in the College of Arts and Sciences to begin the process. Those entering the SPMJ are expected to develop a written statement outlining educational goals and how the proposed or current course of study accomplishes the goals.

Minors

Asian Studies Minor (18 hours)

Program Requirements

Minimum of 18 hours with a minimum grade of "C" in all courses in the minor and with at least nine credits at the 3000-level or above. The minor may be organized around a general study of Asia, one of its regions, or specific countries, through completion of appropriate courses selected from more than one department. Up to eight hours of study in a single Asian language (such as Arabic, Chinese, Japanese etc.) is included in the minor requirements. Appropriate study abroad course credits are welcome.

Climate Change Studies Minor (19-22 hours)

The Climate Change Studies minor is an interdisciplinary and integrative program of study involving expert faculty and key courses from intersecting disciplines. It provides students with the necessary science-based background and a broad understanding of the human relationship to climate change including the social and environmental causes, challenges, and opportunities for mitigation and adaptation. As climate change is recognized as one of the critical challenges to the sustainability of human society and the environment, the goal of the program is to develop informed and engaged citizens who can use information from multiple disciplines to draw appropriate conclusions and constructively contribute to societal adaptation to global environmental change. It is intended for any undergraduate and will prepare students to address the complex roots and implications of climate change in any number of professional settings as well as be directly relevant and significant to their lives.

Program Objectives

- Understand the science of past, present and future climate change.
- Identify and understand the range of individual and collective human actions contributing to climate change.
- Identify and understand the consequences of contemporary climate change with particular attention to vulnerable populations.
- Critically examine and effectively communicate a range of response strategies for the mitigation of and adaptation to climate change.
- Critically examine how humans experience climate change through politics, social organization and/or the arts.

Program Coordination

Climate change studies in an interdisciplinary minor housed in the College of Arts and Sciences, coordinated by an advisory board consisting of representative faculty from the departments and programs with courses included in the program and, as an ex-officio member, the Associate Dean for Curriculum in Arts and Sciences. Advising responsibilities will be rotated by the Departments of Geography and Geological and Environmental Sciences, and the Institute of the Environment and Sustainability. The advisory board is responsible for ensuring the continuity and consistency of course offerings and academic advising, approving any changes to the program curriculum, and coordinating the capstone experience.

Introductory Courses (6-7 hours)

Choose one of the following courses:

- ENV5 1000 - Climate Challenges and Solutions **Credits:** 3 hours
- GEOS 1200 - Climate Change Geologic Perspective **Credits:** 3 hours

AND one of the following courses:

- ENV5 2150 - Environmental Systems and Cycles **Credits:** 3 hours
- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOS 1000 - Dynamic Earth **Credits:** 4 hours
- GEOS 1300 - Physical Geology **Credits:** 4 hours
- GEOS 1440 - Environmental Earth Science **Credits:** 3 hours
- GEOS 2320 - Integrated Earth System Studies **Credits:** 3 hours

Climate Change Science (6-7 hours)

Choose two of the following courses:

- BIOS 3200 - Climate Change Biology **Credits:** 3 hours
- BIOS 5440 - Global Change Ecology **Credits:** 3 hours
- CHEM 1900 - Chemistry of Climate Change **Credits:** 3 hours
- GEOG 2250 - Introduction to Meteorology and Climatology **Credits:** 4 hours
- GEOG 3060 - Climate Change: Past, Present, and Future **Credits:** 3 hours
- GEOG 3260 - Atmospheric Energy and Motion **Credits:** 3 hours
- GEOG 4240 - Biogeography **Credits:** 3 hours
- GEOG 4250 - Climatology **Credits:** 3 hours
- GEOG 4300 - Climate Change and Geography **Credits:** 3 hours
- PHYS 1020 - Energy and the Environment **Credits:** 3 hours

Climate Change and Society (6-7 hours)

Choose two of the following courses:

- ENGL 3110 - Our Place In Nature **Credits:** 3 hours
- ENV5 3300 - Climate Change and the Literary Arts **Credits:** 3 hours
- ENV5 3700 - Race, Climate, and the Environment **Credits:** 3 hours
- ENV5 4110 - Climate Change and Society **Credits:** 3 hours
- OR
- SOC 4110 - Climate Change and Society **Credits:** 3 hours
- ENV5 4120 - Climate Change and Cultural Studies **Credits:** 3 hours
- FCS 3700 - Introduction to Food Systems and Sustainability **Credits:** 3 hours
- FCS 4720 - Farm to Table and Sustainability **Credits:** 3 hours
- GEOG 1000 - World Ecological Problems and Man **Credits:** 4 hours
- GEOG 3070 - Extreme Weather under Changing Climate **Credits:** 3 hours
- GEOG 4260 - Natural Disasters and Risk Management **Credits:** 3 hours

- HIST 3180 - American Environmental History **Credits:** 3 hours
- PSY 3456 - Behavioral Approaches to Sustainability **Credits:** 3 hours

Climate Change Studies Capstone (1 hour)

- A-S 4100 - Climate Change Studies Capstone **Credits:** 1 hour

Note

Appropriate substitutions for related coursework or experiences focused on climate change may be approved by program advisors.

Advising

Given the interdisciplinary nature of this program, it is very important that students work regularly with program advisors. Advising responsibilities will be rotated by the Departments of Geography and Geological and Environmental Sciences, and the Institute of the Environment and Sustainability. Students should consult the program website for current advising information and appointments. Transfer students should consult the relevant transfer guides and meet with a program advisor to discuss specific course equivalencies.

Academic Standards

Students in this program must earn a grade of "C" or better in all courses counted toward the minor. A minimum of 9 hours counted towards the minor must be completed at WMU.

Global and International Studies Minor (20 hours)

Program Requirements

This minor encourages a broad study of global conditions and change across multiple disciplines and on a comparative basis.

Minimum of 20 hours, with at least half at the 3000-level or above.

Required course

- GIST 2000 - Introduction to Global and International Studies **Credits:** 3 hours

Latinx and Latin American Studies minor (18 credit hours)

The Latinx and Latin American Studies minor provides students with interdisciplinary perspectives for understanding the social, economic and political realities that shape and connect Latinx and Latin American communities as both are deeply linked in their history, their people, their language and cultures. It also offers diverse approaches to studying the cultures, literatures and arts of the Americas. Ample opportunities are given to focus on Latinx cultures in our region, statewide, across the country, and in Latin America. Students minoring in Latinx and Latin American Studies will deepen their knowledge of the subject matter through courses in multiple disciplines with faculty members who have devoted their research work to these fields.

Program Requirements

Minimum of 18 hours with all courses earning a grade of "C" or better. Up to 9 credits from courses taken in another institution may count towards the minor.

Completion of two required core courses.

The first required core course

can be satisfied with satisfactory completion of one of the following two courses:

- HISP 2650 - Hispanic Culture in the U.S. **Credits:** 3 hours
- SPAN 3210 - Life and Culture of Hispanics in U.S. **Credits:** 3 hours

The second required core course

can be satisfied with satisfactory completion of one of the following five courses:

- ANTH 3390 - Cultures of Latin America **Credits:** 3 hours
- ECON 3890 - Latin American Economies **Credits:** 3 hours
- GEOG 3810 - South America **Credits:** 3 hours
- GEOG 3820 - Mexico and the Caribbean **Credits:** 3 hours
- SOC 3350 - Sociology of Contemporary Latin American **Credits:** 3 hours

Electives

The remaining 12 credit hours can be satisfied from the following list of pre-approved courses, if not already used to satisfy the first and second core courses. With approval from the program director, other courses may be eligible to satisfy the electives.

- ANTH 3390 - Cultures of Latin America **Credits:** 3 hours
- ANTH 3400 - World Cultures **Credits:** 3 hours
- ANTH 3580 - The African Diaspora: Across the Americas **Credits:** 3 hours
- ECON 3210 - The Economics of Immigration **Credits:** 3 hours
- ECON 3890 - Latin American Economies **Credits:** 3 hours
- ENGL 2220 - Literatures and Cultures of the United States **Credits:** 4 hours
- GEOG 3810 - South America **Credits:** 3 hours
- GEOG 3820 - Mexico and the Caribbean **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours
- HIST 5850 - Topics in Asian, African, and Latin American History **Credits:** 3 hours
- LANG 3750 - Global Issues through Literature and Film **Credits:** 3 hours
- LWIR 3000 - Immigration, Race and Ethnicity in the U.S. **Credits:** 3 hours
- SOC 3140 - Ethnic Relations **Credits:** 3 hours
- SOC 3350 - Sociology of Contemporary Latin American **Credits:** 3 hours
- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- HISP 2650 - Hispanic Culture in the U.S. **Credits:** 3 hours
- HISP 2750 - Latino Writing/Latino Culture **Credits:** 3 hours

- SPAN 3210 - Life and Culture of Hispanics in U.S. **Credits:** 3 hours
- SPAN 3230 - Life and Culture of Spanish America **Credits:** 3 hours
- HISP 3390 - Contemporary Latin America **Credits:** 3 hours
- SPAN 4100 - Studies in Hispanic Culture **Credits:** 3 hours

Note:

In order for other courses to serve as electives, fifty percent or more of its content must be focused on Latinx and/or Latin American issues.

Legal Studies Minor (18-19 hours)

The Legal Studies minor is an interdisciplinary program housed in the College of Arts and Sciences. It is designed for students with varied interests, including those considering attending law school, a career in criminal justice, or in business or government, where a working knowledge of legal issues and the legal system would be useful. The Legal Studies minor will provide undergraduate students with a foundation in the law from several diverse disciplines, enhancing critical thinking skills along with a sound background in legal issues.

Program Objectives

Successful students in this program will be able to:

- Demonstrate an understanding of the foundations of the United States legal system and how it has changed over time.
- Articulate how diverse populations have interacted with the American criminal justice system.
- Critically examine legal issues from multiple disciplinary perspectives.

Program Coordination

The Legal Studies minor will be housed in the College of Arts and Sciences and coordinated by an advisory board consisting of representative faculty from the primary departments and programs with courses included in the program, including the Departments of History, Political Science, and Sociology, and, as an ex-officio member, the Associate Dean of Curriculum in Arts and Sciences. The advisory board is responsible for ensuring the continuity and consistency of course offerings and academic advising, approving any changes to the program curriculum, and addressing other curricula issues as they may arise from time to time. The College of Arts and Sciences Office of Undergraduate Advising, which currently coordinates the pre-law advising programs, will be responsible for advising this new minor.

Foundational Courses (3 hours)

Choose ONE of the following courses (must be from a department outside of your major):

- HIST 2110 - American History since 1877 **Credits:** 3 hours
- PSCI 2000 - National Government **Credits:** 3 hours
- SOC 2600 - Introduction to Criminal Justice Studies **Credits:** 3 hours

Intermediate Courses (6-7 hours)

Choose two of the following courses, at least one of which is from a department different from the foundational course:

- COM 3070 - Freedom of Expression **Credits:** 3 hours
- HIST 3160 - Women in United States History **Credits:** 3 hours

- LAW 3500 - Computer Law **Credits:** 3 hours
- LAW 3800 - Legal Environment **Credits:** 3 hours
- LAW 3840 - Criminal Law and Procedure **Credits:** 3 hours
- PHIL 3130 - Philosophy of Law **Credits:** 3 hours
- PSCI 3200 - The American Judicial Process **Credits:** 4 hours
- PSCI 2700 - Political Topics **Credits:** 1 to 3 hours
(Topic: Mock Trial **Credits:** 3 hours)
- PSCI 3700 - Issues in Contemporary Politics **Credits:** 3 to 4 hours
(Topic: Mock Trial **Credits:** 3 hours)
- PSCI 3250 - Criminal Justice Policy **Credits:** 3 hours
- SOC 3620 - Criminology **Credits:** 3 hours
- SOC 3630 - Courts and Society **Credits:** 3 hours

Upper-Level Courses (9 hours)

Choose three of the following courses, from at least two different departments:

- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
- LAW 4840 - International Business Law **Credits:** 3 hours
- LAW 4860 - Marketing and Sales Law **Credits:** 3 hours
- PSCI 4200 - Constitutional Law **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours
- PSCI 4220 - Civil Rights and Liberties **Credits:** 3 hours
- PSCI 4230 - The First Amendment **Credits:** 3 hours
- PSCI 4240 - Environmental Law **Credits:** 3 hours
- SOC 4400 - Corporate and Governmental Crime **Credits:** 3 hours

Note

Appropriate substitutions for related coursework or experiences focused on legal studies may be approved by program advisors in consultation with the advisory board.

Advising

Given the interdisciplinary nature of this program, it is very important that students work regularly with program advisors in the College of Arts and Sciences Office of Undergraduate Advising. Transfer students should consult the relevant transfer guides and meet with a program advisor to discuss specific course equivalencies.

Academic Standards

Students in this program must earn a grade of "C" or better in all courses counted toward the minor. Courses used to fulfill requirements in your major may not be counted towards this minor. A minimum of 9 hours counted towards the minor must be completed at WMU.

Medical Humanities Minor

The medical humanities minor is beneficial for two kinds of students who wish to understand the humanistic elements of health and health care, including the psychosocial, ethical, religious, literary, artistic, and so forth. Those choosing a career in the health sciences will find medical humanities to be a positive influence on how they approach patient care, helping them to view patients with greater empathy and awareness of what it is to be a patient. Meanwhile, students of traditional disciplines within the humanities will encounter and explore the human condition as it relates to health-related adversity and triumph.

The medical humanities minor requires the following:

1. 18 total credit hours, to be satisfied as follows:
 - a. Phil 3350: Medical Humanities
 - b. One course from Group A
 - c. One course from Group B
 - d. Remaining hours must come from courses in either Group B or Group C
2. No more than two courses from any particular prefix will count for credit toward the minor.
3. Other courses may count toward minor with approval from the medical humanities advisor.

Flexibility is built into the medical humanities minor. Students are encouraged to speak with the medical humanities advisor about which combination of courses would best suit their individual interests. With the advisor's approval, the student may substitute relevant courses for those that may be unavailable (e.g., if a course is not scheduled to be offered before the student graduates).

Students should be aware that courses may not count for credit twice for different programs. That is, the same course may not be used both to meet the requirements of the student's major and the medical humanities minor.

Required (18 hours)

- PHIL 3350 - Medical Humanities **Credits:** 3 hours

Group A

- BIOS 5620 - Bioethics **Credits:** 3 hours
- NUR 3220 - Health Care Ethics **Credits:** 3 hours
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours

Group B

- ANTH 2600 - Sex, Gender, Culture **Credits:** 3 hours
- ANTH 5250 - Spirits and Medicine **Credits:** 3 hours
- HOL 5340 - Holistic Health and Spirituality **Credits:** 3 hours
- PHIL 3150 - Race and Gender Issues **Credits:** 3 hours
- REL 3180 - Death, Dying, and Beyond **Credits:** 4 hours

Group C

- GWS 3480 - Gender and Plastic Bodies **Credits:** 3 hours
- COM 4840 - Health Communication **Credits:** 3 hours

- ECON 3180 - The Economics of Medical Care **Credits:** 3 hours
- FCS 2100 - Human Sexuality **Credits:** 3 hours
- GRN 1000 - Introduction to Aging Studies **Credits:** 3 hours
- GRN 4000 - Public Policy and Aging **Credits:** 3 hours
- GWS 2000 - Introduction to Gender and Women's Studies **Credits:** 4 hours
- GWS 3400 - Race, Gender and Science **Credits:** 3 hours
- GWS 3500 - Psychological Perspectives on Gender **Credits:** 3 hours
- HOL 5300 - Special Topics in Holistic Health **Credits:** 1 to 4 hours
Topic: Healing Through Writing and Story
- HOL 5500 - Introduction to Holism and Expressive Arts **Credits:** 3 hours
- HOL 5510 - Holistic Approaches to Healing Through Visual Art **Credits:** 3 hours
- HOL 5530 - Holistic Strategies for Illness and End of Life **Credits:** 3 hours
- HPHE 1550 - Foundations of Health Education **Credits:** 3 hours
- HSV 4100 - Legal Issues in Healthcare Services **Credits:** 3 hours
- HSV 4140 - Basic Principles and Organization of Health Planning **Credits:** 3 hours
- MUS 2810 - Introduction to Music Therapy **Credits:** 1 hour
- MUS 2890 - Music Therapy Activities for Children **Credits:** 2 hours
- MUS 2900 - Music Therapy Activities for Adults **Credits:** 2 hours
- SWRK 4230 - Ethics in Substance Abuse Treatment **Credits:** 3 hours

Modern European Studies Minor (18 hours)

Program Requirements

Minimum of 18 hours with a minimum grade of "C" in all courses in the minor and with at least nine credits at the 3000-level or above. The minor may be organized around a general study of Europe and Eurasia with courses selected from more than one department. Up to eight hours of study in a language spoken in the region is included in the minor requirements. Appropriate study abroad course credits are welcome.

Race and Ethnic Relations Minor (18 hours)

This minor allows for the study of race and ethnic relations from several perspectives:

- Global, cross-cultural analyses
- Intercultural communication and race/ethnicity
- The implications of racial and ethnic diversity in service delivery (e.g., health care, education, business)
- Race, ethnicity and public policy
- Theoretical perspectives in the study of race and ethnic relations

Requirements

Students must complete 18 credit hours from an approved list of courses with a grade of "C" or better in each class. There are two required courses:

- LWIR 3000 - Immigration, Race and Ethnicity in the U.S. **Credits:** 3 hours
- LWIR 4000 - Research in Race and Ethnic Relations **Credits:** 3 hours

Remaining hours

Students may complete the remaining 12 credits needed for the minor from an approved list, or select a different course with the consent of the director. Courses must be chosen from at least two different departments. In addition to LWIR 4000, at least one other course must be at the 4000-level.

World Literature Minor (20 hours)

Advisors: Dr. Jeffrey Angles (World Languages and Literatures) and Dr. Phillip Egan (English)

This is an interdepartmental program offered jointly by the Departments of English, World Languages and Literatures, and Spanish.

Studying the literature of other peoples of the world is one of the best ways to begin to know them. A great body of the world's literature is available for study in English translation in a variety of courses and departments at Western Michigan University. The world literature minor grows out of and is based on these courses.

This minor should be of value to students who have a general interest in literature and are curious about the world, especially that major part which does not have English as its literary language.

Any student, including those majoring or minoring in English or Spanish or other world language, may elect the world literature minor. The minor should be of obvious value to students preparing to teach humanities or literature at any level.

The world literature minor can provide useful backgrounds to students interested in foreign affairs, law, politics, journalism, mass communication, and theatre. It should also be of interest to students in business, scientific, and engineering curricula who wish to do a minor outside their main field.

The minor should interest students who, whatever their career plans or major, wish the varied view and mixture of experiences of an interdisciplinary program. Also, the wide range of electives possible should make the minor attractive to students who would like the opportunity to help shape their own programs.

Prerequisites listed for any of the courses in this minor will be waived. However, students with questions about the advisability of taking courses for which there are prerequisites should consult one of the minor advisors.

Transfer students should consult an advisor to determine the applicability of courses taken at other colleges.

Both the English and the World Languages and Literatures Departments have world literature minor advisors with regular office hours. For information, stop at or call the English Department office (269) 387-2572 or the Department of World Languages and Literatures, 410 Sprau (269) 387-3001.

Requirements

1. Twenty hours, with the following distribution:

- ENGL 3120 - Western World Literature **Credits:** 3 hours
or
- ENGL 3130 - Asian Literature **Credits:** 3 hours
or
- ENGL 3140 - African Literature **Credits:** 3 hours

2. Two or three courses (at least eight semester hours) selected from the following list:

- ENGL 1100 - Literary Interpretation **Credits:** 4 hours
- ENGL 2100 - Film Interpretation **Credits:** 4 hours
- ENGL 2520 - Shakespeare **Credits:** 4 hours
- ENGL 3120 - Western World Literature **Credits:** 3 hours
if not used under Requirement (1)
- ENGL 3130 - Asian Literature **Credits:** 3 hours
if not used under Requirement (1)
- ENGL 3140 - African Literature **Credits:** 3 hours
if not used under Requirement (1)
- ENGL 3150 - The English Bible as Literature **Credits:** 3 hours
- ENGL 4100 - Special Topics in Literature **Credits:** 4 hours
(if the topic is appropriate it may be approved by the minor advisor.)
- ENGL 4420 - Studies in Drama **Credits:** 4 hours
- ENGL 5300 - Medieval Literature **Credits:** 3 hours
- ENGL 5380 - Modern Literature **Credits:** 3 hours
- ENGL 5550 - Studies in Major Writers **Credits:** 3 hours
(if the author(s) studied is appropriate, this course may be approved by the minor advisor.)
- ENGL 5980 - Readings in English **Credits:** 1 to 4 hours
(With the approval of the minor advisor.)

3. Three courses selected from the following list:

- LANG 3750 - Global Issues through Literature and Film **Credits:** 3 hours
(Repeatable under a different topic)
Advisors may suggest additional options.

Permissible Substitutions For Required Courses

With the approval of a minor advisor, students may:

1. Substitute one of the following courses for one course listed above

In either Requirement 2 or Requirement 3:

- THEA 3700 - Theatre History I **Credits:** 3 hours
 - THEA 3710 - Theatre History II **Credits:** 3 hours
 - THEA 4700 - Development of Theatre Art **Credits:** 3 hours
- OR

2. Substitute an advanced literature course

In a foreign language for one of the courses listed above in either Requirement 2 or Requirement 3.
OR

3. Substitute a course or courses (maximum of 4 hours)

Not presently listed in the catalog, which may be offered as a special or temporary course and which is deemed by the advisors appropriate to the World Literature Minor.

Biological Sciences

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Steve Kohler
Cindy Linn
Yan Lu
Monica McCullough
Silvia Rossbach
David Rudge
Tiffany Schriever
Brian Tripp
Maarten Vonhof
Jian Yao

An understanding of the biological sciences is essential, if we are to solve the pressing social, environmental, and economic problems of our times. The Department of Biological Sciences offers major and minor programs designed to provide today's student with effective and up-to-date knowledge and training in various areas of the life sciences, including medical aspects of human biology.

The **Biology Major** explores the broad spectrum of the life sciences with opportunities to study botany, zoology, ecology, and physiology. Students completing this major should be prepared for one or more of the following goals: (1) graduate study toward an advanced degree in the Biological Sciences, i.e. M.S., or Ph.D.; (2) employment in state or federal government service, industry, laboratory or technical work; (3) advanced study at the professional level.

The **Biomedical Sciences Major** is designed to explore the human, molecular, and cellular aspects of the life sciences, with the opportunity to study cell biology, genetics, microbiology, molecular biology, neurobiology, and physiology. The specific objectives of the Biomedical Sciences major include: (1) providing basic training for employment in basic research laboratories, industrial laboratories, as well as state and federal agencies; (2) producing highly qualified students for advanced training at the graduate-professional levels, i.e., M.S., Ph.D., M.D., D.D.S., D.O.M., D.P.M., or D.V.M.; and (3) completing prerequisites necessary to apply to health professional programs such as physician assistant, pharmacy, and physical therapy. For additional career options, see the undergraduate advisor and visit the Career Center website: wmich.edu/career.

The **Biology Major-Secondary Education Curriculum** is designed to prepare students for certification and teaching in secondary education. Students interested in pursuing a teaching career in the biological sciences should follow the special guidelines for this program in the section below.

A **Minor in Biological Sciences** is also available, as well as in the Secondary Education Curriculum.

All major and minor programs are to be pursued under the direction of and with the approval of the Undergraduate Advisor. Students interested in a major or minor should contact the undergraduate advisor in Room 3447 Wood Hall, (wmich.edu/biology/advising or 269-387-5617) during freshman or transfer orientation and regularly thereafter. Courses taken without the approval of the undergraduate advisor may not be acceptable for major or minor credit.

In addition to planning your program with the undergraduate advisor, we also urge you to consult with the Pre-Health Advisor (in the College of Arts and Sciences at 269-387-4366 or wmich.edu/arts-sciences/advising) at an early stage, to determine any special requirements or variations that may pertain to particular medical, dental, veterinary or other professional schools to which you are planning to apply for admission.

Students must satisfy prerequisites before enrolling in a course. Those who fail to earn a "C" or better grade in a departmental prerequisite course will be denied admission to enroll in the next class. Enrollment will not be honored if it is found that proper prerequisites have not been met.

Only departmental courses in which a grade of "C" or better is obtained may be counted towards a major or minor in Biological Sciences.

Transfer Students

A minimum of 15 hours of course work in the Biology Major, the Secondary Education Biology Major, and the Biomedical Sciences Major must be earned at Western Michigan University. At least 12 hours in the Biological Sciences Minor must be earned at Western Michigan University. Transfer students should consult with the undergraduate advisor in Room 3447 Wood Hall (wmich.edu/biology/advising or 269-387-5617), before registering for classes.

Bachelor of Science

Biology Major (BYLJ) (34 hours)

There are two tracks within this major: Biology, and Biology Secondary Education. Both tracks share a required set of cognate courses in chemistry, physics, mathematics, and statistics. Additional coursework is specified in each track.

Choose one track:

(A) Biology Track (34-39 credit hours)

In addition to the required cognate courses, the Biology track consists of a minimum of 34 credits of biological sciences courses. This course work includes four introductory courses, three intermediate level courses, and three advanced interest courses, including at least one capstone experience. Only three credit hours may be BIOS 4980 and/or BIOS 4990.

Introductory Courses

- BIOS 1600 - Biological Form and Function **Credits:** 3 hours
- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- BIOS 1620 - Ecology and Evolution **Credits:** 4 hours

- BIOS 2500 - Genetics **Credits:** 4 hours

Intermediate Level Courses

Choose at least three (3) of the following.

- BIOS 2020 - General Botany **Credits:** 4 hours
- BIOS 2030 - General Zoology **Credits:** 4 hours
- BIOS 2300 - Cell Biology **Credits:** 3 hours
- BIOS 2600 - Introduction to Developmental Biology **Credits:** 3 hours
- BIOS 3000 - Evolution **Credits:** 3 hours
- BIOS 3010 - Ecology **Credits:** 5 hours
- BIOS 3120 - Microbiology **Credits:** 5 hours
- BIOS 3190 - Plant Physiology **Credits:** 4 hours
- BIOS 3500 - Human Physiology for Majors **Credits:** 5 hours

Advanced Courses

A minimum of 9 hours from any of the following 4000 and 5000-level courses including at least one capstone:

- BIOS 4270 - Systematic Botany **Credits:** 4 hours
- BIOS 4420 - Entomology **Credits:** 3 hours
- BIOS 5310 - Biology of Aging **Credits:** 3 hours
- BIOS 5360 - Immunology **Credits:** 4 hours
- BIOS 5525 - Fish Biology **Credits:** 3 hours
- BIOS 5610 - Pharmacology **Credits:** 3 hours

Capstone Courses:

- BIOS 4390 - Animal Behavior **Credits:** 3 hours
- BIOS 4430 - Conservation Biology **Credits:** 3 hours
- BIOS 4560 - Tropical Biology **Credits:** 3 hours
- BIOS 4970 - Senior Seminar **Credits:** 3 hours
- BIOS 4980 - Readings in Biological Sciences **Credits:** 1 to 3 hours
- BIOS 5180 - Endocrinology **Credits:** 3 hours
- BIOS 5240 - Microbial Genetics **Credits:** 3 hours
- BIOS 5250 - Microbial Ecology **Credits:** 3 hours
- BIOS 5260 - Molecular Biology Laboratory **Credits:** 3 hours
- BIOS 5265 - Proteins as Biological Machines **Credits:** 3 hours
- BIOS 5270 - Cancer Biology **Credits:** 3 hours
- BIOS 5340 - Virology **Credits:** 3 hours
- BIOS 5440 - Global Change Ecology **Credits:** 3 hours
- BIOS 5445 - Human Ecology **Credits:** 3 hours
- BIOS 5460 - Molecular Phylogenetics and Evolution **Credits:** 3 hours
- BIOS 5470 - Ornithology **Credits:** 3 hours
- BIOS 5535 - Freshwater Ecology **Credits:** 4 hours
- BIOS 5545 - Human Impact on Great Lakes Ecosystem **Credits:** 3 hours
- BIOS 5590 - Neurobiology **Credits:** 4 hours
- BIOS 5595 - Biology of Sensory Systems **Credits:** 3 hours

- BIOS 5620 - Bioethics **Credits:** 3 hours
- BIOS 5640 - Developmental Genetics **Credits:** 3 hours
- BIOS 5700 - General Pathology **Credits:** 4 hours
- BIOS 5740 - Developmental Biology **Credits:** 4 hours
- BIOS 5750 - Stem Cells and Regeneration **Credits:** 3 hours
- BIOS 5991 - Independent Research in Biological Sciences **Credits:** 1 to 6 hours
- BIOS 5970 - Topics in Biological Sciences **Credits:** 3 to 4 hours

(B) Biology Secondary Education Track (42-44 credit hours)

The Biology Secondary Education track is designed to prepare students to teach in the areas of biological and environmental sciences in middle and high schools (grades 7-12). A second major in Integrated Science, or minor in another area of science (chemistry, earth science, physics) or math is strongly recommended.

Note: successful completion of this track prepares students for graduate-level work leading to teaching certification, but does not fulfill all requirements for teaching certification. Please consult the College of Education's revised secondary education guidelines for more information.

In addition to the required cognate courses, The Biology Secondary Education track consists of a minimum of 42 credits of biological sciences courses. This course work includes four introductory courses, six intermediate level courses, and one advanced interest course.

Introductory Courses (15 credit hours)

- BIOS 1600 - Biological Form and Function **Credits:** 3 hours
- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- BIOS 1620 - Ecology and Evolution **Credits:** 4 hours
- BIOS 2500 - Genetics **Credits:** 4 hours

Intermediate Level Courses (24-25 credit hours)

- BIOS 2020 - General Botany **Credits:** 4 hours
- BIOS 2300 - Cell Biology **Credits:** 3 hours
- BIOS 3000 - Evolution **Credits:** 3 hours
- BIOS 3010 - Ecology **Credits:** 5 hours
- BIOS 3120 - Microbiology **Credits:** 5 hours
- BIOS 3190 - Plant Physiology **Credits:** 4 hours
- OR
- BIOS 3500 - Human Physiology for Majors **Credits:** 5 hours

Advanced Courses (3-4 credit hours)

A minimum of 3 hours from any of the following 4000 and 5000-level courses:

- BIOS 4270 - Systematic Botany **Credits:** 4 hours
- BIOS 4390 - Animal Behavior **Credits:** 3 hours
- BIOS 4420 - Entomology **Credits:** 3 hours
- BIOS 4430 - Conservation Biology **Credits:** 3 hours
- BIOS 4560 - Tropical Biology **Credits:** 3 hours

- BIOS 4970 - Senior Seminar **Credits:** 3 hours
- BIOS 4980 - Readings in Biological Sciences **Credits:** 1 to 3 hours
- BIOS 5180 - Endocrinology **Credits:** 3 hours
- BIOS 5240 - Microbial Genetics **Credits:** 3 hours
- BIOS 5250 - Microbial Ecology **Credits:** 3 hours
- BIOS 5260 - Molecular Biology Laboratory **Credits:** 3 hours
- BIOS 5265 - Proteins as Biological Machines **Credits:** 3 hours
- BIOS 5270 - Cancer Biology **Credits:** 3 hours
- BIOS 5310 - Biology of Aging **Credits:** 3 hours
- BIOS 5340 - Virology **Credits:** 3 hours
- BIOS 5360 - Immunology **Credits:** 4 hours
- BIOS 5440 - Global Change Ecology **Credits:** 3 hours
- BIOS 5445 - Human Ecology **Credits:** 3 hours
- BIOS 5460 - Molecular Phylogenetics and Evolution **Credits:** 3 hours
- BIOS 5470 - Ornithology **Credits:** 3 hours
- BIOS 5525 - Fish Biology **Credits:** 3 hours
- BIOS 5535 - Freshwater Ecology **Credits:** 4 hours
- BIOS 5545 - Human Impact on Great Lakes Ecosystem **Credits:** 3 hours
- BIOS 5590 - Neurobiology **Credits:** 4 hours
- BIOS 5595 - Biology of Sensory Systems **Credits:** 3 hours
- BIOS 5610 - Pharmacology **Credits:** 3 hours
- BIOS 5620 - Bioethics **Credits:** 3 hours
- BIOS 5640 - Developmental Genetics **Credits:** 3 hours
- BIOS 5700 - General Pathology **Credits:** 4 hours
- BIOS 5740 - Developmental Biology **Credits:** 4 hours
- BIOS 5750 - Stem Cells and Regeneration **Credits:** 3 hours
- BIOS 5970 - Topics in Biological Sciences **Credits:** 3 to 4 hours
- BIOS 5991 - Independent Research in Biological Sciences **Credits:** 1 to 6 hours

Cognate Requirements for Biology and Biology Secondary Education tracks (34-38 credit hours)

Chemistry

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
and
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
and
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
with
- CHEM 3560 - Introductory Biochemistry Laboratory **Credits:** 1 hour
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours

- with
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour
- OR**
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- with
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- and
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- with
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour

Mathematics

One calculus course and one statistics course.

- MATH 1220 - Calculus I **Credits:** 4 hours
- or
- MATH 2000 - Calculus with Applications **Credits:** 4 hours

AND

- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- or
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Physics

- PHYS 1130 - General Physics I **Credits:** 4 hours
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
- AND
- PHYS 1150 - General Physics II **Credits:** 4 hours
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour

Recommended Courses

The following course is recommended for those who plan to pursue advanced degrees in Biology, Botany, and Zoology (especially in the areas of ecology and field biology):

- GEOS 1300 - Physical Geology **Credits:** 4 hours

Biomedical Sciences Major (BMLJ) (38 hours)

A major in Biomedical Sciences consists of a minimum of 38 credits of course work in Biological Sciences as well as cognate courses in chemistry, mathematics, and physics. This course work includes two introductory courses, five intermediate level courses, two advanced interest courses, one of which must be a capstone experience. Only three credit hours may be BIOS 4980 and/or BIOS 4990.

Introductory Courses

- BIOS 1600 - Biological Form and Function **Credits:** 3 hours
- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- BIOS 1620 - Ecology and Evolution **Credits:** 4 hours

Intermediate Level Courses

- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2300 - Cell Biology **Credits:** 3 hours
OR
- BIOS 2600 - Introduction to Developmental Biology **Credits:** 3 hours
- BIOS 2500 - Genetics **Credits:** 4 hours
- BIOS 3120 - Microbiology **Credits:** 5 hours
- BIOS 3500 - Human Physiology for Majors **Credits:** 5 hours

Two Advanced Interest Courses from the Following:

A minimum 6 hours from any of the following 3000, 4000, and 5000-level classes including at least one capstone course; only 3 hours may be BIOS 4980 and/or BIOS 4990.

- BIOS 3000 - Evolution **Credits:** 3 hours
- BIOS 4270 - Systematic Botany **Credits:** 4 hours
- BIOS 4420 - Entomology **Credits:** 3 hours
- BIOS 5310 - Biology of Aging **Credits:** 3 hours
- BIOS 5360 - Immunology **Credits:** 4 hours
- BIOS 5525 - Fish Biology **Credits:** 3 hours
- BIOS 5610 - Pharmacology **Credits:** 3 hours

Capstone Courses

- BIOS 4390 - Animal Behavior **Credits:** 3 hours
- BIOS 4430 - Conservation Biology **Credits:** 3 hours
- BIOS 4560 - Tropical Biology **Credits:** 3 hours
- BIOS 4970 - Senior Seminar **Credits:** 3 hours
- BIOS 4980 - Readings in Biological Sciences **Credits:** 1 to 3 hours
- BIOS 5991 - Independent Research in Biological Sciences **Credits:** 1 to 6 hours
- BIOS 5180 - Endocrinology **Credits:** 3 hours
- BIOS 5240 - Microbial Genetics **Credits:** 3 hours
- BIOS 5250 - Microbial Ecology **Credits:** 3 hours
- BIOS 5260 - Molecular Biology Laboratory **Credits:** 3 hours
- BIOS 5265 - Proteins as Biological Machines **Credits:** 3 hours
- BIOS 5270 - Cancer Biology **Credits:** 3 hours
- BIOS 5340 - Virology **Credits:** 3 hours
- BIOS 5440 - Global Change Ecology **Credits:** 3 hours
- BIOS 5445 - Human Ecology **Credits:** 3 hours
- BIOS 5460 - Molecular Phylogenetics and Evolution **Credits:** 3 hours
- BIOS 5470 - Ornithology **Credits:** 3 hours
- BIOS 5535 - Freshwater Ecology **Credits:** 4 hours
- BIOS 5545 - Human Impact on Great Lakes Ecosystem **Credits:** 3 hours

- BIOS 5590 - Neurobiology **Credits:** 4 hours
- BIOS 5595 - Biology of Sensory Systems **Credits:** 3 hours
- BIOS 5620 - Bioethics **Credits:** 3 hours
- BIOS 5640 - Developmental Genetics **Credits:** 3 hours
- BIOS 5700 - General Pathology **Credits:** 4 hours
- BIOS 5740 - Developmental Biology **Credits:** 4 hours
- BIOS 5750 - Stem Cells and Regeneration **Credits:** 3 hours
- BIOS 5970 - Topics in Biological Sciences **Credits:** 3 to 4 hours

Cognate Requirements

Chemistry

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
and
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
and
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
and
- CHEM 3560 - Introductory Biochemistry Laboratory **Credits:** 1 hour
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
and
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
and
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour

Mathematics

One calculus course and one statistics course.

- MATH 1220 - Calculus I **Credits:** 4 hours
or
- MATH 2000 - Calculus with Applications **Credits:** 4 hours

AND

- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
or
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Physics

- PHYS 1130 - General Physics I **Credits:** 4 hours
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
AND
- PHYS 1150 - General Physics II **Credits:** 4 hours
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour

Minors

Biological Sciences Minor (20 hours)

The Biological Sciences Minor consists of a minimum of 20 credits of biological science courses plus chemistry cognates. Ten of these credits must be from 2000 or higher level courses.

Cognate Requirements

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour

Minors in Health Related Fields

Minors in health related fields may, but are not required to, take the following courses to fulfill a minor:

- BIOS 1050 - Environmental Biology **Credits:** 3 hours
- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 1910 - Introduction to Human Anatomy and Biology **Credits:** 4 hours
or
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours

Minors Interested in Other Areas of Biology

Minors interested in other areas of biology are advised to take the following, in order to have a greater selection of courses:

- BIOS 1600 - Biological Form and Function **Credits:** 3 hours
- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- BIOS 1620 - Ecology and Evolution **Credits:** 4 hours

Chemistry

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Ramakrishna Guda
Linda Hanson
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David Reinhold
Elke Schoffers
Donald Schreiber
Ekkehard Sinn
Susan Stapleton
Frederick Stull
Kelly Teske
Andre Venter

Students majoring in chemistry may prepare for a career in industrial laboratory work, high school teaching, or graduate work in departments of chemistry, biochemistry, medical, pharmaceutical or dental colleges. The course offerings for the undergraduate degree are structured to give a broad but thorough grounding in the elements of chemistry. The chemistry curriculum should be fortified by a minor in physics, mathematics, or biological sciences.

The American Chemical Society (ACS) certified program was developed in conjunction with the chemical industry. As a result students graduating from this program are better prepared for technical employment. Companies give preference to ACS-certified majors and sometimes offer higher salaries.

Majors and Minors

Students are required to declare their intent to be a major or minor before completing their credit hour requirements. This is done by filing a declaration of major/minor slip with the advisor.

To qualify as a major or minor in chemistry from Western Michigan University, the student, including the transfer student, must complete a minimum of their last 14 credit hours (major) or 7 credit hours (minor) in the Chemistry Department. The courses taken for credit for a major or minor must include at least one that contains a laboratory experience at WMU.

Students must earn a grade of "C" or better in each Chemistry course counted for a major or minor. Students who have chosen a chemistry major and have General Education requirements, will satisfy the Arts and Sciences Liberal Education Curriculum (LEC) Baccalaureate-Level Writing Requirement by successfully completing CHEM 4360: Physical Chemistry Laboratory I.

Enrollment in 5000-level courses requires Junior standing, 12 hours of work in chemistry and department approval.

Bachelor of Science

American Chemical Society (ACS) Certified Major

The ACS Certified Chemistry Major is designed for students interested in going directly into the chemical industry after graduation. While this degree is designed for those going into the chemical industry, it is more than adequate for those planning

on going to graduate school in chemistry. A minimum of 42 CHEM credit hours must be selected according to the following guidelines.

Required CHEM courses:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- CHEM 4360 - Physical Chemistry Laboratory I **Credits:** 2 hours
- CHEM 4310 - Physical Chemistry II **Credits:** 3 hours
- CHEM 4370 - Physical Chemistry Laboratory II **Credits:** 1 hour
- CHEM 5150 - Inorganic Chemistry **Credits:** 3 hours
- CHEM 5200 - Instrumental Methods in Chemistry **Credits:** 3 hours
- CHEM 5750 - Advanced Chemical Synthesis **Credits:** 2 hours

Students must take some biochemistry work

They can elect to take either Introductory Biochemistry (CHEM 3550) and an additional 5000-level course for a minimum of 42 hours or take Biochemistry I & II (CHEM 5500 and CHEM 5540).

- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
And
- Chemistry Elective 5000-level
OR
- CHEM 5500 - Biochemistry I **Credits:** 3 hours
And
- CHEM 5540 - Biochemistry II **Credits:** 3 hours

Required Cognate courses:

- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours

- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Additional Comments:

- Additional courses in statistics (STAT 2600 or STAT 3640) and Differential Equations (MATH 2740 or MATH 3740) are recommended.

Suggested sequence to satisfy major:

Below is a suggested sequence of required courses to satisfy the ACS Certified Major that accounts for prerequisite courses and courses offered in limited semesters.

First Year:

Fall

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- MATH 1220 - Calculus I **Credits:** 4 hours

Spring

- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- MATH 1230 - Calculus II **Credits:** 4 hours

Second Year:

Fall

- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour

Spring

- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Third Year:

Fall

- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours

Spring

- CHEM 4360 - Physical Chemistry Laboratory I **Credits:** 2 hours
- CHEM 4310 - Physical Chemistry II **Credits:** 3 hours
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours

Fourth Year:

Fall

- CHEM 4370 - Physical Chemistry Laboratory II **Credits:** 1 hour
- CHEM 5200 - Instrumental Methods in Chemistry **Credits:** 3 hours
- CHEM 5150 - Inorganic Chemistry **Credits:** 3 hours

Spring

- CHEM Elective 5000-Level **Credits:** 2 to 3 hours
- CHEM 5750 - Advanced Chemical Synthesis **Credits:** 2 hours

Biochemistry Major (36 hours)

The Biochemistry Major is designed to follow the recommended curriculum proposed by both the American Chemical Society and the American Society for Biochemistry and Molecular Biology. This major is recommended for students interested in careers in health sciences such as medicine, dentistry, veterinary medicine, nutrition, clinical chemistry, toxicology, pharmacology, molecular biology, etc. as well as those interested in a graduate career in biochemistry or molecular biology. A minimum of 36 CHEM credit hours must be selected according to the following guidelines:

Required CHEM courses:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours

- CHEM 4360 - Physical Chemistry Laboratory I **Credits:** 2 hours
- CHEM 5500 - Biochemistry I **Credits:** 3 hours
- CHEM 5510 - Biochemistry I Laboratory **Credits:** 2 hours
- CHEM 5540 - Biochemistry II **Credits:** 3 hours
- One (1) 4000 or higher level elective

Required Cognate courses:

- BIOS 1600 - Biological Form and Function **Credits:** 3 hours
- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- BIOS 1620 - Ecology and Evolution **Credits:** 4 hours
- BIOS 2500 - Genetics **Credits:** 4 hours
- BIOS 3120 - Microbiology **Credits:** 5 hours
- MATH 1220 - Calculus I **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Suggested sequence to satisfy major:

First Year:

- BIOS 1600 - Biological Form and Function **Credits:** 3 hours
- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- MATH 1220 - Calculus I **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours

Second Year:

- BIOS 1620 - Ecology and Evolution **Credits:** 4 hours
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Third Year:

- BIOS 2500 - Genetics **Credits:** 4 hours
- BIOS 3120 - Microbiology **Credits:** 5 hours
- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- CHEM 4360 - Physical Chemistry Laboratory I **Credits:** 2 hours

Fourth Year:

- CHEM Elective, 4000 Level or higher
- CHEM 5500 - Biochemistry I **Credits:** 3 hours
- CHEM 5510 - Biochemistry I Laboratory **Credits:** 2 hours
- CHEM 5540 - Biochemistry II **Credits:** 3 hours

Additional Comments:

Biochemistry students may be eligible for a Biological Sciences minor. Please consult the Biological Sciences Advising office to determine how to complete the required coursework.

Business - Oriented Chemistry Major (37 hours)

The Business-Oriented Chemistry Major is designed to prepare students for careers in non-laboratory functions in the chemical industry and some aspects of government service. These chemistry-related careers include such areas as general business, administration and management, and sales. This major covers a broad background of chemical science and allows the student to minor in a business area so as to become familiar with the skills of this business community. A student completing this program can easily move into graduate programs in the College of Business or in chemistry with minimal additional courses. A minimum of 37 CHEM credit hours must be selected according to the following guidelines.

Required CHEM courses:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- CHEM 4360 - Physical Chemistry Laboratory I **Credits:** 2 hours
- CHEM 4310 - Physical Chemistry II **Credits:** 3 hours

- CHEM 5070 - Ethical Chemical Practice **Credits:** 3 hours
- CHEM 5200 - Instrumental Methods in Chemistry **Credits:** 3 hours

Required Cognate courses:

- MATH 1220 - Calculus I **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
- FIN 3200 - Business Finance **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours

Suggested sequence to satisfy major:

First Year:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- MATH 1220 - Calculus I **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
- BUS 1750 - Business Enterprise **Credits:** 3 hours

Second Year:

- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours

Third Year:

- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- CHEM 4360 - Physical Chemistry Laboratory I **Credits:** 2 hours
- CHEM 4310 - Physical Chemistry II **Credits:** 3 hours
- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
- FIN 3200 - Business Finance **Credits:** 3 hours

Fourth Year:

- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
- CHEM 5200 - Instrumental Methods in Chemistry **Credits:** 3 hours
- CHEM 5070 - Ethical Chemical Practice **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours

Additional Comments:

Those who elect this major are required to complete a minor in either General Business (18 hours), Management (18 hours), or Marketing (18 to 19 hours) in the Haworth College of Business and must include a course in writing.

Chemistry Major (34 hours)

The Arts and Sciences major (formally LEC) is designed for students interested in going to graduate school in chemistry. While this major can be taken by students intending to go into the chemical industry following graduation, the ACS Certified major is preferred. A minimum of 34 CHEM credit hours must be selected according to the following guidelines.

Required CHEM courses:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- CHEM 4360 - Physical Chemistry Laboratory I **Credits:** 2 hours
- CHEM 4310 - Physical Chemistry II **Credits:** 3 hours
- CHEM 4370 - Physical Chemistry Laboratory II **Credits:** 1 hour
- Two Electives (5000-level)

Required Cognate courses:

- MATH 1220 - Calculus I **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Suggested sequence to satisfy major:

First Year:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- MATH 1220 - Calculus I **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours

Second Year:

- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Third Year:

- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- CHEM 4360 - Physical Chemistry Laboratory I **Credits:** 2 hours
- CHEM 4310 - Physical Chemistry II **Credits:** 3 hours

Fourth Year:

- CHEM 4370 - Physical Chemistry Laboratory II **Credits:** 1 hour
- CHEM Electives (5000-level)

Additional Comments:

- The 5000-level CHEM electives must include courses from at least two sub-disciplines (Analytical, Biochemistry, Inorganic, Organic, or Physical).
- Additional courses in statistics (STAT 2600 and STAT 3640) and Differential Equations (MATH 2740 or MATH 3740) are recommended.

Geochemistry Major (67 hours) (Chemistry)

The Geological and Environmental Sciences and Chemistry Departments offer a program of study leading to a major in geochemistry. Students choosing this major will not be required to complete an additional minor. The geochemistry major is designed to meet the needs of students preparing for a professional career in geochemistry or environmental chemistry. Students contemplating a geochemistry major should contact the Geological and Environmental Sciences Department as early as possible for advising.

Geosciences Core (19 hours)

- GEOS 1300 - Physical Geology **Credits:** 4 hours
- GEOS 1310 - Historical Geology **Credits:** 4 hours
- GEOS 2320 - Integrated Earth System Studies **Credits:** 3 hours
Credits: 4 hours
- GEOS 3350 - Mineralogy **Credits:** 4 hours
- GEOS 5010 - Geologic Communications and Presentations **Credits:** 1 hour
- GEOS 5550 - Introduction to Geochemistry **Credits:** 3 hours

Chemistry Core (12 hours)

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour

Math Core (8 hours)

Select either:

- MATH 1220 - Calculus I **Credits:** 4 hours
or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours

Select either:

- MATH 1230 - Calculus II **Credits:** 4 hours
or
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

Geosciences Electives (Choose at least 9 hours)

- An approved field course (up to 3 hours total)
- GEOS 4350 - Sedimentation and Stratigraphy **Credits:** 4 hours
fulfills the baccalaureate-level writing requirement
- GEOS 5020 - Problems in Geology and Earth Science **Credits:** 1 to 3 hours
(Specifically Stable Isotopes)
- GEOS 5060 - Introduction to Soils **Credits:** 3 hours
- GEOS 5120 - Principles of Hydrogeology **Credits:** 3 hours
- GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring **Credits:** 1 hour
- GEOS 5430 - Petrology and Petrography **Credits:** 3 hours
- GEOS 5450 - Hazardous Waste Remediation **Credits:** 3 hours

Chemistry Electives (Choose at least 8 hours)

- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- CHEM 4310 - Physical Chemistry II **Credits:** 3 hours
- CHEM 4360 - Physical Chemistry Laboratory I **Credits:** 2 hours
fulfills the baccalaureate-level writing requirement
- CHEM 4370 - Physical Chemistry Laboratory II **Credits:** 1 hour
- CHEM 5090 - Topics in Chemistry **Credits:** 3 hours
- CHEM 5200 - Instrumental Methods in Chemistry **Credits:** 3 hours
- CHEM 5500 - Biochemistry I **Credits:** 3 hours

Math and General Science Electives (Choose at least 11 hours)

(hours cannot all be in the same department)

- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
- BIOS 3010 - Ecology **Credits:** 5 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- PHYS 3300 - Thermodynamics **Credits:** 3 hours
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours

Notes:

Either CHEM 3700/3710 or CHEM 3750-3780 will count toward the major; an outside geology field camp is strongly recommended.

Minors

Chemistry Minor (20 hours)

Requirements

A chemistry minor consists of at least 20 hours (at least 8 hours of which must be taken at WMU). Courses accepted for the minor are listed below:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
- CHEM 3560 - Introductory Biochemistry Laboratory **Credits:** 1 hour
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- CHEM 4310 - Physical Chemistry II **Credits:** 3 hours
- CHEM 4360 - Physical Chemistry Laboratory I **Credits:** 2 hours
- CHEM 4370 - Physical Chemistry Laboratory II **Credits:** 1 hour

Additional Information

- CHEM 3700 may not be substituted for CHEM 3750.
- Other specialized chemistry programs can be developed through the undergraduate chemistry advisor.

Note:

Students who plan to pursue post-baccalaureate certification in secondary education should enroll in the courses listed below. Courses completed in this program may be use toward, but will not fulfill all requirements for, secondary teaching certification. Please consult the College of Education and Human Development's secondary education guidelines for current information.

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours

- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
- CHEM 3560 - Introductory Biochemistry Laboratory **Credits:** 1 hour
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour

Communication, School of

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Jocelyn Steinke
Kelly Wittenberg

Mission Statement

The School of Communication is committed to excellence and innovation in teaching, learning, scholarship, and the practice of communication. As teacher-scholars, our purpose is two-fold:

- Develop reflective and skilled communicators who value diversity, community, ethics, and critical thinking; and
- Contribute to the research and practice of our discipline with an emphasis on collaboration with local, regional, national, and international partners to examine organizational, community, educational, and social issues.

Communication Programs

Communication is the principal mode for establishing and maintaining human relationships. It consists of those processes by which society is made possible, by which people develop and exchange ideas, solve problems, and work cooperatively in attaining common objectives. Effective communication is an educational imperative for all human beings.

The study of communication is important to virtually every profession that involves working with people, making it an excellent major, minor or cognate for communication-related jobs in education, business, government agencies, media, health care professions, social services, industry, and other public and private organizations. Communication is central to positions in public relations, strategic communication, information management, employee communication, and training and development. Professional curricular programs in diverse modes of media production provide both the background knowledge and training for positions in journalism and media production, performance and management.

The School of Communication is dedicated to meeting the personal and professional communication objectives of our students. Five major areas of concentration are available: Communication Studies; Digital Media and Journalism; Film, Video, and Media

Studies; Interpersonal Communication; and Strategic Communication. These major areas of concentration reflect the primary divisions in the discipline, with required courses to ensure adequate preparation in specific fields. The concentration areas and accompanying upper-level requirements provide appropriate guidance to assure that programs of study are academically sound.

Two minors - Minor in Communication and Minor in Journalism - are also offered.

Communication majors and minors may choose to participate in the Nonprofit Leadership Alliance certificate program. This program is designed to prepare students for leadership in nonprofit organizations. Students qualify for the certificate by taking courses in the Nonprofit Leadership minor which meet the Nonprofit Leadership Alliance competency requirements. For details, please see the Nonprofit Leadership minor description in the School of Public Affairs and Administration section of this catalog.

The School of Communication offers an Accelerated Graduate Degree Program that allows qualified undergraduate students to take up to 12 hours of graduate credit during their senior year, at undergraduate tuition rates. This coursework counts toward both an undergraduate AND graduate degree. Accelerated Graduate Degree Program students who complete 12 graduate hours during their senior year will then have 18 credits remaining to complete a master's degree in Communication. Details of the program can be found at the School of Communication website: wmich.edu/communication/academics/undergraduate/accelerated.

The School also encourages a close relationship between academic classes and extracurricular and co-curricular experiences. Students may become involved in a variety of activities, including community service projects; the Student Media Group comprised of WIDR-FM, *The Western Herald*, and the Young Broadcasters of Tomorrow (YBOT); video taping of special events, and internships in a variety of organizations. Academic credit may be earned for significant participation in many of these communication activities.

Students planning to major or minor in any of the communication areas should discuss their program needs and interests with the School advisor at the earliest possible date. To find out more about advising and/or to make an advising appointment, visit our website at wmich.edu/communication, click on "Advising" and then follow the desired links. Students can schedule an appointment with the advisor or can email com-advising@wmich.edu for specific advising needs.

Transfer Students

- The courses are approved as direct equivalents to current WMU courses in the major or minor or;
- The courses are allowed as electives in the major or minor.

Any course not used toward a School of Communication major or minor may be used as electives to meet the minimum required 122 credits needed for graduation from WMU.

Special Rules/Restrictions

- Students must have a grade of "C" or better in any prerequisite before they can enroll in the subsequent course for all prerequisites in the School of Communication.
- Students must have a grade of "C" or better for any class to count toward a School of Communication major or minor (a grade of "B" or better for graduate courses.)
- The School of Communication has a TWO-repeat policy. Students may only take a course twice in their attempt to obtain a grade of "C" or better.

Undergraduates with junior or senior status and with listed prerequisites completed may enroll in 5000-level courses with prior approval of advisor and/or instructor.

General Program Requirements

1. All major/minor programs must be approved by the School advisor. Declaration of a minor in communication must be made with the School advisor.
2. Students must earn a grade of "C" or better in all course work applied toward a major/minor program.

3. Prerequisites listed for all communication courses must be met. A course and its prerequisite cannot be taken at the same time. Students who have not completed the prerequisites with a grade of "C" or better will be dropped from the class. All 5000-level courses require junior or senior standing, in addition to any specific prerequisites listed.

4. Petitions for exceptions to any School policies should be directed to the School director.

Bachelor of Arts

Communication Studies Major (36 hours)

Communication Studies Foundations (3 hours)

- COM 1000 - Communication and Community Engagement **Credits:** 3 hours

Communication Studies Core Requirements (9 hours)

- COM 2000 - Human Communication Theory **Credits:** 3 hours
- COM 2400 - Introduction to Media and Telecommunications **Credits:** 3 hours
- COM 3000 - Communication Research Methods **Credits:** 3 hours

Baccalaureate Writing (3 hours)

Select one to meet Baccalaureate writing requirement. If you take additional courses in this area they may be used to complete elective hours.

- COM 3350 - Leadership Communication **Credits:** 3 hours
- COM 3410 - Film Modes and Genres **Credits:** 3 hours
- COM 3420 - The International Film Industry **Credits:** 3 hours
- COM 3430 - Film History **Credits:** 3 hours
- COM 3580 - Scriptwriting **Credits:** 3 hours
- COM 4410 - Documentary in Film and Television **Credits:** 3 hours
- COM 4450 - Media Criticism **Credits:** 3 hours
- COM 4480 - Media Management and Telecommunications **Credits:** 3 hours
- COM 4750 - Family Communication **Credits:** 3 hours
- COM 4840 - Health Communication **Credits:** 3 hours

Communication Electives (21 hours)

Select two courses at any level and select five courses at the 3000-level or higher.

Communication Studies electives are any Communication or Journalism courses offered in the School of Communication that are not listed in the sections above. If you meet the course prerequisite, if the class is offered, and if seats are available, you may register for the class.

Digital Media and Journalism Major (33 hours)

DMJ Foundations (9 hours) required

- COM 1000 - Communication and Community Engagement **Credits:** 3 hours
- COM 2400 - Introduction to Media and Telecommunications **Credits:** 3 hours
- JRN 1000 - Foundations of Journalism **Credits:** 3 hours

DMJ Core Requirements (9 hours) required

- COM 3070 - Freedom of Expression **Credits:** 3 hours
- COM 4770 - Communication Ethics **Credits:** 3 hours
- COM 3400 - Global Media Literacy **Credits:** 3 hours
- OR
- COM 4430 - Media and Social Change **Credits:** 3 hours

DMJ Emphases (9 hours)

Select one of the following emphases. At least one of the courses selected in the emphasis must be a baccalaureate writing course.

Management and Technology

Pick three out of five courses:

- COM 3540 - Web Design and Digital Communication **Credits:** 3 hours
- COM 3840 - Organizational Communication Technologies **Credits:** 3 hours
- COM 4460 - Telecommunications Law and Policy **Credits:** 3 hours
- COM 4480 - Media Management and Telecommunications **Credits:** 3 hours (Baccalaureate Writing Course)
- COM 4490 - Communication Technology and Innovation **Credits:** 3 hours

Journalism

Pick three out of the four courses:

- JRN 2200 - Multimedia Journalism **Credits:** 3 hours
- JRN 3100 - News Reporting Using New Media **Credits:** 3 hours (Baccalaureate Writing Course)
- JRN 3200 - News Writing and Reporting **Credits:** 3 hours (Baccalaureate Writing Course)
- JRN 3590 - Digital News Production **Credits:** 3 hours

Communication in Media Professions

Pick three out of four courses:

- COM 2800 - Introduction to Organizational Communication **Credits:** 3 hours
- COM 3320 - Teamwork and Communication **Credits:** 3 hours
- COM 3350 - Leadership Communication **Credits:** 3 hours
(Baccalaureate Writing Course)
- COM 4300 - Persuasion and Social Influence **Credits:** 3 hours

DMJ Communication Electives (6 hours)

One course (three hours) must be selected from one of the available existing media and journalism emphases. The remaining three hours can be selected from anywhere within the School of Communication curriculum. Courses outside of the School of Communication will need prior approval by the School academic advisor to be included in the major.

Film, Video, and Media Studies Major (36 hours)

Film, Video, and Media Studies Foundations (9 hours)

- COM 1000 - Communication and Community Engagement **Credits:** 3 hours
- COM 2400 - Introduction to Media and Telecommunications **Credits:** 3 hours
- COM 2410 - Film Communication **Credits:** 3 hours

Film, Video, and Media Studies Core Requirements (9 hours)

- COM 2550 - Introduction to Digital Video Production **Credits:** 3 hours
- COM 2560 - Digital Media: Planning and Operations **Credits:** 3 hours
- COM 3400 - Global Media Literacy **Credits:** 3 hours
- OR
- COM 3070 - Freedom of Expression **Credits:** 3 hours
- OR
- COM 4430 - Media and Social Change **Credits:** 3 hours

Film, Video, and Media Studies Concentration (12 hours)

Select two (2) courses from each area below. Baccalaureate-level writing requirement must be met by taking one of the courses denoted as satisfying that requirement.

Studies:

- COM 3410 - Film Modes and Genres **Credits:** 3 hours
(Baccalaureate Writing Course)
- COM 3430 - Film History **Credits:** 3 hours
(Baccalaureate Writing Course)
- COM 4410 - Documentary in Film and Television **Credits:** 3 hours
(Baccalaureate Writing Course)
- COM 4450 - Media Criticism **Credits:** 3 hours

(Baccalaureate Writing Course)

- COM 4480 - Media Management and Telecommunications **Credits:** 3 hours
(Baccalaureate Writing Course)
- COM 4490 - Communication Technology and Innovation **Credits:** 3 hours
- COM 4770 - Communication Ethics **Credits:** 3 hours

Practice:

- COM 2570 - Introduction to Audio Production **Credits:** 3 hours
- COM 3540 - Web Design and Digital Communication **Credits:** 3 hours
- COM 3550 - Digital Video Production: Nonfiction **Credits:** 3 hours
- COM 3560 - Digital Video Production: Fiction **Credits:** 3 hours
- COM 3570 - Introduction to TV Studio Production **Credits:** 3 hours
- COM 3580 - Scriptwriting **Credits:** 3 hours
- COM 4570 - Advanced Digital Video Production **Credits:** 3 hours

Communication/Journalism Electives (6 hours)

A minimum of six (6) hours of electives in Communication and/or Journalism, three (3) of which will be selected from upper-level (3000 or higher) courses in the School of Communication, and three (3) from any level.

Additional Program Information

- All course prerequisites must be met to enroll in upper-level courses. **A course and its prerequisite cannot be taken at the same time.**
- Grade requirement: A minimum grade of "C" is required in all courses to be applied toward the major. The School prohibits students from taking a class more than twice for credit.
- Baccalaureate-level writing requirement must be met by taking COM 3410, COM 3430, COM 3580, COM 4410, COM 4450, or COM 4480.
- Students may take up to six (6) hours of COM 3050/COM 4800 **provided the topics are different.**
- Up to six (6) hours of COM 3890/4990 may be used as electives in major.
- Courses outside the school may be used with written prior approval of the School of Communication faculty advisor.

Interpersonal Communication Major (36 hours)

Interpersonal Communication Foundations Requirements (9 hours)

- COM 1000 - Communication and Community Engagement **Credits:** 3 hours
- COM 1700 - Interpersonal Communication **Credits:** 3 hours
- COM 2000 - Human Communication Theory **Credits:** 3 hours

Interpersonal Communication Core Requirements (9 hours)

- COM 1040 - Public Speaking **Credits:** 3 hours
- COM 3000 - Communication Research Methods **Credits:** 3 hours
- COM 4700 - Applied Topics in Interpersonal Communication **Credits:** 3 hours

Interpersonal Communication Major Electives (12 hours)

Four courses from the following group are required, selected in consultation with an advisor:

- COM 2800 - Introduction to Organizational Communication **Credits:** 3 hours
- COM 3050 - Special Topics in Communication **Credits:** 3 hours
(Must be an interpersonal communication topic, approved by the School of Communication's advisor, to be counted as an interpersonal communication elective. Students may take up to six (6) hours of COM 3050 provided topics are different.)
- COM 3320 - Teamwork and Communication **Credits:** 3 hours
- COM 4300 - Persuasion and Social Influence **Credits:** 3 hours
- COM 4720 - Nonverbal Communication **Credits:** 3 hours
- COM 4740 - Intercultural Communication **Credits:** 3 hours
- COM 4750 - Family Communication **Credits:** 3 hours
(Baccalaureate Writing Course)
- COM 4770 - Communication Ethics **Credits:** 3 hours
- COM 4790 - Gender and Communication **Credits:** 3 hours
(Baccalaureate Writing Course)
- COM 4840 - Health Communication **Credits:** 3 hours
(Baccalaureate Writing Course)

General Communication Electives (6 hours)

Six (6) hours of electives in Communication, three (3) of which shall be selected from upper-division (3000 or higher) courses in the school.

Additional Program Information

- All course prerequisites must be met to enroll in upper-level courses. **A course and its prerequisite cannot be taken at the same time.**
- Grade requirement: A minimum grade of "C" is required in all courses to be applied toward the major. The School prohibits students from taking a class more than twice for credit.
- Baccalaureate-level writing requirement must be met by taking COM 4750 or COM 4790 or COM 4840.
- Students may take up to six (6) hours of COM 3050/COM 4800 **provided the topics are different.**
- Up to six (6) hours of COM 3890/4990 may be used as electives in major.
- Courses outside the school may be used with written prior approval of the School of Communication faculty advisor.

Strategic Communication (39 hours)

SCOM Foundations (6 hours)

- COM 1000 - Communication and Community Engagement **Credits:** 3 hours
- COM 2000 - Human Communication Theory **Credits:** 3 hours

SCOM Core Requirements (15 hours)

- COM 2500 - Introduction to Public Relations **Credits:** 3 hours
- COM 2800 - Introduction to Organizational Communication **Credits:** 3 hours
- COM 3000 - Communication Research Methods **Credits:** 3 hours
- COM 3350 - Leadership Communication **Credits:** 3 hours
(Baccalaureate Writing Course)
- COM 4300 - Persuasion and Social Influence **Credits:** 3 hours

SCOM Concentration (9 hours)

Select one of the following concentrations:

Public Relations

- JRN 1000 - Foundations of Journalism **Credits:** 3 hours
- COM 3480 - Public Relations Writing **Credits:** 3 hours
- COM 4500 - Public Relations Campaign Development **Credits:** 3 hours

Leadership and Teamwork

- COM 2040 - Workplace and Professional Communication **Credits:** 3 hours
- COM 3320 - Teamwork and Communication **Credits:** 3 hours
- COM 4800 - Applied Topics in Organizational Communication **Credits:** 3 hours

Diversity and Inclusion

- COM 3320 - Teamwork and Communication **Credits:** 3 hours
OR
- COM 4790 - Gender and Communication **Credits:** 3 hours
- COM 4740 - Intercultural Communication **Credits:** 3 hours
- COM 4800 - Applied Topics in Organizational Communication **Credits:** 3 hours

Media and Technology

Pick two of the following:

- COM 3540 - Web Design and Digital Communication **Credits:** 3 hours
- COM 3840 - Organizational Communication Technologies **Credits:** 3 hours
- COM 4490 - Communication Technology and Innovation **Credits:** 3 hours
- COM 4480 - Media Management and Telecommunications **Credits:** 3 hours
(Baccalaureate Writing Course)

And

- COM 4500 - Public Relations Campaign Development **Credits:** 3 hours

Communication Electives (9 hours)

A minimum of six elective hours must be selected from upper-level (3000 or higher) courses. One course (three hours) must be selected from the existing Strategic Communication concentrations. The remaining elective credit hours may be selected from any major/minor within the School of Communication. Courses taken outside the School of Communication may be used with prior approval from the School of Communication advisor.

- Course prerequisites must be met to enroll in upper-level courses. A course and its prerequisite cannot be taken at the same time.
- Grade requirement: A minimum grade of "C" is required in all courses to be applied toward the major. The School prohibits students from taking a class more than twice for credit.
- Baccalaureate-level writing requirement must be met by taking one of the courses marked as Baccalaureate Writing.
- Students may take up to six (6) hours of COM/3050/COM 4800 provided the topics are different.
- Up to six (6) hours of COM 4990/3980 may be used as electives in the major.
- Courses outside the School may be used with written prior approval of the School of Communication academic advisor.

Undergraduate Certificate

Undergraduate Certificate in Diversity and Inclusion (15 hours)

Majors in Strategic Communication may elect to enhance their expertise by earning one or more of the following certificates: Public Relations, Leadership and Teamwork, Diversity and Inclusion, and New Media and Technology. Students should consult with the School of Communication advisor for further information about certificates and the application process.

Required Courses

- COM 2000 - Human Communication Theory **Credits:** 3 hours
- COM 2800 - Introduction to Organizational Communication **Credits:** 3 hours
- COM 4740 - Intercultural Communication **Credits:** 3 hours
- COM 3320 - Teamwork and Communication **Credits:** 3 hours
- OR
- COM 4790 - Gender and Communication **Credits:** 3 hours
- COM 4800 - Applied Topics in Organizational Communication **Credits:** 3 hours

Undergraduate Certificate in Leadership and Teamwork (15 hours)

Majors in Strategic Communication may elect to enhance their expertise by earning one or more of the following certificates: Public Relations, Leadership and Teamwork, Diversity and Inclusion, and New Media and Technology. Students should consult with the School of Communication advisor for further information about certificates and the application process.

Required Courses

- COM 2040 - Workplace and Professional Communication **Credits:** 3 hours
- COM 2800 - Introduction to Organizational Communication **Credits:** 3 hours
- COM 3320 - Teamwork and Communication **Credits:** 3 hours
- COM 3350 - Leadership Communication **Credits:** 3 hours
- COM 4800 - Applied Topics in Organizational Communication **Credits:** 3 hours

Undergraduate Certificate in New Media and Technology (15 hours)

Majors in Strategic Communication may elect to enhance their expertise by earning one or more of the following certificates: Public Relations, Leadership and Teamwork, Diversity and Inclusion, and New Media and Technology. Students should consult with the School of Communication advisor for further information about certificates and the application process.

Required Courses

- COM 3000 - Communication Research Methods **Credits:** 3 hours
- COM 4300 - Persuasion and Social Influence **Credits:** 3 hours
- COM 4500 - Public Relations Campaign Development **Credits:** 3 hours

And pick two of the following:

- COM 3540 - Web Design and Digital Communication **Credits:** 3 hours
- COM 3840 - Organizational Communication Technologies **Credits:** 3 hours
- COM 4490 - Communication Technology and Innovation **Credits:** 3 hours
- COM 4480 - Media Management and Telecommunications **Credits:** 3 hours

Undergraduate Certificate in Public Relations (15 hours)

Majors in Strategic Communication may elect to enhance their expertise by earning one or more of the following certificates: Public Relations, Leadership and Teamwork, Diversity and Inclusion, and New Media and Technology. Students should consult with the School of Communication advisor for further information about certificates and the application process.

Required Courses

- JRN 1000 - Foundations of Journalism **Credits:** 3 hours
- COM 2500 - Introduction to Public Relations **Credits:** 3 hours
- COM 3480 - Public Relations Writing **Credits:** 3 hours
- COM 4300 - Persuasion and Social Influence **Credits:** 3 hours
- COM 4500 - Public Relations Campaign Development **Credits:** 3 hours

Minors

Communication Minor (CMLN) (18 hours)

Required Courses (12 hours)

- COM 1000 - Communication and Community Engagement **Credits:** 3 hours
- COM 1700 - Interpersonal Communication **Credits:** 3 hours
- COM 2000 - Human Communication Theory **Credits:** 3 hours
- COM 2400 - Introduction to Media and Telecommunications **Credits:** 3 hours

Communication Electives (6 hours)

Communication electives are any courses offered by the School of Communication which are not required for the Communication minor (those listed in section 1). If you meet the course pre-requisites you may be eligible to register for the course.

Journalism Minor (JNLN) (18 hours) non-teaching minor

Required Entry-Level Courses (3 hours)

- COM 1000 - Communication and Community Engagement **Credits:** 3 hours
Or
- COM 2400 - Introduction to Media and Telecommunications **Credits:** 3 hours

Required Journalism Core Courses (12 hours)

- JRN 1000 - Foundations of Journalism **Credits:** 3 hours
- JRN 2200 - Multimedia Journalism **Credits:** 3 hours
- JRN 3100 - News Reporting Using New Media **Credits:** 3 hours
- JRN 3200 - News Writing and Reporting **Credits:** 3 hours

Communication/Journalism Electives (3 hours)

Any three (3) credit course offered in the School, providing you meet the prerequisites.

- All course prerequisites must be met to enroll in upper-level courses. A course and its prerequisite cannot be taken at the same time.
- Grade requirement: A minimum grade of "C" is required in all courses applied toward the minor. The School prohibits students from taking a class more than twice for credit.

UX/HCI (User Experience/Human-Computer Interaction)

Required Courses (18 credit hours, no pre-requisite courses)

- COM 1000 - Communication and Community Engagement **Credits:** 3 hours
- COM 3540 - Web Design and Digital Communication **Credits:** 3 hours
- COM 3710 - Human-Machine Communication **Credits:** 3 hours
- COM 4710 - AI and Interaction **Credits:** 3 hours

Communication and Technology: Pick 1 (3 credit hours)

- COM 2400 - Introduction to Media and Telecommunications **Credits:** 3 hours
- COM 3840 - Organizational Communication Technologies **Credits:** 3 hours
- COM 3980 - Independent Study Communication **Credits:** 1 - 6 hours

(UX/HCI-related research experiences)

(Instructor and Advisor Approval)

- COM 4490 - Communication Technology and Innovation **Credits:** 3 hours
- COM 4990 - Internship **Credits:** 1 to 6 hours

(UX/HCI-related field experiences)

(Advisor Approval)

Interaction Studies: Pick 1 (3 credit hours)

- COM 1700 - Interpersonal Communication **Credits:** 3 hours
- COM 2000 - Human Communication Theory **Credits:** 3 hours
- COM 3400 - Global Media Literacy **Credits:** 3 hours
- COM 4300 - Persuasion and Social Influence **Credits:** 3 hours
- COM 4700 - Applied Topics in Interpersonal Communication **Credits:** 3 hours

Comparative Religion

Stephen Covell, Chair
Main Office: 2004 Moore Hall
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Alisa Perkins
Diane Riggs
Cybelle Shattuck
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The major and minor programs in Comparative Religion are designed for those who want to know more about religion, the role and significance of religion in societies today and in the past, and the ways in which academics think about and analyze religion and related concepts. There are three tracks within the major:

Track 1: World Religions, Society, and Culture

This track is designed to prepare students for careers in academia, education, government, law, and politics. Students receive training to be culturally competent global citizens. Students receive a grounding in academic study of religion as well as in the teachings, practices, and history of major world religious traditions.

Track 2: Religion, Spirituality, and Health

This track provides students with a cultural understanding of the body, illness, and health; and emphasizes practical tools for addressing religious, spiritual, and cultural diversity. It provides a firm foundation for students interested in understanding religion and the cultural aspects of medicine and healthcare.

Track 3: Religion in America

This track seeks to provide students with an understanding of the diverse religious history of, and issues in, religious practice in the U.S. Students also receive a grounding in the academic study of religion. Students interested in this track will be well prepared for careers in academics, law, politics, and government in the U.S.

Many students combine a major in Comparative Religion with another major from within the Humanities or Social Sciences. The Comparative Religion program emphasizes development of students' writing and research skills. Comparative Religion courses provide knowledge and skills relevant to and useful in a large and growing range of careers and professions, including health care, non-profit and public sector careers, culture and the arts, religious vocations, and business and marketing.

Many Comparative Religion courses satisfy WMU Essential Studies requirements.

Recognizing the growing demand for graduates with cross-cultural experiences and second language abilities, the Department of Comparative Religion encourages students majoring and minoring in Comparative Religion to participate in Western's semester or year-long study abroad programs. Interested students should contact the chairperson of Comparative Religion and the Office of Study Abroad as early as possible upon their arrival at Western Michigan University.

Bachelor of Arts

Religion Major (28 hours)

The Religion Major requires 28 credit hours minimum. There are three tracks within the major. Three courses are common to each track and provide the foundation for the major.

Required Courses:

- REL 1050 - What is Religion Today? **Credits:** 3 hours
- REL 2000 - Thinking About Religion **Credits:** 4 hours
- REL 4500 - Capstone Seminar in Religion **Credits:** 4 hours

Tracks

In addition to the three required courses each track has required and elective courses that create a unique learning experience. All tracks may be completed on campus or online.

Track 1: World Religions, Society, and Culture

This track is designed to prepare students for careers in academia, education, government, law, and politics. Students receive training to be culturally competent global citizens. Students receive a grounding in academic study of religion as well as in the teachings, practices, and history of major world religious traditions.

Required:

- REL 2100 - Religions of the World **Credits:** 3 hours
- REL 3165 - Religion and Globalization **Credits:** 3 hours

Electives:

(select no fewer than 11 credit hours of courses from below)

- REL 2010 - Buddhism **Credits:** 4 hours
- REL 2050 - Christianity **Credits:** 3 hours
- REL 2070 - Judaism **Credits:** 4 hours
- REL 2080 - Religion in Europe **Credits:** 4 hours
- REL 2630 - Asian Religions **Credits:** 3 hours
- REL 2786 - The Qur'an **Credits:** 4 hours
- REL 3111 - Superhero Comic Book Religion **Credits:** 3 hours
- REL 3170 - Religion and Gender **Credits:** 4 hours
- REL 3220 - Spirituality and the Environment **Credits:** 4 hours
- REL 3325 - Muslim Cultures and Societies **Credits:** 4 hours
- REL 4000 - Topics in Religion **Credits:** 4 hours
- REL 4980 - Independent Study **Credits:** 1 to 6 hours
- REL 5000 - Historical Studies in Religion **Credits:** 2 to 4 hours

- REL 5100 - Comparative Studies in Religion **Credits:** 2 to 4 hours

Track 2: Religion, Spirituality, and Health

This track provides students with a cultural understanding of the body, illness, and health; and emphasizes practical tools for addressing religious, spiritual, and cultural diversity. It provides a firm foundation for students interested in understanding religion and the cultural aspects of medicine and healthcare.

Required:

- REL 2100 - Religions of the World **Credits:** 3 hours
- REL 3180 - Death, Dying, and Beyond **Credits:** 4 hours
- REL 3190 - Religion and Health **Credits:** 4 hours

Electives:

(select no fewer than 6 credit hours of courses from below)

- REL 3220 - Spirituality and the Environment **Credits:** 4 hours
- REL 3360 - Zen and Buddhist Meditation **Credits:** 4 hours
- REL 4000 - Topics in Religion **Credits:** 4 hours
- REL 4010 - Animals and Religion **Credits:** 3 hours
- REL 4980 - Independent Study **Credits:** 1 to 6 hours
- REL 5011 - Religion, Culture and Health: Cultures from the East **Credits:** 3 hours
- REL 5012 - Religion, Culture and Health: Cultures from Africa, the Middle East, and West **Credits:** 3 hours

Track 3: Religion in America

This track seeks to provide students with an understanding of the diverse religious history of, and issues in, religious practice in the U.S. Students also receive a grounding in the academic study of religion. Students interested in this track will be well prepared for careers in academics, politics, and government in the U.S.

Required:

- REL 2065 - Islam in America **Credits:** 4 hours
- REL 3015 - Christianity in the United States **Credits:** 3 hours
- REL 3111 - Superhero Comic Book Religion **Credits:** 3 hours
- REL 3145 - Cults, Sects, and New Religions **Credits:** 3 hours

Electives:

(select no fewer than 5 credit hours of courses from below)

- REL 3220 - Spirituality and the Environment **Credits:** 4 hours
- REL 3360 - Zen and Buddhist Meditation **Credits:** 4 hours
- REL 4000 - Topics in Religion **Credits:** 4 hours
- REL 4010 - Animals and Religion **Credits:** 3 hours

- REL 4980 - Independent Study **Credits:** 1 to 6 hours
- REL 5000 - Historical Studies in Religion **Credits:** 2 to 4 hours
- REL 5100 - Comparative Studies in Religion **Credits:** 2 to 4 hours

Other requirements:

- Minimum grade of "C" in all courses counted toward the major or minor
- At least 1/2 of credit hours counted toward major or minor (14 and 8 credit hours respectively) must be taken in the Comparative Religion department.

Comparative Religion Undergraduate Course List

- REL 1050 - What is Religion Today? **Credits:** 3 hours
- REL 2000 - Thinking About Religion **Credits:** 4 hours
- REL 2010 - Buddhism **Credits:** 4 hours
- REL 2030 - Religion in Japan **Credits:** 4 hours
- REL 2050 - Christianity **Credits:** 3 hours
- REL 2065 - Islam in America **Credits:** 4 hours
- REL 2070 - Judaism **Credits:** 4 hours
- REL 2080 - Religion in Europe **Credits:** 4 hours
- REL 2100 - Religions of the World **Credits:** 3 hours
- REL 2630 - Asian Religions **Credits:** 3 hours
- REL 2786 - The Qur'an **Credits:** 4 hours
- REL 3015 - Christianity in the United States **Credits:** 3 hours
- REL 3111 - Superhero Comic Book Religion **Credits:** 3 hours
- REL 3145 - Cults, Sects, and New Religions **Credits:** 3 hours
- REL 3165 - Religion and Globalization **Credits:** 3 hours
- REL 3170 - Religion and Gender **Credits:** 4 hours
- REL 3180 - Death, Dying, and Beyond **Credits:** 4 hours
- REL 3190 - Religion and Health **Credits:** 4 hours
- REL 3220 - Spirituality and the Environment **Credits:** 4 hours
- REL 3230 - Religion and Revolution **Credits:** 4 hours
- REL 3240 - Psychological Elements in Religion **Credits:** 4 hours
- REL 3320 - Religion and Social Ethics **Credits:** 4 hours
- REL 3325 - Muslim Cultures and Societies **Credits:** 4 hours
- REL 3340 - Religion in Modern Society **Credits:** 4 hours
- REL 3360 - Zen and Buddhist Meditation **Credits:** 4 hours
- REL 4000 - Topics in Religion **Credits:** 4 hours
- REL 4010 - Animals and Religion **Credits:** 3 hours
- REL 4500 - Capstone Seminar in Religion **Credits:** 4 hours
- REL 4980 - Independent Study **Credits:** 1 to 6 hours
- REL 5000 - Historical Studies in Religion **Credits:** 2 to 4 hours
- REL 5011 - Religion, Culture and Health: Cultures from the East **Credits:** 3 hours
- REL 5012 - Religion, Culture and Health: Cultures from Africa, the Middle East, and West **Credits:** 3 hours
- REL 5100 - Comparative Studies in Religion **Credits:** 2 to 4 hours
- REL 5980 - Readings in Religion **Credits:** 1 to 4 hours

Minors

Religion Minor (16 hours)

Program Requirements

A minor in religion requires 15 credit hours minimum, to include four courses:

- One Traditions and Regions course **Credits:** 3-4 hours
- One Comparative and Theoretical Topics course **Credits:** 3-4 hours
- Two 1000 to 4000-level elective courses **Credits:** 8-10 hours

Other requirements:

- Minimum grade of "C" in all courses counted toward the major or minor
- At least 1/2 of credit hours counted toward major or minor (14 and 8 credit hours respectively) must be taken at Western Michigan University.

Courses by Topic - Religion

Introductory Studies:

- REL 1050 - What is Religion Today? **Credits:** 3 hours
- REL 2000 - Thinking About Religion **Credits:** 4 hours
- REL 2100 - Religions of the World **Credits:** 3 hours

Traditions and Regions:

- REL 2010 - Buddhism **Credits:** 4 hours
- REL 2050 - Christianity **Credits:** 3 hours
- REL 2065 - Islam in America **Credits:** 4 hours
- REL 2070 - Judaism **Credits:** 4 hours
- REL 2080 - Religion in Europe **Credits:** 4 hours
- REL 2630 - Asian Religions **Credits:** 3 hours
- REL 2786 - The Qur'an **Credits:** 4 hours
- REL 3015 - Christianity in the United States **Credits:** 3 hours
- REL 3325 - Muslim Cultures and Societies **Credits:** 4 hours
- REL 4000 - Topics in Religion **Credits:** 4 hours
- REL 5000 - Historical Studies in Religion **Credits:** 2 to 4 hours

Comparative and Theoretical Topics:

- REL 3111 - Superhero Comic Book Religion **Credits:** 3 hours
- REL 3145 - Cults, Sects, and New Religions **Credits:** 3 hours
- REL 3165 - Religion and Globalization **Credits:** 3 hours

- REL 3170 - Religion and Gender **Credits:** 4 hours
- REL 3180 - Death, Dying, and Beyond **Credits:** 4 hours
- REL 3190 - Religion and Health **Credits:** 4 hours
- REL 3220 - Spirituality and the Environment **Credits:** 4 hours
- REL 3230 - Religion and Revolution **Credits:** 4 hours
- REL 3240 - Psychological Elements in Religion **Credits:** 4 hours
- REL 3320 - Religion and Social Ethics **Credits:** 4 hours
- REL 3340 - Religion in Modern Society **Credits:** 4 hours
- REL 3360 - Zen and Buddhist Meditation **Credits:** 4 hours
- REL 4000 - Topics in Religion **Credits:** 4 hours
- REL 4010 - Animals and Religion **Credits:** 3 hours
- REL 4500 - Capstone Seminar in Religion **Credits:** 4 hours
- REL 4980 - Independent Study **Credits:** 1 to 6 hours
- REL 5100 - Comparative Studies in Religion **Credits:** 2 to 4 hours
- REL 5980 - Readings in Religion **Credits:** 1 to 4 hours

Economics

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Economists study fundamental problems arising from scarcity such as how to manage resources efficiently, how to organize individual and social efforts to improve standards of living, and how to avoid excessive unemployment and inflation. They also apply rational decision-making procedures to complex questions. Economists analyze policies in such specific areas as international trade; money and credit; government finance; industrial organization; labor and other resources; and economic development.

You may select economics as a field of study in order to obtain pre-professional training for business, law, journalism, public administration, foreign service, teaching, and social work; to prepare for graduate work in economics; and/or to gain an understanding of the economy as an essential part of the modern world. Several courses are designed to contribute to General Education by providing basic understanding of the U. S. economy, as well as other economies throughout the world.

A career as a professional economist typically requires graduate study and a master's or doctoral degree in economics.

Economics is a prestigious major or minor that is appreciated by prospective employers who recognize it as a demanding curriculum. The undergraduate advisor of the department will assist students in selecting courses suited to their needs in fulfilling the minor and major requirements.

Undergraduate students wishing to take 5000-level courses must be of junior or senior standing and have 12 or more credit hours of economics or the approval of the department chairperson.

Bachelor of Arts

Economics Major (BA degree) (30 hours)

Requirements

A BA major in economics consists of a minimum of 30 hours of credit in the department. No more than 15 hours of transfer credit will be granted toward completion of the BA major. The following are required courses for BA majors:

- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- ECON 2090 - Introductory Economic Statistics **Credits:** 3 hours
- ECON 3390 - Exploring Economic Data **Credits:** 3 hours
- ECON 4030 - Intermediate Microeconomics **Credits:** 3 hours
OR
- ECON 4031 - Intermediate Microeconomics with Calculus **Credits:** 3 hours
- ECON 4060 - Intermediate Macroeconomics **Credits:** 3 hours
- ECON 4090 - Econometrics **Credits:** 3 hours

Remaining Courses:

Majors should choose the remainder of their economics course in consultation with the undergraduate advisor.

Math Cognate

A major in economics is also required to take a one semester math course as a cognate course.

- MATH 1160 - Finite Mathematics with Applications **Credits:** 3 hours
OR
- MATH 1180 - Precalculus Mathematics **Credits:** 4 hours

Baccalaureate Writing Requirement

Students who have chosen the economics major through the College of Arts and Sciences will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following:

- ECON 3050 - History of Economic Thought **Credits:** 3 hours
- ECON 4840 - Comparative Economic Systems **Credits:** 3 hours

Honors in Economics

Economics majors may apply for and receive the Honors in Economics designation on their official transcript. At the time of application, economics majors must have completed 24 credit hours in economics. Applicants must also have completed at least 90 credit hours overall. At least 15 of the credit hours used for the Honors designation must be completed at Western Michigan University. A minimum overall Western Michigan University GPA of 3.5 and a GPA of 3.75 in Economics is required for the Honors designation. Students must also submit a substantial writing sample that shows a capacity for original thought in the interpretation, analysis, and effective communication of economic information. Application forms may be obtained in the Department of Economics Advising Office, 5451 Friedmann Hall. Information is also available at the Department of Economics website: wmich.edu/economics/scholarships.

Courses By Topic - Economics

Principles and General Theory

- ECON 1000 - Economics for Elementary Education **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours

- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- ECON 2090 - Introductory Economic Statistics **Credits:** 3 hours
- ECON 3050 - History of Economic Thought **Credits:** 3 hours
- ECON 3150 - Sports Economics **Credits:** 3 hours
- ECON 3180 - The Economics of Medical Care **Credits:** 3 hours
- ECON 3390 - Exploring Economic Data **Credits:** 3 hours
- ECON 3400 - Managerial Economics **Credits:** 3 hours
- ECON 4030 - Intermediate Microeconomics **Credits:** 3 hours
- ECON 4031 - Intermediate Microeconomics with Calculus **Credits:** 3 hours
- ECON 4060 - Intermediate Macroeconomics **Credits:** 3 hours
- ECON 4090 - Econometrics **Credits:** 3 hours
- ECON 5040 - Mathematics for Economists **Credits:** 3 hours

Labor and Resource Economics

- ECON 3090 - The Economics of Gender and Race **Credits:** 3 hours
- ECON 3100 - Labor Economics **Credits:** 3 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- ECON 4191 - Economic Policy Analysis with Calculus **Credits:** 3 hours

Money, Credit and Finance

- ECON 3200 - Money and Banking **Credits:** 3 hours
- ECON 3240 - Public Finance **Credits:** 3 hours

Industrial Organization and Public Control

- ECON 3040 - The Organization of Industries **Credits:** 3 hours
- ECON 3450 - Business, Government, and Society **Credits:** 3 hours
- ECON 4041 - Organization of Industries with Calculus **Credits:** 3 hours

International Economics

- ECON 3210 - The Economics of Immigration **Credits:** 3 hours
- ECON 3800 - International Economics **Credits:** 3 hours
- ECON 3840 - Economic Development **Credits:** 3 hours
- ECON 3870 - Studies in Asian Economies **Credits:** 3 hours
- ECON 3880 - African Economies **Credits:** 3 hours
- ECON 3890 - Latin American Economies **Credits:** 3 hours
- ECON 4840 - Comparative Economic Systems **Credits:** 3 hours
- ECON 5880 - Economic Development **Credits:** 3 hours

Special Studies

- ECON 5910 - Guest Economist Seminar **Credits:** 1 hour
- ECON 5920 - Guest Economist Seminar **Credits:** 1 hour

- ECON 5980 - Readings in Economics **Credits:** 1 to 3 hours

Bachelor of Science

Economics Major (BS degree) (30 hours)

Requirements

A BS major in economics consists of a minimum of 30 hours of credit in the department. No more than 15 hours of transfer credit will be granted toward completion of the BS major. The following are required courses for BS majors:

- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- ECON 2090 - Introductory Economic Statistics **Credits:** 3 hours
- ECON 3390 - Exploring Economic Data **Credits:** 3 hours
- ECON 4031 - Intermediate Microeconomics with Calculus **Credits:** 3 hours
- ECON 4041 - Organization of Industries with Calculus **Credits:** 3 hours
- OR
- ECON 4191 - Economic Policy Analysis with Calculus **Credits:** 3 hours
- ECON 4060 - Intermediate Macroeconomics **Credits:** 3 hours
- ECON 4090 - Econometrics **Credits:** 3 hours

Remaining Courses:

Majors should choose the remainder of their economics course in consultation with the undergraduate advisor.

Calculus I

A major in economics is also required to take Calculus I.

- MATH 1220 - Calculus I **Credits:** 4 hours

Quantitative Cognate

Students must take a 3-course quantitative cognate with courses from Mathematics, Statistics, and Computer Science. The course possibility includes but is not limited to:

- MATH 1230 - Calculus II **Credits:** 4 hours
- MATH 2300 - Elementary Linear Algebra **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours
- CS 1110 - Computer Science I **Credits:** 4 hours
- CS 2610 - R Programming for Data Science **Credits:** 4 hours

Baccalaureate Writing Requirement

Students who have chosen the economics major through the College of Arts and Sciences will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following:

- ECON 3050 - History of Economic Thought **Credits:** 3 hours
- ECON 4840 - Comparative Economic Systems **Credits:** 3 hours

Honors in Economics

Economics majors may apply for and receive the Honors in Economics designation on their official transcript. At the time of application, economics majors must have completed 24 credit hours in economics. Applicants must also have completed at least 90 credit hours overall. At least 15 of the credit hours used for the Honors designation must be completed at Western Michigan University. A minimum overall Western Michigan University GPA of 3.5 and a GPA of 3.75 in Economics is required for the Honors designation. Students must also submit a substantial writing sample that shows a capacity for original thought in the interpretation, analysis, and effective communication of economic information. Application forms may be obtained in the Department of Economics Advising Office, 5451 Friedmann Hall. Information is also available at the Department of Economics website: wmich.edu/economics/scholarships.

Courses By Topic - Economics

Principles and General Theory

- ECON 1000 - Economics for Elementary Education **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- ECON 2090 - Introductory Economic Statistics **Credits:** 3 hours
- ECON 3050 - History of Economic Thought **Credits:** 3 hours
- ECON 3150 - Sports Economics **Credits:** 3 hours
- ECON 3180 - The Economics of Medical Care **Credits:** 3 hours
- ECON 3390 - Exploring Economic Data **Credits:** 3 hours
- ECON 3400 - Managerial Economics **Credits:** 3 hours
- ECON 4030 - Intermediate Microeconomics **Credits:** 3 hours
- ECON 4031 - Intermediate Microeconomics with Calculus **Credits:** 3 hours
- ECON 4060 - Intermediate Macroeconomics **Credits:** 3 hours
- ECON 4090 - Econometrics **Credits:** 3 hours
- ECON 5040 - Mathematics for Economists **Credits:** 3 hours

Labor and Resource Economics

- ECON 3090 - The Economics of Gender and Race **Credits:** 3 hours
- ECON 3100 - Labor Economics **Credits:** 3 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- ECON 4191 - Economic Policy Analysis with Calculus **Credits:** 3 hours

Money, Credit and Finance

- ECON 3200 - Money and Banking **Credits:** 3 hours
- ECON 3240 - Public Finance **Credits:** 3 hours

Industrial Organization and Public Control

- ECON 3040 - The Organization of Industries **Credits:** 3 hours
- ECON 3450 - Business, Government, and Society **Credits:** 3 hours
- ECON 4041 - Organization of Industries with Calculus **Credits:** 3 hours

International Economics

- ECON 3210 - The Economics of Immigration **Credits:** 3 hours
- ECON 3800 - International Economics **Credits:** 3 hours
- ECON 3840 - Economic Development **Credits:** 3 hours
- ECON 3870 - Studies in Asian Economies **Credits:** 3 hours
- ECON 3880 - African Economies **Credits:** 3 hours
- ECON 3890 - Latin American Economies **Credits:** 3 hours
- ECON 4840 - Comparative Economic Systems **Credits:** 3 hours
- ECON 5880 - Economic Development **Credits:** 3 hours

Special Studies

- ECON 5910 - Guest Economist Seminar **Credits:** 1 hour
- ECON 5920 - Guest Economist Seminar **Credits:** 1 hour
- ECON 5980 - Readings in Economics **Credits:** 1 to 3 hours

Minors

Economics Minor (15 hours)

The Economics minor consists of two required courses (ECON 2010, ECON 2020) and three courses at the 3000-level or above with the exception of ECON 5910, ECON 5920, and ECON 5980. No more than 6 hours of transfer credit will be granted toward the completion of the minor.

Courses By Topic - Economics

Principles and General Theory

- ECON 1000 - Economics for Elementary Education **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- ECON 2090 - Introductory Economic Statistics **Credits:** 3 hours
- ECON 3050 - History of Economic Thought **Credits:** 3 hours
- ECON 3150 - Sports Economics **Credits:** 3 hours
- ECON 3180 - The Economics of Medical Care **Credits:** 3 hours

- ECON 3390 - Exploring Economic Data **Credits:** 3 hours
- ECON 3400 - Managerial Economics **Credits:** 3 hours
- ECON 4030 - Intermediate Microeconomics **Credits:** 3 hours
- ECON 4031 - Intermediate Microeconomics with Calculus **Credits:** 3 hours
- ECON 4060 - Intermediate Macroeconomics **Credits:** 3 hours
- ECON 4090 - Econometrics **Credits:** 3 hours
- ECON 5040 - Mathematics for Economists **Credits:** 3 hours

Labor and Resource Economics

- ECON 3090 - The Economics of Gender and Race **Credits:** 3 hours
- ECON 3100 - Labor Economics **Credits:** 3 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- ECON 4191 - Economic Policy Analysis with Calculus **Credits:** 3 hours

Money, Credit and Finance

- ECON 3200 - Money and Banking **Credits:** 3 hours
- ECON 3240 - Public Finance **Credits:** 3 hours

Industrial Organization and Public Control

- ECON 3040 - The Organization of Industries **Credits:** 3 hours
- ECON 3450 - Business, Government, and Society **Credits:** 3 hours
- ECON 4041 - Organization of Industries with Calculus **Credits:** 3 hours

International Economics

- ECON 3210 - The Economics of Immigration **Credits:** 3 hours
- ECON 3800 - International Economics **Credits:** 3 hours
- ECON 3840 - Economic Development **Credits:** 3 hours
- ECON 3870 - Studies in Asian Economies **Credits:** 3 hours
- ECON 3880 - African Economies **Credits:** 3 hours
- ECON 3890 - Latin American Economies **Credits:** 3 hours
- ECON 4840 - Comparative Economic Systems **Credits:** 3 hours
- ECON 5880 - Economic Development **Credits:** 3 hours

Special Studies

- ECON 5910 - Guest Economist Seminar **Credits:** 1 hour
- ECON 5920 - Guest Economist Seminar **Credits:** 1 hour
- ECON 5980 - Readings in Economics **Credits:** 1 to 3 hours

English

Nicolas S. Witschi, Chair
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Staci Perryman-Clark
Adrienne Redding
John Saillant
Jana Schulman
Scott Slawinski
Gwen Tarbox
Charlotte Thralls
Grace Tiffany
Karen Vocke
Daneen Wardrop
Allen Webb

The Department of English serves students in two principal ways: in developing their power to communicate and express themselves and in enhancing their ability to participate in and understand the experiences of other people, real and imaginary, past and present.

Courses and programs offered by our department - in writing, English language, and literature (including film) - enable students to concentrate in English, complement their other studies, or simply explore and sample the disciplines of language and literature. As a department we are traditionally engaged in training teachers and preparing students for graduate study. We are equally concerned with serving those students preparing for the many professions in which humane perceptions and the skills of communication, especially writing, are important.

Special Note to Non-Majors

The Department of English offers many courses, including a variety of writing courses, suitable for students not majoring in English: 1050 Thought and Writing, 1070: Good Books, 1100: Literary Interpretation, 1120: Literary Classics, 1500: Literature and Other Arts, 2080: Literatures in Our Lives, 2100: Film Interpretation, 2110: Myth and Folk Literature, 2220: Literatures and Cultures of the United States, 2230: African American Literature, 2520: Shakespeare, 2660: Writing Fiction and Poetry, 3830: Literature for the Intermediate Reader, 3080: Quest for Self, 3110: Our Place In Nature, 3120: Western World Literature, 3130:

Asian Literature, 3140: African Literature, 3150: The English Bible as Literature, and certain advanced courses that may be appropriate to the interests and background of the student. Many of these English courses may be used to satisfy WMU Essential Studies requirements.

Advisors in the English department or the College of Arts and Sciences will help any student select courses in writing, English language, or literature which will be useful in WMU Essential Studies or as background for a career.

Major and Minor Requirements

1. The requirements for the English majors (listed below) allow students some choices in their courses of study. As soon as students decide to major in English they should confer with an advisor, who can help plan the major. Students minoring in English should see the advisor as soon as possible after they begin work on the minor.
2. A minimum of 33-36 hours is required for a major in English, 20 hours are required for a minor. Students are urged, however, to take as many additional hours as they can. In particular, students planning to teach or attend graduate school should consider taking additional work in preparation.
3. Only courses in which a grade of "C" or better is earned may be applied to an English major or minor. Moreover, all majors and minors in the Department of English need to earn at least a 2.5 grade point average in the major or minor to graduate.
4. Foreign Language Requirement: Eight semesters hours of a foreign language with a grade of "C" or better, or appropriate score on a placement exam. The department recommends as much additional work in the language as students can manage. Students planning to do graduate work beyond the M.A. ought to develop competence in at least one foreign language.
5. Special Note to Transfer Students. All transfer students majoring or minoring in English should consult undergraduate advisors in the College of Arts and Sciences about transferring credit in English courses from other colleges. An early conference will enable students to avoid duplication of courses and possible loss of transfer credit and may enable them to bypass some of the department's basic requirements as listed below. It is departmental policy to accept no more than 20 hours of transferred credit toward a major and no more than 12 hours of transferred credit toward a minor.
6. Baccalaureate-Level Writing Requirement:

Students who have chosen an English major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:

- ENGL 3050 - Professional Writing: Audience, Genre, and Workplace Cultures
- ENGL 3620 - Readings in Creative Non-Fiction
- ENGL 4150 - Literary Theory and Criticism
- ENGL 4400 - Studies in Verse
- ENGL 4420 - Studies in Drama
- ENGL 4440 - Studies in the Novel
- ENGL 4520 - Shakespeare Seminar

The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by approval of an advisor.

Bachelor of Arts

English Major - Creative Writing Emphasis (34 hours)

1. Required Entry-level Course (4 hours)

- ENGL 1100 - Literary Interpretation **Credits:** 4 hours

2. Required Writing Courses (14 hours)

- ENGL 2660 - Writing Fiction and Poetry **Credits:** 4 hours

Plus six (6) hours of credit from the following courses

Any of these courses may be repeated one time for credit.

- ENGL 3660 - Advanced Fiction Writing **Credits:** 3 hours
- ENGL 3670 - Advanced Poetry Writing **Credits:** 3 hours
- ENGL 3680 - Playwriting **Credits:** 3 hours
- ENGL 3700 - Writing Creative Non-Fiction **Credits:** 3 hours

Four (4) hours of credit from the following courses:

Each of these courses may be repeated one time for credit. The same course may not be taken twice concurrently.

- ENGL 5660 - Creative Writing Workshop - Fiction **Credits:** 4 hours
- ENGL 5670 - Creative Writing Workshop - Poetry **Credits:** 3 hours
- ENGL 5680 - Creative Writing Workshop - Playwriting **Credits:** 3 hours
- ENGL 5700 - Creative Writing Workshop - Creative Non-fiction **Credits:** 3 hours

3. Literature and English Language Courses (13 to 14 hours)

A. Two of the following courses:

- ENGL 3200 - American Literature I **Credits:** 3 hours
- ENGL 3210 - American Literature II **Credits:** 3 hours
- ENGL 3300 - British Literature I **Credits:** 3 hours
- ENGL 3310 - British Literature II **Credits:** 3 hours

B. One of the following courses:

- ENGL 4400 - Studies in Verse **Credits:** 4 hours
- ENGL 4420 - Studies in Drama **Credits:** 4 hours
- ENGL 4440 - Studies in the Novel **Credits:** 4 hours

C. One Additional Course

One additional English Department literature or English language course at the 2000, 3000, or 5000 levels.

4. Electives

At least one additional English Department course at the 2000, 3000, 4000, or 5000 levels to complete the major. The following courses cannot be used for this purpose: ENGL 3070, 3080, 3110, or 4800.

5. Cognate: Foreign Language Requirement

The Foreign Language requirement is determined by the College of Arts and Sciences. Students should consult an advisor in that unit for specifics.

Accelerated BA/MA program

Students in this major are eligible for the English department's accelerated BA/MA program in English. Interested students should consult WMU's Graduate Catalog and, in their sophomore or early junior year, contact the Director of Graduate Studies for more information on this accelerated degree program.

English Major - Literature and Language (36 hours minimum)

1. Required Entry-level Course (4 hours)

- ENGL 1100 - Literary Interpretation **Credits:** 4 hours

2. Required Courses (20 to 24 hours)

A. One course in literature before 1700 (3-4 hours)

- ENGL 2520 - Shakespeare **Credits:** 4 hours
- ENGL 3300 - British Literature I **Credits:** 3 hours
- ENGL 4520 - Shakespeare Seminar **Credits:** 4 hours
- ENGL 5300 - Medieval Literature **Credits:** 3 hours
- ENGL 5320 - English Renaissance Literature **Credits:** 3 hours

B. One course in American Literature (3-4 hours)

- ENGL 2220 - Literatures and Cultures of the United States **Credits:** 4 hours
- ENGL 2230 - African American Literature **Credits:** 4 hours
- ENGL 3200 - American Literature I **Credits:** 3 hours
- ENGL 3210 - American Literature II **Credits:** 3 hours
- ENGL 4840 - Culture in Children's Literature **Credits:** 3 hours
- ENGL 5220 - Studies in American Literature **Credits:** 3 hours

C. One course in the English Language (4 hours)

- ENGL 3710 - Structures of Modern English **Credits:** 4 hours
- ENGL 3720 - Development of Modern English **Credits:** 4 hours
- ENGL 4720 - Language Variation in American English **Credits:** 4 hours

D. One Baccalaureate Writing course (4 hours)

- ENGL 4150 - Literary Theory and Criticism **Credits:** 4 hours
- ENGL 4400 - Studies in Verse **Credits:** 4 hours
- ENGL 4420 - Studies in Drama **Credits:** 4 hours

- ENGL 4440 - Studies in the Novel **Credits:** 4 hours
- ENGL 4520 - Shakespeare Seminar **Credits:** 4 hours

E. Advanced courses (6-8 hours)

At least two additional courses at the 5000-level in literature or the English language. Courses used to satisfy requirements 2.A., 2.B., or 2.C. may not be counted for this requirement.

3. Elective Courses (12-15 hours)

At least four courses from the 2000-5000 level. Courses used to satisfy requirements 2.A., 2.B., or 2.C., 2.D., or 2.E. may not be counted for this requirement.

4. Foreign Language

The Foreign Language requirement for English majors is determined by the College of Arts and Sciences. Students should contact an advisor in that unit for specifics.

Accelerated BA/MA program

Students in this major are eligible for the English department's accelerated BA/MA program in English. Interested students should consult WMU's Graduate Catalog and, in their sophomore or early junior year, contact the Director of Graduate Studies for more information on this accelerated degree program.

English Teaching Track

This sequence of courses can be taken in coordination with any WMU English major or minor program. Successful completion will prepare the student to enter the WMU Post-Baccalaureate Teacher Certification program. The sequence does not in itself lead to certification.

Completing this sequence and meeting the grade and external requirement typically results in automatic admission to the WMU Post-Baccalaureate Teaching Certification Program.

Grade Requirement

GPA of 3.0 or better cumulative in English courses.

External Requirement

Successfully pass the Michigan Test of Teacher Certification - English (002).

Required Courses

- ENGL 2790 - Introduction to English Education **Credits:** 3 hours
 - (Recommended to be taken during the 1st year at (WMU)
 - An introduction to the responsibilities, aspirations, and professional knowledge of secondary English language arts teachers.
- ENGL 4810 - Teaching English Language Arts in the Secondary School **Credits:** 4 hours

- A study of the key methods and theories of teaching English language arts that includes readings, practice, and of pedagogy in writing, literature, and reading in the middle and secondary school.

Not for students: Both of these courses will apply to your English major or minor.

Required Content Knowledge

In order to meet Michigan teacher certification standards, candidates entering the post-baccalaureate teaching program are expected to have experience in multiple areas of English language arts. While satisfying your requirements in your chosen English major, you should choose at least one course in each of the following areas. Recommended courses are listed. As you complete your English major or minor, you should work with your advisor to include these courses in your course plan. Courses taken at other institutions may be reviewed by the English Department undergraduate advising staff upon request.

Adolescent Literature

- ENGL 3840 - Adolescent Literature **Credits:** 3 hours

World Literature

- ENGL 3120 - Western World Literature **Credits:** 3 hours
- ENGL 3130 - Asian Literature **Credits:** 3 hours
- ENGL 3140 - African Literature **Credits:** 3 hours
- ENGL 3160 - Storytellers **Credits:** 3 hours
- ENGL 5390 - Post-colonial Literature **Credits:** 3 hours

Language and Linguistics

- ENGL 3710 - Structures of Modern English **Credits:** 4 hours
- ENGL 3720 - Development of Modern English **Credits:** 4 hours
- ENGL 4720 - Language Variation in American English **Credits:** 4 hours

Multicultural Literature

- ENGL 2220 - Literatures and Cultures of the United States **Credits:** 4 hours
- ENGL 2230 - African American Literature **Credits:** 4 hours
- ENGL 5830 - Multicultural Adolescent Literature **Credits:** 3 hours
- HISP 2650 - Hispanic Culture in the U.S. **Credits:** 3 hours
- HISP 2750 - Latino Writing/Latino Culture **Credits:** 3 hours

American and British Literature

- ENGL 2220 - Literatures and Cultures of the United States **Credits:** 4 hours
- ENGL 2230 - African American Literature **Credits:** 4 hours
- ENGL 3200 - American Literature I **Credits:** 3 hours
- ENGL 3210 - American Literature II **Credits:** 3 hours
- ENGL 3300 - British Literature I **Credits:** 3 hours
- ENGL 3310 - British Literature II **Credits:** 3 hours

Writing and Rhetoric

- ENGL 2660 - Writing Fiction and Poetry **Credits:** 4 hours
- ENGL 3050 - Professional Writing: Audience, Genre, and Workplace Cultures **Credits:** 4 hours
- ENGL 3060 - Rhetoric, Writing, and American Culture **Credits:** 3 hours

English Major - Rhetoric and Writing Studies Emphasis (33 hours)

1. Required Entry-level Course (4 hours)

- ENGL 1100 - Literary Interpretation **Credits:** 4 hours

2. Required Courses (13 hours)

- ENGL 3050 - Professional Writing: Audience, Genre, and Workplace Cultures **Credits:** 4 hours
(Also meets Baccalaureate writing requirement.)

And 9 hours of credit from the following:

- ENGL 3060 - Rhetoric, Writing, and American Culture **Credits:** 3 hours
- ENGL 4060 - Topics in Textual Production **Credits:** 3 hours
- ENGL 4080 - Topics in Rhetoric and Writing **Credits:** 3 hours

3. Literature Courses (6 hours)

Select 6 credit hours from the following:

- ENGL 2070 - Topics in Literature **Credits:** 4 hours
- ENGL 2100 - Film Interpretation **Credits:** 4 hours
- ENGL 2110 - Folklore and Mythology **Credits:** 4 hours
- ENGL 2220 - Literatures and Cultures of the United States **Credits:** 4 hours
- ENGL 2230 - African American Literature **Credits:** 4 hours
- ENGL 2520 - Shakespeare **Credits:** 4 hours
- ENGL 3120 - Western World Literature **Credits:** 3 hours
- ENGL 3130 - Asian Literature **Credits:** 3 hours
- ENGL 3140 - African Literature **Credits:** 3 hours
- ENGL 3150 - The English Bible as Literature **Credits:** 3 hours
- ENGL 3200 - American Literature I **Credits:** 3 hours
- ENGL 3210 - American Literature II **Credits:** 3 hours
- ENGL 3300 - British Literature I **Credits:** 3 hours
- ENGL 3310 - British Literature II **Credits:** 3 hours
- ENGL 4100 - Special Topics in Literature **Credits:** 4 hours

Linguistics: Select 4 credit hours from the following:

- ENGL 3710 - Structures of Modern English **Credits:** 4 hours
- ENGL 3720 - Development of Modern English **Credits:** 4 hours
- ENGL 4720 - Language Variation in American English **Credits:** 4 hours

4. Electives (6 hours)

Select at least two courses from the following:

- ENGL 4950 - Internship/Field Work **Credits:** 1 to 4 hours
- ENGL 3700 - Writing Creative Non-Fiction **Credits:** 3 hours
- ENGL 3620 - Readings in Creative Non-Fiction **Credits:** 3 hours
- ENGL 4060 - Topics in Textual Production **Credits:** 3 hours
(Different topics not used to satisfy required courses in section 2 above.)
- ENGL 4080 - Topics in Rhetoric and Writing **Credits:** 3 hours
(Different topics not used to satisfy required courses in section 2 above.)

External elective options:

Course from an external department, contingent upon department and advisor approvals. Examples:

- GPS 1500 - Introduction to Graphic and Printing Science **Credits:** 4 hours
- PADM 5830 - Grant Writing **Credits:** 3 hours
- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours

5. Cognate: Foreign Language Requirement

The Foreign Language requirement is determined by the College of Arts and Sciences. Students should consult an advisor in that unit for specifics.

Accelerated BA/MA program

Students in this major are eligible for the English department's accelerated BA/MA program in English. Interested students should consult WMU's Graduate Catalog and, in their sophomore or early junior year, contact the Director of Graduate Studies for more information on this accelerated degree program.

Minors

English Minor - Literature and Language (19 hours minimum)

1. Required Entry-level Course (4 hours)

- ENGL 1100 - Literary Interpretation **Credits:** 4 hours

2. Advanced Courses (6-8 hours)

Two courses at the 3000-level or above.

3. Electives (9-12 hours)

Three additional courses at the 2000-level or above. Courses used to satisfy #2 may not count on this requirement.

English Minor - Rhetoric and Writing Studies (20 hours)

1. Required Entry-level Course (4 hours)

- ENGL 1100 - Literary Interpretation **Credits:** 4 hours

2. Required Courses (13 hours)

- ENGL 3050 - Professional Writing: Audience, Genre, and Workplace Cultures **Credits:** 4 hours

And 9 hours of credit from the following:

- ENGL 3060 - Rhetoric, Writing, and American Culture **Credits:** 3 hours
- ENGL 4060 - Topics in Textual Production **Credits:** 3 hours
- ENGL 4080 - Topics in Rhetoric and Writing **Credits:** 3 hours

3. Literature, English Language, and Creative Writing Courses (3-4 hours)

Select 3 credit hours from the following:

- ENGL 2070 - Topics in Literature **Credits:** 4 hours
- ENGL 2100 - Film Interpretation **Credits:** 4 hours
- ENGL 2110 - Folklore and Mythology **Credits:** 4 hours
- ENGL 2220 - Literatures and Cultures of the United States **Credits:** 4 hours
- ENGL 2230 - African American Literature **Credits:** 4 hours
- ENGL 2520 - Shakespeare **Credits:** 4 hours
- ENGL 3120 - Western World Literature **Credits:** 3 hours
- ENGL 3130 - Asian Literature **Credits:** 3 hours
- ENGL 3140 - African Literature **Credits:** 3 hours
- ENGL 3150 - The English Bible as Literature **Credits:** 3 hours
- ENGL 3200 - American Literature I **Credits:** 3 hours
- ENGL 3210 - American Literature II **Credits:** 3 hours
- ENGL 3300 - British Literature I **Credits:** 3 hours
- ENGL 3310 - British Literature II **Credits:** 3 hours
- ENGL 3620 - Readings in Creative Non-Fiction **Credits:** 3 hours
- ENGL 3700 - Writing Creative Non-Fiction **Credits:** 3 hours
- ENGL 3710 - Structures of Modern English **Credits:** 4 hours
- ENGL 3720 - Development of Modern English **Credits:** 4 hours
- ENGL 4100 - Special Topics in Literature **Credits:** 4 hours

- ENGL 4720 - Language Variation in American English **Credits:** 4 hours

English Minor - Writing (20 hours)

1. Required Entry-Level Courses (8 hours)

- ENGL 1100 - Literary Interpretation **Credits:** 4 hours
- ENGL 2660 - Writing Fiction and Poetry **Credits:** 4 hours

2. Literature Course (3 hours)

One course chosen from among the following:

- ENGL 3200 - American Literature I **Credits:** 3 hours
- ENGL 3210 - American Literature II **Credits:** 3 hours
- ENGL 3300 - British Literature I **Credits:** 3 hours
- ENGL 3310 - British Literature II **Credits:** 3 hours

3. Advanced Writing Courses (6-7 hours)

(ENGL 3660, 3670, 3680, and 3700 may be repeated one time for credit.)

- ENGL 3050 - Professional Writing: Audience, Genre, and Workplace Cultures **Credits:** 4 hours
- ENGL 3660 - Advanced Fiction Writing **Credits:** 3 hours
- ENGL 3670 - Advanced Poetry Writing **Credits:** 3 hours
- ENGL 3680 - Playwriting **Credits:** 3 hours
- ENGL 3700 - Writing Creative Non-Fiction **Credits:** 3 hours

4. Electives

At least one additional English Department course. The following courses cannot be used for this purpose: ENGL 1000, 1050, 1070, 1120, 3070, 3080, 3110, or 4800.

Environment and Sustainability, Institute of the

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Steven Bertman
Lynn Heasley
Sarah Hill
Steven Kohler
Daneil Macfarlane

One of the goals of our University's Mission Statement is "to advance responsible environmental stewardship;" in that same vein, the College of Arts and Sciences in its Strategic Plan, seeks to raise "awareness about the . . . environmental and international contexts of knowledge . . ." and has as one of its goals interdisciplinary education on all aspects of environmental problems. Accordingly, the Institute's programs, as we conceive them, have three major duties: One, fostering environmental awareness and scientific literacy for the general WMU student; two, careful interdisciplinary training of majors and minors to understand environmental complexity and health, enabling our students to be creative problem solvers; and three, real-world engagement with environmental issues and solutions.

The Institute will also serve the Kalamazoo community and greater Southwestern Michigan as the center for environmental and sustainability expertise and action, and for sharing the most up-to-date environmental knowledge and sustainability best practices. We participate in and lead the larger community toward increased understanding of nature and how humans interact with their environment, awareness of environmental issues and their possible solutions, and engagement in activities that promote ecological, social, and economic sustainability and justice.

The Institute has three majors (Environmental and Sustainability Studies, Freshwater Science and Sustainability, and Sustainable Brewing) and one minor (Environmental and Sustainability Studies). All programs are interdisciplinary and involve taking courses delivered by the Institute, as well as courses from many other academic departments on campus. The Environmental and Sustainability Studies major is a required dual major, while the other two majors (Freshwater Science and Sustainability, and Sustainable Brewing) are stand-alone majors.

Advising

Given the interdisciplinary nature of the program, it is very critical that students work regularly with College of Arts and Sciences advisors throughout their time at Western. Information about career choices, internships, summer jobs, graduate programs, and second majors is also available from the Director and faculty of the Institute.

Academic Standards

Students in all options of the Environmental and Sustainability Studies Program must earn at least a grade of "C" in all courses counted for their major/minor.

Bachelor of Arts

Environmental and Sustainability Studies Major (32 hours)

The Environmental and Sustainability Studies core curriculum embraces the interdisciplinary nature of environmental issues through scientific, social, and humanistic approaches to undergraduate scholarship. The curriculum envisages core themes, or Domains, that are essential to modern environmental education: the physical and biological sciences; the history of human interactions with the non-human world; the social and cultural dimensions of environmental problems; environmental thought as

reflected in literature, ethics and philosophy; policy and decision-making; and practical experience.

A student may declare a major in Environmental and Sustainability Studies when the student has done the following:

- Completed 30 hours of college work, at least 15 hours of which are at Western Michigan University.
- Achieved an overall GPA of 2.50 or above.
- Completed the Entry Option and the Physical Science Domain with a grade of "C" or better in each.

After completing these requirements, students must take at least one course from each of the remaining domains. All domains have a prerequisite of one of the courses in the Entry Option.

At the advanced level, undergraduates will develop interdisciplinary competency by taking advanced courses outside the ENVS core. Students will also take a senior seminar capstone course. The senior seminar will bring together ENVS undergraduates from diverse disciplinary majors, who will work in teams outside the classroom to address complex environmental problems in both theoretical and experiential modes.

Second Major

Because the Program is broadly interdisciplinary, Environmental and Sustainability Studies (ENVS) is called a coordinate major; thus, students who choose ENVS are required to take a second major, chosen from any college in the University, to provide depth in a particular discipline.

Students choosing their disciplinary major from within the College of Arts and Sciences have the option, upon graduation, to select either of their two majors as their "degree" major. If Environmental and Sustainability Studies is selected, students will graduate with a Bachelor of Arts degree if their second major is in the Humanities or Social Sciences; they will graduate with a Bachelor of Science degree if that major is in the Sciences. Students choosing their disciplinary major as first degree will graduate accordingly.

Those students whose disciplinary major is in another college must graduate with their ENVS major as their second major.

In addition to satisfying all Environmental and Sustainability Studies Program requirements, students selecting Environmental and Sustainability Studies as their first major must satisfy the College of Arts and Sciences curriculum requirements as well as all University requirements. Those selecting ENVS as their second major must satisfy all requirements as designated by the College of the first major, as well as all University degree requirements.

Note: Because of the complexity of this course of study, students are encouraged to speak regularly with an advisor.

Academic Standards

Students in this program must earn a grade of "C" or better in all courses counted toward their major.

Entry Options (3-4 hours)

Either of these courses serves as the prerequisite for all subsequent Domains.

- ENVS 2050 - Nature, Society, and Sustainability **Credits:** 4 hours
- ENVS 3000 - Introduction to Sustainability: A Local to Global Survey **Credits:** 3 hours
(A minimum grade of "B" is required to count towards the Environmental and Sustainability Studies major.)

Physical Science Domain (3 hours)

- ENVS 2150 - Environmental Systems and Cycles **Credits:** 3 hours
- GEOS 2320 - Integrated Earth System Studies **Credits:** 3 hours

Biological Science Domain (4 hours)

- BIOS 1050 - Environmental Biology **Credits:** 3 hours
Honors Section Only
(BIOS 1050 must be taken with ENVS 2260 for 4 credit hours total)
- BIOS 3010 - Ecology **Credits:** 5 hours
- ENVS 2250 - Environmental Ecology **Credits:** 3 hours
- ENVS 2260 - Field Environmental Ecology **Credits:** 1 hour

Historical Domain (3 hours)

- HIST 3180 - American Environmental History **Credits:** 3 hours

Cultural and Societal Domain (3 hours)

- ENVS 3600 - Environment and Culture **Credits:** 3 hours

Environmental Thought Domain (3 hours)

- ENVS 3200 - Major Environmental Writings **Credits:** 3 hours

Policy Domain (4 hours)

- ENVS 3400 - Environmental Policy **Credits:** 4 hours

Capstone Experience (3 hours)

- ENVS 4500 - Senior Seminar in Environmental Studies **Credits:** 3 hours

Interdisciplinary Competency (6 hours) (two courses)

Students must demonstrate competency in advanced fields of knowledge and practice outside the ENVS core. Students must choose, in consultation with a Program advisor, two approved courses emphasizing instruction in and application of advanced research methods, within a discipline of their choosing. A minimum of two separate courses must be taken to satisfy the competency requirement, with a minimum total of six hours accumulated credit for both courses. No more than one course of the two may be taken in the same area as the student's disciplinary major.

Examples of suitable courses that will fulfill the Competency requirement within the following disciplines are shown below. Other disciplines and their courses will be added to this list as they are deemed appropriate by the ENVS faculty.

Natural Sciences Area

Environmental Studies

- ENVS 4010 - Selected Environmental Topics **Credits:** 3 hours

- ENVS 4100 - Appropriate Technologies and Sustainability **Credits:** 3 hours
- ENVS 4150 - Environmental Law **Credits:** 3 hours
(not if PSCI 4240 is taken)

Biological Sciences

- BIOS 4560 - Tropical Biology **Credits:** 3 hours
- BIOS 5991 - Independent Research in Biological Sciences **Credits:** 1 to 6 hours
- BIOS 5440 - Global Change Ecology **Credits:** 3 hours
- BIOS 5535 - Freshwater Ecology **Credits:** 4 hours
- BIOS 5970 - Topics in Biological Sciences **Credits:** 3 to 4 hours

Chemistry

- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
(Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
(Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
(Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour
(Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
(Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
- CHEM 4360 - Physical Chemistry Laboratory I **Credits:** 2 hours
(Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
- CHEM 5090 - Topics in Chemistry **Credits:** 3 hours
- CHEM 5900 - Special Problems in Chemistry **Credits:** 2 hours

Geography

- GEOG 5010 - Introduction to Geographic Information Systems **Credits:** 4 hours
- GEOG 5440 - Studies in Economic Geography **Credits:** 2 to 3 hours
- GEOG 5570 - Environmental Impact Assessment **Credits:** 3 hours
- GEOG 5820 - Remote Sensing of the Environment **Credits:** 4 hours

Geosciences

- GEOS 5230 - Hazardous Waste Operation and Emergency Response **Credits:** 1 hour
- GEOS 5240 - Remediation Design and Implementation **Credits:** 1 hour
- GEOS 5250 - Surface Geophysics **Credits:** 1 hour
- GEOS 5260 - Principles and Practices of Aquifer Testing **Credits:** 1 hour
- GEOS 5270 - Principles of Well Drilling and Installation **Credits:** 1 hour
- GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring **Credits:** 1 hour
- GEOS 5550 - Introduction to Geochemistry **Credits:** 3 hours
- GEOS 5600 - Introduction to Geophysics **Credits:** 3 hours

Statistics

- STAT 5630 - Sample Survey Methods **Credits:** 3 hours
- STAT 5670 - Statistical Design and Analysis of Experiments **Credits:** 3 hours

Social Sciences Area

Anthropology

- ANTH 4500 - Primate Behavior and Ecology **Credits:** 3 hours
- ANTH 4900 - Archaeological Field School **Credits:** 6 hours
- ANTH 5220 - Poverty, Power, and Privilege **Credits:** 3 hours

Economics

- ECON 3190 - Environmental Economics **Credits:** 3 hours

History

- HIST 4100 - Historic Preservation **Credits:** 3 hours

Political Science

- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours
- PSCI 4240 - Environmental Law **Credits:** 3 hours
(not if ENVS 4150 is taken)

Sociology

- SOC 3680 - Race, Ethnicity, and Justice **Credits:** 3 hours

Humanities Area

Environmental Studies

- ENVS 4100 - Appropriate Technologies and Sustainability **Credits:** 3 hours

Philosophy

- PHIL 4100 - Professional Ethics **Credits:** 3 hours

Bachelor of Science

Freshwater Science and Sustainability (77-79 hours)

The Freshwater Science and Sustainability major will prepare students to address complex regional, national, and global challenges related to the sustainability of freshwater resources. The Freshwater program of study is interdisciplinary and integrative, providing students with the knowledge, training, and skills to: 1) understand and research freshwater ecosystems, including biology, chemistry, hydrology, and limnology, along with the scientific dimensions of freshwater resource management; and 2) situate freshwater science within the larger environmental, socio-economic, and cultural dimensions of sustainable management and problem-solving in freshwater systems. Because of the rigorous interdisciplinary nature of the Freshwater program, and the large number of credit hours required for the degree, the program does not require a minor.

Academic Standards

Students in this program must earn a grade of "C" or better in all courses counted toward their major.

Advising

Given the interdisciplinary nature of the program, students should work closely with program advisors and meet with them regularly. Additionally, this program offers a number of courses in hybrid or online formats. These may include significant fieldwork components required to successfully complete the course. Summer coursework may also be required to complete the program. Please consult with a program advisor to review the schedule of courses.

Required Courses

Introductory Courses (12 hours)

(Transfer student should consult the relevant transfer guides and with a program advisor to discuss specific course equivalencies. The specific course equivalencies for students entering the program from Northwest Michigan College are detailed in supporting materials.)

- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- BIOS 1620 - Ecology and Evolution **Credits:** 4 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour

Freshwater Core (13 hours)

- BIOS 5535 - Freshwater Ecology **Credits:** 4 hours
- BIOS 5545 - Human Impact on Great Lakes Ecosystem **Credits:** 3 hours
- OR
- GEOG 5530 - Water Resources Management **Credits:** 3 hours
- ENVS 5400 - Freshwater Policy **Credits:** 3 hours
- ENVS 4020 - Selected Topics in Freshwater Humanities **Credits:** 3 hours

Sustainability Core (23-25 hours)

- ENVS 2050 - Nature, Society, and Sustainability **Credits:** 4 hours
- ENVS 2150 - Environmental Systems and Cycles **Credits:** 3 hours
- ENVS 2250 - Environmental Ecology **Credits:** 3 hours
- OR

- BIOS 3010 - Ecology **Credits:** 5 hours
- ENVS 3200 - Major Environmental Writings **Credits:** 3 hours
- ENVS 3400 - Environmental Policy **Credits:** 4 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- PHIL 3170 - Environmental Ethics **Credits:** 3 hours

Required Cognates (11 hours)

- GEOG 2250 - Introduction to Meteorology and Climatology **Credits:** 4 hours
- GEOS 3220 - Ocean Systems **Credits:** 3 hours
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Elective Courses (18 hours)

Chosen from a preferred course list in consultation with and approval by the CAS advising office.

Sustainable Brewing

The Sustainable Brewing program is an interdisciplinary four-year curriculum that will help position students to enter the craft beer field in a variety of roles. The goal of this program is to educate students who are intimately familiar with the technical features of brewing, have an appreciation for the rich landscape of an industry that has been part of human civilization for thousands of years, and can comprehend and address the environmental challenges faced by the industry in the 21st century. There are two possible "tracks" that students can choose in this major:

Brewing Track

Required Science, Technology, Engineering and Mathematics (STEM) courses for the program will complement a slate of brewing-focused courses, while additional courses in sustainability and other elective fields will provide the breadth of knowledge sought in the industry. The program is supported and advised by an external advisory board with members from the top breweries in the state. Because of the interdisciplinary nature of the program and the large number of credit hours required, students in this program are not required to have a minor.

Track Objectives

- Understand the historical and social forces that were cause and effect of brewing in human civilization.
- Gain first-hand experience going through the process of brewing, "grain to glass".
- Develop a sensitivity for the ethic of sustainability that will inform decisions about energy demand, efficiency, water use, waste minimization, and local sourcing of materials.
- Demonstrate an understanding of the biochemistry and microbiology involved in fermentation and aging.

Operations Track

West Michigan has one of the highest per capita densities of craft breweries in the country and Kalamazoo is a destination for educational opportunities in this growing economic engine. In the last decade, the brewing industry has become more competitive, diversified, and multi-faceted. To create and maintain a diverse, broadly-trained workforce that can critically evaluate information in order to make informed decisions, the overarching goal of this program is to educate students to be problem solvers in the operation of brewing related businesses. This operations track complements a slate of hands-on brewing courses by providing formal instruction in business, food service operation, and sustainability.

Track Objectives

- Understand the historical context of brewing in human civilization.

- Gain first-hand experience going through the process of brewing, "grain to glass."
- Examine the place that food production and distribution occupy in human culture and the environmental impact of associated energy demand, water use, waste management, and local sourcing.
- Learn fundamental business skills to manage and grow the beverage and food industry and respond to changing markets.
- Develop critical thinking skills to evaluate how and why the brewing industry can become more sustainable.

Sustainable Brewing Curriculum

Requirements common to both tracks (41 hours)

- ENVS 3150 - Sustainable Brewing **Credits:** 1 to 30 hours
(transfer BREW courses in the Kalamazoo Valley Community College Sustainable Brewing program)
- ENVS 2050 - Nature, Society, and Sustainability **Credits:** 4 hours
- ENVS 2150 - Environmental Systems and Cycles **Credits:** 3 hours
OR
- ENVS 2250 - Environmental Ecology **Credits:** 3 hours
- FCS 3700 - Introduction to Food Systems and Sustainability **Credits:** 3 hours
- ENVS 4499 - Sustainable Brewing Capstone **Credits:** 3 hours

Brewing Track ONLY Courses (50 hours)

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- PHYS 1070 - Elementary Physics **Credits:** 4 hours
- PHYS 1080 - Elementary Physics Laboratory **Credits:** 1 hour
- BIOS 1600 - Biological Form and Function **Credits:** 3 hours
- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- BIOS 1620 - Ecology and Evolution **Credits:** 4 hours
- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour
- BIOS 2500 - Genetics **Credits:** 4 hours
- BIOS 3120 - Microbiology **Credits:** 5 hours
- BIOS 5235 - Fermentation **Credits:** 3 hours

Electives (6 hours)

Chosen from a preferred course list in consultation with and approval by the CAS advising office.

Operations Track ONLY Courses (38 hours)

- BUS 1750 - Business Enterprise **Credits:** 3 hours

- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- ACTY 2110 - Principles of Accounting II **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- MKTG 2900 - Introduction to Food and CPG Industries **Credits:** 3 hours
- FCS 4700 - Food and Beverage Systems **Credits:** 3 hours
- FCS 4720 - Farm to Table and Sustainability **Credits:** 3 hours

Electives (12 hours)

Chosen from a preferred course list in consultation with and approval by the CAS advising office.

Note

Appropriate substitutions for related coursework or experiences focused on sustainable brewing may be approved by the CAS advising office.

Advising

Given the interdisciplinary nature of this program, it is very important that students work regularly with program advisors. Students should work closely with a program advisor to identify appropriate electives. Students should consult the program website for current advising information and appointments. Transfer students should consult the relevant transfer guides and meet with a program advisor to discuss specific course equivalencies.

Academic Standards

Students in this program must earn a grade of "C" or better in all courses counted toward the major, including those transferred to WMU. A minimum of 30 hours counted towards the major must be completed at WMU.

Minors

Environmental and Sustainability Studies Minor (18 hours minimum)

This minor is offered to students who seek insight into the nature of the environment and into the complexity of environmental problems, but who do not have time to be a major.

Academic Standards

Students in this program must earn a grade of "C" or better in all courses counted toward their major.

Entry Options (4 hours minimum)

- ENVS 2050 - Nature, Society, and Sustainability **Credits:** 4 hours
- ENVS 3000 - Introduction to Sustainability: A Local to Global Survey **Credits:** 3 hours
(The Honors Cluster section is also applicable)

Domains

The remaining 14-15 hours will be completed by choosing not more than one elective course in each of the domains listed below. One of these elective courses must be completed in either the Biological or Physical Science domain.

Physical Science Domain (3 hours)

- ENVS 2150 - Environmental Systems and Cycles **Credits:** 3 hours
- GEOS 2320 - Integrated Earth System Studies **Credits:** 3 hours

Biological Science Domain (3 hours)

- BIOS 1050 - Environmental Biology **Credits:** 3 hours
Honors Section Only
(BIOS 1050 must be taken with ENVS 2260 for 4 credit hours total)
- ENVS 2260 - Field Environmental Ecology **Credits:** 1 hour
- BIOS 3010 - Ecology **Credits:** 5 hours
- ENVS 2250 - Environmental Ecology **Credits:** 3 hours

Historical Domain (3 hours)

- HIST 3180 - American Environmental History **Credits:** 3 hours

Cultural and Societal Domain (3 hours)

- ENVS 3600 - Environment and Culture **Credits:** 3 hours

Environmental Thought Domain (3 hours)

- ENVS 3200 - Major Environmental Writings **Credits:** 3 hours

Policy Domain (4 hours)

- ENVS 3400 - Environmental Policy **Credits:** 4 hours

Note:

Students are urged to see a Program advisor early in their course work.

Gender and Women's Studies

Ilana Nash, Chair
Main Office, 3061 Moore Hall
Telephone: (269) 387-2511

Cathryn Bailey
Peter Blickle
Susan Freeman
Jill Hermann-Wilmarth
Mariam Konaté
Christopher Nagle
Ángela Pérez-Villa
Staci Perryman-Clark
Jennifer Richardson
Jocelyn Steinke
Bilinda Straight

Gender and Women's Studies courses are open to all students and may fulfill WMU Essential Studies, major/minor, and elective requirements. Gender and Women's Studies courses encourage in students a spirit of inquiry and teach approaches to thought and action that prepare students to function effectively in a diverse, rapidly changing society. The organizing principle of the field is the concept of gender as a social construction; equally important are the categories of ethnicity, race, class, age, sexual identity, and nationality, and gender is always investigated within this context. Course work investigates the condition of women in societies, historically and currently, and approaches issues related to women and gender through multi-disciplinary and interdisciplinary methods. Gender and Women's Studies seeks to develop students' critical skills and creative potential in analyzing issues and conceiving solutions to problems regarding women and gender in a democratic society.

The Gender and Women's Studies major requires a minimum of 31 credit hours. Course work in the major includes an interdisciplinary core consisting of an introductory course, intermediate courses focusing on research and theory, and concluding courses providing research possibilities and practical experience. Further course work is to be selected from the list of approved electives in consultation with the Gender and Women's Studies advisor.

The Gender and Women's Studies minor brings an additional perspective to any field of study. It consists of 22 hours of course work, including the required Introduction to Women's Studies and other courses to be selected from Gender and Women's Studies core courses or the approved electives list.

In addition to the courses listed, students may pursue special interests and projects through independent studies, which offer variable credit hours for projects developed in consultation with the Gender and Women's Studies advisor.

Courses in Gender and Women's Studies at the 5000-level are designed to serve advanced undergraduate and graduate students. These courses provide the most advanced work in the program and are restricted to students with 12 hours in GWS approved courses, including GWS 2000, and at least junior status. Some courses impose further prerequisites and departmental approval. The 5000-level courses are also open to graduate students.

Bachelor of Arts

Gender and Women's Studies Major (31 hours)

A grade of "C" or better is required in all courses in the major.

Both of the following core courses (7 hours):

- GWS 2000 - Introduction to Gender and Women's Studies **Credits:** 4 hours
- GWS 4010 - Foundations of Feminist Theory **Credits:** 3 hours

At least one of the following 3000 level courses (3 hours):

- GWS 3200 - Women, Globalization and Social Change **Credits:** 3 hours
- GWS 3700 - Special Topics in Gender and Women's Studies **Credits:** 1 to 4 hours

At least one of the following 4000 Level GWS courses (3 hours):

- GWS 4100 - Special Topics in Gender and Women's Studies **Credits:** 1 to 4 hours
- GWS 4400 - Internship Seminar **Credits:** 3 hours
- GWS 4980 - Independent Study **Credits:** 1 to 4 hours

At least one of the following History courses (3 hours):

- HIST 3160 - Women in United States History **Credits:** 3 hours
- HIST 3310 - Queer History **Credits:** 3 hours
- HIST 3360 - Women in European History **Credits:** 3 hours

At least one of the following (3 hours):

- AAAS 3100 - The Black Woman: Historical Perspective and Contemporary Status **Credits:** 3 hours
- GWS 3480 - Gender and Plastic Bodies **Credits:** 3 hours
- COM 4790 - Gender and Communication **Credits:** 3 hours
- ECON 3090 - The Economics of Gender and Race **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours

Note:

Other courses that address issues associated with Gender and Women's Studies, including those outside the College of Arts and Sciences, may also count with the approval of the Chair of Gender and Women's Studies.

The remaining 12 hours should be taken from among the following:

- GWS 1000 - Media and the Sexes **Credits:** 3 hours
- GWS 2010 - LGBT Studies **Credits:** 3 hours
- GWS 3200 - Women, Globalization and Social Change **Credits:** 3 hours
- GWS 3400 - Race, Gender and Science **Credits:** 3 hours
- GWS 3480 - Gender and Plastic Bodies **Credits:** 3 hours
- GWS 3500 - Psychological Perspectives on Gender **Credits:** 3 hours
- GWS 3700 - Special Topics in Gender and Women's Studies **Credits:** 1 to 4 hours
- GWS 4010 - Foundations of Feminist Theory **Credits:** 3 hours
- GWS 4100 - Special Topics in Gender and Women's Studies **Credits:** 1 to 4 hours
- GWS 4400 - Internship Seminar **Credits:** 3 hours

- GWS 4980 - Independent Study **Credits:** 1 to 4 hours
- GWS 5970 - Issues in Gender and Women's Studies: Variable Topics **Credits:** 1 to 3 hours
- GWS 5980 - Readings in Gender and Women's Studies **Credits:** 1 to 4 hours
- AAAS 3100 - The Black Woman: Historical Perspective and Contemporary Status **Credits:** 3 hours
- AAAS 3900 - Women Writers in Contemporary Black Literature from the 19th Century to the Present **Credits:** 3 hours
- ANTH 2600 - Sex, Gender, Culture **Credits:** 3 hours
- ANTH 5220 - Poverty, Power, and Privilege **Credits:** 3 hours
- COM 3070 - Freedom of Expression **Credits:** 3 hours
- COM 4790 - Gender and Communication **Credits:** 3 hours
- DANC 4850 - Race, Gender, and Dance **Credits:** 3 hours
- ECON 3090 - The Economics of Gender and Race **Credits:** 3 hours
- ENGL 4160 - Women in Literature **Credits:** 4 hours
- ES 5980 - Queer Theory, Youth, and Education **Credits:** 3 hours
- FCS 2100 - Human Sexuality **Credits:** 3 hours
- FCS 3150 - Global Ecology of the Family **Credits:** 3 hours
- FCS 5680 - Gender, Culture, and Families **Credits:** 3 hours
- GER 3280 - Fear of the Other: Xenophobia and the Holocaust **Credits:** 3 hours
- HIST 3160 - Women in United States History **Credits:** 3 hours
- HIST 3310 - Queer History **Credits:** 3 hours
- HIST 3360 - Women in European History **Credits:** 3 hours
- HSV 3550 - Perspectives in Women's Health **Credits:** 3 hours
- NUR 3550 - Perspectives in Women's Health **Credits:** 3 hours
- PADM 2000 - Introduction to Public and Nonprofit Service **Credits:** 3 hours
- PADM 3000 - Foundations of Nonprofit Management **Credits:** 3 hours
- PADM 4950 - Public and Nonprofit Administration Capstone **Credits:** 3 hours
- PHIL 3150 - Race and Gender Issues **Credits:** 3 hours
- PSCI 3530 - Women and Politics **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours
- REL 3170 - Religion and Gender **Credits:** 4 hours

Additional information:

No more than 7 total hours of elective credits below the 3000 level may count toward the major.

Minors

Gender and Women's Studies Minor (22 hours)

Required Courses:

The 2000 level introduction:

- GWS 2000 - Introduction to Gender and Women's Studies **Credits:** 4 hours

Electives (18 hours)

The remaining 18 hours should be taken from among the following:

- GWS 1000 - Media and the Sexes **Credits:** 3 hours
- GWS 2010 - LGBT Studies **Credits:** 3 hours
- GWS 3200 - Women, Globalization and Social Change **Credits:** 3 hours
- GWS 3400 - Race, Gender and Science **Credits:** 3 hours
- GWS 3480 - Gender and Plastic Bodies **Credits:** 3 hours
- GWS 3500 - Psychological Perspectives on Gender **Credits:** 3 hours
- GWS 3700 - Special Topics in Gender and Women's Studies **Credits:** 1 to 4 hours
- GWS 4010 - Foundations of Feminist Theory **Credits:** 3 hours
- GWS 4100 - Special Topics in Gender and Women's Studies **Credits:** 1 to 4 hours
- GWS 4400 - Internship Seminar **Credits:** 3 hours
- GWS 4980 - Independent Study **Credits:** 1 to 4 hours
- GWS 5970 - Issues in Gender and Women's Studies: Variable Topics **Credits:** 1 to 3 hours
- GWS 5980 - Readings in Gender and Women's Studies **Credits:** 1 to 4 hours
- AAAS 3100 - The Black Woman: Historical Perspective and Contemporary Status **Credits:** 3 hours
- AAAS 3900 - Women Writers in Contemporary Black Literature from the 19th Century to the Present **Credits:** 3 hours
- ANTH 2600 - Sex, Gender, Culture **Credits:** 3 hours
- ANTH 5220 - Poverty, Power, and Privilege **Credits:** 3 hours
- COM 3070 - Freedom of Expression **Credits:** 3 hours
- COM 4790 - Gender and Communication **Credits:** 3 hours
- DANC 4850 - Race, Gender, and Dance **Credits:** 3 hours
- ECON 3090 - The Economics of Gender and Race **Credits:** 3 hours
- ENGL 4160 - Women in Literature **Credits:** 4 hours
- ES 5980 - Queer Theory, Youth, and Education **Credits:** 3 hours
- FCS 2100 - Human Sexuality **Credits:** 3 hours
- FCS 3150 - Global Ecology of the Family **Credits:** 3 hours
- FCS 5680 - Gender, Culture, and Families **Credits:** 3 hours
- GER 3280 - Fear of the Other: Xenophobia and the Holocaust **Credits:** 3 hours
- HIST 3160 - Women in United States History **Credits:** 3 hours
- HIST 3310 - Queer History **Credits:** 3 hours
- HIST 3360 - Women in European History **Credits:** 3 hours
- HSV 3550 - Perspectives in Women's Health **Credits:** 3 hours
- NUR 3550 - Perspectives in Women's Health **Credits:** 3 hours
- PADM 2000 - Introduction to Public and Nonprofit Service **Credits:** 3 hours
- PADM 3000 - Foundations of Nonprofit Management **Credits:** 3 hours
- PADM 4950 - Public and Nonprofit Administration Capstone **Credits:** 3 hours
- PHIL 3150 - Race and Gender Issues **Credits:** 3 hours
- PSCI 3530 - Women and Politics **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours
- REL 3170 - Religion and Gender **Credits:** 4 hours

Geography, Environment, and Tourism

Chair

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Modern geography provides understanding of the physical and socio-cultural systems of planet earth. Specialized majors prepare students for careers in urban, regional and environmental planning; environmental analysis and resource management; geographic information science; tourism and travel; climate science; and geographic education.

Students should complete at least 14 hours of geography courses and have junior or senior standing before enrolling in 5000-level courses. Students should consult with a geography advisor early in their major to plan their program of study. Additional information is also available from the geography website, brochures, and department bulletin boards. All majors in the Department of Geography, Environment, and Tourism satisfy the baccalaureate-level writing requirement by completing successfully GEOG 3030.

Bachelor of Arts

Tourism and Travel Major (32 hours)

The Tourism major is designed for students planning to pursue careers in the tourism industry. The major is composed of 20 credit hours of required core courses; at least three elective courses; and one of the following: a professional internship, a research experience, independent study, or a study abroad experience.

Required (20 hours)

- GEOG 1000 - World Ecological Problems and Man **Credits:** 4 hours
- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours

- GEOG 3100 - Introduction to Tourism **Credits:** 3 hours
- GEOG 4080 - Tourism Marketing **Credits:** 3 hours
(Satisfies Baccalaureate-level Writing Requirement)
- GEOG 4180 - Tourism Planning and Development **Credits:** 3 hours

Electives (9 - 11 hours)

You may enroll for up to two regional geography courses. Select additional elective courses to complete the major from the list below. Other elective courses may be permissible with the consent of the undergraduate advisor. Consult with the undergraduate advisor about your plan.

Regional Geography Courses

- GEOG 3800 - United States and Canada **Credits:** 3 hours
- GEOG 3810 - South America **Credits:** 3 hours
- GEOG 3820 - Mexico and the Caribbean **Credits:** 3 hours
- GEOG 3830 - Geography of Europe **Credits:** 3 hours
- GEOG 3860 - Geography of Africa **Credits:** 3 hours
- GEOG 3890 - Monsoon Asia **Credits:** 3 hours
- GEOG 3900 - China, Japan, and Korea: Lands and Cultures **Credits:** 3 hours

Other Courses

- GEOG 1020 - World Geography through Media and Maps **Credits:** 3 hours
- GEOG 2440 - Economic Geography **Credits:** 3 hours
- GEOG 2650 - Introduction to Geospatial Technologies **Credits:** 3 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
- GEOG 3030 - Geographic Inquiry **Credits:** 4 hours
- GEOG 3200 - Culinary Tourism **Credits:** 3 hours
- GEOG 5000 - Advanced Tourism Studies **Credits:** 3 hours

Non-Classroom Experience (1 - 16 hours)

You must enroll in one of the following non-classroom experiences.

- GEOG 4120 - Professional Practice **Credits:** 1 to 3 hours
- GEOG 5970 - Independent Study **Credits:** 1 to 3 hours
- INTL 3300 - Education Abroad - WMU Programs **Credits:** 1 to 19 hours
(only 3 to 6 hours will count for the major)

Note:

The following minors are recommended to accompany the major concentration in Tourism and Travel: World Languages and Literatures, Communication, Journalism, English (Rhetoric and Writing Studies), History, Public History, Global and International Studies, Marketing, Advertising, Real Estate, General Business, or Event Planning.

Bachelor of Arts or Bachelor of Science

Geography Major (30-32 hours)

Required Core Courses (24 hours)

- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours
- GEOG 2440 - Economic Geography **Credits:** 3 hours
- GEOG 2650 - Introduction to Geospatial Technologies **Credits:** 3 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
- GEOG 3030 - Geographic Inquiry **Credits:** 4 hours
(Satisfies Baccalaureate-Level Writing requirement.)

And

One of the following regional geography classes:

- GEOG 3800 - United States and Canada **Credits:** 3 hours
- GEOG 3810 - South America **Credits:** 3 hours
- GEOG 3820 - Mexico and the Caribbean **Credits:** 3 hours
- GEOG 3830 - Geography of Europe **Credits:** 3 hours
- GEOG 3860 - Geography of Africa **Credits:** 3 hours
- GEOG 3890 - Monsoon Asia **Credits:** 3 hours
- GEOG 3900 - China, Japan, and Korea: Lands and Cultures **Credits:** 3 hours

Major Tracks (Choose One)

A. Geography

In addition to the Department's Core Requirements (see above), you will complete 6-8 hours of approved electives. These may be selected from appropriate geography courses as approved by the Department of Geography undergraduate advisor. This track examines the distribution patterns of physical environment and human activities of the world at local, regional, and global scales. Students will gain basic and comprehensive understanding of the spatial variability of the physical environment, human economic resource use and regional strength of different parts of the globe.

B. Geography Education

In addition to the Department's Core Requirements (see above), you will complete courses in five disciplinary areas. The track in Geography Education prepares students for the master's program in secondary education that is usually necessary for secondary school employment. The track will also prepare students for employment in the informal education sector should they decide to refocus their major prior to attaining the master's degree. Opportunities to experience geography education through both formal and informal experiences are possible while completing the track through options for practical experiences and internships.

Area I: Introductory level core courses (21 hours)

- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours
- GEOG 2440 - Economic Geography **Credits:** 3 hours
- GEOG 2650 - Introduction to Geospatial Technologies **Credits:** 3 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
- GEOG 3030 - Geographic Inquiry **Credits:** 4 hours

Area II: Regional and Systematic course required (3 hours)

One course:

- GEOG 3500 - Conservation and Environmental Management **Credits:** 3 hours

Area III: Regional courses required (6 hours)

- GEOG 1020 - World Geography through Media and Maps **Credits:** 3 hours
- GEOG 3800 - United States and Canada **Credits:** 3 hours

Area IV: Electives in Regional Geography (6 hours)

Two courses to be selected from the following six courses.

- GEOG 3810 - South America **Credits:** 3 hours
- GEOG 3820 - Mexico and the Caribbean **Credits:** 3 hours
- GEOG 3830 - Geography of Europe **Credits:** 3 hours
- GEOG 3860 - Geography of Africa **Credits:** 3 hours
- GEOG 3890 - Monsoon Asia **Credits:** 3 hours
- GEOG 3900 - China, Japan, and Korea: Lands and Cultures **Credits:** 3 hours

Area V: Geography Education Practical Experience (3 to 6 hours)

One of the following non-classroom experiences is required.

- GEOG 4120 - Professional Practice **Credits:** 1 to 3 hours
- GEOG 5970 - Independent Study **Credits:** 1 to 3 hours

Note:

Successful completion of this track prepares student for graduate-level work leading to teaching certification, but does not fulfill all requirements for teaching certification. Please consult the College of Education's revised secondary education guidelines for more information.

Bachelor of Science

Community and Regional Planning

Admission to this major is suspended - Please see the Urban, Regional and Environmental Planning concentration under the Geography major.

The B.S. in Community and Regional Planning program prepares students to be professional planners who have strong foundations in theory and practice of urban and regional planning with particular focus on small cities and their regional communities. Prospective students will complete 32 credits of core courses in planning theory, history, techniques, methods, ethics, law, and administration. In addition, they will complete 25 credits of required courses from cognate social science disciplines and statistics, to gain additional knowledge and skills relevant to planning. After that students will take 12 elective credits in one of the following areas: environmental analysis and resource management, local economic development, tourism development and planning, local government, and application of geographic techniques to planning. Students will also have the opportunity to gain pre-professional practical experience through internships. There will be no minor required for the program.

Required Core Courses (32 credits)

- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
- CORP 3030 - Planning Inquiry **Credits:** 4 hours
(Satisfies Baccalaureate-Level Writing requirement)
- CORP 4120 - Professional Practice (Internship) **Credits:** 3 hours

Required From Outside Planning (25 credits)

- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours
- GEOG 2440 - Economic Geography **Credits:** 3 hours
- GEOG 2650 - Introduction to Geospatial Technologies **Credits:** 3 hours
- PSCI 3000 - Urban Politics in the United States **Credits:** 3 hours

And one of the following:

- STAT 2160 - Business Statistics **Credits:** 3 hours
or
- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
or
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Electives (12 credits)

- ECON 3190 - Environmental Economics **Credits:** 3 hours
- ECON 5880 - Economic Development **Credits:** 3 hours
- GEOG 3100 - Introduction to Tourism **Credits:** 3 hours
- GEOG 3500 - Conservation and Environmental Management **Credits:** 3 hours
- GEOG 4080 - Tourism Marketing **Credits:** 3 hours
- GEOG 4180 - Tourism Planning and Development **Credits:** 3 hours
- GEOG 5440 - Studies in Economic Geography **Credits:** 2 to 3 hours
- GEOG 5530 - Water Resources Management **Credits:** 3 hours
- GEOG 5570 - Environmental Impact Assessment **Credits:** 3 hours

- GEOG 5670 - Spatial Analysis **Credits:** 3 hours
- GEOG 5690 - Geodatabase Design and GIS Workflows **Credits:** 4 hours
- GEOG 5820 - Remote Sensing of the Environment **Credits:** 4 hours
- HIST 4100 - Historic Preservation **Credits:** 3 hours
- PADM 2000 - Introduction to Public and Nonprofit Service **Credits:** 3 hours
- PADM 3000 - Foundations of Nonprofit Management **Credits:** 3 hours
- PADM 4950 - Public and Nonprofit Administration Capstone **Credits:** 3 hours
- PADM 4100 - Internship in Public and Nonprofit Administration **Credits:** 1 to 8 hours
- PADM 5830 - Grant Writing **Credits:** 3 hours
- PADM 5840 - Nonprofit Marketing and Development **Credits:** 3 hours
- PSCI 2020 - State and Local Government **Credits:** 4 hours
- PSCI 3040 - Introduction to Public Policy **Credits:** 3 hours
- PSCI 3060 - Environmental Politics **Credits:** 4 hours

Note:

The major does not require a minor, but students may choose additional electives outside the above list with the help of the Undergraduate Advisor.

Geography: Climate Science (32 hours)

The Climate Science major prepares students for a variety of Climate Science related careers. Students take core courses in physical and human geography, climate and meteorology, and elective courses and techniques in the climatology field.

Required Core Courses (25 hours)

- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours
- GEOG 2650 - Introduction to Geospatial Technologies **Credits:** 3 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
- GEOG 3030 - Geographic Inquiry **Credits:** 4 hours
(Satisfies Baccalaureate-Level Writing requirement)
- GEOG 2250 - Introduction to Meteorology and Climatology **Credits:** 4 hours
- GEOG 4250 - Climatology **Credits:** 3 hours

Electives (7 hours)

The remaining 7 hours may be selected from 2000-level and above geography courses as approved by the Department of Geography undergraduate advisor.

Geography: Environmental Analysis and Resource Management (32 hours)

The Environmental Analysis and Resource Management major prepares students for a variety of environmental careers. Students take core courses in physical and human geography, environmental analysis and management and elective courses and techniques and applications of environmental analysis.

Required Core Courses (24 hours)

- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours
- GEOG 2650 - Introduction to Geospatial Technologies **Credits:** 3 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
- GEOG 3030 - Geographic Inquiry **Credits:** 4 hours
(Satisfies Baccalaureate-Level Writing requirement)
- GEOG 3500 - Conservation and Environmental Management **Credits:** 3 hours
- GEOG 5570 - Environmental Impact Assessment **Credits:** 3 hours

Electives (8 hours)

The remaining 8 hours may be selected from 2000-level and above geography courses as approved by the Department of Geography undergraduate advisor.

Geography: Geographic Information Science (32 hours)

The Geography: Geographic Information Science major provides students with a strong technical background in quantitative geographic analysis, geographic information systems, remote sensing, global navigational satellite systems, and related mapping technologies. Students who complete the major will be able to acquire, manage, analyze, visualize, and represent geospatial data, or information related to geographical locations.

Required Core Courses (25-26 hours)

- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours
- GEOG 2650 - Introduction to Geospatial Technologies **Credits:** 3 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
- GEOG 3030 - Geographic Inquiry **Credits:** 4 hours
(Satisfies Baccalaureate-Level Writing requirement)
- GEOG 5820 - Remote Sensing of the Environment **Credits:** 4 hours

And one of the following GIS classes:

- GEOG 4670 - GIS Projects and Programming **Credits:** 3 hours
- GEOG 4685 - Internet GIS **Credits:** 3 hours
- GEOG 5690 - Geodatabase Design and GIS Workflows **Credits:** 4 hours

Electives (6-7 hours)

The remaining 6 to 7 hours may be selected from 2000-level and above geography courses as approved by the Department of Geography undergraduate advisor.

Geography: Urban, Regional and Environmental Planning (32 hours)

The Geography: Urban, Regional and Environmental Planning major prepares students to be professional planners, who have strong foundations in the theory and practice of urban, regional, and environmental planning. Prospective students will complete 32 credit hours of core and elective courses in planning, geography, and other related disciplines that will equip them with the knowledge and skills needed to function as successful planners. Students will also have the opportunity to pick a minor that will complement their future career goals as planners.

Required Core Courses (24 hours)

- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours
- GEOG 2650 - Introduction to Geospatial Technologies **Credits:** 3 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
- GEOG 3030 - Geographic Inquiry **Credits:** 4 hours
(Satisfies Baccalaureate-Level Writing requirement)
- GEOG 2560 - Introduction to Urban, Regional, and Environmental Planning **Credits:** 3 hours
- GEOG 5582 - Planning Studio **Credits:** 3 hours

Electives (8 hours)

The remaining 8 hours may be selected from 2000-level and above geography courses as approved by the Department of Geography undergraduate advisor.

Minors

Geographic Information Science Minor (19-21 hours)

The Geographic Information Science minor provides a grounding in geographical representation and analysis techniques. Areas of study include cartography, remote sensing, and geographical information systems. This minor provides a unique opportunity to combine and understand the interrelationships among the various aspects of Geographic Information Science through an integrated program.

Required Core Courses (7 hours)

- GEOG 2650 - Introduction to Geospatial Technologies **Credits:** 3 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
OR
- GEOG 5010 - Introduction to Geographic Information Systems **Credits:** 4 hours

Electives (12-14 hours) Choose four:

- GEOG 4670 - GIS Projects and Programming **Credits:** 3 hours
- GEOG 4685 - Internet GIS **Credits:** 3 hours

- GEOG 5630 - Surveying Techniques **Credits:** 4 hours
- GEOG 5670 - Spatial Analysis **Credits:** 3 hours
- GEOG 5690 - Geodatabase Design and GIS Workflows **Credits:** 4 hours
- GEOG 5830 - Remote Sensing **Credits:** 3 hours
- GEOG 5840 - Digital Photogrammetry **Credits:** 3 hours

Geography Minor (20 hours)

Required Core Courses (6 to 7 hours)

- GEOG 1050 - Physical Geography **Credits:** 4 hours
or
- GEOG 2050 - Human Geography **Credits:** 3 hours
- GEOG 2650 - Introduction to Geospatial Technologies **Credits:** 3 hours

Remaining (13 to 14 hours)

The remaining 13 to 14 hours will be selected with the consent of your advisor.

Geography Courses by Topic - Systematic Geography

- GEOG 1000 - World Ecological Problems and Man **Credits:** 4 hours
- GEOG 1020 - World Geography through Media and Maps **Credits:** 3 hours
- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 1900 - Exploring Earth Science: The Atmosphere **Credits:** 3 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours
- GEOG 2250 - Introduction to Meteorology and Climatology **Credits:** 4 hours
- GEOG 2440 - Economic Geography **Credits:** 3 hours
- GEOG 3060 - Climate Change: Past, Present, and Future **Credits:** 3 hours
- GEOG 3070 - Extreme Weather under Changing Climate **Credits:** 3 hours
- GEOG 3100 - Introduction to Tourism **Credits:** 3 hours
- GEOG 3200 - Culinary Tourism **Credits:** 3 hours
- GEOG 3260 - Atmospheric Energy and Motion **Credits:** 3 hours
- GEOG 3500 - Conservation and Environmental Management **Credits:** 3 hours
- GEOG 4030 - Planning Law and Administration **Credits:** 3 hours
- GEOG 4080 - Tourism Marketing **Credits:** 3 hours
- GEOG 4180 - Tourism Planning and Development **Credits:** 3 hours
- GEOG 4240 - Biogeography **Credits:** 3 hours
- GEOG 4250 - Climatology **Credits:** 3 hours
- GEOG 4260 - Natural Disasters and Risk Management **Credits:** 3 hours
- GEOG 4300 - Climate Change and Geography **Credits:** 3 hours
- GEOG 4560 - Land Use and Environmental Planning **Credits:** 3 hours
- GEOG 5000 - Advanced Tourism Studies **Credits:** 3 hours
- GEOG 5436 - Transportation Planning **Credits:** 3 hours
- GEOG 5440 - Studies in Economic Geography **Credits:** 2 to 3 hours
- GEOG 5450 - Studies in Human Geography **Credits:** 2 to 3 hours

- GEOG 5530 - Water Resources Management **Credits:** 3 hours
- GEOG 5541 - Outdoor Recreation: Resources and Planning **Credits:** 3 hours
- GEOG 5550 - Contemporary Issues in Resources Management **Credits:** 3 hours
- GEOG 5570 - Environmental Impact Assessment **Credits:** 3 hours
- GEOG 5582 - Planning Studio **Credits:** 3 hours

Geography Courses by Topic - Regional Geography

- GEOG 3110 - Geography of Michigan **Credits:** 3 hours
- GEOG 3800 - United States and Canada **Credits:** 3 hours
- GEOG 3810 - South America **Credits:** 3 hours
- GEOG 3820 - Mexico and the Caribbean **Credits:** 3 hours
- GEOG 3830 - Geography of Europe **Credits:** 3 hours
- GEOG 3860 - Geography of Africa **Credits:** 3 hours
- GEOG 3890 - Monsoon Asia **Credits:** 3 hours
- GEOG 3900 - China, Japan, and Korea: Lands and Cultures **Credits:** 3 hours

Geography Courses by Topic - Geographic Methodology and Research

- GEOG 2650 - Introduction to Geospatial Technologies **Credits:** 3 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
- GEOG 3020 - Cartographic Design and Geovisualization **Credits:** 3 hours
- GEOG 3030 - Geographic Inquiry **Credits:** 4 hours
- GEOG 3100 - Introduction to Tourism **Credits:** 3 hours
- GEOG 4120 - Professional Practice **Credits:** 1 to 3 hours
- GEOG 4600 - Geospatial Technology in Teaching Geography and Social Studies **Credits:** 3 hours
- GEOG 4670 - GIS Projects and Programming **Credits:** 3 hours
- GEOG 4685 - Internet GIS **Credits:** 3 hours
- GEOG 5010 - Introduction to Geographic Information Systems **Credits:** 4 hours
- GEOG 5630 - Surveying Techniques **Credits:** 4 hours
- GEOG 5670 - Spatial Analysis **Credits:** 3 hours
- GEOG 5690 - Geodatabase Design and GIS Workflows **Credits:** 4 hours
- GEOG 5820 - Remote Sensing of the Environment **Credits:** 4 hours
- GEOG 5830 - Remote Sensing **Credits:** 3 hours
- GEOG 5840 - Digital Photogrammetry **Credits:** 3 hours
- GEOG 5970 - Independent Study **Credits:** 1 to 3 hours

Social Studies: Geography (coordinate minor) (21-24 hours)

The Social Studies: Geography (coordinate minor) requires the course of study indicated below. Students must complete the Social Studies major to fulfill the requirements of this minor.

Required Core (12-13 hours)

- GEOG 2650 - Introduction to Geospatial Technologies **Credits:** 3 hours
- GEOG 3110 - Geography of Michigan **Credits:** 3 hours

- GEOG 3800 - United States and Canada **Credits:** 3 hours

Select either:

Since GEOG 1050 or GEOG 2050 is required for the Social Studies Major, the other course not already taken will be required for the Geography minor - Social Studies major.

- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours

Additional Courses (9 hours)

Beyond the required core, the Geography Teaching Minor requires three additional courses in Geography at or above the 2000-level for a total of 24-25 hours.

Note:

Successful completion of this program leads to but does not fulfill all requirements for teaching certification. Please consult the College of Education's revised secondary education guidelines for more information.

Geological and Environmental Sciences

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Bachelor of Science

Earth Science Major (35-39 hours)

The Earth Science major is a flexible course of instruction for students desiring a broad understanding of the earth and environmental processes. There are two tracks within this major: Earth Science, and Earth Science Secondary Education. Both tracks share a required set of core courses and a set of cognates, with additional coursework specified in each track.

No grade below a "C" will be accepted in the required courses. A "C" average must be obtained across all cognate requirements.

Required Core Courses (18 credit hours)

- GEOS 1300 - Physical Geology **Credits:** 4 hours
- GEOS 1310 - Historical Geology **Credits:** 4 hours
- GEOS 2320 - Integrated Earth System Studies **Credits:** 3 hours
- GEOS 3010 - Minerals and Rocks **Credits:** 4 hours
- GEOS 5010 - Geologic Communications and Presentations **Credits:** 1 hour
- GEOS 5650 - Geological Field Methods **Credits:** 1 hour
- GEOS 5660 - Geological Field Studies **Credits:** 1 hour

Required Electives (17-21 credit hours)

The elective credit hours are unique to each of the two tracks described below. Many of these courses are proscribed for the Earth Science Secondary Education Track.

Required Cognate Courses (13 hours)

A College-Level Chemistry Course

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour

A College-Level Physics Course

- PHYS 1070 - Elementary Physics **Credits:** 4 hours
And
- PHYS 1080 - Elementary Physics Laboratory **Credits:** 1 hour
OR
- PHYS 1130 - General Physics I **Credits:** 4 hours
And
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour

And

- MATH 1180 - Precalculus Mathematics **Credits:** 4 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the Earth Science Major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:

- GEOS 4320 - Geomorphology **Credits:** 3 hours
OR
- GEOS 4350 - Sedimentation and Stratigraphy **Credits:** 4 hours

Choose one track:

(A) Earth Science Track (35 hours)

The Earth Science track is interdisciplinary in nature and offers students an opportunity to select approved courses from several science departments, including Geographical and Environmental Sciences, Engineering, Biological Sciences, Geography, Chemistry, and Physics. Courses are selected in consultation with the earth science advisor to design programs that are tailored to the individuals' needs and professional objectives. Elective courses must be approved by the advisor.

The Earth Science track is not recommended as a stand-alone program. It should be undertaken by students who are taking a double major (e.g., Environmental Science, Law, Business, Engineering, etc.).

For employment in geosciences with this degree alone, as many as possible of the following courses are highly recommended (note that many of these courses have prerequisites beyond those in this track):

- GEOS 4320 - Geomorphology **Credits:** 3 hours
- GEOS 5120 - Principles of Hydrogeology **Credits:** 3 hours
- GEOS 5210 - Geological and Environmental Remote Sensing **Credits:** 4 hours

- GEOS 5230 - Hazardous Waste Operation and Emergency Response **Credits:** 1 hour
- GEOS 5240 - Remediation Design and Implementation **Credits:** 1 hour
- GEOS 5250 - Surface Geophysics **Credits:** 1 hour
- GEOS 5260 - Principles and Practices of Aquifer Testing **Credits:** 1 hour
- GEOS 5270 - Principles of Well Drilling and Installation **Credits:** 1 hour
- GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring **Credits:** 1 hour
- GEOS 5350 - GIS Applications in Geological and Environmental Sciences **Credits:** 3 hours
- GEOS 5550 - Introduction to Geochemistry **Credits:** 3 hours
- GEOS 5600 - Introduction to Geophysics **Credits:** 3 hours

Note:

Students in the Earth Science track may substitute GEOS 3550 (Mineralogy - 4 credits) for GEOS 3010 (Minerals and Rocks - 4 credits).

Electives (17 credit hours)

In addition to the core requirements and cognates, seventeen (17) hours of elective credit must be selected in consultation with the advisor. A minimum of six (6) elective hours for the track must be taken in the Geological and Environmental Sciences Department.

(B) Earth Science Secondary Education Track (39 hours)

The Earth Science Secondary Education track is designed to prepare students to teach in the areas of earth science, environmental science, astronomy, and oceanography in middle and high schools (grades 7-12). A second major in Integrated Science, or minor in another area of science (biology, chemistry, physics) or mathematics is strongly recommended.

Note: Successful completion of this track prepares students for graduate-level work leading to teaching certification. It does not fulfill all requirements for teaching certification. Please consult the college of Education's revised secondary education guidelines for more information.

In addition to the required Earth Science core and cognates, this track also requires the following courses (15 credit hours):

- GEOG 2250 - Introduction to Meteorology and Climatology **Credits:** 4 hours
- GEOS 3220 - Ocean Systems **Credits:** 3 hours
- PHYS 1030 - Sky and Solar System Laboratory **Credits:** 1 hour
- PHYS 1040 - Introduction to the Sky and Solar System **Credits:** 3 hours
- PHYS 1050 - Stars and Galaxies Laboratory **Credits:** 1 hour
- PHYS 1060 - Introduction to Stars and Galaxies **Credits:** 3 hours

Electives in Science or Education (6 credit hours)

Six (6) hours must be selected in consultation with the advisor.

Additional required cognate course for the Earth Science Secondary Education Track (4 credit hours)

- GEOG 1050 - Physical Geography **Credits:** 4 hours

Environmental Geology

The Environmental Geology major is designed to prepare students for careers in applied environmental sciences. Some graduates will work for environmental consulting firms. Others will work in business sectors such as corporate environmental stewardship companies. Environmental geology is a flexible but rigorous major that provides a broad background in basic and applied sciences as well as depth in environmental and geological sciences through required core courses. Ultimately the depth at the junior and senior levels depends on a student's interests in four areas from which electives are chosen. These include enhancing basic geology skills; applied geology skills; climate change; and hydrology. The major includes a capstone field experience, again drawn from a wide array of options to meet the student's individual interests.

A minimum of a "C" grade is required in all courses applied to this major.

Required courses (13 credit hours)

- GEOS 1300 - Physical Geology **Credits:** 4 hours
- GEOS 1310 - Historical Geology **Credits:** 4 hours
- GEOS 4350 - Sedimentation and Stratigraphy **Credits:** 4 hours
(This course satisfies Baccalaureate-Level Writing)
- GEOS 5010 - Geologic Communications and Presentations **Credits:** 1 hour

Select one of the following two core courses (4 credit hours)

- GEOS 3010 - Minerals and Rocks **Credits:** 4 hours
- GEOS 3350 - Mineralogy **Credits:** 4 hours

Select one of the following four core courses (3 credit hours)

- GEOS 1440 - Environmental Earth Science **Credits:** 3 hours
- ENV5 2150 - Environmental Systems and Cycles **Credits:** 3 hours
- GEOS 2320 - Integrated Earth System Studies **Credits:** 3 hours
- GEOS 3220 - Ocean Systems **Credits:** 3 hours

Upper-Level Electives (Take 15-16 credit hours from at least 2 areas)

Environmental Geology Basics

- GEOS 4300 - Structural Geology **Credits:** 3 hours
- GEOS 4320 - Geomorphology **Credits:** 3 hours
- GEOS 5430 - Petrology and Petrography **Credits:** 3 hours
- GEOS 5550 - Introduction to Geochemistry **Credits:** 3 hours
- GEOS 5600 - Introduction to Geophysics **Credits:** 3 hours

Methods and Applications in Environmental Geosciences

- GEOS 5210 - Geological and Environmental Remote Sensing **Credits:** 4 hours
- GEOS 5350 - GIS Applications in Geological and Environmental Sciences **Credits:** 3 hours
- GEOS 5700 - UAV's: Geophysical Applications **Credits:** 2 hours
- GEOS 5710 - UAV's: Geology and Environment **Credits:** 2 hours

Climate and Climate Change

- GEOG 2250 - Introduction to Meteorology and Climatology **Credits:** 4 hours
- GEOG 3260 - Atmospheric Energy and Motion **Credits:** 3 hours
- GEOS 5360 - Glacial Geology **Credits:** 3 hours

Additional Hydrology Issues

- GEOS 5060 - Introduction to Soils **Credits:** 3 hours
- GEOS 5090 - Surface Water Hydrology **Credits:** 3 hours
- GEOS 5120 - Principles of Hydrogeology **Credits:** 3 hours
- GEOS 5140 - Isotope Hydrology **Credits:** 3 hours
- GEOS 5450 - Hazardous Waste Remediation **Credits:** 3 hours

Summer Field Courses (take 6 credit hours)

- GEOS 5230 - Hazardous Waste Operation and Emergency Response **Credits:** 1 hour
- GEOS 5250 - Surface Geophysics **Credits:** 1 hour
- GEOS 5270 - Principles of Well Drilling and Installation **Credits:** 1 hour
- GEOS 5720 - UAV's: Geophysics and RS Lab **Credits:** 2 hours

Hazards and Earth Surface Field

- GEOS 5650 - Geological Field Methods **Credits:** 1 hour
- GEOS 5660 - Geological Field Studies **Credits:** 1 hour
- GEOS 5670 - Geological Field Mapping **Credits:** 1 hour

Additional Hydrology Field

- GEOS 5240 - Remediation Design and Implementation **Credits:** 1 hour
- GEOS 5260 - Principles and Practices of Aquifer Testing **Credits:** 1 hour
- GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring **Credits:** 1 hour

Required Supporting Courses

A minimum average of a "C" grade is required in all cognate courses applied to this major.

Required Cognate Courses for the major

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
AND
- PHYS 1130 - General Physics I **Credits:** 4 hours
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
- PHYS 1150 - General Physics II **Credits:** 4 hours
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour
OR
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
AND
- BIOS 1050 - Environmental Biology **Credits:** 3 hours
OR
- BIOS 1120 - Principles of Biology **Credits:** 3 hours
AND
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours

And choose two of the following courses (3-4 credit hours)

- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
AND
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour

Baccalaureate-Level Writing Requirement

Students who have chosen the Environmental Geology major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing the required courses.

Required Minor

The Group Science minor for Geology majors is recommended. Other options include Anthropology, Data Analysis, Biological Sciences, Chemistry, Computer Science, Economics, and Foreign Language, Geography, Mathematics, and Physics, or one can take a coordinate major in Environmental Sciences.

Geochemistry Major (67 hours) (Geological and Environmental Sciences) (GCMJ)

The Geological and Environmental Sciences and Chemistry Departments offer a program of study leading to a major in geochemistry. Students choosing this major will not be required to complete an additional minor. The geochemistry major is designed to meet the needs of students preparing for a professional career in geochemistry or environmental chemistry. Students contemplating a geochemistry major should contact the Geological and Environmental Sciences Department as early as possible for advising.

Geosciences Core (19 hours)

- GEOS 1300 - Physical Geology **Credits:** 4 hours
- GEOS 1310 - Historical Geology **Credits:** 4 hours
- GEOS 2320 - Integrated Earth System Studies **Credits:** 3 hours
- GEOS 3350 - Mineralogy **Credits:** 4 hours
- GEOS 5010 - Geologic Communications and Presentations **Credits:** 1 hour
- GEOS 5550 - Introduction to Geochemistry **Credits:** 3 hours

Chemistry Core (12 hours)

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour

Math Core (8 hours)

Either

- MATH 1220 - Calculus I **Credits:** 4 hours
or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours

And Either

- MATH 1230 - Calculus II **Credits:** 4 hours
or
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

Geosciences Electives (Choose at least 9 hours)

- An approved field course (up to 3 hrs. total)
- GEOS 4350 - Sedimentation and Stratigraphy **Credits:** 4 hours

fulfills the baccalaureate-level writing requirement

- GEOS 5020 - Problems in Geology and Earth Science **Credits:** 1 to 3 hours
- GEOS 5060 - Introduction to Soils **Credits:** 3 hours
- GEOS 5120 - Principles of Hydrogeology **Credits:** 3 hours
- GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring **Credits:** 1 hour
- GEOS 5430 - Petrology and Petrography **Credits:** 3 hours
- GEOS 5450 - Hazardous Waste Remediation **Credits:** 3 hours

Chemistry Electives (Choose at least 8 hours)

- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- CHEM 4310 - Physical Chemistry II **Credits:** 3 hours
- CHEM 4360 - Physical Chemistry Laboratory I **Credits:** 2 hours
fulfills the baccalaureate-level writing requirement
- CHEM 4370 - Physical Chemistry Laboratory II **Credits:** 1 hour
- CHEM 5090 - Topics in Chemistry **Credits:** 3 hours
- CHEM 5200 - Instrumental Methods in Chemistry **Credits:** 3 hours
- CHEM 5500 - Biochemistry I **Credits:** 3 hours

Math and General Sciences Electives (Choose at least 11 hours)

(hours cannot all be in the same department)

- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
- BIOS 3010 - Ecology **Credits:** 5 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- PHYS 3300 - Thermodynamics **Credits:** 3 hours
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours

Notes:

1. Either CHEM 3700/3710 or CHEM 3750-3780 will count toward the major
2. an outside geology field camp is strongly recommended.

Geology Major (GELJ) (38 hours)

Required Courses Hours

- GEOS 1300 - Physical Geology **Credits:** 4 hours
- GEOS 1310 - Historical Geology **Credits:** 4 hours
- GEOS 3350 - Mineralogy **Credits:** 4 hours
- GEOS 4300 - Structural Geology **Credits:** 3 hours
- GEOS 4350 - Sedimentation and Stratigraphy **Credits:** 4 hours
- GEOS 5010 - Geologic Communications and Presentations **Credits:** 1 hour
- GEOS 5430 - Petrology and Petrography **Credits:** 3 hours

Select one from the following:

- ENV5 2150 - Environmental Systems and Cycles **Credits:** 3 hours
- GEOS 2320 - Integrated Earth System Studies **Credits:** 3 hours

Select one from the following:

- GEOS 5550 - Introduction to Geochemistry **Credits:** 3 hours
- GEOS 5600 - Introduction to Geophysics **Credits:** 3 hours

Complete 6 credit hours of electives from the following:

- GEOS 4320 - Geomorphology **Credits:** 3 hours

AND/OR

Any 5000-level GEOS course(s), in consultation with the major advisor. Courses taken in fulfillment of the field requirement below, will not count toward this elective. However, additional 5000-level field courses may count toward this elective requirement.

Select 3 credit hours of field course(s) from the following:

- GEOS 5230 - Hazardous Waste Operation and Emergency Response **Credits:** 1 hour
- GEOS 5240 - Remediation Design and Implementation **Credits:** 1 hour
- GEOS 5250 - Surface Geophysics **Credits:** 1 hour
- GEOS 5260 - Principles and Practices of Aquifer Testing **Credits:** 1 hour
- GEOS 5270 - Principles of Well Drilling and Installation **Credits:** 1 hour
- GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring **Credits:** 1 hour
- GEOS 5650 - Geological Field Methods **Credits:** 1 hour
- GEOS 5660 - Geological Field Studies **Credits:** 1 hour
- GEOS 5670 - Geological Field Mapping **Credits:** 1 hour

Additional Information

A minimum of a “C” is required in each of the required Geology courses, and a “C” average in all cognate courses.

Baccalaureate-Level Writing Requirement

Students who have chosen the Geology major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:

- GEOS 4320 - Geomorphology **Credits:** 3 hours
- GEOS 4350 - Sedimentation and Stratigraphy **Credits:** 4 hours

Cognate Required Courses

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
and
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
and
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour

Select one from the following: (3-4 hours)

- BIOS 1050 - Environmental Biology **Credits:** 3 hours
- BIOS 1120 - Principles of Biology **Credits:** 3 hours

Computational Tools: Select one of the following two option (4 hours)

- CS 1110 - Computer Science I **Credits:** 4 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours

Select Either

- MATH 1220 - Calculus I **Credits:** 4 hours
or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours

Select Either

- MATH 1230 - Calculus II **Credits:** 4 hours
or
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

Select Either

- PHYS 1130 - General Physics I **Credits:** 4 hours
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
and
- PHYS 1150 - General Physics II **Credits:** 4 hours
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour

OR

- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
and
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Additional Information

Some modification of these requirements may be made in consultation with the student's departmental advisor.

Note:

Geology majors should elect minors in mathematics, computer science, chemistry, physics, or biology. Students electing one of the above minors must still complete all other cognate required courses. Students not electing one of the above minors may elect the group science minor for Geology majors.

Geophysics Major (GEPJ) (43 to 45 hours) (Geological and Environmental Sciences)

The Geological and Environmental Sciences and Physics Departments offer a program of study leading to a major in geophysics. Students choosing this program of study are also required to take mathematics courses, which correspond to a minor in mathematics. Students contemplating a geophysics major should contact these two departments as early as possible for advising. Students need to meet with advisors in both departments.

Major Core: (40 to 41 hours)

Geosciences (GEOS) (22 hours)

- GEOS 1300 - Physical Geology **Credits:** 4 hours
- GEOS 1310 - Historical Geology **Credits:** 4 hours
- GEOS 4300 - Structural Geology **Credits:** 3 hours
- GEOS 5010 - Geologic Communications and Presentations **Credits:** 1 hour
- GEOS 5600 - Introduction to Geophysics **Credits:** 3 hours
- GEOS 5650 - Geological Field Methods **Credits:** 1 hour
- GEOS 5660 - Geological Field Studies **Credits:** 1 hour
- GEOS 5670 - Geological Field Mapping **Credits:** 1 hour

Select one of the following two core courses:

- GEOS 3010 - Minerals and Rocks **Credits:** 4 hours
- GEOS 3350 - Mineralogy **Credits:** 4 hours

Physics (PHYS) (18 to 19 hours)

- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- PHYS 3090 - Introductory Modern Physics **Credits:** 4 hours
- PHYS 3100 - Introductory Modern Physics Lab **Credits:** 1 hour

Plus one of the following:

- PHYS 2500 - Waves and Optics **Credits:** 3 hours
- PHYS 3250 - Introduction to Astrophysics **Credits:** 3 hours
- PHYS 3300 - Thermodynamics **Credits:** 3 hours
- PHYS 3420 - Electronics **Credits:** 4 hours
- PHYS 4200 - Analytical Mechanics **Credits:** 3 hours
- PHYS 4400 - Electromagnetism **Credits:** 4 hours

Electives: (3 to 4 hours)

One elective from upper-level geosciences, physics, and engineering courses to be chosen with consent of advisor (3-4 hours).

Additional Information

A minimum grade of "C" is required in each of the required courses as well as in each of the prerequisites for all required courses.

Required Mathematics Minor (19 hours)

Select either:

- MATH 1220 - Calculus I **Credits:** 4 hours
or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(Recommended)

Select either:

- MATH 1230 - Calculus II **Credits:** 4 hours
or
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
(Recommended)

And

- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- MATH 5070 - Numerical Analysis I **Credits:** 3 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the Geophysics major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:

- ENGL 3050 - Professional Writing: Audience, Genre, and Workplace Cultures **Credits:** 4 hours
- GEOS 4320 - Geomorphology **Credits:** 3 hours
- GEOS 4350 - Sedimentation and Stratigraphy **Credits:** 4 hours

Required Cognate Courses (8 hours)

- CS 1110 - Computer Science I **Credits:** 4 hours

Select Either

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
and
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
OR
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
and
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour

Hydrogeology Major (75-79 hours)

The hydrogeology major gives individuals a strong background in math and the sciences, focusing on geology and hydrogeology. This major prepares students to enter graduate programs and the job market as hydrogeologists.

Required Core

Required Courses

A minimum of a “C” grade is required in the following courses.

- GEOS 1300 - Physical Geology **Credits:** 4 hours
- GEOS 1310 - Historical Geology **Credits:** 4 hours
- GEOS 2320 - Integrated Earth System Studies **Credits:** 3 hours
- GEOS 4350 - Sedimentation and Stratigraphy **Credits:** 4 hours
- GEOS 5010 - Geologic Communications and Presentations **Credits:** 1 hour
- GEOS 5120 - Principles of Hydrogeology **Credits:** 3 hours

Select one of the following two core courses:

- GEOS 3010 - Minerals and Rocks **Credits:** 4 hours
- GEOS 3350 - Mineralogy **Credits:** 4 hours

Hydrogeology Upper Level Electives (take 2 of 6):

- GEOS 4300 - Structural Geology **Credits:** 3 hours
- GEOS 4320 - Geomorphology **Credits:** 3 hours
- GEOS 5060 - Introduction to Soils **Credits:** 3 hours
- GEOS 5090 - Surface Water Hydrology **Credits:** 3 hours
- GEOS 5450 - Hazardous Waste Remediation **Credits:** 3 hours

Choose two courses from the list below and/or the four not selected from the list above:

- GEOS 5360 - Glacial Geology **Credits:** 3 hours
- GEOS 5550 - Introduction to Geochemistry **Credits:** 3 hours
- GEOS 5600 - Introduction to Geophysics **Credits:** 3 hours

Hydrogeology Summer Field Courses:

- GEOS 5230 - Hazardous Waste Operation and Emergency Response **Credits:** 1 hour
- GEOS 5240 - Remediation Design and Implementation **Credits:** 1 hour
- GEOS 5250 - Surface Geophysics **Credits:** 1 hour
(waived if GEOS 5640 is taken)
- GEOS 5260 - Principles and Practices of Aquifer Testing **Credits:** 1 hour
- GEOS 5270 - Principles of Well Drilling and Installation **Credits:** 1 hour
- GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring **Credits:** 1 hour

Cognate: Required Supporting Courses:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Either of the following two semester sequences:

- MATH 1220 - Calculus I **Credits:** 4 hours
AND
- MATH 1230 - Calculus II **Credits:** 4 hours

OR

- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
AND
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

Cognate: Supporting Tool Skills—choose two courses from the list below (6 credits):

- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
AND
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour
- GEOG 5010 - Introduction to Geographic Information Systems **Credits:** 4 hours
- GEOS 5210 - Geological and Environmental Remote Sensing **Credits:** 4 hours
- GEOS 5350 - GIS Applications in Geological and Environmental Sciences **Credits:** 3 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
OR
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours

Required Minor

The Group Science minor for Geology Majors is recommended. Other options include Anthropology, Data Analysis, Biological Sciences, Chemistry, Computer Science, Economics, any Foreign Language, Geography, Mathematics, and Physics, or one can take a coordinate major in Environmental Sciences.

Baccalaureate-Level Writing Requirement

Students who have chosen the Hydrogeology major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following:

- GEOS 4320 - Geomorphology **Credits:** 3 hours
- GEOS 4350 - Sedimentation and Stratigraphy **Credits:** 4 hours

Secondary Integrated Science Education Major (65-66 hours)

The Secondary Integrated Science Education major is designed for students preparing to teach science as integrated content in middle and high school (grades 6-12). This program is only available as a second major, and requires a first major in biology, chemistry, earth science, or physics secondary education. Any courses applied to the first major will be waived from this program.

No grade below a "C" will be accepted in the required courses.

Required Courses

Required Biology (14 hours)

- BIOS 1600 - Biological Form and Function **Credits:** 3 hours
- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- BIOS 1620 - Ecology and Evolution **Credits:** 4 hours
- BIOS 2500 - Genetics **Credits:** 4 hours

Required Chemistry (12 hours)

- CHEM 1100 - General Chemistry I **Credits:** 3 hours

- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour

Required Earth/Space Science (23 hours)

- GEOG 2250 - Introduction to Meteorology and Climatology **Credits:** 4 hours
- GEOS 1000 - Dynamic Earth **Credits:** 4 hours
OR
- GEOG 1050 - Physical Geography **Credits:** 4 hours
- PHYS 1030 - Sky and Solar System Laboratory **Credits:** 1 hour
- PHYS 1040 - Introduction to the Sky and Solar System **Credits:** 3 hours
- GEOS 1310 - Historical Geology **Credits:** 4 hours
- GEOS 2320 - Integrated Earth System Studies **Credits:** 3 hours
- GEOS 3010 - Minerals and Rocks **Credits:** 4 hours

Required Physics (10 hours)

- PHYS 1130 - General Physics I **Credits:** 4 hours
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
- PHYS 1150 - General Physics II **Credits:** 4 hours
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour

Required Pedagogy (6-7 hours)

- PHYS 4220 - Teaching and Learning in Physics **Credits:** 4 hours
- SCI 4040 - Teaching of Secondary Science **Credits:** 3 hours

Mathematics Cognate Requirement (4 hours)

- MATH 1180 - Precalculus Mathematics **Credits:** 4 hours
OR Higher level mathematics course work
OR STAT 3640 if pre-requisite mathematics requirements are met

Baccalaureate-Level Writing Requirement

Students who have chosen the Secondary Integrated Science Education major will satisfy the General Education Proficiency 2: Baccalaureate-Level Writing requirement by successfully completing the following course:

- ES 3950 - School and Society **Credits:** 3 hours

Undergraduate Certificate

Undergraduate Certificate in Applied Hydrogeology

The undergraduate Certificate in Applied Hydrogeology provides students with field, technical, and analytical skills that prepare them for successful careers in hydro- and environmental geology. Through online offerings, classroom and field studies students will learn how to collect environmental field data, water and sediment sampling techniques, the principles and practices of near-surface geophysics, drilling and water well installation methods, environmental assessment and hydrogeologic measurement techniques, field geochemistry, scientific writing, data presentation, data analysis, and problem-solving skills. Trained environmental professionals are needed to solve problems concerning drinking water supplies, wastewater treatment, water resources availability, subsurface contaminant transport, water quality and quantity assessment, the effects of climate and land-use change on water and wetland resources, and many other environmental issues. Employment opportunities may include work dealing with: environmental consulting, environmental regulations, hydrogeologic investigation, wetland mitigation, flood prediction, pollution abatement and remediation, and environmental geochemistry.

Coursework includes a minimum of 15 credit hours in the Geosciences.

Required

- GEOS 5120 - Principles of Hydrogeology **Credits:** 3 hours

All Hydrology field courses (6 hours)

- GEOS 5230 - Hazardous Waste Operation and Emergency Response **Credits:** 1 hour
- GEOS 5240 - Remediation Design and Implementation **Credits:** 1 hour
- GEOS 5250 - Surface Geophysics **Credits:** 1 hour
- GEOS 5260 - Principles and Practices of Aquifer Testing **Credits:** 1 hour
- GEOS 5270 - Principles of Well Drilling and Installation **Credits:** 1 hour
- GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring **Credits:** 1 hour

Select two of the following (6 hours)

- GEOS 4320 - Geomorphology **Credits:** 3 hours
- GEOS 5060 - Introduction to Soils **Credits:** 3 hours
- GEOS 5090 - Surface Water Hydrology **Credits:** 3 hours
- GEOS 5450 - Hazardous Waste Remediation **Credits:** 3 hours

Additional information

- Students must meet the course pre-requisites.
- The certificate is open to degree and non-degree students.
- In order to remain in good academic standing, undergraduate students must maintain a minimum GPA of 2.5. Students who fail to meet the program's criteria may be placed on probation or dismissed from the program.

Minors

Earth Science Minor (20 hours)

Required Courses:

- GEOS 2320 - Integrated Earth System Studies **Credits:** 3 hours

Select one from the following:

- GEOS 1300 - Physical Geology **Credits:** 4 hours
- GEOS 1000 - Dynamic Earth **Credits:** 4 hours

Select one from the following:

- GEOS 1310 - Historical Geology **Credits:** 4 hours
- GEOS 1900 - Evolution of Life - A Geological Perspective **Credits:** 4 hours

Electives

Nine (9) hours must be selected in consultation with the advisor. All elective hours for the minor must be taken in the Geological and Environmental Sciences Department.

Geology Minor (21 hours)

The Geology minor is designed as a supporting minor for students preparing to do professional work in the fields of chemistry, physics, engineering, zoology, botany, and geography. It cannot be combined with earth science as a major-minor or double minor relationship. A student may design a Geology minor for his/her specific need.

Required Courses Hours (11 hours)

- GEOS 1300 - Physical Geology **Credits:** 4 hours
- GEOS 1310 - Historical Geology **Credits:** 4 hours
- GEOS 2320 - Integrated Earth System Studies **Credits:** 3 hours

Select Either (7 credit hours):

- GEOS 3350 - Mineralogy **Credits:** 4 hours
- GEOS 5430 - Petrology and Petrography **Credits:** 3 hours
- OR
- GEOS 3010 - Minerals and Rocks **Credits:** 4 hours
- And one additional geology course selected with the consent of advisor.

Select (3 credit hours):

- And one additional geology course selected with the consent of advisor.

Group Science Minor for Geology Majors (26 hours)

The group science minor is designed for students not electing a mathematics, chemistry, physics, or biology minor. Some modification of these requirements may be made in consultation with the student's departmental advisor. This minor is not acceptable for education majors and minors.

Required Courses Hours

Biological Sciences (4 hours)

Either

- BIOS 1050 - Environmental Biology **Credits:** 3 hours
- BIOS 1100 - Biological Sciences Laboratory **Credits:** 1 hour

OR

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 1100 - Biological Sciences Laboratory **Credits:** 1 hour

OR

- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours

Chemistry (8 hours)

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour

Physics (10 hours)

Either

- PHYS 1130 - General Physics I **Credits:** 4 hours
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
- PHYS 1150 - General Physics II **Credits:** 4 hours
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour

OR

- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Electives

At least 4 credit hours selected from the physical or biological sciences with approval of student's advisor.

History

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Onaiwu Ogbomo
James Palmitessa
Angela Perez-Villa
Eli Rubin
John Saillant
Larry Simon
Anise Strong
Nathan Tabor
Wilson Warren
Victor Xiong
Takashi Yoshida

The Department of History offers several academic and professional programs with varying requirements. Students intending to major in history should meet at least once a semester with a faculty advisor in the department advising office, 4451 Friedmann, phone (269) 387-4659. For current advising hours and to schedule an appointment please visit the department's undergraduate advising home page wmich.edu/history/undergraduate/advising.

History majors lead to the degree of Bachelor of Arts. At least half of the minimum credit hour requirement for any major or minor must be earned at Western Michigan University. Only courses in which a grade of "C" or better is earned may be applied toward a major, minor, and required electives or cognates, including the last semester of requirements in a language other than English. Course work in allied social sciences and humanities is specified by curriculum. For additional information consult the Department of History Undergraduate Handbook.

The Department of History strongly encourages foreign study at one of WMU's international centers or in similar programs, and acquisition of skills in a language other than English beyond minimum program requirements. HIST 2900 is an orientation course in the historical professions, and to basic research and skills in the discipline and should be taken in the spring semester freshman year or fall semester sophomore year.

Honors in History

History majors may apply for and receive the Honors in History designation on their official transcript. At the time of application, history majors must have completed 30 credit hours in history including 6 hours in writing-intensive or 4000-level history courses. Applicants must also have completed at least 90 credit hours overall. At least half of all credit hours and all writing-intensive and 4000-level history courses used for the Honors designation must be completed at Western Michigan University. A minimum overall Western Michigan University GPA of 3.5 and a GPA of 3.75 in History is required for the Honors designation. Students must also submit the recommendation of a faculty mentor and a substantial writing sample that shows capacity for original thought in the interpretation, analysis, and effective communication of historical information. Additional information

about the Honors in History designation and application forms may be obtained in the Department of History Advising Office, 4451 Friedmann Hall. Information is also available at the Department of History website: wmich.edu/history/undergraduate.

Bachelor of Arts

History Major (36 hours)

1. Minimum grade of "C" in all course work required for the major, including required cognates.
2. Completion of 12 credit hours of required cognates.
3. Completion of a language through the 2010 level, by college/university course work or examination.
4. Completion of either HIST 1000 or 2020 **and** a class selected from the following: HIST 3000, 3101, 3102, 3260, 3265, 3490, 3500, 3510, 3531, 3600, 3604, 3606, 3611, 3612, 3662, 3700, 3702, 3762, 3766, 3880, 3882, 3884.
5. Completion of at least 3 hours of "writing-intensive" courses at the 3000-level. (See list of courses below.)
6. With permission of history faculty advisor, students may substitute advanced level (4000-level) history courses for intermediate level (3000-level) courses in the same chronological category.
7. Completion of at least 9 hours of courses at the 4000-level, with at least one course in the premodern category and one course in the modern category. Three hours of 4000-level courses must be Baccalaureate Writing.

Core Requirements:

1. Introductory level history courses (12 hours)

- HIST 2900 - The Historian's Craft: An Introduction to the Study of History **Credits:** 3 hours

Select either:

- HIST 1000 - Early Western World **Credits:** 3 hours
or
- HIST 1010 - Modern Western World **Credits:** 3 hours

Select either:

- HIST 2100 - American History to 1877 **Credits:** 3 hours
or
- HIST 2110 - American History since 1877 **Credits:** 3 hours

Select either:

- HIST 2020 - World History to 1500 **Credits:** 3 hours
or
- HIST 2030 - World History since 1500 **Credits:** 3 hours

2. Intermediate level history courses

15 hours including at least 3 hours of writing-intensive courses (See list of courses below). At least 3 hours must be taken from the premodern and modern categories.

3. Advanced level and Baccalaureate Writing history courses

- Students need to complete three courses (9 hours) at the 4000-level with at least one course that is in the premodern category and one course in the modern category.
- Students need to complete one (3 hour) 4000-level premodern or modern course that meets the baccalaureate-level writing requirement. Baccalaureate history courses are designated "(BW)" in the online schedule of classes.

Note: Students considering graduate school are strongly advised to select the Senior Thesis (HIST 4990) or 5000-level Seminar as their required advanced level baccalaureate history course.

Track Areas (select one):

A. History Track

In addition to the Department's Core Requirements, you will complete 12 hours of approved cognates and a foreign language through the fourth semester level. The History Track gives students an understanding of change and continuity over time in multiple thematic, chronological and geographical areas. Through a combination of advanced writing and elective coursework, students will acquire critical thinking skills and learn to analyze critically both primary and secondary sources, including both textual and material sources. Students who complete this track will also develop and refine their ability to communicate their knowledge and analysis of the past in written and oral formats.

Cognate Requirements:

- Four Humanities or Social Science Courses (12 hours) - Generally at the 3000-level that complement the area of emphasis in history. Appropriate cognates must be approved by a Department of History advisor.
- A foreign language through the fourth semester level (or equivalency) by University course work or by examination.

B. History, Secondary Education Track

In addition to the Department's Core Requirements, the History, Secondary Education Track requires the completion of 15 hours of approved cognates, and a foreign language through the fourth semester level. The History, Secondary Education Track will prepare you for a career as a middle or high school history teacher. You will develop the contextual grounding, theoretical frameworks, and research practices, necessary to develop lesson plans. Targeted out-of-class experiences will put this knowledge to immediate use as you hone your abilities in the classroom.

Note: successful completion of this program leads to but does not fulfill all requirements for teaching certification. Please consult the College of Education's revised secondary education guidelines for more information.

1. History and Non-History Cognates

Complete 15 hours of approved cognate coursework through a combination of coursework in and outside of the department. All cognate courses must be approved prior to registration. The non-history cognates may be planned as the equivalent of a minor in another discipline in the College of Arts and Sciences. Students are encouraged to take one or more courses from the College of Education's post-baccalaureate teaching certification program; please consult the Department advisor for additional information.

2. Internship/Work Experiences (6 hours)

All minors must complete 6 credits of HIST 4950 - Internship. You must confer with the Department's Internship Supervisor before registering for HIST 4950. Projects completed outside of the direction of the Internship supervisor will not be awarded credit.

3. Foreign Language

A foreign language through the second semester level (or equivalency) by University course work or examination.

Writing Intensive and Baccalaureate Writing Courses - History

Writing Intensive Courses

Prerequisite: HIST 2900 or instructor approval.

- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours

Baccalaureate Writing Courses

- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
- HIST 4010 - Environment and History **Credits:** 3 hours
- HIST 4016 - History of Material Life **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours

Courses by Chronological Category - History

Premodern

- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3490 - Ancient Near East **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3600 - The Medieval World: Society and Culture **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3880 - Introduction to African Civilization **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours
- HIST 4380 - Topics in History **Credits:** 3 hours

Modern

- HIST 3010 - Modern Arts and Ideas **Credits:** 3 hours
- HIST 3015 - History and Film **Credits:** 3 hours
- HIST 3060 - Technology and Culture **Credits:** 3 hours
- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3130 - The U.S. and the World **Credits:** 3 hours
- HIST 3150 - Popular Art and Architecture in America **Credits:** 3 hours
- HIST 3160 - Women in United States History **Credits:** 3 hours
- HIST 3180 - American Environmental History **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours

- HIST 3200 - American Military History **Credits:** 3 hours
- HIST 3230 - History of Healthcare in the United States **Credits:** 3 hours
- HIST 3260 - Native American History and Culture **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3280 - African-American History and Culture **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3290 - Michigan History **Credits:** 3 hours
- HIST 3300 - Canadian History and Culture **Credits:** 3 hours
- HIST 3330 - The World since 1945 **Credits:** 3 hours
- HIST 3360 - Women in European History **Credits:** 3 hours
- HIST 3404 - Introduction to Public History **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3630 - History of Modern Britain **Credits:** 3 hours
- HIST 3640 - Modern Europe: Culture and Society **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- HIST 3760 - Modern East Asia **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3790 - World War II in American and Japanese History **Credits:** 3 hours
- HIST 3850 - Modern Middle East **Credits:** 3 hours
- HIST 3981 - Directed Reading in History **Credits:** 1 to 3 hours
- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4010 - Environment and History **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4016 - History of Material Life **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4060 - Archives Administration **Credits:** 3 hours
- HIST 4080 - Museum Studies **Credits:** 3 hours
- HIST 4100 - Historic Preservation **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4380 - Topics in History **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours
(Baccalaureate Writing course)

Public History Major

This program is designed to prepare students for entry-level positions in fields of public history such as museum and archival administration, preservation/restoration work, interpretation, consulting, and applied research.

Major Requirements:

- Minimum of 63 hours in history and approved electives from other departments selected from categories listed below.
- Minimum grade of "C" in all course work required for the major, including electives and required cognates.
- Completion of at least 3 hours of "writing-intensive" courses at the 3000-level. (See list of courses below).
- With permission of the advisor, students may substitute advanced (4000-level) history courses for intermediate level (3000-level) courses in the same chronological category, providing the student has the appropriate prerequisite.
- Completion of one (3 hour) 4000-level Baccalaureate Writing course.
- Completion of three required 4000-level Public History courses.
- No minor required.

1. Introductory level history courses (9 hours)

- HIST 2900 - The Historian's Craft: An Introduction to the Study of History **Credits:** 3 hours

Select either:

- HIST 2100 - American History to 1877 **Credits:** 3 hours
or
- HIST 2110 - American History since 1877 **Credits:** 3 hours

Choose one of the following:

- HIST 1000 - Early Western World **Credits:** 3 hours
- HIST 1010 - Modern Western World **Credits:** 3 hours
- HIST 2020 - World History to 1500 **Credits:** 3 hours
- HIST 2030 - World History since 1500 **Credits:** 3 hours

2. Intermediate level history courses

15 hours, including 3 credit hours of writing-intensive courses (See list of courses below). HIST 3404 is required and one course must be chosen from either HIST 3150 or HIST 3180. In addition, at least one (3 credit hour) course must be from the premodern category and one (3 credit hour) from the modern category.

- HIST 3404 - Introduction to Public History **Credits:** 3 hours
- 3000-level ANY AREA **Credits:** 3 hours
- 3000-level ANY AREA **Credits:** 3 hours
- 3000-level (U.S.) AREA **Credits:** 3 hours

3. Advanced level history courses (6 hours)

One 4000-level Baccalaureate Writing course is required. One 4000-level course must be from the premodern category and one from the modern category. Baccalaureate Writing courses are designed "(BW)" in the online schedule of classes. 4000-level prerequisite: one 3000-level writing intensive course or instructor approval.

4. Public History core courses (9 hours):

- HIST 4060 - Archives Administration **Credits:** 3 hours
- HIST 4080 - Museum Studies **Credits:** 3 hours
- HIST 4100 - Historic Preservation **Credits:** 3 hours

5. Electives (18 hours)

Consult the History Advising Office and Undergraduate Handbook for approved elective courses from other departments that meet this requirement.

6. Internship (6 hours)

Students must confer with the Public History Internship Supervisor before registering for internship credit.

- HIST 4950 - Internship **Credits:** 3 to 9 hours

7. Cognate requirement (8 hours)

Completion of a foreign language through the 1010 level (or equivalency) by University course work or examination.

Writing Intensive and Baccalaureate Writing Courses - History

Writing Intensive Courses

Prerequisite: HIST 2900 or instructor approval.

- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours

- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours

Baccalaureate Writing Courses

- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
- HIST 4010 - Environment and History **Credits:** 3 hours
- HIST 4016 - History of Material Life **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours

Courses by Chronological Category - History

Premodern

- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3490 - Ancient Near East **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3600 - The Medieval World: Society and Culture **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3880 - Introduction to African Civilization **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours
- HIST 4380 - Topics in History **Credits:** 3 hours

Modern

- HIST 3010 - Modern Arts and Ideas **Credits:** 3 hours
- HIST 3015 - History and Film **Credits:** 3 hours
- HIST 3060 - Technology and Culture **Credits:** 3 hours
- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours

- HIST 3130 - The U.S. and the World **Credits:** 3 hours
- HIST 3150 - Popular Art and Architecture in America **Credits:** 3 hours
- HIST 3160 - Women in United States History **Credits:** 3 hours
- HIST 3180 - American Environmental History **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3200 - American Military History **Credits:** 3 hours
- HIST 3230 - History of Healthcare in the United States **Credits:** 3 hours
- HIST 3260 - Native American History and Culture **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3280 - African-American History and Culture **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3290 - Michigan History **Credits:** 3 hours
- HIST 3300 - Canadian History and Culture **Credits:** 3 hours
- HIST 3330 - The World since 1945 **Credits:** 3 hours
- HIST 3360 - Women in European History **Credits:** 3 hours
- HIST 3404 - Introduction to Public History **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3630 - History of Modern Britain **Credits:** 3 hours
- HIST 3640 - Modern Europe: Culture and Society **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- HIST 3760 - Modern East Asia **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3790 - World War II in American and Japanese History **Credits:** 3 hours
- HIST 3850 - Modern Middle East **Credits:** 3 hours
- HIST 3981 - Directed Reading in History **Credits:** 1 to 3 hours
- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4010 - Environment and History **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4016 - History of Material Life **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4060 - Archives Administration **Credits:** 3 hours
- HIST 4080 - Museum Studies **Credits:** 3 hours
- HIST 4100 - Historic Preservation **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4380 - Topics in History **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours
(Baccalaureate Writing course)

Bachelor of Arts or Bachelor of Science

History Major-Secondary Education Curriculum

The secondary teacher preparation program complies with Guidelines for the Certification of Teachers of History established by the American Historical Association.

1. Minimum of 36 hours in history selected from categories listed below.
2. Minimum grade of "C" in all course work required for the major, including required cognates.
3. Completion of 15 credit hours of required cognates.
4. All course work at the 3000/4000-level must be completed within 10 years of intern teaching.
5. At least one approved history course (3 hours) exploring diversity in U.S. society. Select from: HIST 3160, 3191, 3251, 3260, 3265, 3280, or 3285. Some 4000-level baccalaureate writing course may meet this requirement.
6. One (3 hour) "writing-intensive" courses at the 3000-level. (See list of courses below.)
7. With permission of the advisor, students may substitute advanced level (4000-level) history courses for intermediate level (3000-level) courses in the same topical area, providing the student has the appropriate prerequisite.
8. Completion of at least 9 hours of courses at the 4000-level, with at least one course in the premodern category and one course in the modern category. One course (3 hours) at the 4000-level must be Baccalaureate Writing. One course (3 hours) must be HIST 4940: Teaching Methods for Secondary Schools.

Major Requirements:

1. Introductory level history courses (12 hours)

- HIST 2900 - The Historian's Craft: An Introduction to the Study of History **Credits:** 3 hours

Select either:

- HIST 1000 - Early Western World **Credits:** 3 hours
or
- HIST 1010 - Modern Western World **Credits:** 3 hours

Select either:

- HIST 2100 - American History to 1877 **Credits:** 3 hours
or
- HIST 2110 - American History since 1877 **Credits:** 3 hours

Select either:

- HIST 2020 - World History to 1500 **Credits:** 3 hours
or

- HIST 2030 - World History since 1500 **Credits:** 3 hours

2. Intermediate level history courses

15 hours including 3 hours of writing-intensive courses (See list of courses below). At least 3 hours must be taken from the premodern category and 3 hours from the modern category.

3. Advanced level history courses (9 hours)

Students need to complete three courses (9 hours) at the 4000-level with one course that is in the premodern category and one course in the modern category. One of the two 4000-level courses must be a Baccalaureate Writing course, which are designated "(BW)" in the online schedule of classes. Students also need to complete HIST 4940: Teaching Methods for Secondary Schools.

Cognate Requirements (15 hours)

1. One approved course in literature selected from:

- ENGL 1120 - Literary Classics **Credits:** 3 hours
- ENGL 2220 - Literatures and Cultures of the United States **Credits:** 4 hours
- ENGL 2230 - African American Literature **Credits:** 4 hours
- ENGL 3120 - Western World Literature **Credits:** 3 hours
- ENGL 3130 - Asian Literature **Credits:** 3 hours
- ENGL 3140 - African Literature **Credits:** 3 hours
- ENGL 3150 - The English Bible as Literature **Credits:** 3 hours

2. One approved course in economics. Select either:

- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
or
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours

3. One approved course in geography selected from:

- GEOG 1020 - World Geography through Media and Maps **Credits:** 3 hours
- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours

4. Two approved courses in political science. Select:

- PSCI 2000 - National Government **Credits:** 3 hours
And either
- PSCI 2400 - Comparative Politics **Credits:** 3 hours
or
- PSCI 2500 - International Relations **Credits:** 4 hours

Writing Intensive and Baccalaureate Writing Courses - History

Writing Intensive Courses

Prerequisite: HIST 2900 or instructor approval.

- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours

Baccalaureate Writing Courses

- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
- HIST 4010 - Environment and History **Credits:** 3 hours
- HIST 4016 - History of Material Life **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours

Courses by Chronological Category - History

Premodern

- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
- HIST 3101 - Colonial America (WI) **Credits:** 3 hours

- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3490 - Ancient Near East **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3600 - The Medieval World: Society and Culture **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3880 - Introduction to African Civilization **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours
- HIST 4380 - Topics in History **Credits:** 3 hours

Modern

- HIST 3010 - Modern Arts and Ideas **Credits:** 3 hours
- HIST 3015 - History and Film **Credits:** 3 hours
- HIST 3060 - Technology and Culture **Credits:** 3 hours
- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3130 - The U.S. and the World **Credits:** 3 hours
- HIST 3150 - Popular Art and Architecture in America **Credits:** 3 hours
- HIST 3160 - Women in United States History **Credits:** 3 hours
- HIST 3180 - American Environmental History **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3200 - American Military History **Credits:** 3 hours
- HIST 3230 - History of Healthcare in the United States **Credits:** 3 hours
- HIST 3260 - Native American History and Culture **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3280 - African-American History and Culture **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3290 - Michigan History **Credits:** 3 hours
- HIST 3300 - Canadian History and Culture **Credits:** 3 hours
- HIST 3330 - The World since 1945 **Credits:** 3 hours
- HIST 3360 - Women in European History **Credits:** 3 hours
- HIST 3404 - Introduction to Public History **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3630 - History of Modern Britain **Credits:** 3 hours
- HIST 3640 - Modern Europe: Culture and Society **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours

- HIST 3760 - Modern East Asia **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3790 - World War II in American and Japanese History **Credits:** 3 hours
- HIST 3850 - Modern Middle East **Credits:** 3 hours
- HIST 3981 - Directed Reading in History **Credits:** 1 to 3 hours
- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4010 - Environment and History **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4016 - History of Material Life **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4060 - Archives Administration **Credits:** 3 hours
- HIST 4080 - Museum Studies **Credits:** 3 hours
- HIST 4100 - Historic Preservation **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4380 - Topics in History **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours
(Baccalaureate Writing course)

Minors

History Minor

1. Minimum grade of "C" in all course work required for the minor, including required cognates.
2. Completion of History 2900.
3. Completion of at least 3 hours (one course) selected of "writing-intensive" courses at the 3000-level (see list of classes below) and 3 hours (one course) of 4000-level baccalaureate writing courses.
4. Completion of at least one 3000- or 4000-level course from the premodern category and one 3000- or 4000-level course from the modern category.
5. All U.S., Africa, Asia, Latin America, Middle East and European 4000-level history courses meet baccalaureate writing requirement.

Core Requirements:

1. Introductory level history courses (3 hours)

- HIST 2900 - The Historian's Craft: An Introduction to the Study of History **Credits:** 3 hours

2. Intermediate and advanced level history courses (6 hours)

- At least one 3000- or 4000-level course from the premodern category.
- At least one 3000- or 4000-level course from the modern category.

3. Complete a 3-hour writing intensive course.

The prerequisite for the intermediate level history courses is HIST 2900.

4. You will complete 3 hours of advanced 4000-level baccalaureate writing course work.

- In either the premodern or modern category.

The prerequisite is one 3000-level writing intensive course or instructor approval.

Tracks (select one)

A. History Track

Minimum of 24 hours of course work in history, with a maximum of 9 hours at the introductory level (including 1000/2000-level courses, two-year institution transfers, and AP credits).

In addition to the Core Requirements, you will complete two additional classes at any level and three additional classes at the 3000-, 4000-, or 5000-level.

B. History, Secondary Education Track

Note: successful completion of this program leads to but does not fulfill all requirements for teaching certification. Please consult the College of Education's revised secondary education guidelines for more information.

Minimum of 27-29 hours of course work in history and related disciplines.

1. In addition to HIST 2900, you will complete 9 hours in the three introductory course areas:

Select one of the following:

- HIST 1000 - Early Western World **Credits:** 3 hours
OR
- HIST 1010 - Modern Western World **Credits:** 3 hours

Select one of the following:

- HIST 2020 - World History to 1500 **Credits:** 3 hours
OR
- HIST 2030 - World History since 1500 **Credits:** 3 hours

Select one of the following:

- HIST 2100 - American History to 1877 **Credits:** 3 hours
- HIST 2110 - American History since 1877 **Credits:** 3 hours

2. You will complete 6 hours of intermediate level history courses.

- Select one 3000-level premodern history course.
- Select one 3000-level modern history course.

3. You will complete 3 hours of advanced 4000-level course work.

- In either the premodern or modern category.

The prerequisite is one 3000-level writing intensive course or instructor approval.

4. You will complete 3 hours of history internship/practicum.

- HIST 4950 - Internship **Credits:** 3 to 9 hours
(3 credit hours needed)

5. You will complete 6-8 hours of cognates.

One course in Geography (3-4 hours)

- GEOG 1020 - World Geography through Media and Maps **Credits:** 3 hours
- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours

One course in Political Science (3-4 hours)

- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- PSCI 2500 - International Relations **Credits:** 4 hours

6. All course work at the 3000/4000-level must be completed within ten years of intern teaching.

Writing Intensive and Baccalaureate Writing Courses - History

Writing Intensive Courses

Prerequisite: HIST 2900 or instructor approval.

- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours

- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours

Baccalaureate Writing Courses

- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
- HIST 4010 - Environment and History **Credits:** 3 hours
- HIST 4016 - History of Material Life **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours

Courses by Chronological Category - History

Premodern

- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3490 - Ancient Near East **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3600 - The Medieval World: Society and Culture **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours

- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3880 - Introduction to African Civilization **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours
- HIST 4380 - Topics in History **Credits:** 3 hours

Modern

- HIST 3010 - Modern Arts and Ideas **Credits:** 3 hours
- HIST 3015 - History and Film **Credits:** 3 hours
- HIST 3060 - Technology and Culture **Credits:** 3 hours
- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3130 - The U.S. and the World **Credits:** 3 hours
- HIST 3150 - Popular Art and Architecture in America **Credits:** 3 hours
- HIST 3160 - Women in United States History **Credits:** 3 hours
- HIST 3180 - American Environmental History **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3200 - American Military History **Credits:** 3 hours
- HIST 3230 - History of Healthcare in the United States **Credits:** 3 hours
- HIST 3260 - Native American History and Culture **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3280 - African-American History and Culture **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3290 - Michigan History **Credits:** 3 hours
- HIST 3300 - Canadian History and Culture **Credits:** 3 hours
- HIST 3330 - The World since 1945 **Credits:** 3 hours
- HIST 3360 - Women in European History **Credits:** 3 hours
- HIST 3404 - Introduction to Public History **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3630 - History of Modern Britain **Credits:** 3 hours
- HIST 3640 - Modern Europe: Culture and Society **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- HIST 3760 - Modern East Asia **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3790 - World War II in American and Japanese History **Credits:** 3 hours
- HIST 3850 - Modern Middle East **Credits:** 3 hours
- HIST 3981 - Directed Reading in History **Credits:** 1 to 3 hours
- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours

- (Baccalaureate Writing course)
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4010 - Environment and History **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4016 - History of Material Life **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4060 - Archives Administration **Credits:** 3 hours
- HIST 4080 - Museum Studies **Credits:** 3 hours
- HIST 4100 - Historic Preservation **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4380 - Topics in History **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours
(Baccalaureate Writing course)

Public History Minor

1. Minimum of 24 hours selected from the categories listed below.
2. Minimum grade of "C" in all course work required for the major.
3. Completion of one "writing intensive" course at the 3000-level. (See list of courses below)

Minor Requirements:

1. Introductory level history course (3 hours)

Choose one of the following:

- HIST 1000 - Early Western World **Credits:** 3 hours
- HIST 1010 - Modern Western World **Credits:** 3 hours
- HIST 2100 - American History to 1877 **Credits:** 3 hours
- HIST 2110 - American History since 1877 **Credits:** 3 hours

2. Intermediate level history courses (9 hours)

Complete each of the following:

- HIST 2900 - The Historian's Craft: An Introduction to the Study of History **Credits:** 3 hours
- HIST 3404 - Introduction to Public History **Credits:** 3 hours

And select either:

- HIST 3150 - Popular Art and Architecture in America **Credits:** 3 hours
- HIST 3180 - American Environmental History **Credits:** 3 hours

3. Writing Intensive Course. Complete one 3000-level writing intensive course.

Choose one of the following:

HIST 3101, 3102, 3103, 3104, 3105, 3191, 3251, 3265, 3285, 3500, 3510, 3531, 3604, 3606, 3611, 3612, 3614, 3616, 3618, 3662, 3664, 3702, 3762, 3764, 3766, 3768, 3882, or 3884. The prerequisite is HIST 2900 or instructor approval.

4. Public History Core Courses (6 hours)

Select two of the following:

- HIST 4060 - Archives Administration **Credits:** 3 hours
- HIST 4080 - Museum Studies **Credits:** 3 hours
- HIST 4100 - Historic Preservation **Credits:** 3 hours

5. Internship/Work Experience (3 hours)

Students must confer with the Public History Internship Supervisor before registering for internship credit.

- HIST 4950 - Internship **Credits:** 3 to 9 hours

Writing Intensive and Baccalaureate Writing Courses - History

Writing Intensive Courses

Prerequisite: HIST 2900 or instructor approval.

- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours

- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours

Baccalaureate Writing Courses

- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
- HIST 4010 - Environment and History **Credits:** 3 hours
- HIST 4016 - History of Material Life **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours

Courses by Geographical Area - History

United States

Course meeting requirements for United States history include:

- HIST 3015 - History and Film **Credits:** 3 hours
- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3130 - The U.S. and the World **Credits:** 3 hours
- HIST 3150 - Popular Art and Architecture in America **Credits:** 3 hours
- HIST 3160 - Women in United States History **Credits:** 3 hours
- HIST 3180 - American Environmental History **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3200 - American Military History **Credits:** 3 hours
- HIST 3230 - History of Healthcare in the United States **Credits:** 3 hours
- HIST 3260 - Native American History and Culture **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3280 - African-American History and Culture **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3290 - Michigan History **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
(Baccalaureate Writing course)

Africa, Asia, Latin America, and Middle East

Courses meeting requirements for this area include:

- HIST 3330 - The World since 1945 **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3760 - Modern East Asia **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3790 - World War II in American and Japanese History **Credits:** 3 hours
- HIST 3850 - Modern Middle East **Credits:** 3 hours
- HIST 3880 - Introduction to African Civilization **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours
(Baccalaureate Writing course)

Europe

Courses meeting requirements for European history include:

- HIST 3010 - Modern Arts and Ideas **Credits:** 3 hours
- HIST 3330 - The World since 1945 **Credits:** 3 hours
- HIST 3360 - Women in European History **Credits:** 3 hours
- HIST 3490 - Ancient Near East **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3600 - The Medieval World: Society and Culture **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3630 - History of Modern Britain **Credits:** 3 hours
- HIST 3640 - Modern Europe: Culture and Society **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
(Baccalaureate Writing course)

Geographical

Courses meeting requirements for any geographical area include:

- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
(Baccalaureate Writing course)

- HIST 4010 - Environment and History **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4016 - History of Material Life **Credits:** 3 hours
(Baccalaureate Writing course)

Social Studies: History (coordinate minor) 21 hours

The Social Studies: History (coordinate minor) will help prepare you for a career in secondary education. You will develop the contextual grounding, theoretical frameworks, and research practices, necessary to develop lesson plans. Targeted out-of-class experiences will put this knowledge to immediate use as you hone your abilities in the classroom. N.B. This completion of the Social Studies Major, History Minor degree leads to but does not fulfill all requirements for teaching certification. Please consult the College of Education's revised secondary education guidelines for more information.

Social Studies Major Requirements

1. Minimum of 21 hours in history. Minor must be completed in conjunction with the Social Studies-Secondary Education Major.
2. At least one approved history course (3 hours) exploring diversity of U.S. Society. Select from: HIST 3160, 3191, 3251, 3260, 3265, 3280, or 3285.
3. Completion of 6 hours at the Intermediate (3000) level.
4. One (3 credit hour) "writing intensive" course at the 3000-level. (See list of courses below).
5. At least one 3000-level course in the premodern category and at least one 3000-level course in the modern category.
6. With permission of the advisor, students may substitute advanced level (4000-level) history courses for intermediate level (3000-level) courses in the same chronological category, providing the student has the appropriate prerequisite.
7. Completion of 6 hours at the advanced (4000) level, with one course in the premodern and one course in the modern category. One of the two courses must be Baccalaureate Writing.

Minor Requirements

1. Introductory level history course (3 hours)

- HIST 2900 - The Historian's Craft: An Introduction to the Study of History **Credits:** 3 hours

2. Intermediate level history courses (6 hours)

Including 3 hours of 3000-level writing intensive courses (See list of courses below). At least one course (3 hours) must be from the premodern category and at least one course must be from the modern category. The prerequisite is HIST 2900 or instructor approval.

3. Advanced level history courses (6 hours)

One course (3 hours) must be from the premodern category and one course (3 hours) must be from the modern category.

4. Internship/Work Experiences (6 hours)

All minors must complete 6 credits of HIST 4950 - Internship. You must confer with the Department's Internship Supervisor before registering for HIST 4950. Projects completed outside of the direction of the Internship Supervisor will not be awarded credit.

Note:

Successful completion of this program leads to but does not fulfill all requirements for teaching certification. Please consult the College of Education's revised secondary education guidelines for more information.

Diversity Courses - History

- HIST 3160 - Women in United States History **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3260 - Native American History and Culture **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3280 - African-American History and Culture **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours

Writing Intensive and Baccalaureate Writing Courses - History

Writing Intensive Courses

Prerequisite: HIST 2900 or instructor approval.

- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours

- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours

Baccalaureate Writing Courses

- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
- HIST 4010 - Environment and History **Credits:** 3 hours
- HIST 4016 - History of Material Life **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours

Courses by Chronological Category - History

Premodern

- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3490 - Ancient Near East **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3600 - The Medieval World: Society and Culture **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3615 - The European Witch-Hunt (WI) **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3880 - Introduction to African Civilization **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours
- HIST 4380 - Topics in History **Credits:** 3 hours

Modern

- HIST 3010 - Modern Arts and Ideas **Credits:** 3 hours
- HIST 3015 - History and Film **Credits:** 3 hours
- HIST 3060 - Technology and Culture **Credits:** 3 hours
- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3130 - The U.S. and the World **Credits:** 3 hours

- HIST 3150 - Popular Art and Architecture in America **Credits:** 3 hours
- HIST 3160 - Women in United States History **Credits:** 3 hours
- HIST 3180 - American Environmental History **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3200 - American Military History **Credits:** 3 hours
- HIST 3230 - History of Healthcare in the United States **Credits:** 3 hours
- HIST 3260 - Native American History and Culture **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3280 - African-American History and Culture **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3290 - Michigan History **Credits:** 3 hours
- HIST 3300 - Canadian History and Culture **Credits:** 3 hours
- HIST 3330 - The World since 1945 **Credits:** 3 hours
- HIST 3360 - Women in European History **Credits:** 3 hours
- HIST 3404 - Introduction to Public History **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3630 - History of Modern Britain **Credits:** 3 hours
- HIST 3640 - Modern Europe: Culture and Society **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- HIST 3760 - Modern East Asia **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3790 - World War II in American and Japanese History **Credits:** 3 hours
- HIST 3850 - Modern Middle East **Credits:** 3 hours
- HIST 3981 - Directed Reading in History **Credits:** 1 to 3 hours
- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4008 - Topics in Ethnohistory **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4010 - Environment and History **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4016 - History of Material Life **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4060 - Archives Administration **Credits:** 3 hours
- HIST 4080 - Museum Studies **Credits:** 3 hours
- HIST 4100 - Historic Preservation **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4380 - Topics in History **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
(Baccalaureate Writing course)
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours
(Baccalaureate Writing course)

Other

Courses by Topic - History

Introductory Level Courses

- HIST 1000 - Early Western World **Credits:** 3 hours
- HIST 1010 - Modern Western World **Credits:** 3 hours
- HIST 1450 - Heroes and Villains in the Middle Ages **Credits:** 3 hours
- HIST 2000 - Introductory Topics in History **Credits:** 1 to 3 hours
- HIST 2100 - American History to 1877 **Credits:** 3 hours
- HIST 2110 - American History since 1877 **Credits:** 3 hours
- HIST 2120 - American Culture **Credits:** 3 hours
- HIST 2125 - Sport in American Culture **Credits:** 3 hours
- HIST 2900 - The Historian's Craft: An Introduction to the Study of History **Credits:** 3 hours
- HIST 3981 - Directed Reading in History **Credits:** 1 to 3 hours
- HIST 2020 - World History to 1500 **Credits:** 3 hours
- HIST 2030 - World History since 1500 **Credits:** 3 hours

North America

- HIST 2125 - Sport in American Culture **Credits:** 3 hours
- HIST 3101 - Colonial America (WI) **Credits:** 3 hours
- HIST 3102 - Era of the American Revolution (WI) **Credits:** 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 3104 - The Gilded Age through the World Wars (WI) **Credits:** 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) **Credits:** 3 hours
- HIST 3130 - The U.S. and the World **Credits:** 3 hours
- HIST 3150 - Popular Art and Architecture in America **Credits:** 3 hours
- HIST 3160 - Women in United States History **Credits:** 3 hours
- HIST 3180 - American Environmental History **Credits:** 3 hours
- HIST 3191 - American Sport History (WI) **Credits:** 3 hours
- HIST 3200 - American Military History **Credits:** 3 hours
- HIST 3230 - History of Healthcare in the United States **Credits:** 3 hours
- HIST 3260 - Native American History and Culture **Credits:** 3 hours
- HIST 3265 - Readings in Native American History (WI) **Credits:** 3 hours
- HIST 3280 - African-American History and Culture **Credits:** 3 hours
- HIST 3285 - African Americans in Michigan (WI) **Credits:** 3 hours
- HIST 3290 - Michigan History **Credits:** 3 hours
- HIST 3300 - Canadian History and Culture **Credits:** 3 hours
- HIST 4006 - Topics in Race and Ethnicity **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours

Europe

- HIST 3330 - The World since 1945 **Credits:** 3 hours
- HIST 3360 - Women in European History **Credits:** 3 hours
- HIST 3490 - Ancient Near East **Credits:** 3 hours

- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours
- HIST 3531 - Early Christianity (WI) **Credits:** 3 hours
- HIST 3600 - The Medieval World: Society and Culture **Credits:** 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) **Credits:** 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) **Credits:** 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) **Credits:** 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours
- HIST 3630 - History of Modern Britain **Credits:** 3 hours
- HIST 3640 - Modern Europe: Culture and Society **Credits:** 3 hours
- HIST 3662 - Russia to 1855 (WI) **Credits:** 3 hours
- HIST 3664 - Russia from 1855 (WI) **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
- HIST 5500 - Topics in Medieval History **Credits:** 3 hours

Non-Western

- HIST 3702 - Colonial Latin America (WI) **Credits:** 3 hours
- HIST 3760 - Modern East Asia **Credits:** 3 hours
- HIST 3764 - Modern Japan (WI) **Credits:** 3 hours
- HIST 3766 - Traditional China (WI) **Credits:** 3 hours
- HIST 3768 - Modern China (WI) **Credits:** 3 hours
- HIST 3790 - World War II in American and Japanese History **Credits:** 3 hours
- HIST 3850 - Modern Middle East **Credits:** 3 hours
- HIST 3880 - Introduction to African Civilization **Credits:** 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) **Credits:** 3 hours
- HIST 4825 - Topics in Asian History **Credits:** 3 hours
- HIST 4845 - Topics in Latin American History **Credits:** 3 hours
- HIST 5850 - Topics in Asian, African, and Latin American History **Credits:** 3 hours

General

- HIST 3010 - Modern Arts and Ideas **Credits:** 3 hours
- HIST 3060 - Technology and Culture **Credits:** 3 hours
- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
- HIST 3330 - The World since 1945 **Credits:** 3 hours
- HIST 3790 - World War II in American and Japanese History **Credits:** 3 hours
- HIST 4380 - Topics in History **Credits:** 3 hours

Theory And Practice

- HIST 4060 - Archives Administration **Credits:** 3 hours
- HIST 4080 - Museum Studies **Credits:** 3 hours
- HIST 4100 - Historic Preservation **Credits:** 3 hours
- HIST 4940 - Teaching Methods for Secondary Schools **Credits:** 3 hours

- HIST 4990 - Senior Thesis **Credits:** 3 hours
- HIST 5150 - Topics in Public History **Credits:** 3 hours
- HIST 5910 - Topics in Historical Theory and Method **Credits:** 3 hours

Other Courses

- HIST 4950 - Internship **Credits:** 3 to 9 hours
- HIST 4980 - Directed Research **Credits:** 3 hours
- HIST 5000 - Topics in History **Credits:** 3 hours

Intercultural and Anthropological Studies, Institute for

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Jon D. Holtzman
Onaiwu Ogbomo

Bachelor of Arts

African American and African Studies Major (36 hours)

The African American and African Studies Program offers an interdisciplinary major with two options: (1) African American Studies and (2) African Studies. The major is a concentration of 36 credit hours in work from required core courses and a combination of electives. Both major options integrate a language requirement that emphasizes the importance of world language study. However, the African American Studies option provides for studying a world language in the United States or abroad. Students in the African Studies option are strongly encouraged to explore and pursue study abroad opportunities available through the African American and African Studies Program and the Haenicke Institute for Global Education. Students selecting the African American and African Studies major will satisfy the baccalaureate writing requirement by successfully completing AAAS 3800: Special Topics in African Literature and Culture.

African American Studies Option (36 hours)

1. Core Requirements

- AAAS 2000 - Introduction to African American and African Studies **Credits:** 3 hours
- AAAS 3000 - African and African American History, Culture and Experience to 1865 **Credits:** 3 hours
- AAAS 3010 - African American History, Culture and Experience from 1866 to the Present **Credits:** 3 hours
- AAAS 4650 - Internship in African American and African Studies **Credits:** 3 to 6 hours

2. World Language/Study Abroad Requirement

This requirement can be met in one of two ways: By earning world language credit through study abroad (A-S 3300-3310) or by taking at least one course beyond the 1010-level in any world language (French, German, Spanish, or Arabic recommended).

Students are encouraged to pursue study abroad opportunities that expose them to the culture and lifestyles of peoples of African descent, preferably in Africa or the Caribbean.

3. Electives

Students must complete at least 15 credit hours (6 hours at 2000-level or below, 9 hours at 3000-level or above) from a combination of approved electives in AAAS or in other departments. An AAAS advisor must approve elective courses. See advisor for list of electives.

African Studies Option (36 hours)

1. Core Requirements

- AAAS 2000 - Introduction to African American and African Studies **Credits:** 3 hours
- AAAS 3000 - African and African American History, Culture and Experience to 1865 **Credits:** 3 hours
- AAAS 3010 - African American History, Culture and Experience from 1866 to the Present **Credits:** 3 hours

2. World Language/Study Abroad Requirement

This requirement can be met in one of two ways: By earning world language credit through study abroad (A-S 3300-3310) or by taking at one course beyond the 1010-level in any world language (French, German, Spanish, or Arabic recommended).

Students are encouraged to pursue study abroad opportunities that expose them to the culture and lifestyles of peoples of African descent, preferably in Africa or the Caribbean.

3. Electives

Students must complete as least 15 credit hours (6 hours at 2000-level or below, 9 hours at 3000-level or above) from a combination of courses in AAAS or in other departments at WMU. An AAAS advisor must approve electives. See advisor for the list of electives.

Anthropology Major (34 hours)

Course Requirements

A major in anthropology consists of a minimum of 34 hours of anthropology courses and must include:

1. Courses

- ANTH 2100 - Introduction to Archaeology **Credits:** 3 hours
- ANTH 2400 - Principles of Cultural Anthropology **Credits:** 3 hours
- ANTH 2500 - Introduction to Biological Anthropology **Credits:** 4 hours

2. One writing intensive course in anthropology

3. Six (6) additional hours of course work at the 4000-level or above

4. One course designated as Experiential Learning

5. No more than three (3) hours of course work at the 1000-level

6. A grade of "C" or better in every anthropology class counted toward the major

7. No more than twelve (12) hours of anthropology classes may be transferred.

Note

A student with a major in anthropology is strongly encouraged to take a broad range of courses in all four subdisciplines of anthropology: archaeology, cultural anthropology, biological anthropology, and linguistic anthropology.

Baccalaureate Writing Requirement

Students who have chosen the anthropology major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- ANTH 3530 - Bioarchaeology **Credits:** 3 hours
- ANTH 4400 - Ethnography **Credits:** 3 hours
- ANTH 4750 - Language and Identity **Credits:** 3 hours

Experiential Learning

Students who have chosen the anthropology major will satisfy the Experiential Learning Requirement by successfully completing one of the following courses or other courses with prior approval of the departmental Undergraduate Advisor:

- ANTH 4040 - Early Technologies **Credits:** 3 hours
- ANTH 4900 - Archaeological Field School **Credits:** 6 hours
- ANTH 4970 - Directed Experiential Learning **Credits:** 3 hours
- ANTH 5030 - Anthropology in the Community **Credits:** 4 hours
- ANTH 5040 - Archaeological Research Methods **Credits:** 3 hours
- ANTH 5330 - Museums and Material Culture **Credits:** 3 hours
- ANTH 5400 - Ethnographic Research Methods **Credits:** 3 hours

Minors

African American and African Studies Minor (18 hours)

1. Required Courses (12 hours)

- AAAS 2000 - Introduction to African American and African Studies **Credits:** 3 hours
- AAAS 3000 - African and African American History, Culture and Experience to 1865 **Credits:** 3 hours
- AAAS 3010 - African American History, Culture and Experience from 1866 to the Present **Credits:** 3 hours
- HIST 3880 - Introduction to African Civilization **Credits:** 3 hours

3. Elective Courses (6 hours)

With direction from an AAAS advisor, students will select electives based on an emphasis in (1) African American Studies or (2) African Studies. Accordingly, electives may be selected from among AAAS courses or from other departments at WMU. See advisor for list of electives.

Anthropology Minor (18 hours)

A minor in anthropology consists of a minimum of 18 hours of anthropology courses and must include:

Requirements

- Six (6) hours of course work at the 4000-level or above
- No more than six (6) hours of course work at the 1000-level
- A grade of “C” or better in every anthropology class counted toward the minor

Additional Information

No more than twelve (12) hours of anthropology classes may be transferred for the major; no more than nine (9) hours of anthropology classes may be transferred for the minor. Some upper division courses may have prerequisites that need to be fulfilled before enrolling in these classes.

Mathematics

Steven Ziebarth, Chair
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Melinda Koelling
Yuri Ledyev
Mariana Levin
Jane-Jane Lo
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John Martino
Tabitha Mingus
Annegret Paul
Sacha Pence
John Petrovic
David Richter
Jeffrey Strom
Jay Treiman
Laura Van Zoest
Ping Zhang
Qiji Zhu

The Mathematics Department offers a wide variety of courses and programs in both theoretical and applied areas. There are four majors available: Applied, General, Elementary Teaching and Secondary Teaching. Minors available include the General Mathematics Minor, Secondary Teaching of Mathematics Minor, the Elementary and Middle School Teaching Minor, and the Actuarial Science Minor. These major and minor programs incorporate emphasis on use of computing techniques, mathematical modeling, and problem solving.

Some mathematics majors (and most minors) require two semesters of calculus. Students may take either the MATH 1220/1230 sequence or the MATH 1700/1710 sequence, with the recommendation that they pick the last sequence, if they will be taking a physics course soon. Students may begin this course work while deciding on a branch of mathematics in which to specialize from the options below.

During the first year, interested students should contact Steve Culver, student advisor/assistant to the chair, through the Mathematics Department. Phone (269) 387-4510 or write: Mathematics Department, Western Michigan University, Kalamazoo, MI 49008. All majors should contact a faculty advisor in mathematics once a year and must contact a faculty advisor in mathematics during their second year of study. All minors, except General Mathematics minors, must contact an advisor.

At most one course with a grade below "C" can be applied toward a major or minor in Mathematics.

Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair.

Honors in Mathematic

Qualified students may plan a program to graduate with honors in mathematics. The following are the requirements for graduation with Honors in Mathematics:

1. Grade point average of at least 3.7 in mathematics and statistics courses
2. Overall grade point average of at least 3.25
3. Completion of two of the following:
 - an honors seminar (can be the Putnam Seminar)
 - an upper-level theoretical course
 - an approved independent study project leading to a paper or presentation

Interested students should see the Curriculum Coordinator in their junior year or early in their senior year to plan an "honors program."

Putnam Seminar

The Putnam Seminar is a problem-solving seminar offered under the course number MATH 3900. Under the direction of a faculty member students practice techniques for solving very challenging problems. Students in the seminar may participate in the William Lowell Putnam national intercollegiate mathematics competition.

Bachelor of Science

Mathematics Major - Applied Mathematics Option (MAAJ)

There is a growing need for people who combine knowledge of mathematics and science to formulate and solve practical problems. The intent of the Applied Mathematics Option is to provide a broad range of computational and analytical skills, practice in mathematical modeling, and some fundamental knowledge of a scientific discipline. Computational and applied mathematicians are employed in a variety of positions in industry, business, and government. Students must complete a minor in one of Actuarial Sciences, Astronomy, Biomedical Sciences, Chemistry, Computer Science, Economics, Physics, or Statistics. Students should select their minor in the area in which they intend to apply their mathematical talents, and then they should select electives that are particularly suited to the problems in that area.

Core Requirements

- MATH 2300 - Elementary Linear Algebra **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- MATH 4020 - Mathematical Modeling **Credits:** 3 hours
- MATH 5070 - Numerical Analysis I **Credits:** 3 hours

Select Either:

- MATH 1220 - Calculus I **Credits:** 4 hours
- or

- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours

Select Either:

- MATH 1230 - Calculus II **Credits:** 4 hours
or
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

Select Either

- MATH 1450 - Discrete Mathematical Structures **Credits:** 3 hours
or
- MATH 3140 - Mathematical Proofs **Credits:** 3 hours

Three of the following: (9 to 12 hours)

- MATH 3300 - Modern Algebra I **Credits:** 4 hours
- MATH 4050 - Financial Mathematics **Credits:** 3 hours
- MATH 4080 - Linear Programming **Credits:** 3 hours
- MATH 4400 - Graphs and Mathematical Models **Credits:** 3 hours
- MATH 4900 - Topics in Mathematics **Credits:** 3 hours
- MATH 5270 - Differential Geometry of Curves and Surfaces **Credits:** 3 hours
- MATH 5700 - Advanced Calculus I **Credits:** 4 hours
- MATH 5720 - Vector Calculus and Complex Variables **Credits:** 4 hours
- MATH 5740 - Advanced Differential Equations **Credits:** 3 hours
- STAT 3620 - Probability **Credits:** 4 hours
- STAT 5670 - Statistical Design and Analysis of Experiments **Credits:** 3 hours
- STAT 5680 - Regression Analysis **Credits:** 3 hours

Select Either

- MATH 5100 - Applied Matrix Algebra **Credits:** 3 hours
or
- MATH 5300 - Linear Algebra **Credits:** 3 hours

Cognate Science Requirements:

- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours

Select:

- CS course approved by an advisor
OR
- CS 1110 - Computer Science I **Credits:** 4 hours

Select Chemistry, Economics, or Physics:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
and
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
OR
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
OR
- PHYS 2070 - University Physics II **Credits:** 4 hours
and
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Minor Requirement

Students must complete a minor in one of the following areas: Actuarial Sciences, Astronomy, Biomedical Sciences, Chemistry, Computer Science, Economics, Physics, or Statistics. The courses listed above under “Cognate Science Requirements” may also be used to fulfill requirements for the minor where applicable. The minor requirement will be waived for students completing one of the following engineering curricula: Aerospace Engineering, Chemical Engineering, Computer Engineering, Construction Engineering, Computer Science-General, Computer Science-Theory and Analysis, Electrical Engineering, Industrial and Entrepreneurial Engineering, Manufacturing Engineering, Materials Engineering, Mechanical Engineering, Paper Engineering, or Paper Science.

Recommendations

It is strongly suggested that Biomedical Sciences minors elect:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- STAT 3620 - Probability **Credits:** 4 hours
- STAT 5670 - Statistical Design and Analysis of Experiments **Credits:** 3 hours

Computer Science minors should select:

- MATH 1450 - Discrete Mathematical Structures **Credits:** 3 hours
- MATH 4400 - Graphs and Mathematical Models **Credits:** 3 hours

Physics minors should select:

- MATH 3140 - Mathematical Proofs **Credits:** 3 hours
and
- MATH 5700 - Advanced Calculus I **Credits:** 4 hours

Note:

Graduate study in mathematics typically requires:

- MATH 3140 - Mathematical Proofs **Credits:** 3 hours
- MATH 3300 - Modern Algebra I **Credits:** 4 hours

and

- MATH 5700 - Advanced Calculus I **Credits:** 4 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the Applied Mathematics option will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:

- MATH 4020 - Mathematical Modeling **Credits:** 3 hours

Mathematics Major - General Mathematics Option

The General Mathematics Option is a flexible program that may be combined with minors in diverse areas such as physics in the natural sciences, economics in the social sciences, or even be used as a base for law school. This option also serves as excellent preparation for graduate study in mathematics. A student in this program should develop, in addition to a broad background in mathematics, an ability for communicating mathematics and for rigorous logical thinking.

Core (12 hours)

- MATH 2300 - Elementary Linear Algebra **Credits:** 4 hours

Select Either:

- MATH 1220 - Calculus I **Credits:** 4 hours
- or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours

Select Either:

- MATH 1230 - Calculus II **Credits:** 4 hours
- or
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

Required (17 to 18 hours)

- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3140 - Mathematical Proofs **Credits:** 3 hours
- MATH 3300 - Modern Algebra I **Credits:** 4 hours
- MATH 4400 - Graphs and Mathematical Models **Credits:** 3 hours

Select Either:

- MATH 5070 - Numerical Analysis I **Credits:** 3 hours
- or
- MATH 5700 - Advanced Calculus I **Credits:** 4 hours
(MATH 5700 is strongly recommended for those planning on graduate school mathematics.)

Electives:

(Select three. At least one of the three electives must be at the 4000-level or higher.)

- MATH 3400 - Fundamental Concepts of Geometry **Credits:** 3 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- MATH 4020 - Mathematical Modeling **Credits:** 3 hours
- MATH 4080 - Linear Programming **Credits:** 3 hours
- MATH 4300 - Modern Algebra II **Credits:** 3 hours
- MATH 4900 - Topics in Mathematics **Credits:** 3 hours
- MATH 5070 - Numerical Analysis I **Credits:** 3 hours
- MATH 5100 - Applied Matrix Algebra **Credits:** 3 hours
- MATH 5220 - Introduction to Topology **Credits:** 3 hours
- MATH 5270 - Differential Geometry of Curves and Surfaces **Credits:** 3 hours
- MATH 5300 - Linear Algebra **Credits:** 3 hours
- MATH 5710 - Advanced Calculus II **Credits:** 3 hours
- MATH 5720 - Vector Calculus and Complex Variables **Credits:** 4 hours
- MATH 5740 - Advanced Differential Equations **Credits:** 3 hours
- MATH 5800 - Number Theory **Credits:** 3 hours
- STAT 3620 - Probability **Credits:** 4 hours
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours

Note:

Those planning to attend graduate school in mathematics should elect theoretical courses such as:

- MATH 4300 - Modern Algebra II **Credits:** 3 hours
- MATH 5220 - Introduction to Topology **Credits:** 3 hours
- MATH 5300 - Linear Algebra **Credits:** 3 hours
- MATH 5700 - Advanced Calculus I **Credits:** 4 hours
- MATH 5710 - Advanced Calculus II **Credits:** 3 hours
- MATH 5800 - Number Theory **Credits:** 3 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the General Mathematics option will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:

- MATH 3140 - Mathematical Proofs **Credits:** 3 hours

Teaching and Learning Mathematics (major)

Teaching and Learning Mathematics, which combines theoretical mathematics with teaching techniques, is designed for students planning to teach in a middle or high school. With the current national focus on the improvement of mathematics and science education, this program offers a timely and attractive option.

A minimum grade point average of 2.5 must be attained in this major option to satisfy the requirements of this program.

Core Requirements

- MATH 2300 - Elementary Linear Algebra **Credits:** 4 hours
- MATH 3140 - Mathematical Proofs **Credits:** 3 hours
- MATH 3300 - Modern Algebra I **Credits:** 4 hours
- MATH 3400 - Fundamental Concepts of Geometry **Credits:** 3 hours
- MATH 3500 - Teaching of Middle School Mathematics **Credits:** 3 hours
- MATH 3510 - Computing Technology in Secondary School Mathematics **Credits:** 3 hours
- MATH 4400 - Graphs and Mathematical Models **Credits:** 3 hours
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours

Select Either:

- MATH 1220 - Calculus I **Credits:** 4 hours
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours

Select Either:

- MATH 1230 - Calculus II **Credits:** 4 hours
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

One of the following (3 to 4 hours)

- MATH 4080 - Linear Programming **Credits:** 3 hours
- MATH 4300 - Modern Algebra II **Credits:** 3 hours
- MATH 5220 - Introduction to Topology **Credits:** 3 hours
- MATH 5700 - Advanced Calculus I **Credits:** 4 hours
- MATH 5800 - Number Theory **Credits:** 3 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the Secondary Teaching option will satisfy the Baccalaureate-Level Writing Requirement by successfully completing

- MATH 3140 - Mathematical Proofs **Credits:** 3 hours

Note:

Successful completion of this program leads to but does not fulfill all requirements for teaching certification. Please consult the College of Education's revised secondary education guidelines for more information.

Minors

Elementary/Middle School Math Minor (MHEN)

A minimum grade of "B" or better is required in MATH 1500, MATH 1510, MATH 2650, and MATH 3520. A grade of "C" or better is required in MATH 5531. A Minimum GPA of 2.5 must be obtained in the minor. Students must be accepted into the Elementary Education Professional program to take 3000 and 5000 level courses.

Courses

- MATH 1500 - Number Concepts for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 1510 - Geometry for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 3520 - Teaching of Elementary/Middle School Mathematics **Credits:** 3 hours
- MATH 5531 - Number Systems and Proportional Reasoning for Middle Grades Teachers **Credits:** 4 hours
- MATH 5540 - Functions and Modeling for Middle Grades Teachers **Credits:** 4 hours

Mathematics Minor - Actuarial Sciences Option

The profession of an actuary is rewarding and consistently rated among the top of all professionals by *U.S. News and World Report*. Interested students should check out the website www.beanactuary.org maintained by the Society of Actuaries (SOA) and the Casualty Actuarial Society (CAS).

The Actuarial Sciences Minor is intended for majors in either mathematics (applied or general) or statistics. Students may elect this minor if their major program includes at least three semesters of calculus, including multivariate calculus (e.g. MATH 1220-1230-2720 or MATH 1700-1710-2720), a course in linear algebra (e.g. MATH 2300 or 3740), and a calculus-based sequence in probability and statistics (e.g. STAT 3620-3640). Students with other majors, for example, economics or engineering, may still elect this minor if they take the above courses.

Students interested in the Actuarial Sciences Minor may plan their program using the information below. Approval from an actuarial sciences advisor in either the Department of Mathematics or the Department of Statistics is required.

Core Requirement

- MATH 4050 - Financial Mathematics **Credits:** 3 hours

Additional Required Courses

Additional required courses are the Validation by education experience (VEE) courses below. A grade of "B" or better is required by the SOA and the CAS for coursework to substitute for an exam.

VEE - Applied Statistical Methods

- STAT 5820 - Time Series Analysis **Credits:** 3 hours

VEE - Corporate Finance

- FIN 3200 - Business Finance **Credits:** 3 hours
Note: ACTY 2100 is a prerequisite for FIN 3200.
- FIN 3510 - Investment Analysis **Credits:** 3 hours

VEE - Economics

- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours

Cognates

These classes should have been taken as part of the major.

Select either:

- MATH 1220 - Calculus I **Credits:** 4 hours
or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours

Select either:

- MATH 1230 - Calculus II **Credits:** 4 hours
or
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

Select:

- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours

Select either:

- MATH 2300 - Elementary Linear Algebra **Credits:** 4 hours
or
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours

Select either:

- STAT 3620 - Probability **Credits:** 4 hours
or
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours

Select:

- STAT 5680 - Regression Analysis **Credits:** 3 hours

Additional Information

Students preparing to be an actuary should also consider courses in business (e.g., marketing), computer science, communication, English, the humanities. According to the Society of Actuaries: "Actuaries need a well-rounded education. What sets actuaries apart from other professionals is their ability to learn and assimilate a wide range of information."

Mathematics Minor - General Mathematics Option

Students interested in the General Mathematics Minor Option may plan their program using the information below. An advisor's approval is not necessary unless a change in the requirements is requested.

Required Courses

Select Either

- MATH 1220 - Calculus I **Credits:** 4 hours
or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours

Select Either

- MATH 1230 - Calculus II **Credits:** 4 hours
or
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

Select Either

- MATH 2300 - Elementary Linear Algebra **Credits:** 4 hours
or
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours

Electives (Choose two)

Substitutions or exceptions require approval of departmental advisor. Some electives have other prerequisites.

- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3300 - Modern Algebra I **Credits:** 4 hours
- MATH 3400 - Fundamental Concepts of Geometry **Credits:** 3 hours
- MATH 4020 - Mathematical Modeling **Credits:** 3 hours
- MATH 4080 - Linear Programming **Credits:** 3 hours
- MATH 4400 - Graphs and Mathematical Models **Credits:** 3 hours
- MATH 5070 - Numerical Analysis I **Credits:** 3 hours
- STAT 5610 - Applied Multivariate Statistical Methods **Credits:** 3 hours
- MATH 5720 - Vector Calculus and Complex Variables **Credits:** 4 hours
- MATH 5740 - Advanced Differential Equations **Credits:** 3 hours

At most one of

- MATH 1450 - Discrete Mathematical Structures **Credits:** 3 hours
or
- MATH 3140 - Mathematical Proofs **Credits:** 3 hours

At most one of

- IEE 2610 - Engineering Statistics **Credits:** 3 hours
- IEE 2620 - Probability and Quality for Engineers **Credits:** 3 hours
- STAT 3620 - Probability **Credits:** 4 hours
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours

Mathematics Minor - Secondary Teaching Option (MHSN)

Program Requirements

A minimum grade point average of 2.5 must be attained in this minor option to satisfy the requirements of this program.

- MATH 2300 - Elementary Linear Algebra **Credits:** 4 hours
- MATH 3140 - Mathematical Proofs **Credits:** 3 hours
- MATH 3400 - Fundamental Concepts of Geometry **Credits:** 3 hours
- MATH 3500 - Teaching of Middle School Mathematics **Credits:** 3 hours
- MATH 3510 - Computing Technology in Secondary School Mathematics **Credits:** 3 hours

Select either:

- MATH 1220 - Calculus I **Credits:** 4 hours
or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours

Select either:

- MATH 1230 - Calculus II **Credits:** 4 hours
or
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

Approved electives

- MATH 3300 - Modern Algebra I **Credits:** 4 hours
or
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours

Medieval Institute

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James Palmitessa
Pablo Pastrana-Pérez
Larry Simon
Susan Steuer
Anise Strong
Grace Tiffany

Knowledge of medieval and Renaissance culture is essential to an understanding of modern culture. The Medieval Institute was established by the University to develop and coordinate interdisciplinary programs in medieval and Renaissance Studies. In addition to an undergraduate minor, the Institute offers a graduate program leading to an M.A. in medieval studies.

Minors

Medieval Studies Minor (24 hours)

Program Requirements

Students with an undergraduate minor must complete twenty-four hours, to include the following:

- MDVL 2000 - Voices of the Middle Ages **Credits:** 3 hours
- HIST 3600 - The Medieval World: Society and Culture **Credits:** 3 hours

Additional Hours

Eighteen additional hours of coursework from eligible courses that include any with substantial resources or subject matter from before 1800, with the approval of the director. The student should take care that the courses selected represent the interdisciplinary nature of medieval studies.

Philosophy

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Fritz Allhoff
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Students majoring in philosophy may go into teaching, law, medicine, journalism, government, computer programming, business or any number of other careers. Philosophy is attractive to those who are prepared to search for understanding for its own sake, who do not expect ready-made answers or easy solutions, and who are willing to subject their assumptions to critical scrutiny. Prospective philosophy teachers, whether at the university, junior college, or even high school level, should anticipate continuing for an advanced degree.

The Philosophy Department offices are located on the third floor of Moore Hall. Students are invited to visit the department office and the offices of faculty at any time.

3000-level courses: Each semester detailed course descriptions are posted outside the department office prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.

Undergraduates with junior standing and 12 hours of Philosophy may enroll in 5000-level courses. Specific prerequisites may be added to individual courses.

Robert Friedmann Philosophy Prize

A prize named in honor of Dr. Friedmann, the first person to teach philosophy at Western, is awarded annually to an outstanding senior philosophy student. In some years two such prizes are awarded.

Students Not Majoring or Minor in Philosophy

Students not majoring or minoring in philosophy find that philosophy adds intellectual depth to their major field of study. Philosophy by its nature touches on many areas of life and thought, frequently from a perspective that students find valuable and exciting. Non-majors often consider their philosophy courses an essential element in their general intellectual growth.

In recognition of this, the department offers a wide range of courses for non-major/minors. Students who wish to sharpen their critical thinking skills should consider PHIL 2200, PHIL 2250, or for more advanced students PHIL 3200 or 3250. Students interested in a general introduction to philosophy should consider PHIL 2000; students interested in a philosophical approach to a more specialized area should consider some of our upper-level courses, such as PHIL 3120 (Philosophy of Art), PHIL 3140 (Philosophy and Public Affairs), PHIL 3340 (Biomedical Ethics), PHIL 3500 (Foundations of the Modern Worldview), and PHIL 3550 (Philosophy of Science), among others. Students interested in a more detailed appreciation of the central problems of philosophy should consider such courses as PHIL 3310 (Moral Philosophy), PHIL 3320 (Theory of Knowledge) and PHIL 3330

(Metaphysics). Students interested in the history of philosophy should consider PHIL 3000 (Ancient and Medieval Philosophy) and PHIL 3010 (History of Modern Philosophy).

Bachelor of Arts

Philosophy Major

Program Requirements

Cognates: Appropriate courses in other departments may be used towards a philosophy major (not a minor) up to a maximum of four hours.

Flexibility is built into the philosophy major. Students are encouraged to speak with a faculty advisor about which combination of courses would best suit their individual interests.

The philosophy major requires the following:

Both of the following two courses:

- PHIL 3200 - Formal Logic **Credits:** 4 hours
- PHIL 4800 - Senior Seminar **Credits:** 4 hours

At least one of the following two courses:

- PHIL 3000 - Ancient and Medieval Philosophy **Credits:** 4 hours
- PHIL 3010 - History of Modern Philosophy **Credits:** 4 hours

At least one of the following three courses:

- PHIL 3310 - Moral Philosophy **Credits:** 4 hours
- PHIL 3320 - Theory of Knowledge **Credits:** 4 hours
- PHIL 3330 - Metaphysics **Credits:** 4 hours

Note:

A minimum of 28 credit hours in philosophy overall, including at least 15 credit hours of courses at the 3000 level or above. At least 9 of the 28 credit hours must be earned by completion of courses offered by WMU Philosophy Department.

Baccalaureate Writing Requirement

Students who have chosen the Philosophy major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- PHIL 3310 - Moral Philosophy **Credits:** 4 hours
- PHIL 3320 - Theory of Knowledge **Credits:** 4 hours
- PHIL 3330 - Metaphysics **Credits:** 4 hours

Philosophy Major - Professional and Applied Ethics Concentration

Program Requirements

Philosophy majors who have a special interest in the study of ethics may have their major identified as a Professional and Applied Ethics Concentration, provided that the following course requirements are met:

1. A minimum of 28 hours in Philosophy.

2. One of the following:

- PHIL 3000 - Ancient and Medieval Philosophy **Credits:** 4 hours
- PHIL 3010 - History of Modern Philosophy **Credits:** 4 hours

3. Three of the following:

- PHIL 2010 - Contemporary Problems in Ethics **Credits:** 4 hours
- PHIL 3030 - Existentialist Philosophies **Credits:** 3 hours
- PHIL 3110 - Political Philosophy **Credits:** 3 hours
- PHIL 3130 - Philosophy of Law **Credits:** 3 hours
- PHIL 3140 - Philosophy and Public Affairs **Credits:** 3 hours
- PHIL 3150 - Race and Gender Issues **Credits:** 3 hours
- PHIL 3160 - Ethics in Engineering and Technology **Credits:** 3 hours
- PHIL 3310 - Moral Philosophy **Credits:** 4 hours
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours
- PHIL 4100 - Professional Ethics **Credits:** 3 hours
- PHIL 5440 - Practical Ethics **Credits:** 3 hours

4. Required Course:

- PHIL 4800 - Senior Seminar **Credits:** 4 hours

Note:

The remaining credit hour requirements may be satisfied in a variety of ways, subject to the approval of the student's advisor. The student may apply up to four credit hours from an ethics-related course in another department, subject to advisor approval.

Baccalaureate Writing Requirement

Students who have chosen the Philosophy major with the professional and applied ethics concentration will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- PHIL 3310 - Moral Philosophy **Credits:** 4 hours
- PHIL 3320 - Theory of Knowledge **Credits:** 4 hours
- PHIL 3330 - Metaphysics **Credits:** 4 hours

Minors

Philosophy Minor

Program Requirements

A minor consists of at least 15 hours in philosophy, provided that the following requirements are met:.

At least one of:

- PHIL 3000 - Ancient and Medieval Philosophy **Credits:** 4 hours
- PHIL 3010 - History of Modern Philosophy **Credits:** 4 hours
- PHIL 3310 - Moral Philosophy **Credits:** 4 hours
- PHIL 3320 - Theory of Knowledge **Credits:** 4 hours
- PHIL 3330 - Metaphysics **Credits:** 4 hours

Remaining hours

A minimum of six hours of these 15 credit hours must be earned by completion of courses offered by the WMU Philosophy Department. Minors may choose any courses they find suitable.

Philosophy Minor - Professional and Applied Ethics

Program Requirements

Minimum of 18 credit hours. Required Philosophy courses:

1. One of the following:

- PHIL 3000 - Ancient and Medieval Philosophy **Credits:** 4 hours
- PHIL 3010 - History of Modern Philosophy **Credits:** 4 hours

2. Three of the following:

- PHIL 2010 - Contemporary Problems in Ethics **Credits:** 4 hours
- PHIL 3030 - Existentialist Philosophies **Credits:** 3 hours
- PHIL 3110 - Political Philosophy **Credits:** 3 hours
- PHIL 3130 - Philosophy of Law **Credits:** 3 hours
- PHIL 3140 - Philosophy and Public Affairs **Credits:** 3 hours
- PHIL 3150 - Race and Gender Issues **Credits:** 3 hours
- PHIL 3160 - Ethics in Engineering and Technology **Credits:** 3 hours
- PHIL 3310 - Moral Philosophy **Credits:** 4 hours
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours
- PHIL 4100 - Professional Ethics **Credits:** 3 hours

- PHIL 5440 - Practical Ethics **Credits:** 3 hours

Remaining hours

The remaining credit hour requirements may be satisfied in a variety of ways. The student may complete the minor by doing additional course work within the Department of Philosophy. Any courses, including PHIL 4980: Independent Study, are applicable. Also, the student may apply up to four credit hours from an ethics-related course in another department, subject to advisor approval.

Physics

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Elena Litvinova
Lisa Paulius
Alvin Rosenthal
David Schuster
John Tanis

The Department of Physics offers two programs of study leading to a major in physics. The Physics Major and the Geophysics Major (sponsored jointly by the Departments of Geological and Environmental Sciences and Physics) are programs that prepare students for graduate study in physics or physics-related fields or for professional employment in applied physics fields.

Any student contemplating majoring or minoring in physics should contact the Department of Physics as early as possible. This is especially true for transfer students from community colleges in regard to transfer credit and course of study. Students will want to contact the department undergraduate advisor regarding courses, employment opportunities, and graduate study in physics.

A student majoring in physics may qualify for departmental honors in physics by fulfilling the following requirements:

1. Complete six credit hours of 5000 level physics courses OR complete a senior honors thesis project in physics with the Lee Honors College.
2. Attain a cumulative grade point average of 3.5 or higher in the required physics courses and an accumulated overall grade point average of 3.2 or higher.

Minor programs are available in physics and astronomy.

All students majoring or minoring in physics are required to complete the introductory courses PHYS 2050, PHYS 2060, PHYS 2070, PHYS 2080, PHYS 3090, and PHYS 3100 with a grade of "C" or better in each course.

For all students, in all cases in which a course is listed as a prerequisite for a physics course, **a grade of "C" or better must be earned in that course or the prerequisite is not satisfied.** This includes math courses which are prerequisites.

5000-level courses are offered only to advanced physics majors. Department policy requires that undergraduates enrolling in these courses have successfully completed all prerequisite studies prior to enrollment. The department recommends that physics majors who plan to enter a graduate college complete course work in 5000-level physics and/or mathematics.

Bachelor of Science

Geophysics Major (GEPJ) (43 to 45 hours) (Physics)

The Geological and Environmental Sciences and Physics Departments offer a program of study leading to a major in geophysics. Students choosing this program of study are also required to take mathematics courses, which correspond to a minor in mathematics. Students contemplating a geophysics major should contact these two departments as early as possible for advising. Students need to meet with advisors in both departments.

Major Core: (40 to 41 hours)

Geosciences (GEOS) (22 hours)

- GEOS 1300 - Physical Geology **Credits:** 4 hours
- GEOS 1310 - Historical Geology **Credits:** 4 hours
- GEOS 4300 - Structural Geology **Credits:** 3 hours
- GEOS 5010 - Geologic Communications and Presentations **Credits:** 1 hour
- GEOS 5600 - Introduction to Geophysics **Credits:** 3 hours
- GEOS 5650 - Geological Field Methods **Credits:** 1 hour
- GEOS 5660 - Geological Field Studies **Credits:** 1 hour
- GEOS 5670 - Geological Field Mapping **Credits:** 1 hour

Select one of the following two core courses:

- GEOS 3010 - Minerals and Rocks **Credits:** 4 hours
- GEOS 3350 - Mineralogy **Credits:** 4 hours

Physics (PHYS) (18 to 19 hours)

- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- PHYS 3090 - Introductory Modern Physics **Credits:** 4 hours
- PHYS 3100 - Introductory Modern Physics Lab **Credits:** 1 hour

Plus one of the following:

- PHYS 2500 - Waves and Optics **Credits:** 3 hours
- PHYS 3250 - Introduction to Astrophysics **Credits:** 3 hours
- PHYS 3300 - Thermodynamics **Credits:** 3 hours
- PHYS 3420 - Electronics **Credits:** 4 hours
- PHYS 4200 - Analytical Mechanics **Credits:** 3 hours
- PHYS 4400 - Electromagnetism **Credits:** 4 hours

Electives: (3 to 4 hours)

One elective from upper-level geosciences, physics, or engineering courses to be chosen with consent of advisor (3-4 hours).

Additional Information

A minimum grade of "C" is required in each of the required courses as well as in each of the prerequisites for all required courses.

Required Mathematics Minor (19 hours)

Select either:

- MATH 1220 - Calculus I **Credits:** 4 hours
or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(Recommended)

Select either:

- MATH 1230 - Calculus II **Credits:** 4 hours
or
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
(Recommended)

And

- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- MATH 5070 - Numerical Analysis I **Credits:** 3 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the Geophysics Major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:

- ENGL 3050 - Professional Writing: Audience, Genre, and Workplace Cultures **Credits:** 4 hours
- GEOS 4320 - Geomorphology **Credits:** 3 hours
- GEOS 4350 - Sedimentation and Stratigraphy **Credits:** 4 hours

Required Cognate Courses (8 hours)

- CS 1110 - Computer Science I **Credits:** 4 hours

Select either:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
and
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
OR
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
and

- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour

Physics Major

Required Courses

- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- PHYS 2500 - Waves and Optics **Credits:** 3 hours
- PHYS 3090 - Introductory Modern Physics **Credits:** 4 hours
- PHYS 3100 - Introductory Modern Physics Lab **Credits:** 1 hour
- PHYS 3300 - Thermodynamics **Credits:** 3 hours
- PHYS 3420 - Electronics **Credits:** 4 hours
- PHYS 4200 - Analytical Mechanics **Credits:** 3 hours
- PHYS 4400 - Electromagnetism **Credits:** 4 hours
- PHYS 4600 - Quantum Mechanics **Credits:** 3 hours
- PHYS 4660 - Advanced Laboratory **Credits:** 3 hours

Required Cognates

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
and
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour

And one of the following:

- CHEM 1120 - General Chemistry II **Credits:** 3 hours
and
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
or
- PHYS 3250 - Introduction to Astrophysics **Credits:** 3 hours
or
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours
or
- Another course at the 2000-level or higher approved by the Physics Academic Advisor.

Required Math Minor

Select Either

- MATH 1220 - Calculus I **Credits:** 4 hours
or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(Recommended)

And Either

- MATH 1230 - Calculus II **Credits:** 4 hours
- or
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
(Recommended)

And

- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- MATH 5720 - Vector Calculus and Complex Variables **Credits:** 4 hours

Computer Programming Requirement

The Department requires physics majors to be proficient in a computer programming language before graduation. This requirement can be met by demonstrating proficiency or by passing a course in computer programming (approved by the advisor) with a grade of "C" or higher.

Baccalaureate-Level Writing Requirement

Students who have chosen the Liberal Education Physics Major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:

- PHYS 4660 - Advanced Laboratory **Credits:** 3 hours

Minors

Astronomy Minor

Required Courses

- PHYS 1030 - Sky and Solar System Laboratory **Credits:** 1 hour
- PHYS 1040 - Introduction to the Sky and Solar System **Credits:** 3 hours
- PHYS 1050 - Stars and Galaxies Laboratory **Credits:** 1 hour
- PHYS 1060 - Introduction to Stars and Galaxies **Credits:** 3 hours
- PHYS 3250 - Introduction to Astrophysics **Credits:** 3 hours
- PHYS 4980 - Special Problems **Credits:** 1 to 3 hours

AND

One additional course in physics or a related science, at least 3 credit hours, subject to approval by the physics advisor.

Note:

Students not majoring in physics should note that they must also complete all prerequisites for the courses listed above. See advisor for details.

Physics Minor

Required Courses

- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- PHYS 3090 - Introductory Modern Physics **Credits:** 4 hours
- PHYS 3100 - Introductory Modern Physics Lab **Credits:** 1 hour

Additional Courses

In addition, two physics courses numbered above 3000 and totaling a minimum of six hours of credit are required, subject to approval by the physics advisor.

Political Science

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Paul Clements
J. Kevin Corder
Lauren Foley
Emily Hauptmann
Gunther M. Hegu
Susan Hoffmann
Mark Hurwitz
Denise Keele
Priscilla Lambert
Mahendra Lawoti
Jacinda Swanson
Yuan-Kang Wang
Peter W. Wielhouwer

Courses in the department are designed to prepare a student to: (1) become a well-informed citizen; (2) become a teacher of government or civics; (3) become a governmental employee or officer; (4) understand the part government plays in everyday business or other activities; (5) develop sound methods of investigation and reflection as well as the ability to evaluate political information critically; (6) understand the role that individuals and organized groups can play in the political process; and (7) appreciate the relationship of the study of government and public affairs to other social sciences. Students who wish to major or minor in political science should come to the department office as soon as possible to complete the appropriate declaration form and to consult with a departmental advisor.

Institute of Government and Politics

The Department of Political Science houses and administers the Institute of Government and Politics (IGP). The mission of the IGP is to introduce students, faculty and the greater Kalamazoo community to scholars of politics and political actors from outside the university and to the current research of departmental faculty and students. The IGP hosts events that feature experts on international and comparative politics, American politics and government, and political theory, as well as state and local elected officials, diplomatic and consular officials, and federal policymakers. The IGP teams with student groups and other academic units throughout the university to arrange these campus visits.

Foreign Study

Study abroad is encouraged by the Political Science Department. University funds are available to assist students who would like to spend a semester studying abroad. Credit toward any of the majors in political science can be obtained while studying in other countries. To explore these opportunities, talk with one of the faculty in the Political Science Department or contact the Study Abroad Director or Coordinator, B-2425 Ellsworth Hall.

Honors Program

Students have the opportunity to earn the bachelor's degree with honors in political science. To be eligible a student must have an overall cumulative GPA of 3.0 or above, a GPA of 3.5 or above for courses in the major, prepare an original research paper with a department faculty member and pass an oral examination of the thesis with two additional faculty members. Students interested in the program should consult the departmental honors advisor.

Programs of Study

Programs of study offered by the department include: (1) a standard major and minor in political science; (2) a major in political science with an international and comparative politics concentration; (3) a major in political science with a public law

concentration; (4) a major in political science with an American public policy concentration; and (5) a teaching major and minor in political science.

Advanced Courses

Undergraduates may enroll in 5000-level courses only after attaining Junior standing and taking PSCI 2000, either PSCI 2400 or PSCI 2500, and two additional courses in Political Science.

Bachelor of Arts

Political Science Major (PSLJ) (33 hours)

The major consists of a minimum of 33 semester hours of work in the department. A grade of "C" or better is required in all courses in the major, including courses in all concentrations of the major (i.e., international and comparative politics, public law, American public policy, and the secondary education curriculum). It is expected that transfer students will take at least one-half of the minimum required 33 hours in the department.

Required Core Courses

- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- or
- PSCI 2500 - International Relations **Credits:** 4 hours
- PSCI 3950 - Data in Politics and Policy **Credits:** 3 hours

One course in comparative politics

To be chosen from:

- PSCI 3400 - European Politics **Credits:** 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours
- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- PSCI 4400 - The European Union **Credits:** 3 hours
- PSCI 4410 - Issues in International Politics **Credits:** 3 hours
- PSCI 4420 - Studies in International Politics **Credits:** 3 hours

Two courses in political theory

To be chosen from:

- PSCI 3600 - Ancient Political Thought **Credits:** 3 hours
- PSCI 3610 - Modern Political Thought **Credits:** 3 hours
- PSCI 3620 - Contemporary Political Ideologies **Credits:** 3 hours
- PSCI 3630 - American Political Theory **Credits:** 3 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the Political Science major may satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:

- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours
- PSCI 4240 - Environmental Law **Credits:** 3 hours
- PSCI 4500 - Seminar in International and Comparative Politics **Credits:** 3 hours
- PSCI 4940 - Seminar in Political Science **Credits:** 3 hours

Courses by Topic - Political Science

Principles

- PSCI 1050 - Critical Thinking About Politics **Credits:** 3 hours

American Political System

- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 2020 - State and Local Government **Credits:** 4 hours
- PSCI 3000 - Urban Politics in the United States **Credits:** 3 hours
- PSCI 3040 - Introduction to Public Policy **Credits:** 3 hours
- PSCI 3060 - Environmental Politics **Credits:** 4 hours
- PSCI 3100 - Political Parties and Elections **Credits:** 3 hours
- PSCI 3110 - American Politics and the Media **Credits:** 3 hours
- PSCI 3140 - The Presidency **Credits:** 3 hours
- PSCI 3150 - The Politics of Congress **Credits:** 3 hours
- PSCI 3200 - The American Judicial Process **Credits:** 4 hours
- PSCI 3250 - Criminal Justice Policy **Credits:** 3 hours
- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours
- PSCI 4200 - Constitutional Law **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours
- PSCI 4220 - Civil Rights and Liberties **Credits:** 3 hours
- PSCI 4230 - The First Amendment **Credits:** 3 hours
- PSCI 4240 - Environmental Law **Credits:** 3 hours
- PSCI 5060 - Topics in American Politics **Credits:** 3 to 4 hours

Public Administration

- PSCI 5320 - Administration in Developing Countries **Credits:** 3 hours

International and Comparative Politics

- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- PSCI 2500 - International Relations **Credits:** 4 hours

- PSCI 3400 - European Politics **Credits:** 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours
- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours
- PSCI 3490 - Chinese Politics **Credits:** 3 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- PSCI 3510 - Terrorism and Political Violence **Credits:** 3 hours
- PSCI 3520 - International Conflict **Credits:** 3 hours
- PSCI 3530 - Women and Politics **Credits:** 3 hours
- PSCI 4400 - The European Union **Credits:** 3 hours
- PSCI 4410 - Issues in International Politics **Credits:** 3 hours
- PSCI 4420 - Studies in International Politics **Credits:** 3 hours
- PSCI 4500 - Seminar in International and Comparative Politics **Credits:** 3 hours

Political Theory and Methodology

- PSCI 3600 - Ancient Political Thought **Credits:** 3 hours
- PSCI 3610 - Modern Political Thought **Credits:** 3 hours
- PSCI 3620 - Contemporary Political Ideologies **Credits:** 3 hours
- PSCI 3630 - American Political Theory **Credits:** 3 hours
- PSCI 3950 - Data in Politics and Policy **Credits:** 3 hours

Special Studies

- PSCI 2700 - Political Topics **Credits:** 1 to 3 hours
- PSCI 3700 - Issues in Contemporary Politics **Credits:** 3 to 4 hours
- PSCI 3900 - Field Work in Political Science **Credits:** 1 to 12 hours
- PSCI 3910 - Internship Seminar **Credits:** 3 hours
- PSCI 4920 - Political Science Honors Research **Credits:** 2 to 3 hours
- PSCI 4940 - Seminar in Political Science **Credits:** 3 hours
- PSCI 5980 - Studies in Political Science **Credits:** 1 to 4 hours

Political Science Major - American Public Policy Concentration

This concentration is designed for students who wish to study American government and public policy in depth, yet gain exposure to the broader discipline of political science as well. It aims to prepare students to pursue advanced degrees or careers in policy making, politics, law and public service. The concentration provides for students completing the program to receive designation of this specialization on their transcript.

Students interested in a major in political science with a concentration in American public policy should see the designated departmental advisor.

A grade of "C" or better is required in all courses in the major in political science with a concentration in American public policy.

Program Requirements

For the political science major concentration in American public policy, a student must complete the following:

Required Core Courses

- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 3040 - Introduction to Public Policy **Credits:** 3 hours
- PSCI 3950 - Data in Politics and Policy **Credits:** 3 hours
- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours

One international relations or comparative politics course to be chosen from:

- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- PSCI 2500 - International Relations **Credits:** 4 hours

Two political theory courses to be chosen from:

- PSCI 3600 - Ancient Political Thought **Credits:** 3 hours
- PSCI 3610 - Modern Political Thought **Credits:** 3 hours
- PSCI 3620 - Contemporary Political Ideologies **Credits:** 3 hours
- PSCI 3630 - American Political Theory **Credits:** 3 hours

Three of the following courses

- PSCI 2020 - State and Local Government **Credits:** 4 hours
- PSCI 3000 - Urban Politics in the United States **Credits:** 3 hours
- PSCI 3100 - Political Parties and Elections **Credits:** 3 hours
- PSCI 3110 - American Politics and the Media **Credits:** 3 hours
- PSCI 3140 - The Presidency **Credits:** 3 hours
- PSCI 3150 - The Politics of Congress **Credits:** 3 hours
- PSCI 3200 - The American Judicial Process **Credits:** 4 hours

Two additional PSCI courses at 2000-level or above (6 hours)

Baccalaureate-Level Writing Requirement

Baccalaureate-Level Writing requirement satisfied by:

- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours

Courses by Topic - Political Science

Principles

- PSCI 1050 - Critical Thinking About Politics **Credits:** 3 hours

American Political System

- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 2020 - State and Local Government **Credits:** 4 hours
- PSCI 3000 - Urban Politics in the United States **Credits:** 3 hours
- PSCI 3040 - Introduction to Public Policy **Credits:** 3 hours
- PSCI 3060 - Environmental Politics **Credits:** 4 hours
- PSCI 3100 - Political Parties and Elections **Credits:** 3 hours
- PSCI 3110 - American Politics and the Media **Credits:** 3 hours
- PSCI 3140 - The Presidency **Credits:** 3 hours
- PSCI 3150 - The Politics of Congress **Credits:** 3 hours
- PSCI 3200 - The American Judicial Process **Credits:** 4 hours
- PSCI 3250 - Criminal Justice Policy **Credits:** 3 hours
- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours
- PSCI 4200 - Constitutional Law **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours
- PSCI 4220 - Civil Rights and Liberties **Credits:** 3 hours
- PSCI 4230 - The First Amendment **Credits:** 3 hours
- PSCI 4240 - Environmental Law **Credits:** 3 hours
- PSCI 5060 - Topics in American Politics **Credits:** 3 to 4 hours

Public Administration

- PSCI 5320 - Administration in Developing Countries **Credits:** 3 hours

International and Comparative Politics

- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- PSCI 2500 - International Relations **Credits:** 4 hours
- PSCI 3400 - European Politics **Credits:** 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours
- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours
- PSCI 3490 - Chinese Politics **Credits:** 3 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- PSCI 3510 - Terrorism and Political Violence **Credits:** 3 hours
- PSCI 3520 - International Conflict **Credits:** 3 hours
- PSCI 3530 - Women and Politics **Credits:** 3 hours
- PSCI 4400 - The European Union **Credits:** 3 hours
- PSCI 4410 - Issues in International Politics **Credits:** 3 hours
- PSCI 4420 - Studies in International Politics **Credits:** 3 hours
- PSCI 4500 - Seminar in International and Comparative Politics **Credits:** 3 hours

Political Theory and Methodology

- PSCI 3600 - Ancient Political Thought **Credits:** 3 hours
- PSCI 3610 - Modern Political Thought **Credits:** 3 hours
- PSCI 3620 - Contemporary Political Ideologies **Credits:** 3 hours
- PSCI 3630 - American Political Theory **Credits:** 3 hours
- PSCI 3950 - Data in Politics and Policy **Credits:** 3 hours

Special Studies

- PSCI 2700 - Political Topics **Credits:** 1 to 3 hours
- PSCI 3700 - Issues in Contemporary Politics **Credits:** 3 to 4 hours
- PSCI 3900 - Field Work in Political Science **Credits:** 1 to 12 hours
- PSCI 3910 - Internship Seminar **Credits:** 3 hours
- PSCI 4920 - Political Science Honors Research **Credits:** 2 to 3 hours
- PSCI 4940 - Seminar in Political Science **Credits:** 3 hours
- PSCI 5980 - Studies in Political Science **Credits:** 1 to 4 hours

Political Science Major - International and Comparative Politics Concentration

This concentration is available within the political science major for students with particular career and/or advanced degree interests that would require concentrated knowledge of foreign politics and/or international politics. The concentration provides for students completing the program to receive designation of this specialization on their transcript.

The concentration in international and comparative politics is aimed at preparing students for careers in international affairs, the foreign service, development assistance, and international business.

Students interested in a major in political science with a concentration in international and comparative politics should see the designated departmental advisor.

A grade of "C" or better is required in all courses in the major in political science with a concentration in international and comparative politics, including cognates and language courses.

Program Requirements

For the political science major concentration in international and comparative politics, a student must complete the following:

Required Core Courses (16 hours)

- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- PSCI 2500 - International Relations **Credits:** 4 hours

One course in methods chosen from:

- PSCI 3950 - Data in Politics and Policy **Credits:** 3 hours

One course in political theory chosen from:

- PSCI 3600 - Ancient Political Thought **Credits:** 3 hours
- PSCI 3610 - Modern Political Thought **Credits:** 3 hours
- PSCI 3620 - Contemporary Political Ideologies **Credits:** 3 hours
- PSCI 3630 - American Political Theory **Credits:** 3 hours

Four of the Following Courses (12 to 16 hours)

- PSCI 3400 - European Politics **Credits:** 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours
- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- PSCI 4400 - The European Union **Credits:** 3 hours
- PSCI 4410 - Issues in International Politics **Credits:** 3 hours
- PSCI 4420 - Studies in International Politics **Credits:** 3 hours
- PSCI 5320 - Administration in Developing Countries **Credits:** 3 hours

Additional Course

- One additional course (3 to 4 hours) from Political Science at the 3000-level or higher.

Baccalaureate-Level Writing Requirement

- PSCI 4500 - Seminar in International and Comparative Politics **Credits:** 3 hours

Foreign Language Requirement

Student must complete two years of the same foreign language, and this can be met in one of the following four ways. First, successful completion (defined as passing) of the 2010-level course at WMU in the language of their choice. Second, successful completion of similar courses at another institution which are accepted as transfer credit by WMU. Third, passing the Foreign Language Placement Evaluation Exam in the language of their choice regularly offered by the Department of World Languages and Literatures. The student must be placed in the third year of study, which means the student's level of competence is in accordance with two completed years. Fourth, if the student is a foreign student whose first language is not English, the student is exempt from this requirement. Determination of eligibility for this exemption will be based on whether the student was required to take the TOEFL test for admission.

Cognate Courses

Complete at least three additional courses on foreign, international, or cross-national topics (prior approval by advisor required) from at least two of the following departments: Anthropology, Economics, Geography, History, World Languages and Literatures (literature and culture classes only), Comparative Religion, Sociology or Spanish (literature and culture classes only). Certain business courses may also be considered (see advisor).

Courses by Topic - Political Science

Principles

- PSCI 1050 - Critical Thinking About Politics **Credits:** 3 hours

American Political System

- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 2020 - State and Local Government **Credits:** 4 hours
- PSCI 3000 - Urban Politics in the United States **Credits:** 3 hours
- PSCI 3040 - Introduction to Public Policy **Credits:** 3 hours
- PSCI 3060 - Environmental Politics **Credits:** 4 hours
- PSCI 3100 - Political Parties and Elections **Credits:** 3 hours
- PSCI 3110 - American Politics and the Media **Credits:** 3 hours
- PSCI 3140 - The Presidency **Credits:** 3 hours
- PSCI 3150 - The Politics of Congress **Credits:** 3 hours
- PSCI 3200 - The American Judicial Process **Credits:** 4 hours
- PSCI 3250 - Criminal Justice Policy **Credits:** 3 hours
- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours
- PSCI 4200 - Constitutional Law **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours
- PSCI 4220 - Civil Rights and Liberties **Credits:** 3 hours
- PSCI 4230 - The First Amendment **Credits:** 3 hours
- PSCI 4240 - Environmental Law **Credits:** 3 hours
- PSCI 5060 - Topics in American Politics **Credits:** 3 to 4 hours

Public Administration

- PSCI 5320 - Administration in Developing Countries **Credits:** 3 hours

International and Comparative Politics

- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- PSCI 2500 - International Relations **Credits:** 4 hours
- PSCI 3400 - European Politics **Credits:** 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours
- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours
- PSCI 3490 - Chinese Politics **Credits:** 3 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- PSCI 3510 - Terrorism and Political Violence **Credits:** 3 hours
- PSCI 3520 - International Conflict **Credits:** 3 hours
- PSCI 3530 - Women and Politics **Credits:** 3 hours
- PSCI 4400 - The European Union **Credits:** 3 hours
- PSCI 4410 - Issues in International Politics **Credits:** 3 hours
- PSCI 4420 - Studies in International Politics **Credits:** 3 hours
- PSCI 4500 - Seminar in International and Comparative Politics **Credits:** 3 hours

Political Theory and Methodology

- PSCI 3600 - Ancient Political Thought **Credits:** 3 hours
- PSCI 3610 - Modern Political Thought **Credits:** 3 hours
- PSCI 3620 - Contemporary Political Ideologies **Credits:** 3 hours
- PSCI 3630 - American Political Theory **Credits:** 3 hours
- PSCI 3950 - Data in Politics and Policy **Credits:** 3 hours

Special Studies

- PSCI 2700 - Political Topics **Credits:** 1 to 3 hours
- PSCI 3700 - Issues in Contemporary Politics **Credits:** 3 to 4 hours
- PSCI 3900 - Field Work in Political Science **Credits:** 1 to 12 hours
- PSCI 3910 - Internship Seminar **Credits:** 3 hours
- PSCI 4920 - Political Science Honors Research **Credits:** 2 to 3 hours
- PSCI 4940 - Seminar in Political Science **Credits:** 3 hours
- PSCI 5980 - Studies in Political Science **Credits:** 1 to 4 hours

Political Science Major - Public Law Concentration (PPLJ)

This concentration is available within the political science major for students with particular career and/or advanced degree interests in this field. The concentration allows students completing the program to receive designation of this specialization on their transcript.

Public law is concerned with judicial and quasi-judicial institutions at the international, national, state, and local levels. The concentration is primarily, though not exclusively, designed for students with career interests in the field of law.

A grade of "C" or better is required in all courses in the major in political science with a concentration in public law.

Program Requirements

For the political science major concentration in public law, a student must complete the following:

Required Core Courses

- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- or
- PSCI 2500 - International Relations **Credits:** 4 hours
- PSCI 3200 - The American Judicial Process **Credits:** 4 hours
- PSCI 3950 - Data in Politics and Policy **Credits:** 3 hours

One course in comparative politics (3-4 hours)

- PSCI 3400 - European Politics **Credits:** 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours

- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours
- PSCI 3490 - Chinese Politics **Credits:** 3 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- PSCI 3510 - Terrorism and Political Violence **Credits:** 3 hours
- PSCI 3520 - International Conflict **Credits:** 3 hours
- PSCI 3530 - Women and Politics **Credits:** 3 hours
- PSCI 4400 - The European Union **Credits:** 3 hours
- PSCI 4410 - Issues in International Politics **Credits:** 3 hours
- PSCI 4420 - Studies in International Politics **Credits:** 3 hours

One course in political theory (3 hours)

- PSCI 3600 - Ancient Political Thought **Credits:** 3 hours
- PSCI 3610 - Modern Political Thought **Credits:** 3 hours
- PSCI 3620 - Contemporary Political Ideologies **Credits:** 3 hours
- PSCI 3630 - American Political Theory **Credits:** 3 hours

Two of the following courses (6-7 hours)

- PSCI 3000 - Urban Politics in the United States **Credits:** 3 hours
- PSCI 3040 - Introduction to Public Policy **Credits:** 3 hours
- PSCI 3060 - Environmental Politics **Credits:** 4 hours
- PSCI 3100 - Political Parties and Elections **Credits:** 3 hours
- PSCI 3110 - American Politics and the Media **Credits:** 3 hours
- PSCI 3140 - The Presidency **Credits:** 3 hours
- PSCI 3150 - The Politics of Congress **Credits:** 3 hours
- PSCI 3250 - Criminal Justice Policy **Credits:** 3 hours

Two of the following courses (6 hours)

- PSCI 4200 - Constitutional Law **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours
- PSCI 4220 - Civil Rights and Liberties **Credits:** 3 hours
- PSCI 4230 - The First Amendment **Credits:** 3 hours
- PSCI 4240 - Environmental Law **Credits:** 3 hours

Baccalaureate-Level Writing Requirement (3 hours)

One course to be chosen from:

- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours
- PSCI 4240 - Environmental Law **Credits:** 3 hours
- PSCI 4500 - Seminar in International and Comparative Politics **Credits:** 3 hours
- PSCI 4940 - Seminar in Political Science **Credits:** 3 hours

One additional elective in political science (3-4 hours)

Courses by Topic - Political Science

Principles

- PSCI 1050 - Critical Thinking About Politics **Credits:** 3 hours

American Political System

- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 2020 - State and Local Government **Credits:** 4 hours
- PSCI 3000 - Urban Politics in the United States **Credits:** 3 hours
- PSCI 3040 - Introduction to Public Policy **Credits:** 3 hours
- PSCI 3060 - Environmental Politics **Credits:** 4 hours
- PSCI 3100 - Political Parties and Elections **Credits:** 3 hours
- PSCI 3110 - American Politics and the Media **Credits:** 3 hours
- PSCI 3140 - The Presidency **Credits:** 3 hours
- PSCI 3150 - The Politics of Congress **Credits:** 3 hours
- PSCI 3200 - The American Judicial Process **Credits:** 4 hours
- PSCI 3250 - Criminal Justice Policy **Credits:** 3 hours
- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours
- PSCI 4200 - Constitutional Law **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours
- PSCI 4220 - Civil Rights and Liberties **Credits:** 3 hours
- PSCI 4230 - The First Amendment **Credits:** 3 hours
- PSCI 4240 - Environmental Law **Credits:** 3 hours
- PSCI 5060 - Topics in American Politics **Credits:** 3 to 4 hours

Public Administration

- PSCI 5320 - Administration in Developing Countries **Credits:** 3 hours

International and Comparative Politics

- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- PSCI 2500 - International Relations **Credits:** 4 hours
- PSCI 3400 - European Politics **Credits:** 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours
- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours
- PSCI 3490 - Chinese Politics **Credits:** 3 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- PSCI 3510 - Terrorism and Political Violence **Credits:** 3 hours

- PSCI 3520 - International Conflict **Credits:** 3 hours
- PSCI 3530 - Women and Politics **Credits:** 3 hours
- PSCI 4400 - The European Union **Credits:** 3 hours
- PSCI 4410 - Issues in International Politics **Credits:** 3 hours
- PSCI 4420 - Studies in International Politics **Credits:** 3 hours
- PSCI 4500 - Seminar in International and Comparative Politics **Credits:** 3 hours

Political Theory and Methodology

- PSCI 3600 - Ancient Political Thought **Credits:** 3 hours
- PSCI 3610 - Modern Political Thought **Credits:** 3 hours
- PSCI 3620 - Contemporary Political Ideologies **Credits:** 3 hours
- PSCI 3630 - American Political Theory **Credits:** 3 hours
- PSCI 3950 - Data in Politics and Policy **Credits:** 3 hours

Special Studies

- PSCI 2700 - Political Topics **Credits:** 1 to 3 hours
- PSCI 3700 - Issues in Contemporary Politics **Credits:** 3 to 4 hours
- PSCI 3900 - Field Work in Political Science **Credits:** 1 to 12 hours
- PSCI 3910 - Internship Seminar **Credits:** 3 hours
- PSCI 4920 - Political Science Honors Research **Credits:** 2 to 3 hours
- PSCI 4940 - Seminar in Political Science **Credits:** 3 hours
- PSCI 5980 - Studies in Political Science **Credits:** 1 to 4 hours

Minors

Political Science Minor (POLN) (20 hours)

The standard political science minor consists of 20 semester hours in political science. It is expected that transfer students will take at least one-half of the minimum required 20 hours in the department. A grade of "C" or better is required in all courses in the political science minor. The following are the program requirements for the minor.

Program Requirements

A political science minor shall complete the following:

- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- or
- PSCI 2500 - International Relations **Credits:** 4 hours

One course in comparative politics chosen from:

- PSCI 3400 - European Politics **Credits:** 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours

- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- PSCI 4400 - The European Union **Credits:** 3 hours
- PSCI 4410 - Issues in International Politics **Credits:** 3 hours
- PSCI 4420 - Studies in International Politics **Credits:** 3 hours

One course in political theory chosen from:

- PSCI 3600 - Ancient Political Thought **Credits:** 3 hours
- PSCI 3610 - Modern Political Thought **Credits:** 3 hours
- PSCI 3620 - Contemporary Political Ideologies **Credits:** 3 hours
- PSCI 3630 - American Political Theory **Credits:** 3 hours

Additional Information

Requirements may be waived with the written permission of the chairperson of the department.

Courses by Topic - Political Science

Principles

- PSCI 1050 - Critical Thinking About Politics **Credits:** 3 hours

American Political System

- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 2020 - State and Local Government **Credits:** 4 hours
- PSCI 3000 - Urban Politics in the United States **Credits:** 3 hours
- PSCI 3040 - Introduction to Public Policy **Credits:** 3 hours
- PSCI 3060 - Environmental Politics **Credits:** 4 hours
- PSCI 3100 - Political Parties and Elections **Credits:** 3 hours
- PSCI 3110 - American Politics and the Media **Credits:** 3 hours
- PSCI 3140 - The Presidency **Credits:** 3 hours
- PSCI 3150 - The Politics of Congress **Credits:** 3 hours
- PSCI 3200 - The American Judicial Process **Credits:** 4 hours
- PSCI 3250 - Criminal Justice Policy **Credits:** 3 hours
- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours
- PSCI 4200 - Constitutional Law **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours
- PSCI 4220 - Civil Rights and Liberties **Credits:** 3 hours
- PSCI 4230 - The First Amendment **Credits:** 3 hours
- PSCI 4240 - Environmental Law **Credits:** 3 hours
- PSCI 5060 - Topics in American Politics **Credits:** 3 to 4 hours

Public Administration

- PSCI 5320 - Administration in Developing Countries **Credits:** 3 hours

International and Comparative Politics

- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- PSCI 2500 - International Relations **Credits:** 4 hours
- PSCI 3400 - European Politics **Credits:** 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours
- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours
- PSCI 3490 - Chinese Politics **Credits:** 3 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- PSCI 3510 - Terrorism and Political Violence **Credits:** 3 hours
- PSCI 3520 - International Conflict **Credits:** 3 hours
- PSCI 3530 - Women and Politics **Credits:** 3 hours
- PSCI 4400 - The European Union **Credits:** 3 hours
- PSCI 4410 - Issues in International Politics **Credits:** 3 hours
- PSCI 4420 - Studies in International Politics **Credits:** 3 hours
- PSCI 4500 - Seminar in International and Comparative Politics **Credits:** 3 hours

Political Theory and Methodology

- PSCI 3600 - Ancient Political Thought **Credits:** 3 hours
- PSCI 3610 - Modern Political Thought **Credits:** 3 hours
- PSCI 3620 - Contemporary Political Ideologies **Credits:** 3 hours
- PSCI 3630 - American Political Theory **Credits:** 3 hours
- PSCI 3950 - Data in Politics and Policy **Credits:** 3 hours

Special Studies

- PSCI 2700 - Political Topics **Credits:** 1 to 3 hours
- PSCI 3700 - Issues in Contemporary Politics **Credits:** 3 to 4 hours
- PSCI 3900 - Field Work in Political Science **Credits:** 1 to 12 hours
- PSCI 3910 - Internship Seminar **Credits:** 3 hours
- PSCI 4920 - Political Science Honors Research **Credits:** 2 to 3 hours
- PSCI 4940 - Seminar in Political Science **Credits:** 3 hours
- PSCI 5980 - Studies in Political Science **Credits:** 1 to 4 hours

Political Science Minor - Social Studies Major (23 hours)

The teaching minor consists of 23 hours of work in political science. It is expected that transfer students will take at least one-half of the minimum required 23 hours in the department. A grade of "C" or better is required in all courses in the secondary education minor in Political Science.

The following are the program requirements for teaching minors. Students must complete the Social Studies - Secondary Education major to fulfill the requirements of this minor.

Required Courses

- PSCI 2020 - State and Local Government **Credits:** 4 hours

Select either:

- PSCI 3950 - Data in Politics and Policy **Credits:** 3 hours

Comparative Politics

Choose one of the following:

- PSCI 3400 - European Politics **Credits:** 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours
- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours

Political theory

Choose one of the following:

- PSCI 3600 - Ancient Political Thought **Credits:** 3 hours
- PSCI 3610 - Modern Political Thought **Credits:** 3 hours
- PSCI 3620 - Contemporary Political Ideologies **Credits:** 3 hours
- PSCI 3630 - American Political Theory **Credits:** 3 hours

Electives

Additional electives in Political Science at the 2000-level or above to achieve a minimum of 23 hours.

Cognate Requirements

- GEOG 4600 - Geospatial Technology in Teaching Geography and Social Studies **Credits:** 3 hours
or
- HIST 4940 - Teaching Methods for Secondary Schools **Credits:** 3 hours

Psychology

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Students must consult the department advisor for major/minor requirements in Psychology, and for the evaluation of transfer credits, or for any other questions involving Psychology majors or minors.

Honors Program in Psychology

The honors program is designed to promote an academic community of undergraduate students, graduate students and faculty in psychology. The requirements for the departmental honors program include:

1. The completion of a major in Psychology.
2. A University grade point average of 3.5, and a department grade point average of 3.8.
3. Completion of PSY 4990: Honors Project in Psychology (6 credit hours) and the preparation of an Honors Thesis.
4. The successful defense of the Honors Thesis before a departmental committee.
5. Participation in a professional apprenticeship program (2 credit hours).

Advanced Courses

All 5000-level courses in the Department of Psychology have a prerequisite of junior standing, PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Advanced Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis.

Bachelor of Science

Pre-Psychology Major

Admission Requirement

Any freshman or transfer student planning to pursue psychology as a major will be admitted as a pre-psychology student and will work with a psychology advisor to develop a planned program. Admission as a General Psychology major requires that the student complete PSY 1000, PSY 1400, PSY 1401, PSY 1600, and PSY 3000 all with grades of "C" or better. Admission as a Behavioral Science major requires that the student complete PSY 1000, PSY 1400, PSY 1401, PSY 1600, and PSY 3000, all with grades of "B" or better.

Transfer students who present appropriate psychology courses will be evaluated and may be admitted on an individual basis directly into the program. Transfer students with no psychology courses will be required to take the relevant courses listed above.

Additional information can be obtained from the departmental office or from a psychology advisor. Students who do not meet admission requirements will be informed of steps they can take to earn admission.

Psychology: Behavioral Science Major (41 hours)

The Behavioral Science Major prepares students for a variety of graduate programs in psychology by emphasizing a stronger foundation in research, professional skills, and applied experience, as well as requiring a higher degree of rigor in completed coursework. Admission to the Behavioral Science Major requires a minimum grade of "B" in all five Introductory Core courses (PSY 1000, PSY 1400, PSY 1401, PSY 1600, and PSY 3000). In addition, students must obtain a grade of "C" or better in any subsequent courses that count toward the Behavioral Science Major. A minimum of nine (9) hours must be taken from the WMU Psychology Department. All psychology majors are strongly encouraged to satisfy the College-Level Mathematics or Quantitative Reasoning Proficiency before taking upper-level classes.

Introductory Core (14 hours)

- PSY 1000 - General Psychology **Credits:** 3 hours
- PSY 1400 - Introduction to Behavior Analysis **Credits:** 4 hours
- PSY 1401 - Introductory Operant Conditioning Laboratory **Credits:** 1 hour
- PSY 1600 - Child Psychology **Credits:** 3 hours
- PSY 3000 - Research Methods and Statistics **Credits:** 3 hours

Professional Skills and Advanced Principles (12 hours)

- PSY 3300 - Advanced Research Methods **Credits:** 3 hours
- PSY 3600 - Advanced Concepts and Principles of Behavior Analysis **Credits:** 3 hours
- PSY 3844 - Professional and Career Development **Credits:** 3 hours
- PSY 4600 - Survey of Behavior Analysis Research **Credits:** 3 hours

Practicum or Laboratory (6 hours)

One practicum course above the six credits required may count as an elective.

- PSY 1403 - Autism Practicum **Credits:** 3 hours
- PSY 3550 - Teaching Apprenticeship in Psychology **Credits:** 1 to 4 hours

- PSY 3601 - Advanced Operant Conditioning Laboratory **Credits:** 3 hours
- PSY 3780 - Behavioral Neuroscience Research Practicum **Credits:** 3 hours
- PSY 3970 - Practicum in Psychology **Credits:** 1 to 5 hours
- PSY 3990 - Research Apprenticeship: Psychology **Credits:** 1 to 4 hours
- PSY 4990 - Honors Projects in Psychology **Credits:** 1 to 5 hours
- PSY 5470 - Practicum: Organizational Performance Improvement **Credits:** 3 hours
- PSY 5990 - Practicum in Psychology **Credits:** 1 to 4 hours

Electives (at least 9 hours)

- PSY 2444 - Organizational Psychology **Credits:** 3 hours
- PSY 2500 - Abnormal Psychology **Credits:** 3 hours
- PSY 2517 - Applied Behavior Analysis in Autism and Developmental Disabilities **Credits:** 3 hours
- PSY 3240 - Abnormal Child Psychology **Credits:** 3 hours
- PSY 3260 - Forensic Psychology **Credits:** 3 hours
- PSY 3444 - Advanced Organizational Behavior Management **Credits:** 3 hours
- PSY 3456 - Behavioral Approaches to Sustainability **Credits:** 3 hours
- PSY 3517 - Educational Psychology **Credits:** 3 hours
- PSY 3655 - Behaviorism and Psychology **Credits:** 3 hours
- PSY 3720 - Behavioral Neuroscience **Credits:** 3 hours
- PSY 3960 - Topical Studies in Psychology **Credits:** 1 to 3 hours
- PSY 3980 - Independent Study **Credits:** 1 to 5 hours
- PSY 4280 - Psychology of Aging **Credits:** 3 hours
- PSY 4526 - Human Drug Use and Abuse **Credits:** 3 hours
- PSY 4574 - Cross Cultural Psychology **Credits:** 3 hours
- PSY 4595 - History of Psychology **Credits:** 3 hours
- PSY 4630 - Health Psychology **Credits:** 3 hours
- PSY 5170 - Psychology in the Schools **Credits:** 3 hours
- PSY 5240 - Human Sexuality **Credits:** 3 hours
- PSY 5400 - Psychology of Safety **Credits:** 3 hours
- PSY 5610 - Introduction to Clinical Psychology **Credits:** 3 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the Behavioral Science Major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:

- PSY 3780 - Behavioral Neuroscience Research Practicum **Credits:** 3 hours
- PSY 3300 - Advanced Research Methods **Credits:** 3 hours
- PSY 3844 - Professional and Career Development **Credits:** 3 hours
- PSY 4526 - Human Drug Use and Abuse **Credits:** 3 hours
- PSY 4574 - Cross Cultural Psychology **Credits:** 3 hours
- PSY 4595 - History of Psychology **Credits:** 3 hours

Psychology: General Psychology Major (32 credit hours)

The General Psychology Major helps prepare students for a variety of career paths in which an understanding of psychology would be beneficial or for graduate study in disciplines outside of psychology. Admission to the General Psychology Major requires a minimum grade of "C" in all five Introductory Core courses (PSY 1000, PSY 1400, PSY 1401, PSY 1600, and PSY 3000). A minimum of nine (9) hours must be taken from the WMU Psychology Department, and the student must obtain a grade of "C" or better in any courses that count toward the General Psychology Major. All psychology majors are strongly encouraged to satisfy the College-Level Mathematics or Quantitative Reasoning Proficiency before taking upper-level classes.

Introductory Core (14 hours)

- PSY 1000 - General Psychology **Credits:** 3 hours
- PSY 1400 - Introduction to Behavior Analysis **Credits:** 4 hours
- PSY 1401 - Introductory Operant Conditioning Laboratory **Credits:** 1 hour
- PSY 1600 - Child Psychology **Credits:** 3 hours
- PSY 3000 - Research Methods and Statistics **Credits:** 3 hours

Practicum or Laboratory (3 hours)

One practicum course above the three credits required may count as an elective.

- PSY 1403 - Autism Practicum **Credits:** 3 hours
- PSY 3550 - Teaching Apprenticeship in Psychology **Credits:** 1 to 4 hours
- PSY 3780 - Behavioral Neuroscience Research Practicum **Credits:** 3 hours
- PSY 3970 - Practicum in Psychology **Credits:** 1 to 5 hours
- PSY 5470 - Practicum: Organizational Performance Improvement **Credits:** 3 hours
- PSY 5990 - Practicum in Psychology **Credits:** 1 to 4 hours

Electives (at least 15 hours)

- PSY 2444 - Organizational Psychology **Credits:** 3 hours
- PSY 2500 - Abnormal Psychology **Credits:** 3 hours
- PSY 2517 - Applied Behavior Analysis in Autism and Developmental Disabilities **Credits:** 3 hours
- PSY 3240 - Abnormal Child Psychology **Credits:** 3 hours
- PSY 3260 - Forensic Psychology **Credits:** 3 hours
- PSY 3300 - Advanced Research Methods **Credits:** 3 hours
- PSY 3444 - Advanced Organizational Behavior Management **Credits:** 3 hours
- PSY 3456 - Behavioral Approaches to Sustainability **Credits:** 3 hours
- PSY 3517 - Educational Psychology **Credits:** 3 hours
- PSY 3655 - Behaviorism and Psychology **Credits:** 3 hours
- PSY 3720 - Behavioral Neuroscience **Credits:** 3 hours
- PSY 3844 - Professional and Career Development **Credits:** 3 hours
- PSY 3960 - Topical Studies in Psychology **Credits:** 1 to 3 hours
- PSY 3980 - Independent Study **Credits:** 1 to 5 hours
- PSY 4280 - Psychology of Aging **Credits:** 3 hours
- PSY 4526 - Human Drug Use and Abuse **Credits:** 3 hours
- PSY 4574 - Cross Cultural Psychology **Credits:** 3 hours
- PSY 4595 - History of Psychology **Credits:** 3 hours
- PSY 4630 - Health Psychology **Credits:** 3 hours

- PSY 5170 - Psychology in the Schools **Credits:** 3 hours
- PSY 5240 - Human Sexuality **Credits:** 3 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the General Psychology Major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:

- PSY 3300 - Advanced Research Methods **Credits:** 3 hours
- PSY 3780 - Behavioral Neuroscience Research Practicum **Credits:** 3 hours
- PSY 3844 - Professional and Career Development **Credits:** 3 hours
- PSY 4526 - Human Drug Use and Abuse **Credits:** 3 hours
- PSY 4574 - Cross Cultural Psychology **Credits:** 3 hours
- PSY 4595 - History of Psychology **Credits:** 3 hours

Minors

Psychology Minor (17 hours)

Of the minimum total of seventeen (17) hours for the minor, a minimum of six (6) hours must be taken from the WMU Psychology Department, and the student must receive a grade of "C" or better in any course that counts toward the minor.

Required Courses (8 hours)

- PSY 1000 - General Psychology **Credits:** 3 hours
- PSY 1400 - Introduction to Behavior Analysis **Credits:** 4 hours
- PSY 1401 - Introductory Operant Conditioning Laboratory **Credits:** 1 hour

Approved Electives (9 hours)

- PSY 1600 - Child Psychology **Credits:** 3 hours
- PSY 2444 - Organizational Psychology **Credits:** 3 hours
- PSY 2500 - Abnormal Psychology **Credits:** 3 hours
- PSY 3240 - Abnormal Child Psychology **Credits:** 3 hours
- PSY 3260 - Forensic Psychology **Credits:** 3 hours
- PSY 3456 - Behavioral Approaches to Sustainability **Credits:** 3 hours
- PSY 3517 - Educational Psychology **Credits:** 3 hours
- PSY 3550 - Teaching Apprenticeship in Psychology **Credits:** 1 to 4 hours
- PSY 4240 - The Psychology of Human Sexuality **Credits:** 3 hours
- PSY 4280 - Psychology of Aging **Credits:** 3 hours
- PSY 4630 - Health Psychology **Credits:** 3 hours

Note:

Three (3) hours of practicum can substitute for 3 hours of elective.

- PSY 3970 - Practicum in Psychology **Credits:** 1 to 5 hours

Public Affairs and Administration, School of

Udaya Wagle, Director
Main Office: 220E Walwood
Telephone: (269) 387-8930
Fax: (269) 387-8935

Vickie Edwards
Matthew S. Mingus
Robert A. Peters
Vincent Reitano
Daniela Schroeter

The mission of the undergraduate programs in Public and Nonprofit Administration at the School of Public Affairs and Administration is to improve the quality of public service by developing a workforce equipped with knowledge and skills for service in the public and nonprofit sectors.

Our graduates will be able to effectively, efficiently, and equitably support public and nonprofit management in culturally diverse organizations locally, nationally, and globally. To that end, students will acquire knowledge and skills to:

- Articulate the historical, political, and economic environments of public and nonprofit organizations;
- Apply financial, human resources, and program development logic and best practices in various managerial functions;
- Apply data- and evidence-based decision-making skills in solving problems arising in public service; and
- Develop professional skills in speaking, writing, and a variety of other communication modalities.

Aligned with the School's MPA Program, these programs are modeled around the following *core values* of public and nonprofit administration:

- Plurality of ideas and perspectives;
- Common good, social justice, and democratic governance;
- Ethical and competent leadership and decision-making; and
- Efficient, effective, equitable, and transparent practice of public service.

The undergraduate programs at the School of Public Affairs and Administration include a Bachelor of Science with a major in public and nonprofit administration, a minor in public administration, and a minor in nonprofit administration.

The undergraduate programs at the School of Public Affairs and Administration include a major in Public and Nonprofit Administration and a minor in each of Public Administration and Nonprofit Administration.

Bachelor of Science

Public and Nonprofit Administration

The Bachelor of Science with a major in Public and Nonprofit Administration prepares students for careers in a wide range of public and nonprofit organizations. The major is designed to allow students to focus on the public and nonprofit administration track or a more flexible approach depending on their interests and career aspirations.

The major requires a minimum of 33 hours of coursework by drawing from courses within the School and outside. Students complete nine credit hours of cognate courses, 15 credit hours of core courses, three credit hours of professional experience, and six credit hours of elective courses to fulfill their academic and professional needs.

Students who plan on working in the nonprofit sector also have an option to earn the Certified Nonprofit Professional (CNP) designation from the Nonprofit Leadership Alliance (NLA). Doing so requires completion of PADM 3210, 3220, and 3230 (under elective stream) and attendance of the Alliance of Management Institute conference.

This certification also requires students to earn a minimum grade of "C" in any course counted towards the certification and have the WMU NLA Campus Director attest to the fulfillment of the competencies.

Cognate Courses (9 credit hours)

- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ENGL 3050 - Professional Writing: Audience, Genre, and Workplace Cultures **Credits:** 4 hours

Methods of Data Analysis (Choose ONE)

- ECON 2090 - Introductory Economic Statistics **Credits:** 3 hours
- PSCI 3950 - Data in Politics and Policy **Credits:** 3 hours
- SOC 2830 - Methods of Data Analysis **Credits:** 4 hours
- STAT 2160 - Business Statistics **Credits:** 3 hours
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Core Courses (15 credit hours)

- PADM 2000 - Introduction to Public and Nonprofit Service **Credits:** 3 hours
- PADM 4500 - Human Resource Administration **Credits:** 3 hours
- PADM 4700 - Program Design, Implementation, and Evaluation **Credits:** 3 hours

Foundations (Choose ONE)

- PADM 3000 - Foundations of Nonprofit Management **Credits:** 3 hours
- PADM 3500 - Public Management for Democracy **Credits:** 3 hours

Accounting and Finance (Choose ONE)

- PADM 4600 - Introduction to Public Budgeting **Credits:** 3 hours
- PADM 4650 - Budgeting and Accounting for the Nonprofit Sector **Credits:** 3 hours

Capstone or Professional Experience (3 credit hours)

- PADM 4950 - Public and Nonprofit Administration Capstone **Credits:** 3 hours
- OR
- PADM 4100 - Internship in Public and Nonprofit Administration **Credits:** 1 to 8 hours

Electives (6 credit hours)

Additional courses from within the School of Public Affairs and Administration as well as other departments and colleges may qualify for elective credit with approval of the departmental advisor.

- PADM 5830 - Grant Writing **Credits:** 3 hours
- PADM 5840 - Nonprofit Marketing and Development **Credits:** 3 hours
- PADM 5870 - Fund Raising for Nonprofit Organizations **Credits:** 3 hours
- ECON 3100 - Labor Economics **Credits:** 3 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- ECON 3840 - Economic Development **Credits:** 3 hours
- GEOG 5720 - Cities and Urban Systems **Credits:**
- GRN 4000 - Public Policy and Aging **Credits:** 3 hours
- GWS 3200 - Women, Globalization and Social Change **Credits:** 3 hours
- GWS 3400 - Race, Gender and Science **Credits:** 3 hours
- PSCI 3000 - Urban Politics in the United States **Credits:** 3 hours
- PSCI 3040 - Introduction to Public Policy **Credits:** 3 hours
- PSCI 3060 - Environmental Politics **Credits:** 4 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours
- PHIL 3140 - Philosophy and Public Affairs **Credits:** 3 hours
- PHIL 3150 - Race and Gender Issues **Credits:** 3 hours
- SOC 3140 - Ethnic Relations **Credits:** 3 hours
- SOC 3680 - Race, Ethnicity, and Justice **Credits:** 3 hours
- SWRK 3000 - Social Welfare as a Social Institution **Credits:** 3 hours

For CNP certification only (3 credit hours)

- PADM 3210 - Nonprofit Leadership Student Association I **Credits:** 1 hour
- PADM 3220 - Nonprofit Leadership Student Association II **Credits:** 1 hour
- PADM 3230 - Technology Applications for the Nonprofit Sector **Credits:** 1 hour

Minors

Nonprofit Administration Minor

Advisor: Vickie Edwards

The School of Public Affairs and Administration offers a minor in Nonprofit Administration. The 18 credit hours of coursework are divided into nine credit hours of required core courses, three credit hours of capstone or professional experience, and six credit hours of electives in order to fulfill the academic and professional needs of students.

This program is designed to prepare students from a variety of majors for entry-level professional positions in nonprofit organizations.

Students minoring in Nonprofit Administration also have an option to earn the Certified Nonprofit Professional (CNP) designation from the Nonprofit Leadership Alliance. Doing so requires completion of PADM 3210, 3220, and 3230 (under the elective stream) and attendance at the Alliance Management Institute conference.

This certification also requires students to earn a minimum grade of "C" in any course counted towards the certification and have the WMU NLA Campus Director attest to the fulfillment of the required competencies.

Core Courses (9 credit hours)

- PADM 2000 - Introduction to Public and Nonprofit Service **Credits:** 3 hours
- PADM 3000 - Foundations of Nonprofit Management **Credits:** 3 hours
- PADM 4500 - Human Resource Administration **Credits:** 3 hours
OR
- PADM 4650 - Budgeting and Accounting for the Nonprofit Sector **Credits:** 3 hours
OR
- PADM 4700 - Program Design, Implementation, and Evaluation **Credits:** 3 hours

Capstone or Professional Experience (3 credit hours)

- PADM 4950 - Public and Nonprofit Administration Capstone **Credits:** 3 hours
OR
- PADM 4100 - Internship in Public and Nonprofit Administration **Credits:** 1 to 8 hours

Electives (6 credit hours)

- PADM 5830 - Grant Writing **Credits:** 3 hours
- PADM 5840 - Nonprofit Marketing and Development **Credits:** 3 hours
- PADM 5870 - Fund Raising for Nonprofit Organizations **Credits:** 3 hours
- ECON 3100 - Labor Economics **Credits:** 3 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- ECON 3840 - Economic Development **Credits:** 3 hours
- GEOG 5720 - Cities and Urban Systems **Credits:**
- GRN 4000 - Public Policy and Aging **Credits:** 3 hours
- GWS 3200 - Women, Globalization and Social Change **Credits:** 3 hours
- GWS 3400 - Race, Gender and Science **Credits:** 3 hours
- PSCI 3000 - Urban Politics in the United States **Credits:** 3 hours
- PSCI 3040 - Introduction to Public Policy **Credits:** 3 hours
- PSCI 3060 - Environmental Politics **Credits:** 4 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours
- PHIL 3140 - Philosophy and Public Affairs **Credits:** 3 hours
- PHIL 3150 - Race and Gender Issues **Credits:** 3 hours
- SOC 3140 - Ethnic Relations **Credits:** 3 hours
- SOC 3680 - Race, Ethnicity, and Justice **Credits:** 3 hours
- SWRK 3000 - Social Welfare as a Social Institution **Credits:** 3 hours

For CNP certification only (3 credit hours)

- PADM 3210 - Nonprofit Leadership Student Association I **Credits:** 1 hour
- PADM 3220 - Nonprofit Leadership Student Association II **Credits:** 1 hour
- PADM 3230 - Technology Applications for the Nonprofit Sector **Credits:** 1 hour

Note:

Additional courses from within the SPPA as well as other departments and colleges may qualify for elective credits with approval of the departmental advisor.

Public Administration Minor

The School of Public Affairs and Administration offers a minor in Public Administration. The 18 credit hours of coursework are divided into nine credit hours of required core courses, three credit hours of capstone or professional experience, and six credit hours of electives in order to fulfill the academic and professional needs of students.

This program is designed to prepare students from a variety of majors for entry-level professional positions in public sector organizations.

Core Courses (9 credit hours)

- PADM 2000 - Introduction to Public and Nonprofit Service **Credits:** 3 hours
- PADM 3500 - Public Management for Democracy **Credits:** 3 hours
- PADM 4500 - Human Resource Administration **Credits:** 3 hours
OR
- PADM 4600 - Introduction to Public Budgeting **Credits:** 3 hours
OR
- PADM 4700 - Program Design, Implementation, and Evaluation **Credits:** 3 hours

Capstone or Professional Experience (3 credit hours)

- PADM 4950 - Public and Nonprofit Administration Capstone **Credits:** 3 hours
OR
- PADM 4100 - Internship in Public and Nonprofit Administration **Credits:** 1 to 8 hours

Electives (6 credit hours)

- PADM 5830 - Grant Writing **Credits:** 3 hours
- PADM 5840 - Nonprofit Marketing and Development **Credits:** 3 hours
- PADM 5870 - Fund Raising for Nonprofit Organizations **Credits:** 3 hours
- ECON 3100 - Labor Economics **Credits:** 3 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- ECON 3840 - Economic Development **Credits:** 3 hours
- GEOG 5720 - Cities and Urban Systems **Credits:**
- GRN 4000 - Public Policy and Aging **Credits:** 3 hours
- GWS 3200 - Women, Globalization and Social Change **Credits:** 3 hours
- GWS 3400 - Race, Gender and Science **Credits:** 3 hours
- PSCI 3000 - Urban Politics in the United States **Credits:** 3 hours
- PSCI 3040 - Introduction to Public Policy **Credits:** 3 hours
- PSCI 3060 - Environmental Politics **Credits:** 4 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- PSCI 4050 - Public Policy and the Economy **Credits:** 3 hours
- PHIL 3140 - Philosophy and Public Affairs **Credits:** 3 hours
- PHIL 3150 - Race and Gender Issues **Credits:** 3 hours

- SOC 3140 - Ethnic Relations **Credits:** 3 hours
- SOC 3680 - Race, Ethnicity, and Justice **Credits:** 3 hours
- SWRK 3000 - Social Welfare as a Social Institution **Credits:** 3 hours

Race and Ethnic Relations, Lewis Walker Institute for

Luchara Wallace, Director

Main Office: 1104 Welborn Hall

Telephone: (269) 387-2141

Science Education, Mallinson Institute For

Charles Henderson, Director

William Cobern, Biological Sciences

Todd Ellis, Geography

Marcia Fetters, Teaching, Learning, and Educational Studies

Megan Grunert Kowalske, Chemistry

Heather Petcovic, Geological and Environmental Sciences

Brandy Pleasants, The Mallinson Institute for Science Education

David W. Rudge, Biological Sciences

David Schuster, Physics

Joseph Stoltman, Geography

The Mallinson Institute for Science Education is devoted to the study and improvement of how people learn science at the K-12, undergraduate, and graduate levels. The Mallinson Institute has four components:

1. Graduate programs leading to a Master of Arts and a Doctor of Philosophy in Science Education. See the graduate catalog for more information.
2. Coordination of undergraduate programs as part of the elementary education science and mathematics teaching minor. See the College of Education and Human Development section of this catalog for more information.
3. Professional development courses and related opportunities for K-12 science teachers and school districts coordinated and offered by The Mallinson Institute for Science Education. In addition, The Mallinson Institute provides curriculum development expertise and services for science curriculum projects from the national to the school district level.
4. Science and Mathematics Program Improvement (SAMPI) which provides technical assistance, conducts research and evaluation services, program development projects to K-12 schools, higher education, and other educational institutions.

As an academic discipline, science education lies at the intersection of the sciences, educational pedagogy, cognitive psychology, and the history, philosophy, and sociology of science. It ranges from concerns about practical teaching strategies to fundamental questions about the nature of science and how people learn, and the systems that support teaching and learning. The courses taken by pre-and post-service teachers are designed to prepare them to think critically about why people should become scientifically literate, what science is most important to know, and how students learn. This includes attention to the content of science, the process of science, and the cognition of learning. In particular, the Institute encourages participants in its programs to become self-reflective about their own learning, in the hope it will empower them to become more independent, intentional, and life-long learners.

Sociology

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Ronald Kramer
Ashlyn Kuersten
Elena Lisovskaya
Vincent Lyon-Callo
Ann Miles
Angela Moe
Timothy Ready
Jesse Smith
Zoann Snyder
Katherine Tierney

Courses are designed to give students a better understanding of the significant factors and processes of modern life; to provide study useful for particular applied fields, such as social work, criminal justice, market research, opinion polling, city, state, and federal governmental service, and social research; to meet the needs of students preparing to teach in the social science field; and to prepare students for graduate work in sociology or criminal justice.

The Kercher Center for Social Research, as the research arm of the department, provides facilities and services available to students as well as faculty for instructional and research purposes. The center maintains computer and other research facilities that are used in research course instruction. Research conducted through the center has dealt with subjects such as: criminal justice, marital roles, race relations, voting behavior, alcoholism, mental health, demography, and education.

Department Advisor

3225 Sangren Hall, (269) 387-5286. Students must consult the department advisor for major/minor slips in Sociology, Criminal Justice, the Social Psychology concentration, and for the evaluation of transfer credits, or for any other questions involving majors or minors.

Undergraduate Assistantships

Students interested in becoming more involved in the department's activities and projects may wish to apply for undergraduate assistantships which are available fall and spring semesters. Department assistants receive a moderate stipend and are assigned to work for a faculty member or department project. Applicants for these awards are also considered for the Kercher Award.

Further information and application forms may be obtained at the Sociology Office, 3233 Sangren Hall.

Nonprofit Leadership Alliance Certificate Program

Sociology majors and minors may choose to participate in the Nonprofit Leadership Alliance Certificate Program. This program is designed to prepare students for employment, service, and leadership in nonprofit organizations. Students qualify for the certificate by taking courses in their major and minor that meet the Nonprofit Leadership Alliance competency requirements, by taking the required Nonprofit Leadership courses, and by meeting the Nonprofit Leadership Alliance extra-curricular requirements. For details, please see the Nonprofit Leadership Alliance description in the College of Arts and Sciences Interdisciplinary Program section of this catalog. Details are also available from the Sociology academic advisor and from the Nonprofit Leadership Alliance director.

Honors Program

Students in sociology and criminal justice may participate in the department honors program in three ways:

1. Membership in Alpha Kappa Delta, the national sociology honor society. AKD is open to all sociology majors who have completed at least four courses in sociology with a grade point average of 3.0 or better, and whose overall average is at least 3.0. Further information and application forms are available at the Sociology office, 3235 Sangren.
2. Membership in Alpha Phi Sigma, the national criminal justice honor society. Alpha Phi Sigma is open to all criminal justice majors and minors who have completed at least four criminal justice courses at WMU with an overall grade point average of 3.2 or better, and whose criminal justice average is at least 3.2. Further information and application forms are available at the Sociology office, 3235 Sangren.

Advanced Courses

5000-level courses in the Department of Sociology are designed for graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior standing will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by case basis.

Bachelor of Arts

Criminal Justice Studies Major (37 hours)

Criminal Justice Studies Program

Zoann K. Snyder, Director
3215 Sangren Hall
(269) 387-5278

Susan Standish, Advisor
3225 Sangren Hall
(269) 387-5286

Criminal Justice Studies is an interdisciplinary curriculum designed to provide perspective on crime and (in)justice at the local, regional, national, and international levels. The program is designed to provide a well-rounded, theoretical, and practical education necessary for careers in criminal justice and/or graduate work in law, criminology, or other areas.

The Criminal Justice Studies Major requires 37 hours of core and specialized classes including: Criminology, Critical Issues in Criminal Justice, Policing and Society Courts and Society, Punishment and Society, Juvenile Delinquency and Justice, Sociology of Deviance, Women and Justice, Race Ethnicity and Justice, and Methods of Data Collection and Analysis. Students have the choice of two substantive tracks of study, Criminal Justice or Justice studies. Specialized coursework includes options for study in such areas as violence and victimology, climate change and environmental justice, technology and society, and drugs and society. Social Justice and Service Learning, and Internships provide students with field service experience. Specialized work in law enforcement is available as well as certifiably as a Michigan police officer.

The minimum grade for all Criminal Justice coursework is a "C."

Curriculum and program details may be found under Sociology/Criminal Justice.

Criminal Justice Studies Major

This program offers an interdisciplinary understanding of the impact of justice and injustice on individuals, communities, institutions and/or nations. Students engage in the study of how crime and justice are linked to power, ideology, social control, and social change in our contemporary society. Students select a substantive study track in one of two areas.

The Criminal Justice Track focuses on criminal justice structures and processes. The program explores crime as a social problem and society's reactions to it, the organization and operation of police, courts and punishment, as well as causes of crime and delinquency and other current issues.

The Justice Studies Track focuses on sustainable and just solutions to social, political and economic problems. The program explores critical issues related to socioeconomic, racial/ethnic and gender justice, cultural identity, human rights, human relationships to the environment, deviant behavior and social control policies.

While the goal of the program is to provide knowledge and skills necessary for students interested in careers in criminal justice, it will support a number of related areas. In addition, students will be well prepared to pursue professional or graduate work in law, criminology, or other areas.

Students should consider internships for the fall, spring and summer sessions. Not all students are guaranteed internships and some placements require the applicant to undergo security checks. Applications are required. Further information and application forms may be obtained at the Criminal Justice office, 3229 Sangren Hall (Telephone: (269) 387-5271).

The minimum grade for all Criminal Justice coursework is a "C."

Required Prerequisites

The following courses are required before taking any of the core courses. These hours are not included in the 37 hour requirement for the major.

- SOC 2000 - Principles of Sociology **Credits:** 3 hours
OR
- SOC 2100 - Modern Social Problems **Credits:** 3 hours
- SOC 2600 - Introduction to Criminal Justice Studies **Credits:** 3 hours

Writing Expectation

Students should have completed ENGL 1050 or equivalent and write at the college level before enrolling in the following advanced courses.

Baccalaureate-Level Writing Requirements

Students who have chosen the Criminal Justice major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing the following course:

- SOC 4660 - Advanced Criminology **Credits:** 3 hours

Required Core Courses (16 hours)

All of the following courses are required. It is important to check with the advisor so courses are taken in proper sequence.

- SOC 3620 - Criminology **Credits:** 3 hours
- SOC 3690 - Critical Issues in Criminal Justice **Credits:** 3 hours
- SOC 4660 - Advanced Criminology **Credits:** 3 hours

Required Research Methods

- SOC 2820 - Methods of Data Collection **Credits:** 3 hours
- SOC 2830 - Methods of Data Analysis **Credits:** 4 hours

Substantive Tracks (Choose One Track - 9 hours)

Students must complete SOC 3690 or the baccalaureate-level writing course in one's major or curriculum or have instructor approval before advancing to 4000-level courses.

Criminal Justice Track (Choose Three Courses)

- SOC 3640 - Policing and Society **Credits:** 3 hours
- SOC 3630 - Courts and Society **Credits:** 3 hours
- SOC 3650 - Punishment and Society **Credits:** 3 hours
- SOC 4540 - Juvenile Delinquency and Justice **Credits:** 3 hours

Justice Studies Track (Choose Three Courses)

- SOC 3150 - Sociology of Deviance **Credits:** 3 hours
- SOC 3160 - Women and Justice **Credits:** 3 hours
- SOC 3680 - Race, Ethnicity, and Justice **Credits:** 3 hours
- SOC 4110 - Climate Change and Society **Credits:** 3 hours
- SOC 4370 - Environmental Justice **Credits:** 3 hours
- SOC 4400 - Corporate and Governmental Crime **Credits:** 3 hours
- SOC 4520 - Drugs and Society **Credits:** 3 hours
- SOC 4930 - Family Violence **Credits:** 3 hours

Electives (Choose Three Courses - 9 hours)

Students must complete SOC 3690 or the baccalaureate-level writing course in one's major or curriculum or have instructor permission before advancing to 4000-level courses. Courses can be selected from the list below OR from the alternate Track above.

- SOC 3140 - Ethnic Relations **Credits:** 3 hours
- SOC 4120 - Child Abuse **Credits:** 3 hours
- SOC 4420 - Technology and Society **Credits:** 3 hours
- SOC 4440 - Technologies and Controversies in Criminal Justice **Credits:** 3 hours
- SOC 4460 - Surveillance and Society **Credits:** 3 hours
- SOC 4480 - Media, Crime, and Society **Credits:** 3 hours
- SOC 4670 - Community Policing **Credits:** 3 hours

- SOC 4920 - The Family as a Social Institution **Credits:** 3 hours
- SOC 4950 - Special Topics in Sociology or Criminal Justice: Variable Topics **Credits:** 1 to 3 hours (3 hours needed)
- SOC 5620 - Victimology **Credits:** 3 hours

Investigation, Discovery, and Experience (Choose One Course - 3 hours)

- SOC 2610 - Law Enforcement Certification - Variable Topics **Credits:** 1 to 8 hours
- SOC 4340 - Social Justice and Service Learning **Credits:** 3 hours
- SOC 4750 - Applied Research in Criminal Justice **Credits:** 3 hours
- SOC 4960 - Criminal Justice Studies Internship **Credits:** 1 to 6 hours
- SOC 5980 - Directed Individual Study **Credits:** 2 to 6 hours

Sociology Major (31 hours)

A major in Sociology consists of a minimum of 31 hours of course work in Sociology.

Required Courses (19 hours)

- SOC 2000 - Principles of Sociology **Credits:** 3 hours
- SOC 2820 - Methods of Data Collection **Credits:** 3 hours
- SOC 2830 - Methods of Data Analysis **Credits:** 4 hours
- SOC 3000 - Sociological Theory **Credits:** 3 hours
- SOC 3200 - Introduction to Social Psychology **Credits:** 3 hours
- SOC 4800 - Advanced Sociology **Credits:** 3 hours

Electives (12 hours)

Students may choose their twelve hours of electives from the many offerings in the department. At least two of the elective courses must be at the 3000- to 5000-level.

Limitations to the requirements above include: (1) a maximum of 12 hours transferred from a two-year institution may be included; (2) at least 9 hours must be taken at Western Michigan University. Any variance of the above requirements must be approved by the Undergraduate Advisor, 3225 Sangren Hall.

Transfer Students

Transfer students should see the department advisor, since any transfer credit in sociology without a stated equivalent must be evaluated by the department if it is to apply toward a sociology major or minor.

Baccalaureate-Level Writing Requirement

Students who have chosen the Sociology major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:

- SOC 4800 - Advanced Sociology **Credits:** 3 hours

Sociology Major - Social Psychology Concentration

Social Psychology is the study of the impact of group life on individual behavior, thought, and personality development. Training in social psychology provides a valuable background for a variety of positions in human service organizations and can provide an excellent theoretical foundation for graduate work in more applied fields such as social work, counseling, public administration and criminology. Since this is a concentration, students cannot major/minor in this concentration and have a sociology major/minor. Major is 31 hours of coursework.

Requirements

- SOC 2000 - Principles of Sociology **Credits:** 3 hours
- SOC 2820 - Methods of Data Collection **Credits:** 3 hours
- SOC 2830 - Methods of Data Analysis **Credits:** 4 hours
- SOC 3000 - Sociological Theory **Credits:** 3 hours
- SOC 3200 - Introduction to Social Psychology **Credits:** 3 hours
- SOC 4800 - Advanced Sociology **Credits:** 3 hours

Electives

At least three courses; one may be taken from supporting courses.

- SOC 3050 - Sociology of Religion **Credits:** 3 hours
- SOC 3210 - Behavior and Meaning **Credits:** 3 hours
- SOC 4120 - Child Abuse **Credits:** 3 hours
- SOC 5200 - Studies in Social Psychology: Variable Topics **Credits:** 3 hours
- SOC 5235 - Self and Social Identities **Credits:** 3 hours

Cognate Courses from outside of the Sociology Department

- ANTH 2600 - Sex, Gender, Culture **Credits:** 3 hours
- ANTH 2800 - Language in a Global World **Credits:** 4 hours
- ANTH 3560 - Food and Culture **Credits:** 3 hours
- COM 4300 - Persuasion and Social Influence **Credits:** 3 hours
- REL 3180 - Death, Dying, and Beyond **Credits:** 4 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the Sociology Major-Social Psychology Concentration will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:

- SOC 4800 - Advanced Sociology **Credits:** 3 hours

Minors

Criminal Justice Studies Minor (18 hours)

Minimum grade of "C" required for all coursework within the minor.

Required Core (9 hours)

- SOC 2000 - Principles of Sociology **Credits:** 3 hours
OR
- SOC 2100 - Modern Social Problems **Credits:** 3 hours

AND

- SOC 2600 - Introduction to Criminal Justice Studies **Credits:** 3 hours
- SOC 3620 - Criminology **Credits:** 3 hours

Select one of the two following tracks:

Criminal Justice Track (9 hours)

Choose three courses:

- SOC 3630 - Courts and Society **Credits:** 3 hours
- SOC 3640 - Policing and Society **Credits:** 3 hours
- SOC 3650 - Punishment and Society **Credits:** 3 hours
- SOC 4540 - Juvenile Delinquency and Justice **Credits:** 3 hours

Justice Studies Track (9 hours)

Choose three courses:

- SOC 3150 - Sociology of Deviance **Credits:** 3 hours
- SOC 3160 - Women and Justice **Credits:** 3 hours
- SOC 3680 - Race, Ethnicity, and Justice **Credits:** 3 hours
- SOC 4110 - Climate Change and Society **Credits:** 3 hours
- SOC 4370 - Environmental Justice **Credits:** 3 hours
- SOC 4400 - Corporate and Governmental Crime **Credits:** 3 hours
- SOC 4520 - Drugs and Society **Credits:** 3 hours
- SOC 4930 - Family Violence **Credits:** 3 hours

Sociology Minor (18 hours)

Requirements

A minor in sociology consists of 18 hours of course work in Sociology. SOC 2000 and 2100 are required. The balance of the hours required may be selected by the student, with the following limitations: (1) A maximum of 9 hours transferred from a two-year institution may be included; (2) at least 6 hours must be 3000-level or above. Minor slips are required.

Sociology Minor - Social Psychology Concentration

Social Psychology is the study of the impact of group life on individual behavior, thought, and personality development. Training in social psychology provides a valuable background for a variety of positions in human service organizations and can provide an excellent theoretical foundation for graduate work in more applied fields such as social work, counseling, public administration and criminology. Since this is a concentration, students cannot major/minor in this concentration and have a sociology major/minor as well. Minor is 18 hours of coursework.

Requirements

The student may include one other sociology course to complete the required eighteen (18) hours.

- SOC 2000 - Principles of Sociology **Credits:** 3 hours
- SOC 2100 - Modern Social Problems **Credits:** 3 hours
- SOC 3200 - Introduction to Social Psychology **Credits:** 3 hours

Electives

At least two courses; one may be taken from the supporting courses.

- SOC 3050 - Sociology of Religion **Credits:** 3 hours
- SOC 3210 - Behavior and Meaning **Credits:** 3 hours
- SOC 4120 - Child Abuse **Credits:** 3 hours
- SOC 5200 - Studies in Social Psychology: Variable Topics **Credits:** 3 hours
- SOC 5235 - Self and Social Identities **Credits:** 3 hours

Supporting Courses from outside of the Sociology Department

- ANTH 2600 - Sex, Gender, Culture **Credits:** 3 hours
- ANTH 2800 - Language in a Global World **Credits:** 4 hours
- ANTH 3560 - Food and Culture **Credits:** 3 hours
- COM 4300 - Persuasion and Social Influence **Credits:** 3 hours
- REL 3180 - Death, Dying, and Beyond **Credits:** 4 hours

Certification

Special Law Enforcement Certification Option

Students have the option to enroll in the Law Enforcement Certification Program in cooperation with Kalamazoo Valley Community College (KVCC). Application and preliminary screening are required. Students are required to track in the program during the last two semesters at WMU (MLEOTC ruling). See the advisor for further information.

Required courses in the Tracking Program include:

Topics include: Criminal Investigation (4); Criminal Law and Procedure (4); Emergency Vehicle Operation (2); Firearms (3); Fundamentals of Marksmanship (2); Medical First Responder for Law Enforcement (3); Patrol Procedures (4); Police Physical Skills (4); Police Practical Problems (3); and Traffic (4).

- SOC 2610 - Law Enforcement Certification - Variable Topics **Credits:** 1 to 8 hours

Spanish

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Antonio Isea
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Benjamín Torres
Mercedes Tubino Blanco
Robert Vann
German Zárate-Sáñez

The Department of Spanish offers courses in Spanish language at all levels, as well as courses in culture, literature, and linguistics. Emphasis in language courses is placed on developing practical communication skills that will be of interest and value to students in a wide variety of disciplines and careers. Culture courses, through the use of authentic materials in the target language, provide knowledge and insights into the life of the Spanish-speaking people of Spain, Latin America, and the United States. Courses in literature and linguistics, at both the intermediate and advanced levels, facilitate a deeper comprehension of language usage and cultural understanding.

Placement

Students who have studied Spanish in high school or who have learned Spanish through travel or residence abroad must take a placement evaluation before enrolling in their first Spanish class at Western Michigan University. Students who come from Spanish-speaking families must take the Online Placement Exam in Spanish and meet with a Department of Spanish undergraduate advisor before enrolling in their first Spanish class at Western Michigan University. Students have two placement options available: (1) an Online Placement Exam and (2) the WMU Proficiency Exam. Though it cannot be used to satisfy any world language requirements, the Online Placement Exam in Spanish is designed to help students determine which WMU Spanish course is appropriate for their level of preparedness. The WMU Proficiency Exam in Spanish, on the other hand, may be taken by students who wish to try to place out of the College of Arts and Sciences two semester world language requirement. This exam may serve as well to satisfy world language requirements that exist for majors or minors in other programs at WMU. The WMU Proficiency Exam in Spanish may be taken only once and must be taken before students begin their first class in Spanish at WMU. No credit is awarded for the WMU Proficiency Exam in Spanish.

Students who place above the 2000-level in the Online Placement exam are eligible for retroactive credit if they complete Spanish classes at WMU. Students who place in SPAN 2010 are eligible for 4 credit hours (SPAN 2000) upon completion of SPAN 2010 with a grade of "C" or better. Students who place at the SPAN 3000-level are eligible for 8 credit hours (SPAN 2000 and 2010) upon completion of SPAN 3160 and 3170 with a grade of "C" or better. Any students that feel they are eligible for retroactive credits in Spanish are encouraged to meet with a Department of Spanish advisor.

Transfer students who have successfully completed Spanish courses at community colleges or four-year colleges do not need to take any placement evaluation in Spanish at Western Michigan University. They should ascertain the WMU equivalent for the courses taken at the other institution and then enroll in the next course in the sequence. Students who are unsure about equivalencies should check with a Department of Spanish advisor or the chair of the Department of Spanish before enrolling in a particular course.

Native speakers of Spanish are not required to take the placement evaluation. They must, however, consult with a Department of Spanish advisor or the department chair before registering for classes.

Advanced Courses

5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

Study Abroad

Students are strongly encouraged to study in a Spanish-speaking country as part of their undergraduate program. Western Michigan University offers excellent, affordable programs in Burgos (Spain), Heredia (Costa Rica), Quito (Ecuador) and Santander (Spain). Study Abroad Scholarships are available to all students who meet the minimum requirements for application through the Department of Spanish, The Office of Study Abroad and several other sources. Study Abroad credits from non-WMU programs are often accepted for credit toward the major and minor in Spanish; students interested in receiving Spanish credit for study abroad with a non-WMU program must consult with one of the Spanish study abroad advisors well in advance of such study in order to plan properly and to obtain approval.

Majors and Minors

Given the increasing importance of Spanish as an international language and within the United States, many students wish to take courses beyond the intermediate level. We encourage them to do so, whether or not they intend to major or minor in the language. It is quite common for students who major or minor in Spanish to have an additional major or minor in a related or entirely different field. All students having questions about a Spanish major or minor are welcome to speak with an advisor during walk-in hours (for specific hours, check wmich.edu/spanish/advising).

Students interested in seeking to major or minor in Spanish should meet with a Department of Spanish advisor. Major and minor declarations will be posted to Degree Works so that students can track their academic progress to degree. Only courses in which a grade of "C" or better is obtained can be counted toward a major or minor.

The Spanish Major includes a recommended "pathway for future educators" to ensure the necessary language preparation for secondary teaching certification. Students interested in receiving their secondary teaching certification in Spanish should consult with the Spanish Education Coordinator about the Oral Proficiency Interview (OPI) required by the State of Michigan.

Baccalaureate-Level Writing Requirement for Majors

Students who have chosen to major in Spanish will satisfy the Baccalaureate-Level Writing Requirement by successfully completing LANG 3750: World Literature in English Translation: Views of Humanity. For those having more than one major, this requirement may be satisfied in their other major.

Residency Requirement for Majors and Minors in Spanish

Majors in Spanish must take at least five courses (of the total required for the major) on campus at Western Michigan University. These five courses must be at the 3000-level or above. At least two of the five must be 4000- or 5000-level classes. Minors in Spanish must take at least four courses (of the total required for the minor) on campus at Western Michigan University. These four courses must be at the 2000-level or above. At least one of the four must be above SPAN 3170.

Foreign Credits

The Department of Spanish at WMU will recognize and accept courses taken abroad through any University-accredited program as long as they are pre-approved by the Department of Spanish study abroad advisor and the WMU Office of Study Abroad.

Bachelor of Arts

Spanish Major (30 hours)

Program Requirements

- Up to 8 retroactive credits for SPAN 2000 and SPAN 2010 may be awarded, but these credits do not count toward the major.
- All courses must be completed with a grade of "C" or better.

Thirty hours beyond 2000-level to include:

- SPAN 3160 - Spanish Composition **Credits:** 3 hours
- SPAN 3170 - Spanish Conversation **Credits:** 3 hours
- SPAN 3240 - Introduction to the Study of Spanish Linguistics **Credits:** 3 hours
- SPAN 3250 - Introduction to the Study of Spanish Literature **Credits:** 3 hours

At least one course from:

- SPAN 3210 - Life and Culture of Hispanics in U.S. **Credits:** 3 hours
- SPAN 3220 - Life and Culture of Spain **Credits:** 3 hours
- SPAN 3230 - Life and Culture of Spanish America **Credits:** 3 hours

At least one course from:

- SPAN 5260 - Survey of Spanish Literature to the 18th Century **Credits:** 3 hours
- SPAN 5270 - Survey of Spanish Literature from the 18th Century to the Present **Credits:** 3 hours
- SPAN 5280 - Survey of Spanish American Literature to Modernismo **Credits:** 3 hours
- SPAN 5290 - Survey of Spanish American Literature from Modernismo to the Present **Credits:** 3 hours
- SPAN 5400 - Studies in Spanish Linguistics **Credits:** 3 hours
- SPAN 5600 - Studies in Spanish Literatures **Credits:** 3 hours

Additional Spanish courses:

Plus four additional Spanish courses at the 3000 level or above, at least three of which must be at the 4000 or 5000 level.

Recommended pathway for future educators

Thirty hours beyond 2000-level to include:

- SPAN 3160 - Spanish Composition **Credits:** 3 hours
- SPAN 3170 - Spanish Conversation **Credits:** 3 hours
- SPAN 3240 - Introduction to the Study of Spanish Linguistics **Credits:** 3 hours
- SPAN 3250 - Introduction to the Study of Spanish Literature **Credits:** 3 hours
- SPAN 4520 - Advanced Spanish Grammar and Composition **Credits:** 3 hours
- SPAN 4530 - Advanced Spanish Conversation **Credits:** 3 hours

Two of the following courses:

- SPAN 3210 - Life and Culture of Hispanics in U.S. **Credits:** 3 hours
- SPAN 3220 - Life and Culture of Spain **Credits:** 3 hours
- SPAN 3230 - Life and Culture of Spanish America **Credits:** 3 hours

One of the following courses:

- SPAN 5260 - Survey of Spanish Literature to the 18th Century **Credits:** 3 hours
- SPAN 5270 - Survey of Spanish Literature from the 18th Century to the Present **Credits:** 3 hours
- SPAN 5280 - Survey of Spanish American Literature to Modernismo **Credits:** 3 hours
- SPAN 5290 - Survey of Spanish American Literature from Modernismo to the Present **Credits:** 3 hours
- SPAN 5400 - Studies in Spanish Linguistics **Credits:** 3 hours
- SPAN 5600 - Studies in Spanish Literatures **Credits:** 3 hours

One additional Spanish course at the 3000-level or above

Recommended study abroad soft requirement.

Exceptions to this requirement may be granted when circumstances do not allow the student to take part in this very important academic experience. One semester of at least 14 weeks of study abroad in a Spanish-speaking country. This study abroad experience will grant up to 12 credit hours that are equivalent to these four courses (SPAN 4520, SPAN 4530, SPAN 4550, and one additional Spanish course at the 3000-level or above).

Additionally

Students pursuing a Spanish language teaching certification must pass the Oral Proficiency Interview exam with a minimum score of Advanced Low and enroll in the College of Education and Human Development's MATSE program after completion of their undergraduate Spanish degree. Please consult the college of Education's revised secondary education guidelines for more information.

Note: successful completion of this program prepares students for graduate level work leading to teaching certification, but does not fulfill all requirements for teaching certification. Please consult the College of Education's revised secondary education guidelines for more information.

Minors

Spanish Minor (23 hours)

Program Requirements

- Up to 8 retroactive credits for SPAN 2000 and SPAN 2010 may be awarded, but these credits do not count toward the minor.
See wmich.edu/spanish/academic/undergraduate/retrocredits.
- SPAN 5570 and SPAN 5580 cannot be included in this minor.
- All courses must be completed with a grade of "C" or better.

Twenty-three hours beyond the 1000-level to include:

- SPAN 2000 - Intermediate Spanish I **Credits:** 4 hours
- SPAN 2010 - Intermediate Spanish II **Credits:** 4 hours
- SPAN 3160 - Spanish Composition **Credits:** 3 hours
- SPAN 3170 - Spanish Conversation **Credits:** 3 hours

Two of the following courses:

- SPAN 3210 - Life and Culture of Hispanics in U.S. **Credits:** 3 hours
- SPAN 3220 - Life and Culture of Spain **Credits:** 3 hours
- SPAN 3230 - Life and Culture of Spanish America **Credits:** 3 hours
- SPAN 3240 - Introduction to the Study of Spanish Linguistics **Credits:** 3 hours
- SPAN 3250 - Introduction to the Study of Spanish Literature **Credits:** 3 hours

One additional Spanish courses at the 3000 level or above.

Statistics

Magdalena Niewiadomska-Bugaj , Chair

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Nichole Andrews

Hyun Bin Kang

Kevin Lee

Joseph McKean

Joshua Naranjo

Duy Ngo

Jeffrey Terpstra

Statistics is the science of data analysis and inference. The Department of Statistics offers a variety of courses in applied and theoretical statistics. Course work is designed to enable students to function professionally as statisticians in industry or government and to prepare them for graduate study in statistics. Shortages of qualified statisticians are anticipated through the next decade.

The department offers a major in statistics and two minors, one in data analysis and one in general statistics. The majority of courses make use of the computer and statistical software packages. Course work for the major requires calculus and linear algebra. These are usually taken in the first two years of course work. The data analysis minor does not require a strong mathematics background.

During their first year, students should contact an advisor in the Department of Statistics located at 3306 Everett Tower.

At most one course with a grade below "C" can be applied toward a major or minor in Statistics.

Honors in Statistics

Note: Qualified students may plan a program to graduate with honors in statistics. The following are the requirements for graduation with Honors in Statistics:

1. Grade point average of at least 3.7 in statistics and mathematics courses
2. Overall grade point average of at least 3.25
3. Completion of the following:
 - an upper-level theoretical course
 - an approved independent study project leading to a paper or presentation

Interested students should see their advisor in their junior year or early in their senior year to plan an "honors program."

The department offers an opportunity that allows students to graduate with BS then MS degree in Statistics in five years. The details about the Accelerated Master's degree can be found at wmich.edu/statistics/stat-adp.

Bachelor of Science

Data Science Major (45 credit hours)

Advisors:

Dr. Hyun Bin Kang

Dr. Kevin Lee

Dr. Joseph McKean

Background Support (8 credit hours)

- MATH 1220 - Calculus I **Credits:** 4 hours
- MATH 2300 - Elementary Linear Algebra **Credits:** 4 hours

Computer Science Core (15 credit hours)

- CS 2610 - R Programming for Data Science **Credits:** 4 hours
- CS 3100 - Storage, Retrieval, and Processing of Big Data **Credits:** 3 hours
- CS 5821 - Machine Learning **Credits:** 3 hours
- CS 4900 - Software Systems Development I: Requirements and Design **Credits:** 3 hours
- CS 4910 - Software Systems Development II: Implementation, Testing **Credits:** 3 hours

Statistics Core (16 credit hours)

- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- STAT 2630 - Introduction to Mathematical Statistics Using R **Credits:** 3 hours
- STAT 4640 - Introduction to Statistical Computing **Credits:** 3 hours
- STAT 5680 - Regression Analysis **Credits:** 3 hours
- STAT 5870 - Big Data Analysis Using Python **Credits:** 3 hours

Electives (6 credit hours)

Two courses from Statistics and/or Computer Science:

STAT (STAT 5610, STAT 5660, STAT 5820, STAT 5670, STAT 5850, STAT 5860)

CS (CS 3400, CS 3500, CS 4430/CS 5430, CS 5180, CS 5260, CS 5300, CS 5400, CS 5550, CS 5700, CS 5820, etc.)

Other Requirements

Writing Course: CS 4900/4910

Both Statistics and Computer Science faculty may advise here. CS projects are external. STAT projects may either be external or internal through the Statistics Consulting Center.

All students are required to have a laptop.

Statistics Major

Advisors:

Dr. Nicole Andrews

Ms. Michelle Hastings

Dr. Joseph McKean

Statisticians design experiments, analyze data, and interpret results. The National Science Foundation estimates that the demand for Statisticians will exceed the number of graduates for at least the next ten years. Western's statistics major integrates mathematics and statistics coursework while emphasizing computer applications. A computer science minor is recommended.

Note: Students who complete all requirements for the statistics major (including MATH 1220, MATH 1230, MATH 2300, and MATH 2720) may request to have the General Mathematics Minor added to their degree. Please consult your academic advisor for details and to request this option.

Mathematics and Statistics Requirements:

- MATH 1220 - Calculus I **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
- MATH 2300 - Elementary Linear Algebra **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- STAT 2630 - Introduction to Mathematical Statistics Using R **Credits:** 3 hours
- STAT 3620 - Probability **Credits:** 4 hours
- STAT 4640 - Introduction to Statistical Computing **Credits:** 3 hours
- OR
- STAT 6800 - SAS Programming **Credits:** 3 hours*
- STAT 4810 - Communicating Statistical Results **Credits:** 3 hours
- STAT 5670 - Statistical Design and Analysis of Experiments **Credits:** 3 hours
- OR
- STAT 6640 - Design of Experiments I **Credits:** 4 hours*
- STAT 5680 - Regression Analysis **Credits:** 3 hours
- OR
- STAT 6620 - Applied Linear Models **Credits:** 3 hours*
- STAT 5850 - Applied Data Mining **Credits:** 3 hours
- STAT 5860 - Computer Based Data Analysis **Credits:** 3 hours

Electives:

Choose one of:

- STAT 5610 - Applied Multivariate Statistical Methods **Credits:** 3 hours
- STAT 5630 - Sample Survey Methods **Credits:** 3 hours
- STAT 5660 - Nonparametric Statistical Methods **Credits:** 3 hours
- STAT 5820 - Time Series Analysis **Credits:** 3 hours

*6000-level courses

These courses are only for students admitted to the ADP program.

Minors

Data Analysis Minor

Advisors:

Dr. Nicole Andrews

Ms. Michelle Hastings

Dr. Joseph McKean

Program Requirements

- STAT 4640 - Introduction to Statistical Computing **Credits:** 3 hours

One of the following five courses:

- STAT 2160 - Business Statistics **Credits:** 3 hours
- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- STAT 2830 - Methods of Data Analysis **Credits:** 3 hours
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

One of the following two courses:

- STAT 5670 - Statistical Design and Analysis of Experiments **Credits:** 3 hours
- STAT 5680 - Regression Analysis **Credits:** 3 hours

Two of the following seven courses:

- DEPT 0000 - An approved quantitative research course from student's home department.
- STAT 5610 - Applied Multivariate Statistical Methods **Credits:** 3 hours
- STAT 5630 - Sample Survey Methods **Credits:** 3 hours
- STAT 5660 - Nonparametric Statistical Methods **Credits:** 3 hours
- STAT 5670 - Statistical Design and Analysis of Experiments **Credits:** 3 hours
- STAT 5680 - Regression Analysis **Credits:** 3 hours
- STAT 5820 - Time Series Analysis **Credits:** 3 hours

Data Science Minor

Advisors:

Dr. Hyun Bin Kang

Dr. Kevin Lee

Dr. Joseph McKean

Program Requirements

- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- STAT 4640 - Introduction to Statistical Computing **Credits:** 3 hours

Three of the following four courses:

- DEPT 0000 - An approved quantitative research course from student's home department. **Credits:** 3 hours
- STAT 5680 - Regression Analysis **Credits:** 3 hours
- STAT 5850 - Applied Data Mining **Credits:** 3 hours
- STAT 5860 - Computer Based Data Analysis **Credits:** 3 hours

Statistics Minor

Advisors:

Dr. Nicole Andrews

Ms. Michelle Hastings

Dr. Joseph McKean

Program Requirements

- STAT 3620 - Probability **Credits:** 4 hours
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours
- STAT 4640 - Introduction to Statistical Computing **Credits:** 3 hours

Electives

Two electives to be selected from the following list of courses:

- STAT 5610 - Applied Multivariate Statistical Methods **Credits:** 3 hours
- STAT 5670 - Statistical Design and Analysis of Experiments **Credits:** 3 hours
- STAT 5680 - Regression Analysis **Credits:** 3 hours

Additional Elective

An approved calculus-based introductory course in statistics may be substituted for the following course with the approval of the department.

- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours

World Languages and Literatures

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Rika Saito
Vivan Steemers
Xiaojun Wang
Li Xiang
Shu Yang

The Department of World Languages and Literatures offers undergraduate instruction in Arabic, Chinese, French, German, ancient Greek, Japanese, and Latin, including course work in culture, literature, linguistics, translation and pedagogy.

Students (either entering or advanced) who wish to continue in a language they have studied in high school or learned through travel or residence abroad must take the online placement exam if they have studied French, German or Japanese. For placement in other languages, students should contact the departmental advisor of the language in question or the department chair.

Native speakers of a given language must consult with a departmental advisor before registering for courses.

Students may be eligible for retroactive credit based on the level at which they began their coursework. Questions about this matter should be referred to the advisor for the language.

Students who will graduate from the College of Arts and Sciences must fulfill that college's language requirement. Other colleges or specific departments may also have a language requirement. Students who have questions about this matter should consult the appropriate college or departmental advisor.

Many language students study abroad as part of their undergraduate program. Western has a number of excellent study abroad programs. Students interested in receiving credit for study abroad must consult with the advisor in the appropriate language well in advance of such study in order to plan properly and to obtain approval.

All students interested in pursuing a language major or minor should consult with an advisor as early as possible.

5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

Majors and Minors

As soon as students decide to major or minor in a language, they should confer with the advisor for that language in order to plan their program.

Only courses in which a grade of "C" or better is obtained can be counted toward a major or minor.

For students majoring or minoring in a modern language, a course in modern European, Asian, or Middle Eastern history is desirable. A minor in World Literature may also be appropriate. For Latin majors and minors, a course in Roman history is recommended.

Teaching certification is available for majors and/or minors for the following languages: Arabic (minor only), Chinese (minor only), French, German, Japanese (minor only), and Latin. A language methods course is required for all teaching majors and minors. Exceptions may be granted only by departmental permission. In order to receive state teacher certification, all candidates must pass the MTTC. Teacher candidates in the modern languages must also pass the Oral Proficiency Interview at the appropriate level. Students should consult advisors in both the College of Education and the department for more information.

Baccalaureate Writing Requirement for Majors

Students who have chosen to major in French, German, Japanese or Latin will satisfy the Baccalaureate Writing Requirement by successfully completing LANG 3750: Global Issues Through Literature and Film or LANG 4040: East-West Literary Relations.

Residency Requirement for Majors and Minors in French or German

Majors in French must take at least four courses (of the total required for the major) at Western Michigan University. One of these must be a 5000-level class. Minors in French must take at least three courses (of the total required for the minor) at the 2000-level or above at Western Michigan University.

Majors or minors in German must take at least the last two courses in their German program at Western Michigan University.

Study Abroad

Credits for language study abroad may be granted on official proof that the student has completed the course work successfully, provided that the student's program of study was approved before departure.

Bachelor of Arts

French Major

A minimum of 32 hours, including the following:

- FREN 2010 - Intermediate French II **Credits:** 4 hours
- FREN 3160 - Introduction to Advanced French Studies **Credits:** 4 hours
- FREN 3250 - Close Reading in French **Credits:** 3 hours

One of the following courses:

- FREN 3220 - Life and Culture in France **Credits:** 3 hours
OR
- FREN 3230 - Life and Culture in the Francophone World **Credits:** 3 hours

One 4000-level course.

Two 5000-level courses taught in French.

Nine credit hours of electives at the 3000-5000 level.

These hours may be taken from any combination of the following:

- One or more electives taken in a pre-approved study abroad program;
and/or
- LANG 3750 with French focus;
and/or
- FREN courses not taken to fulfill requirements listed above (i.e. FREN 3150, 3170, 3200, 3220 or 3230, 3260, 4160, 4540, 5030, 5100, 5200, 5400). LANG 5250 can also count toward the French major.

Course work to include:

Six hours of pre-approved courses taken abroad. These six credits can be taken as part of the required or elective hours. Exceptions to study abroad requirement may be granted where circumstances do not permit it.

The following courses cannot be counted toward the major:

The following courses cannot be counted toward the major: FREN 2750, FREN 5000, FREN 5010.

Teaching Certification

Students pursuing a French language initial teaching certification must enroll in the College of Education and Human Development's Post-Baccalaureate program after completion of their undergraduate French degree. As part of that program, they must complete LANG 6580 - Second Language Acquisition and Teaching. The prerequisites for enrollment in LANG 6580 include a minimum score of Advanced Low on the Oral Proficiency Interview exam. Please consult the College of Education's revised secondary education guidelines for more information.

German Major

A minimum of 32 hours, including the following:

- GER 2010 - Intermediate German II **Credits:** 4 hours
- GER 3160 - German Composition and Conversation **Credits:** 4 hours
- GER 3220 - German Life and Culture **Credits:** 3 hours
- GER 3250 - Introduction to the Study of German Literature **Credits:** 3 hours
- GER 4520 - Advanced German Composition **Credits:** 3 hours

One of the following courses:

- GER 3170 - German Conversation **Credits:** 3 hours
OR
- GER 2750 - Topics in German Studies **Credits:** 3 hours

One of the following courses:

- GER 4530 - Advanced German Conversation **Credits:** 3 hours
OR
- LANG 3750 - Global Issues through Literature and Film **Credits:** 3 hours
(German focus)

One additional elective (three credit hour minimum) from the following:

- An elective taken in a pre-approved study abroad program;
OR
- GER 2750, GER 3170, GER 3280, GER 4530, or LANG 3750 (i.e. a course option listed above that the student has not already taken to fulfill requirements);
OR
- A pre-approved cognate course offered in another department with a connection to German studies, for example in History or Political Science.

Six hours of 5000-level German courses.

Six hours of pre-approved courses taken abroad. These six credits can be taken as part of the required or elective hours. Exemptions to the study abroad requirement may be granted under exceptional circumstances.

The following courses cannot be counted toward the major:

GER 5000, GER 5010, LANG 5580.

Teaching Certification

Students pursuing a German language initial teaching certification must enroll in the College of Education and Human Development's Post-Baccalaureate program after completion of their undergraduate German degree. As part of that program, they must complete LANG 6580 - Second Language Acquisition and Teaching. The prerequisites for enrollment in LANG 6580 include a minimum score of Advanced Low on the Oral Proficiency Interview exam. Please consult the College of Education's revised secondary education guidelines for more information.

Japanese Major

Students should take 36 credits hours beyond the 1000-level. (JPNS 1000 and 1010 are prerequisites for the higher level of the language, but do not count directly toward the major.)

Only grades of "C" or better can be counted toward a Japanese major.

Required Courses (28 credit hours):

- JPNS 2000 - Intermediate Japanese I **Credits:** 4 hours
- JPNS 2010 - Intermediate Japanese II **Credits:** 4 hours

- JPNS 2750 - Japanese Life and Culture **Credits:** 3 hours
- JPNS 3000 - Advanced Japanese I **Credits:** 4 hours
- JPNS 3010 - Advanced Japanese II **Credits:** 4 hours
- JPNS 3250 - Close Reading in Contemporary Japanese **Credits:** 3 hours
- JPNS 3260 - Close Reading in Modern and Classical Japanese **Credits:** 3 hours

And either:

- JPNS 4510 - Advanced Japanese Language **Credits:** 3 hours
OR
- JPNS 5600 - Advanced Literary Readings in Japanese **Credits:** 3 hours

Elective courses:

To fulfill the remaining hours, students should take at least eight additional credit hours of electives. The following courses may be counted as electives:

- JPNS courses at the 3000 level or above
- Courses that focus specifically on Japanese studies in other departments, such as the Departments of Comparative Religion, History, or Political Science. All electives taken outside the Department of World Languages and Literatures must be approved by a major/minor Japanese advisor.
- LANG 3750 - Global Issues through Literature and Film **Credits:** 3 hours

Note:

At least one elective must be taken as a class at WMU and not as a course during study abroad.

Study Abroad

Students in the Japanese major are strongly encouraged to take advantage of study abroad through WMU's exchange institutions in Japan. Students must consult with the Japanese advisor well in advance of such study in order to plan properly and obtain approval for credits to be taken as part of the required or elective hours for the major.

Transfer credits

Students may transfer up to 16 credits earned in other institutions, including equivalents for JPNS 2000, JPNS 2010, JPNS 3000 and JPNS 3010, and up to 8 credits for elective courses.

Latin Major

Thirty hours that must include:

- LAT 1000 - Basic Latin I **Credits:** 4 hours
- LAT 1010 - Basic Latin II **Credits:** 4 hours
- LAT 2000 - An Introduction to the Study of Latin Literature **Credits:** 4 hours
(or equivalent)

Plus a minimum of two of the following:

- LAT 2010 - Latin Composition **Credits:** 4 hours
- LAT 2030 - Cicero **Credits:** 4 hours
- LAT 2040 - Vergil **Credits:** 4 hours
- LAT 3240 - Latin Literature **Credits:** 4 hours
- LAT 5600 - Medieval Latin **Credits:** 4 hours

Remaining hours from LAT classes not taken above and/or:

- CLAS 1500 - Classical Greek and Roman Mythology **Credits:** 3 hours
- CLAS 2500 - Power and Morality **Credits:** 3 hours
- CLAS 3750 - Classics in Global Perspective **Credits:** 3 hours
- GREK 1000 - Basic Greek I **Credits:** 4 hours
- GREK 1010 - Basic Greek II **Credits:** 4 hours

Teaching Certification

Students pursuing a Latin language initial teaching certification must enroll in the College of Education and Human Development's Post-Baccalaureate program after completion of their undergraduate Latin degree. As part of that program, they must complete LAT 6570 - Teaching Latin. Please consult the College of Education's revised secondary education guidelines for more information.

Minors

Arabic Minor (ARBN)

This minor requires the completion of 23 hours.

Required Courses (8 hours)

- ARAB 1000 - Basic Arabic I **Credits:** 4 hours
- ARAB 1010 - Basic Arabic II **Credits:** 4 hours

Remaining Hours (15 hours)

The remaining hours are to taken from the following:

- ARAB 2000 - Intermediate Arabic I **Credits:** 4 hours
- ARAB 2010 - Intermediate Arabic II **Credits:** 4 hours
- ARAB 2750 - Life and Culture of the Arabs **Credits:** 3 hours
- ARAB 3000 - Advanced Standard Arabic I **Credits:** 4 hours
- ARAB 3010 - Advanced Standard Arabic II **Credits:** 4 hours
- ARAB 4770 - Arabic Foreign Study **Credits:** 1 to 16 hours
- ARAB 5200 - Topics in Arabic Linguistics and Language Science **Credits:** 3 hours

- ARAB 5500 - Independent Study in Arabic **Credits:** 1 to 3 hours
- LANG 3750 - Global Issues through Literature and Film **Credits:** 3 hours
(Arabic Literature in Translation)

Additional Courses

Additional courses approved by the advisor.

Canadian Studies Minor

Minimum of 18 credits. At least half must be at the 3000-level or above. All course work for the minor must carry a grade of "C" or better.

Required (9 credits)

- HIST 3300 - Canadian History and Culture **Credits:** 3 hours
- GEOG 3800 - United States and Canada **Credits:** 3 hours
- GIST 2000 - Introduction to Global and International Studies **Credits:** 3 hours

Electives (9 credits)

- ANTH 4900 - Archaeological Field School **Credits:** 6 hours
- FREN 2750 - Francophone Culture **Credits:** 3 hours
- FREN 4770 - Foreign Study **Credits:** 1 to 16 hours
Topic: Study Abroad in Quebec **Credits:** 7 hours
- HIST 4010 - Environment and History **Credits:** 3 hours
- HIST 3101 - Colonial America (WI) **Credits:** 3 hours

Other courses

And other courses as approved by Canadian Studies advisors.

For Quebec Studies Emphasis within the Proposed Canadian Studies Minor:

French language competence required at level of FREN 2010 - Intermediate French II or equivalent, and at least one of the following:

- FREN 2750 - Francophone Culture **Credits:** 3 hours
- FREN 3230 - Life and Culture in the Francophone World **Credits:** 3 hours
- FREN 4770 - Foreign Study **Credits:** 1 to 16 hours

Other courses

And other courses as approved by Canadian Studies advisors, with Study Abroad in Quebec strongly recommended.

Chinese Minor

This minor requires the completion of 23 hours.

Required Courses (8 hours)

- CHIN 1000 - Basic Chinese I **Credits:** 4 hours
- CHIN 1010 - Basic Chinese II **Credits:** 4 hours

Remaining Hours (15 hours)

The remaining hours are to be taken from the following:

- CHIN 2000 - Intermediate Chinese I **Credits:** 4 hours
- CHIN 2010 - Intermediate Chinese II **Credits:** 4 hours
- CHIN 2100 - Business Chinese **Credits:** 3 hours
- CHIN 2750 - Chinese Life and Culture **Credits:** 3 hours
- CHIN 2760 - Contemporary China **Credits:** 3 hours
- CHIN 2800 - Chinese Calligraphy **Credits:** 3 hours
- CHIN 3160 - Chinese Composition **Credits:** 3 hours
- CHIN 3170 - Chinese Conversation **Credits:** 4 hours
- CHIN 4760 - Foreign Study - non WMU **Credits:** 1 to 16 hours
- CHIN 4770 - Foreign Study **Credits:** 1 to 16 hours
- CHIN 5200 - Topics in Chinese Linguistics and Language Science **Credits:** 3 hours
- CHIN 5500 - Independent Study in Chinese **Credits:** 1 to 3 hours
- LANG 3750 - Global Issues through Literature and Film **Credits:** 3 hours
(Chinese focus)
- LANG 3800 - Topics in World Languages **Credits:** 1 to 4 hours
(Chinese focus)
- LANG 4040 - East and West Literary Relations **Credits:** 3 hours
(Chinese focus)

Additionally

Study abroad is strongly encouraged. Pre-approved study abroad credits can be taken as part of the required or elective hours.

Students pursuing a Chinese language initial teaching certification must study abroad and must enroll in the College of Education and Human Development's Post-Baccalaureate program after completion of their undergraduate degree. As part of that program, they must complete LANG 6580 - Second Language Acquisition and Teaching. The prerequisites for enrollment in LANG 6580 include a minimum score of Intermediate-High on the Oral Proficiency Interview exam. Please consult the College of Education's revised secondary education guidelines for more information.

Classical Studies Minor

Seventeen hours including the following:

- LAT 1000 - Basic Latin I **Credits:** 4 hours
- LAT 1010 - Basic Latin II **Credits:** 4 hours
- OR
- GREK 1000 - Basic Greek I **Credits:** 4 hours
- GREK 1010 - Basic Greek II **Credits:** 4 hours

AND

- GREK 5200 - Topics in Greek Linguistics and Language Science **Credits:** 3 hours
(Taught in English)

Remaining hours from 2010 to 5600

and may include:

- LANG 3750 - Global Issues through Literature and Film **Credits:** 3 hours

and,

with approval of section faculty, may include one course from other departments, such as the following:

- HIST 3490 - Ancient Near East **Credits:** 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) **Credits:** 3 hours
- HIST 3510 - Ancient Rome (WI) **Credits:** 3 hours

French Minor: Non-teaching

This minor requires the completion of 24 hours.

Required Courses (12 hours)

- FREN 2000 - Intermediate French I **Credits:** 4 hours
- FREN 2010 - Intermediate French II **Credits:** 4 hours
- FREN 3160 - Introduction to Advanced French Studies **Credits:** 4 hours

Remaining Hours (12 hours)

The remaining hours are to be taken from the following:

- FREN 3150 - French for the Professions **Credits:** 3 hours
- FREN 3170 - French Conversation **Credits:** 4 hours
- FREN 3200 - French Phonetics **Credits:** 3 hours
- FREN 3220 - Life and Culture in France **Credits:** 3 hours
- FREN 3230 - Life and Culture in the Francophone World **Credits:** 3 hours
- FREN 3250 - Close Reading in French **Credits:** 3 hours
- FREN 3260 - Introduction to the Study of French Linguistics **Credits:** 3 hours

- FREN 4160 - Advanced Communication in French **Credits:** 3 hours
- FREN 4540 - Business French **Credits:** 3 hours
- FREN 5030 - French - English Translation Practicum **Credits:** 1 to 4 hours
- FREN 5100 - Topics in French and Francophone Studies **Credits:** 3 hours
- FREN 5200 - Topics in French Linguistics and Language Science **Credits:** 3 hours
- LANG 3750 - Global Issues through Literature and Film **Credits:** 3 hours

The following courses cannot be counted toward the minor:

FREN 2750, FREN 5000, FREN 5010, LANG 5580.

German Minor: Non-teaching

This minor requires the completion of 24 hours:

Required Courses (12 hours)

- GER 2000 - Intermediate German I **Credits:** 4 hours
- GER 2010 - Intermediate German II **Credits:** 4 hours
- GER 3160 - German Composition and Conversation **Credits:** 4 hours

Remaining Hours (12 hours)

The remaining hours are to be taken from the following:

- GER 2750 - Topics in German Studies **Credits:** 3 hours
- GER 3170 - German Conversation **Credits:** 3 hours
- GER 3220 - German Life and Culture **Credits:** 3 hours
- GER 3250 - Introduction to the Study of German Literature **Credits:** 3 hours
- GER 4520 - Advanced German Composition **Credits:** 3 hours
- GER 4530 - Advanced German Conversation **Credits:** 3 hours
- GER 4760 - Foreign Study - non WMU **Credits:** 1 - 16 hours
- GER 4770 - Foreign Study **Credits:** 1 to 16 hours
- GER 5290 - Survey of German Literature **Credits:** 3 hours
- GER 5600 - Studies in German Literature **Credits:** 3 hours
- LANG 3750 - Global Issues through Literature and Film **Credits:** 3 hours

The following courses cannot be counted toward the minor:

GER 5000, GER 5010, LANG 5580.

German Study Abroad Minor

This minor is specifically designed for students beginning their German studies at WMU and participating in WMU's study abroad program in Bonn, Germany, which is offered every semester. Advisor permission is needed for credits earned in other study abroad programs to apply toward the minor.

This minor requires the completion of 24 credit hours as follows:

- GER 1000 - Basic German I **Credits:** 4 hours
- GER 1010 - Basic German II **Credits:** 4 hours

And

- Pre-approved study abroad program **Credits:** 16 hours

Additional program requirement:

Students must take at least one German language course at WMU prior to their study abroad. One of the courses must be in the semester immediately prior to study abroad and students must earn at least a "B" in that course.

Japanese Minor

The minor in Japanese requires the completion of twenty-three hours, including 1000-level (basic) courses or equivalent.

Latin Minor

Twenty hours that must include the following:

- LAT 1000 - Basic Latin I **Credits:** 4 hours
- LAT 1010 - Basic Latin II **Credits:** 4 hours
- LAT 2000 - An Introduction to the Study of Latin Literature **Credits:** 4 hours (or equivalent)

Remaining hours from CLAS or LAT from 2010 to 5600

and may include

- CLAS 1500 - Classical Greek and Roman Mythology **Credits:** 3 hours
or
- CLAS 2500 - Power and Morality **Credits:** 3 hours
or
- CLAS 3750 - Classics in Global Perspective **Credits:** 3 hours

Teaching Certification

Students pursuing a Latin language initial teaching certification must enroll in the College of Education and Human Development's Post-Baccalaureate program after completion of their undergraduate Latin degree. As part of that program, they must complete LAT 6570 - Teaching Latin. Please consult the College of Education's revised secondary education guidelines for more information.

College of Aviation

College of Aviation

Captain David M. Powell
Dean

Raymond Thompson
Associate Dean

Thomas Grossman
Executive Director of Flight Operations

Faculty Chair

Jennifer Halseth
Business Manager

Sharon VanDyken
Director, Academic Advising

Tom Thinnes
Manager, Recruitment and Outreach

Academic Advising

Students should contact an advisor as early as possible. Advisors are available to assist in the individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and special transfer credit must be approved by the advising Director, the curriculum committee, or the Faculty Chair. Academic advising is available; phone (269) 387-0347. Because of the prerequisites and the limited offering times, students must consult an academic advisor if there are questions about proper course sequence.

Advising:

Kalamazoo - 2230 Kohrman Hall
Telephone: (269) 387-0347

Career Advising

Full career advising services are offered on main campus and students should contact the Career and Student Employment Services (wmich.edu/career/students) for these services. There are a number of internships available. For opportunities, students should contact the Manager of Recruitment and Outreach at (269) 964-6473. Internships are very competitive and students are encouraged to apply well before the appropriate deadline.

Academic Performance

Candidates for the Bachelor of Science degree must satisfy the following requirements and University requirements stated elsewhere in this catalog:

1. Students in the College of Aviation must achieve a minimum grade of "C" in all AVS courses required for graduation.

2. No more than two grades of "D" or "DC" in courses, other than AVS courses, presented for graduation may be counted for graduation.

Approved Electives

Electives must be approved by a department academic advisor. While choice of electives is intended to provide flexibility for students, they must be selected to provide a thrust and add strength to the individual's program. Non-related courses will not normally be approved.

Transfer Credit

Transfer credit for FAA certification may be accepted providing the courses were taken at another accredited collegiate institution. Although these transfer courses may be approved for AVS credit, the use of these courses for AVS course substitution may not necessarily be approved. However, please note carefully the following paragraph.

New FAA First Officer Qualification rules now require an Air Transport Pilot License (ATPL) for pilot employment in Part 121 operations. However, the FAA will allow students completing an aviation degree to qualify for a reduced hours FAA ATPL; 500 hours credit are granted toward the 1500 flight hours normally required for the ATPL. In order to qualify for this reduction, students must complete all of their flying aside from the Private Pilot Certificate with the College of Aviation and complete at least 60 credit hours of the FAA approved AVS courses. Students who only complete 30 to 59 credit hours of FAA approved courses at WMU will only be granted 250 hours of credit. Students completing less than 30 hours of FAA approved courses at WMU or not completing all of their flying aside from the Private Pilot Certification at WMU will be granted no credit.

Additional Costs

Special lab fees are in effect for all flight courses to cover the cost of flight instruction and aircraft operations. The fee is subject to change without notice due to fluctuations in operating costs. Flight fees are based on the average flight time required to complete the course. Students may require additional or less instruction. Refund of flight fees is subject to departmental refund policy, depending on whether a student completes a course of instruction or withdraws. Flight fees are due at the beginning of the semester. Students using Post 9/11 VA benefits for flight course fees will have a portion of the lab fee submitted to the VA for payment consideration. Additional information concerning the amount of the lab fee submitted to the VA can be found at wmich.edu/aviation/academics/afs.

Students are required to have their own hand tools for courses required for the Aviation Technical Operations (ATO) program. Contact the Aviation Technical Operations advisor for a list of required tools.

Class-related charges are assigned for laboratory courses.

Class related charges are also assigned to classes requiring special licensing purchases for simulation software, external testing fees or class related field trip expenses.

All aviation students will also be assessed an \$8.00 per semester fee for the transportation shuttle between main campus and the college facility at the Battle Creek airport.

Aviation Sciences

Chair

Main Office: 1219 Aviation Education Center

Telephone: (269) 964-6993

Fax: (269) 964-6473

Main campus: 2232 Kohrman Hall

Telephone: (269) 387-0676

Academic Faculty:

Blair Balden

Jessica Birnbaum

Lori Brown

Mervin Elliott

Jeremy Hierholzer

Kevin High

Willem Homan

Kyle Jehnzen

Geoffrey Lindenberg

Nathan Lisak

Mark Matteson

Matilda McLean

Terrance Michmerhuizen

William Rantz

Vladimir Risukhin

Gail Y. Rouscher

Gil Sinclair

Geoff Whitehurst

Lisa Whittaker

Flight Faculty:

Stephen Hasenick

G. Patrick Langworthy

Dennis McFall

Dominic Nicolai

Ryan Seiler

Jim Whittles

Curricula

The College of Aviation offers the following curricula:

- Aviation Flight Science - Bachelor of Science
- Aviation Management and Operations - Bachelor of Science
- Aviation Technical Operations - Bachelor of Science

Admission to Aviation Curricula

Students who meet the WMU admission criteria will be placed in their major by the College of Aviation. To begin pilot training a Chief Flight Instructor approved application is required. Also a FAA 2nd class medical certificate is required (1st class is recommended). Enrollment in flight and flight theory courses is subject to a minimum cumulative grade point average of 2.75

overall GPA and a 3.0 College of Aviation GPA earned at Western Michigan University. Entering freshmen without a WMU grade point average will be considered if they have earned a high school GPA of 3.0 and an SAT score of 1070 or 21 on the ACT. Transfer students without a WMU GPA will be considered if they have earned a GPA of 3.0 or better from their prior institution. Once the student meets these requirements, the student will be eligible for flight training courses.

Bachelor of Science

Aviation Flight Science (AFSJ)(123 hours)

The Aviation Flight Science curriculum prepares students for a career in aviation as a professional pilot. It emphasizes intellectual as well as technical competencies and is geared toward educating captains, not just training pilots. Flight training and prerequisite course work ensures that students learn essentials that are required by the commercial airline industry. Concepts emphasized include Crew Resource Management (CRM), Line Oriented Flight Training (LOFT), international flight, airline regulations, profitability, management and administration. Equipment includes a modern fleet of single- and multi-engine aircraft and state-of-the-art Training Devices which provide exposure to current Electronic Flight Instrumentation Systems (EFIS) and Flight Management Systems (FMS). Graduates of this curriculum earn their Federal Aviation Administration (FAA) Commercial Pilot Certificate with Instrument and Multi-engine Land ratings.

FAA Medical Certificate

Students considering this curriculum are highly encouraged to obtain a FAA First Class Medical Certificate before committing to this program. An FAA Second Class Medical Certificate is a prerequisite for the first flight course (AVS 1520).

Drug Testing

All students are required to subject themselves to drug testing procedure approved by the College before being allowed to participate in any flight activity in University aircraft.

Program Requirements

Enrollment in flight courses may be subject to a waiting list. Admission is determined by the candidate's number of credits earned, GPA, and availability of aircraft and instructors. Registration is administered by the College of Aviation. Students enrolled in flight training must maintain an average GPA of 2.75 overall and a 3.0 College of Aviation GPA. Failure to do so will result in removal from flight status.

No minor required.

Baccalaureate-Level Writing Requirement

Students who have chosen the Aviation Flight Science curriculum will satisfy the Baccalaureate-Level Writing Requirement by successfully completing the following course:

- AVS 4270 - Airline Administration **Credits:** 4 hours

Required Courses (123 credit hours)

- WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category Elective **Credits:** 3 hours

- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Local and National Perspectives Category Elective **Credits:** 3 hours

Note: One of these courses must contain required content in Planetary Sustainability and one must contain required content in Diversity and Inclusion, which are met in Levels II and III only. No more than 3 courses from any one prefix may be used to satisfy WES requirements.

Major Courses

- AVS 1510 - Professional Flight I Theory **Credits:** 3 hours
- AVS 1520 - Professional Flight I Lab A **Credits:** 1 hour
- AVS 1525 - Professional Flight I Lab B **Credits:** 1 hour
- AVS 2060 - Flight Physiology **Credits:** 3 hours
- AVS 2510 - Professional Flight II Theory **Credits:** 3 hours
- AVS 2520 - Professional Flight II Lab **Credits:** 3 hours
- AVS 3060 - Advanced Aerodynamics and Performance **Credits:** 3 hours
- AVS 3080 - Advanced Aircraft Systems Laboratory **Credits:** 3 hours
- AVS 3220 - Global Navigation and International Flight Planning **Credits:** 3 hours
- AVS 3530 - Professional Flight III Theory **Credits:** 2 hours
- AVS 3540 - Professional Flight III Lab **Credits:** 2 hours
- AVS 3550 - Professional Flight IV Theory **Credits:** 2 hours
- AVS 3560 - Professional Flight IV Lab **Credits:** 2 hours
- AVS 4110 - Airline Flight Operations **Credits:** 3 hours
- AVS 4120 - Line Oriented Flight Crew Simulation **Credits:** 4 hours

Cognate Courses

- AVS 1200 - Introduction to Aviation **Credits:** 3 hours
- AVS 1210 - Aerodynamics and Performance **Credits:** 2 hours
- AVS 1220 - Introduction to Airframes and Systems **Credits:** 2 hours
- AVS 1225 - Introduction to Aircraft Powerplants **Credits:** 2 hours
- AVS 1230 - Aircraft Systems Laboratory **Credits:** 1 hour
- AVS 1235 - Aircraft Powerplants Laboratory **Credits:** 1 hour
- AVS 2050 - Aviation Safety **Credits:** 3 hours
- AVS 2070 - Crew Resource Management **Credits:** 3 hours
- AVS 2120 - Aviation Meteorology **Credits:** 3 hours
- AVS 3070 - Advanced Aircraft Systems **Credits:** 3 hours
- AVS 3190 - Aviation Law **Credits:** 3 hours
- AVS 4240 - Corporate Aviation Management **Credits:** 3 hours
- AVS 4270 - Airline Administration **Credits:** 4 hours
- COM 1700 - Interpersonal Communication **Credits:** 3 hours

- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- GEOG 1050 - Physical Geography **Credits:** 4 hours
- GEOG 2250 - Introduction to Meteorology and Climatology **Credits:** 4 hours
- IEE 1020 - Technical Communication **Credits:** 3 hours
- MATH 2000 - Calculus with Applications **Credits:** 4 hours
- PHYS 1070 - Elementary Physics **Credits:** 4 hours
- PHYS 1080 - Elementary Physics Laboratory **Credits:** 1 hour
- PSY 1000 - General Psychology **Credits:** 3 hours
- STAT 2160 - Business Statistics **Credits:** 3 hours

Aviation Management and Operations (AMOJ)(122 hours)

Some courses may have an online component or may be delivered entirely online. There is also an Aviation Management and Operations major available entirely online.

The Aviation Management and Operations curriculum provides preparation for a variety of positions in operations management or technical support areas of the aviation industry. The program leads to careers in areas such as technical sales or service, aerospace administration, and aerospace management.

No minor required.

Baccalaureate-Level Writing Requirement

Students who have chosen the Aviation Management and Operations curriculum will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:

- AVS 4270 - Airline Administration **Credits:** 4 hours

Required Courses

- WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Local and National Perspectives Category Elective **Credits:** 3 hours

Note: One of these courses must contain required content in Planetary Sustainability and one must contain required content in Diversity and Inclusion, which are met in Levels II and III only. No more than 3 courses from any one prefix may be used to satisfy WES requirements.

Major Courses

- AVS 2100 - Introduction to Airports **Credits:** 3 hours
- AVS 2400 - Principles of Aviation Supply Chain Management **Credits:** 3 hours
- AVS 2800 - Transportation Technology: Policy, Perils, and Promise **Credits:** 3 hours
- AVS 3040 - Airport Safety and Security **Credits:** 3 hours
- AVS 3140 - Airport Operations **Credits:** 3 hours
- AVS 4280 - International Aviation **Credits:** 3 hours
- AVS 4400 - Air Cargo and Logistics Management **Credits:** 3 hours
- AVS 4980 - Administration Senior Project **Credits:** 3 hours

Cognate Courses

- AVS 1200 - Introduction to Aviation **Credits:** 3 hours
- AVS 1210 - Aerodynamics and Performance **Credits:** 2 hours
- AVS 1220 - Introduction to Airframes and Systems **Credits:** 2 hours
- AVS 1225 - Introduction to Aircraft Powerplants **Credits:** 2 hours
- AVS 1230 - Aircraft Systems Laboratory **Credits:** 1 hour
- AVS 1235 - Aircraft Powerplants Laboratory **Credits:** 1 hour
- AVS 2050 - Aviation Safety **Credits:** 3 hours
- AVS 2070 - Crew Resource Management **Credits:** 3 hours
- AVS 2120 - Aviation Meteorology **Credits:** 3 hours
- AVS 3070 - Advanced Aircraft Systems **Credits:** 3 hours
- AVS 3190 - Aviation Law **Credits:** 3 hours
- AVS 4240 - Corporate Aviation Management **Credits:** 3 hours
- AVS 4270 - Airline Administration **Credits:** 4 hours
- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- ACTY 2110 - Principles of Accounting II **Credits:** 3 hours
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours
- COM 1700 - Interpersonal Communication **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- FIN 3200 - Business Finance **Credits:** 3 hours
- IEE 1020 - Technical Communication **Credits:** 3 hours
- LAW 3800 - Legal Environment **Credits:** 3 hours
- MATH 2000 - Calculus with Applications **Credits:** 4 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- PHYS 1070 - Elementary Physics **Credits:** 4 hours
- PHYS 1080 - Elementary Physics Laboratory **Credits:** 1 hour
- PSY 1000 - General Psychology **Credits:** 3 hours
- STAT 2160 - Business Statistics **Credits:** 3 hours

Advanced ECON Cognate Requirement:

Select one of the following ECON courses:

- ECON 3040 - The Organization of Industries **Credits:** 3 hours
- ECON 3100 - Labor Economics **Credits:** 3 hours
- ECON 3200 - Money and Banking **Credits:** 3 hours
- ECON 3240 - Public Finance **Credits:** 3 hours
- ECON 3450 - Business, Government, and Society **Credits:** 3 hours

Approved Cognate Electives Credits: Optional Courses

(Non-required AVS courses, declared minor courses, other approved supportive courses.)

- AVS 4130 - Airport Planning **Credits:** 3 hours
- AVS 4140 - Airport Management **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MGMT 4100 - Global Human Resource Management **Credits:** 3 hours
- MGMT 4140 - Building the Business **Credits:** 3 hours

Note:

In addition, AVS 4140 provides an emphasis in airport operations and management. Students wishing to earn the emphasis may take this course as an elective. Contact your academic advisor for information.

Aviation Technical Operations (ATOJ) (126 hours)

The Aviation Technical Operations curriculum provides preparation for a variety of positions in the demanding field of aircraft maintenance and support. Options include such areas as: aircraft maintenance and repair, performance testing, engineering/maintenance liaison, maintenance logistics, flight test engineering, product technical support, aircraft maintenance engineering, aircraft systems reliability and maintainability, licensing requirements, and repair facility management. Satisfactory completion of all requirements prepares one to take the Federal Aviation Administration (FAA) Airframe and Powerplant written, oral and practical examinations.

No minor required.

Baccalaureate-Level Writing Requirement

Students who have chosen the Aviation Technical Operations curriculum will satisfy the Baccalaureate-Level Writing Requirement by successfully completing the following courses:

- AVS 4630 - Professional Maintenance Operations **Credits:** 3 hours

Required Courses

- WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Elective **Credits:** 3 hours

- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures
Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Local and National Perspectives Category Elective **Credits:** 3 hours

Note: One of these courses must contain required content in Planetary Sustainability and one must contain required content in Diversity and Inclusion, which are met in Levels II and III only. No more than 3 courses from any one prefix may be used to satisfy WES requirements.

Major Courses

- AVS 2600 - Aircraft Maintenance Practices **Credits:** 3 hours
- AVS 2605 - Aircraft Maintenance Practices Lab **Credits:** 1 hour
- AVS 2610 - Maintenance Regulations **Credits:** 2 hours
- AVS 2620 - Aircraft Structures I **Credits:** 2 hours
- AVS 2625 - Aircraft Structures I Lab **Credits:** 1 hour
- AVS 2630 - Basic Aircraft Engines **Credits:** 3 hours
- AVS 2635 - Basic Aircraft Engines Lab **Credits:** 1 hour
- AVS 2640 - Aircraft Electrical I **Credits:** 2 hours
- AVS 2645 - Aircraft Electrical I Lab **Credits:** 1 hour
- AVS 2650 - Aircraft Propellers **Credits:** 2 hours
- AVS 2655 - Aircraft Propellers Lab **Credits:** 1 hour
- AVS 3600 - Reciprocating Engine Overhaul **Credits:** 1 hour
- AVS 3605 - Reciprocating Engine Overhaul Lab **Credits:** 3 hours
- AVS 3620 - Aircraft Structures II **Credits:** 3 hours
- AVS 3625 - Aircraft Structures II Lab **Credits:** 1 hour
- AVS 3630 - Reciprocating Engine Systems **Credits:** 2 hours
- AVS 3635 - Reciprocating Engines Systems Lab **Credits:** 1 hour
- AVS 3640 - Aircraft Electrical II **Credits:** 3 hours
- AVS 3645 - Aircraft Electrical II Lab **Credits:** 1 hour
- AVS 3650 - Non-Destructive Testing **Credits:** 2 hours
- AVS 3655 - Non-Destructive Testing Lab **Credits:** 1 hour
- AVS 3660 - Avionics **Credits:** 3 hours
- AVS 3665 - Avionics Lab **Credits:** 1 hour
- AVS 3670 - Airframe Systems **Credits:** 3 hours
- AVS 3675 - Airframe Systems Lab **Credits:** 1 hour
- AVS 3690 - Testing Evaluation and Instrumentation **Credits:** 2 hours
- AVS 3695 - Testing Evaluation and Instrumentation Lab **Credits:** 1 hour
- AVS 4600 - Aircraft Inspection and Airworthiness Certification **Credits:** 1 hour
- AVS 4605 - Aircraft Inspection and Airworthiness Certification Lab **Credits:** 5 hours
- AVS 4620 - Reliability, Maintainability and Supportability **Credits:** 3 hours
- AVS 4630 - Professional Maintenance Operations **Credits:** 3 hours
- AVS 4640 - Aircraft Turbine Engines and Systems **Credits:** 3 hours
- AVS 4645 - Aircraft Turbine Engines and Systems Lab **Credits:** 1 hour
- AVS 4720 - Advanced Structures and Materials **Credits:** 2 hours

- AVS 4725 - Advanced Structures and Materials Lab **Credits:** 1 hour
- AVS 4730 - Advanced Airframe Systems **Credits:** 2 hours
- AVS 4735 - Advanced Airframe Systems Lab **Credits:** 1 hour
- AVS 4960 - AMT Certification Preparation **Credits:** 1 hours
- AVS 4965 - Advanced Maintenance Practices and Troubleshooting **Credits:** 1 hours
- AVS 4966 - Advanced Maintenance Practices and Troubleshooting Lab **Credits:** 4 hours

Cognate Coruses

- AVS 1200 - Introduction to Aviation **Credits:** 3 hours
- AVS 1210 - Aerodynamics and Performance **Credits:** 2 hours
- AVS 1220 - Introduction to Airframes and Systems **Credits:** 2 hours
- AVS 1225 - Introduction to Aircraft Powerplants **Credits:** 2 hours
- AVS 2050 - Aviation Safety **Credits:** 3 hours
- AVS 3190 - Aviation Law **Credits:** 3 hours
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- COM 1700 - Interpersonal Communication **Credits:** 3 hours
- IEE 1020 - Technical Communication **Credits:** 3 hours
- MATH 2000 - Calculus with Applications **Credits:** 4 hours
- PHYS 1070 - Elementary Physics **Credits:** 4 hours
- PHYS 1080 - Elementary Physics Laboratory **Credits:** 1 hour
- STAT 2160 - Business Statistics **Credits:** 3 hours

Minors

Aviation Science Minor (AVSN)

The Aviation Science minor provides basic and advanced topics for non-aviation students seeking to enhance their undergraduate degree through studies in aviation, which may expand their career opportunities. The minor can be tailored to emphasize areas such as flight operations, airport and airline administration, and aircraft systems.

Minimum 18 credit hours. Students must take AVS 1200 and AVS 2050 and at least one 3000 or 4000 level class. Availability subject to class capacities, priority given to Aviation majors.

Required courses

- AVS 1200 - Introduction to Aviation **Credits:** 3 hours
- AVS 2050 - Aviation Safety **Credits:** 3 hours

Elective courses

Select 12 credit hours from the following courses.

- AVS 1210 - Aerodynamics and Performance **Credits:** 2 hours
- AVS 1220 - Introduction to Airframes and Systems **Credits:** 2 hours
- AVS 1225 - Introduction to Aircraft Powerplants **Credits:** 2 hours

- AVS 1230 - Aircraft Systems Laboratory **Credits:** 1 hour
- AVS 1235 - Aircraft Powerplants Laboratory **Credits:** 1 hour
- AVS 1510 - Professional Flight I Theory **Credits:** 3 hours
- AVS 1520 - Professional Flight I Lab A **Credits:** 1 hour
- AVS 1525 - Professional Flight I Lab B **Credits:** 1 hour
- AVS 2060 - Flight Physiology **Credits:** 3 hours
- AVS 2070 - Crew Resource Management **Credits:** 3 hours
- AVS 2100 - Introduction to Airports **Credits:** 3 hours
- AVS 2120 - Aviation Meteorology **Credits:** 3 hours
- AVS 2800 - Transportation Technology: Policy, Perils, and Promise **Credits:** 3 hours
- AVS 3060 - Advanced Aerodynamics and Performance **Credits:** 3 hours
- AVS 3070 - Advanced Aircraft Systems **Credits:** 3 hours
- AVS 3080 - Advanced Aircraft Systems Laboratory **Credits:** 3 hours
- AVS 3190 - Aviation Law **Credits:** 3 hours
- AVS 4240 - Corporate Aviation Management **Credits:** 3 hours
- AVS 4270 - Airline Administration **Credits:** 4 hours
- AVS 4280 - International Aviation **Credits:** 3 hours

Aviation Supply Chain Management Minor (ASMN)

This academic aviation minor (15 credit hours) was developed to meet the increasing demand for professionals with competencies in the area of Aviation supply chain Management.

Upon completion of this Aviation minor students should be able to:

- Identify the key components of an effective aviation supply chain strategy.
- Explain how integrated supply chain management can improve the effectiveness and profitability of an aviation business organization.
- Describe the impact of sourcing and supplier management on the success and profitability of aviation firms in today's aviation/aerospace environment.
- Assess the value of Air Cargo Operations in the context of Global Supply Chain Management.
- Describe how the intangible nature of service impacts upon the effectiveness of traditional marketing techniques and operational effectiveness in aviation supply chains.

Required Courses

- AVS 2400 - Principles of Aviation Supply Chain Management **Credits:** 3 hours
- AVS 3400 - Sourcing and Procurement in Aviation **Credits:** 3 hours
- AVS 4400 - Air Cargo and Logistics Management **Credits:** 3 hours
- AVS 4490 - Aviation Service Operations Management **Credits:** 3 hours
- AVS 4280 - International Aviation **Credits:** 3 hours

Military Leadership & Aviation Studies Minor

AFROTC Program (MLRN)

Required Courses

Freshman year

- AVS 1110 - Heritage and Values of the United States Air Force I **Credits:** 1 hour
- AVS 1130 - Foundation of the United States Air Force Lab **Credits:** 1 hour
- AVS 1120 - Heritage and Values of the United States Air Force II **Credits:** 1 hour
- AVS 1140 - Foundation of the United States Air Force II Lab **Credits:** 1 hour

Sophomore year

- AVS 2110 - Team and Leadership Fundamentals I **Credits:** 1 hour
- AVS 2140 - The Evolution of USAF Air and Space Power Lab **Credits:** 1 hour
- AVS 2130 - Team and Leadership Fundamentals II **Credits:** 1 hour
- AVS 2150 - The Evolution of USAF Air and Space Power II Lab **Credits:** 1 hour

Junior year

- AVS 3210 - Leading People and Effective Communication I **Credits:** 3 hours
- AVS 3240 - Air Force Leadership Studies I Lab **Credits:** 1 hour
- AVS 3230 - Leading People and Effective Communication II **Credits:** 3 hours
- AVS 3260 - Air Force Leadership Studies II Lab **Credits:** 1 hour

Senior year

- AVS 4210 - National Security Affairs/Preparation for Active Duty I **Credits:** 3 hours
- AVS 4230 - National Security Affairs I Lab **Credits:** 1 hour
- AVS 4220 - National Security Affairs/Preparation for Active Duty II **Credits:** 3 hours
- AVS 4250 - National Security Affairs II Lab **Credits:** 1 hour

Electives

Choose one from each group below:

History

- HIST 3200 - American Military History **Credits:** 3 hours

Psychology/Sociology

- PSY 1000 - General Psychology **Credits:** 3 hours
- SOC 2000 - Principles of Sociology **Credits:** 3 hours

Non-AFROTC Program (MLAN)

Required Courses

Freshman year

- AVS 1110 - Heritage and Values of the United States Air Force I **Credits:** 1 hour
- AVS 1120 - Heritage and Values of the United States Air Force II **Credits:** 1 hour

Sophomore year

- AVS 2110 - Team and Leadership Fundamentals I **Credits:** 1 hour
- AVS 2130 - Team and Leadership Fundamentals II **Credits:** 1 hour

Junior year

- AVS 3210 - Leading People and Effective Communication I **Credits:** 3 hours
- AVS 3230 - Leading People and Effective Communication II **Credits:** 3 hours

Senior year

- AVS 4210 - National Security Affairs/Preparation for Active Duty I **Credits:** 3 hours
- AVS 4220 - National Security Affairs/Preparation for Active Duty II **Credits:** 3 hours

Electives

Choose one from each group below:

History

- HIST 3200 - American Military History **Credits:** 3 hours

Mathematics/Statistics

- MATH 1160 - Finite Mathematics with Applications **Credits:** 3 hours
- MATH 1180 - Precalculus Mathematics **Credits:** 4 hours
- MATH 1220 - Calculus I **Credits:** 4 hours
- MATH 2000 - Calculus with Applications **Credits:** 4 hours

Political Science/Leadership Labs

- PSCI 2500 - International Relations **Credits:** 4 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours

OR ALL OF:

- AVS 1130 - Foundation of the United States Air Force Lab **Credits:** 1 hour

- AVS 1140 - Foundation of the United States Air Force II Lab **Credits:** 1 hour
- AVS 2140 - The Evolution of USAF Air and Space Power Lab **Credits:** 1 hour
- AVS 2150 - The Evolution of USAF Air and Space Power II Lab **Credits:** 1 hour

Psychology/Sociology

- PSY 1000 - General Psychology **Credits:** 3 hours
- SOC 2000 - Principles of Sociology **Credits:** 3 hours

Professional Aviation Preparation (PAVN) 15 Credits (minimum)

Required Courses

- AVS 4030 - Flight Instructor Fundamentals **Credits:** 2 hours
- AVS 4040 - Instrument Flight Instructing **Credits:** 1 hour
- AVS 4060 - Flight Instructor Certification **Credits:** 2 hours
- AVS 4090 - Multi-Engine Flight Instructor **Credits:** 1 hour

Elective courses

Choose a minimum of 9 credit hours.

- AVS 2800 - Transportation Technology: Policy, Perils, and Promise **Credits:** 3 hours
- AVS 3320 - Single Engine Seaplane **Credits:** 1 hour
- AVS 4300 - Jet Equivalent Training **Credits:** 5 hours
- AVS 4280 - International Aviation **Credits:** 3 hours
- AVS 4980 - Administration Senior Project **Credits:** 3 hours
- AVS 4990 - Studies in Aviation Sciences **Credits:** 1 to 8 hours
- GEOG 3060 - Climate Change: Past, Present, and Future **Credits:** 3 hours
- GEOS 1200 - Climate Change Geologic Perspective **Credits:** 3 hours
- GIST 2000 - Introduction to Global and International Studies **Credits:** 3 hours

Other Degrees

Air Force Reserve Officers' Training Corps (AFROTC) Program

Western Michigan University, Michigan State University and the United States Air Force have an agreement that enables WMU students to attend AFROTC classes at MSU while earning their degree at WMU.

The AFROTC program provides pre-professional preparation for future USAF officers. The program is designed to develop men and women who can apply their education to their initial assignments as commissioned officers. In order to receive a commission, ROTC cadets must complete all requirements for a degree in accordance with University requirements, as well as complete certain courses specified by the MSU Department of Aerospace Studies. Depending on the student's program of study, such courses may supplement or serve as electives with the approval of the appropriate academic unit. For an undetermined amount of time, all AFROTC classes will only be offered on the campus of Michigan State University, and students may register through Michigan State University's Lifelong Education program, or alternatively students may register through WMU's normal

registration process.

For more information about the AFROTC program and or scholarship opportunities, call (517) 355-2168 or visit www.afrotc.com or www.afrotc.msu.edu.

For more information about how these courses may be applied to your aviation degree at WMU, contact a College of Aviation academic advisor at (269) 387-0347.

For students enrolled in other colleges at WMU, contact your academic advisor to find out how these courses might be applied to your specific degree requirements.

Haworth College of Business

Haworth College of Business

Satish Deshpande
Dean

Stephen Newell
Associate Dean

Devrim Yaman
Associate Dean

Doralee N. DeRyke
Director of Budget, Operations and Service Support

Betsy Drummer
Director of Academic Advising and Admissions

Geralyn Heystek
Director of HCoB Career Center

Scott Van Avery
Director of Recruiting and Retention

Danielle Field
SPuRS Program Director

Mission

The Haworth College of Business provides high-quality student-centered business education through teaching, research and service activities that deliver exceptional intellectual and economic value to regional and international communities.

Creed

Partners for Business Knowledge and Leadership

Vision

To be recognized as a leader in high quality business education, applied research, and community partnerships in the greater Michigan region.

Core Values

Respect for people - Our interactions with others reflect civility, collegiality, and tolerance of diverse perspectives. We strive to promote an inclusive, ethical and trusting learning environment.

Respect for Knowledge - Our intellectual curiosity drives us to create and disseminate theoretical, practical and intuitive understanding. We strive to foster a learning environment where inquiry, ethics and critical thinking are valued and encouraged.

Respect for Wisdom - We strive to create a learning environment that maximizes our capacity to make effective and ethical decisions in multiple contexts.

Strategic Goals

1. The Haworth College of Business will ensure a distinctive and supportive learning experience that fosters success.
2. The Haworth College of Business will promote innovative learning, discovery, and service.
3. The Haworth College of Business will advance new knowledge and value-added discovery.
4. The Haworth College of Business will promote diversity, equity, and inclusion to advance social sustainability and accessibility.
5. The Haworth College of Business will implement economically sustainable practices and policies aligning resources with college priorities.

The Haworth College of Business offers three degree programs:

- Bachelor of Business Administration (B.B.A.)
- Master of Business Administration for graduate students with Liberal Arts, Engineering, Business, or other undergraduate preparation (M.B.A.)
- Master of Science in Accountancy for students desiring preparation for a professional accounting career (M.S.A.)

Academic Units:

Accountancy
Business Information Systems
Finance and Commercial Law
Management
Marketing
Military Science and Leadership

Interdisciplinary Programs - Haworth College of Business

Bachelor of Business Administration

Bachelors of Business Administration Program (B.B.A. Degree)

B.B.A. Learning Goals and Objectives:

1. Students will be effective communicators
2. Students will have effective team skills
3. Students will acquire global business understanding
4. Students will understand information technology systems
5. Students will understand ethical business practices
6. Students will be critical thinkers
7. Students will have common business knowledge

Pre-Business Program

Students are expected to work with an academic advisor to develop a planned program of study. Any entering or transfer student planning to pursue a B.B.A. degree must apply to the professional B.B.A. program. Typically, this application occurs during the student's second-semester sophomore year, or upon entrance to WMU if transferring the equivalent of the entrance requirements. During the first two years of the student's program, students are expected to complete several WMU general education requirements as well as the following pre-B.B.A. requirements for application to the professional B.B.A. program:

1. Completion of 48 total credit hours
2. A minimum grade point average of 2.50
3. A minimum grade of "C" in each of the pre-B.B.A. courses or approved alternatives shown below
4. Meet the requirements of the foundational segment of the Haworth College of Business Student Professional Readiness Series program (details about requirements may be obtained by contacting the HCoB Program Manager).

Freshman Year

- ENGL 1050 - Foundations in Written Communication: Strategies, Behaviors, Success **Credits:** 3 hours
- BUS 1000 - Business Preparation **Credits:** 1 hour
or
- FYE 2100 - First-Year Experience **Credits:** 2 hours
or
- ACTY 2000 - Careers in Accounting **Credits:** 1 hour

- or
- BUS 3000 - Business Preparation for Transfer Students **Credits:** 1 hour
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours
- or
- CIS 1100 - Business Computing **Credits:** 1 hour
- MATH 1160 - Finite Mathematics with Applications **Credits:** 3 hours
- or
- MATH 1180 - Precalculus Mathematics **Credits:** 4 hours
- or
- MATH 1220 - Calculus I **Credits:** 4 hours
- or
- MATH 2000 - Calculus with Applications **Credits:** 4 hours

Note:

Transfer students **MUST** take BUS 3000 in their first semester at WMU instead of taking BUS 1000, ACTY 2000, or FYE 2100.

Sophomore Year

- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
*Grade required
- ACTY 2110 - Principles of Accounting II **Credits:** 3 hours
*Grade required
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- STAT 2160 - Business Statistics **Credits:** 3 hours

*Grade required

*Students majoring in Accountancy must earn a "CB" in ACTY 2100 and ACTY 2110 or equivalent courses transferred to WMU prior to enrolling in ACTY 3100, 3220 and 3240.

Additional Hours

Additional hours should be taken in the following areas to complete minimum pre-B.B.A. requirements:

WMU Essential Studies

Admission

After successful completion of the pre-B.B.A. program requirements listed above, students will be accepted into the professional B.B.A. program. A formal application is required for acceptance.

Students must visit the Haworth College of Business Office of Academic Advising and Admissions located in 2350 Schneider Hall and meet with an advisor to submit an application. Applications should be submitted in September if the student plans to start taking B.B.A. courses in the following spring semester, or January if the student plans on taking B.B.A. courses in the following fall semester. Students completing the pre-B.B.A. during the summer sessions can apply in May (summer I) or July (summer II).

Admission decisions are made as the grades of the Pre-B.B.A. courses become available. Students will be notified of the status of their application via their WMU email account.

Admission of transfer students from accredited two- and four-year institutions will be made on a similar basis. The same criteria for admission listed above will apply.

Students not meeting admission requirements are able to work with an academic advisor to develop a plan to earn future admission.

The Haworth College of Business Advising Office of Academic Advising and Admissions will provide advising services for business students throughout their academic careers. Students will apply to the professional B.B.A. program through this office, after meeting with an academic advisor. Faculty advisors provide expertise in the area of the chosen major. The academic advising office provides guidance about meeting all graduation requirements of the professional B.B.A. curriculum.

Professional B.B.A. Curriculum

In order to graduate from the professional B.B.A. program, a student must complete a minimum of 122 non-repeated semester hours, and meet the requirements of the Haworth College of Business Student Professional Readiness Series program (details about requirements may be obtained by contacting the SPuRS Program Manager). In addition to the University requirements of general education and the specific requirements noted above, students must complete the following:

1. B.B.A. Core Requirements:

Note: A "C" (2.0) grade or better is required in each of the higher-level BBA core courses listed below:

- BUS 2200 - Introduction to Global Business **Credits:** 3 hours
- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- BCM 3700 - Integrated Communication in Business **Credits:** 3 hours
- BUS 3750 - Business Process Productivity **Credits:** 3 hours
For ISM majors: The BUS 3750 requirement can also be satisfied by taking a nine hour sequence including MGMT 4640, MKTG 3720 and either (MKTG 4630 or MKTG 4840).
- FIN 3200 - Business Finance **Credits:** 3 hours
- LAW 3800 - Legal Environment **Credits:** 3 hours
- BUS 4000 - Business Professionalism **Credits:** 1 hour
- BUS 4500 - Business Ethics and Sustainability **Credits:** 3 hours
For ACTY majors: This requirement can also be satisfied by taking LAW 4870.

B.B.A. Capstone Requirement

Note: ALL courses listed above except BUS 2200, LAW 3800, BUS 4000, and BUS 4500 MUST be completed prior to taking the capstone course, BUS 4750.

- BUS 4750 - Strategic Business Solutions **Credits:** 3 hours

2. A Business Major consisting of at least 18 hours

Baccalaureate-Level Writing Requirement

Students who have chosen to major in any area of business will satisfy the Baccalaureate-Level Writing Requirement through successful completion of the following course:

- BCM 3700 - Integrated Communication in Business **Credits:** 3 hours

Transfer Courses

With departmental approval, transfer courses from four-year schools (and appropriate lower division courses from junior or community colleges) may be included in majors and minors. However, at least 50 percent of any Haworth College of Business major and at least 50 percent of any business minor, with the exception of the general business minor which requires 33 percent, must be completed through Western Michigan University. Note that courses taken through approved WMU study abroad partners count as courses completed at Western Michigan University. Transfer work toward B.B.A. Core Requirements must meet the following criteria:

- Approval by the Haworth College of Business Office of Advising and Admissions and the major department
- Minimum grade of "C"
- Minimum grade of "CB" in ACTY 2100 and ACTY 2110 or equivalents before enrolling in ACTY 3100, 3220, or 3240.

Business Minors

To declare a minor in any business area, the student must meet with an advisor in the Haworth College of Business Office of Academic Advising and Admissions. The requirements and restrictions for declaration of a minor are:

- Completion of a minimum of 56 credit hours
- A 2.5 overall grade point average
- Non-business majors are limited to a maximum of 30 credit hours of business courses at the time of graduation
- The Human Resource Management minor requires a 3.0 overall grade point average

Advising

For questions regarding B.B.A. curriculum requirements and transfer credit equivalencies, contact the Haworth College of Business Office of Academic Advising and Admissions (269) 387-5075.

Special Notes

1. All students who complete the B.B.A. requirements, excluding General Business majors, will automatically graduate with a minor in General Business.
2. Enrollment in Haworth College of Business courses requires that students meet the following program restrictions:

A. Courses open to all Undergraduate Students:

- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- ACTY 2110 - Principles of Accounting II **Credits:** 3 hours
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- BUS 2200 - Introduction to Global Business **Credits:** 3 hours
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours

B. Courses open only to

Pre-B.B.A. and B.B.A. students, declared business minors (see above), and students enrolled in non-business programs that require these courses:

- All other 1000- and 2000-level business courses which are required for a major or minor.

C. Courses open only to

B.B.A. students accepted into the B.B.A. curriculum:

- All 3000- and 4000-level business courses except:
 - Declared business minors (see above) will be eligible for those 3000- or 4000-level business courses that are required in their minors once they have achieved Junior status (completion of 56 credit hours).
 - Students enrolled in non-business programs which require 3000- or 4000-level business courses will be eligible to enroll in these courses once they have achieved Junior status (completion of 56 credit hours).

Digital Marketing and eCommerce (DMEJ) (24 hours)

The Digital Marketing and eCommerce (DMEJ) major is an interdisciplinary major that combines the study of Marketing and Information Systems to prepare students for careers in fields such as e-commerce, data analytics, digital marketing, social media, and web application development and services. Students will study digital technologies, web applications, web design and digital marketing practices in order to solve contemporary business problems and meet challenges in the rapidly changing digital marketplace.

Major Requirements (15 hours)

- CIS 2900 - User experience Design **Credits:** 3 hours
- CIS 3900 - Business Web Architecture **Credits:** 3 hours
- MKTG 3710 - Marketing Research **Credits:** 3 hours
- MKTG 3730 - Digital and Social Media Marketing **Credits:** 3 hours
- MKTG 4791 - Advanced Digital Marketing Strategies **Credits:** 3 hours

Electives (9 hours)

Proper sequencing of major electives will allow a student in EDM to study one of the following specialty areas (students must meet with a major advisor to discuss and plan elective options).

Analytics

- CIS 2640 - Applied Analytics Foundations **Credits:** 3 hours
- CIS 2650 - Programming for Data Analytics **Credits:** 3 hours
- CIS 3640 - Visual Analytics **Credits:** 3 hours
- CIS 4500 - Customer Relationship Management **Credits:** 3 hours
- OR
- MKTG 4500 - Customer Relationship Management **Credits:** 3 hours

- CIS 4610 - Database for Business Analytics **Credits:** 3 hours
- CIS 4640 - Business Data Mining **Credits:** 3 hours
- CIS 5650 - Big Data Analytics **Credits:** 3 hours
- MKTG 3780 - Marketing Analytics **Credits:** 3 hours
- MKTG 4770 - Consumer Behavior **Credits:** 3 hours

Web Applications

- CIS 2800 - Internet Programming **Credits:** 3 hours
- CIS 3600 - Systems Analysis and Design **Credits:** 3 hours
- CIS 3620 - Practical Project Management **Credits:** 3 hours
- CIS 4600 - Business Database Applications **Credits:** 3 hours
- MKTG 3740 - Advertising and Promotion **Credits:** 3 hours
- MKTG 4770 - Consumer Behavior **Credits:** 3 hours

Mobile Applications

- CIS 2610 - Business Mobile Programming **Credits:** 3 hours
- CIS 3600 - Systems Analysis and Design **Credits:** 3 hours
- CIS 3620 - Practical Project Management **Credits:** 3 hours
- CIS 4600 - Business Database Applications **Credits:** 3 hours
- CIS 4700 - Mobile Commerce Development **Credits:** 3 hours
- MKTG 3740 - Advertising and Promotion **Credits:** 3 hours
- MKTG 4770 - Consumer Behavior **Credits:** 3 hours

Database Marketing

- CIS 2640 - Applied Analytics Foundations **Credits:** 3 hours
- CIS 4500 - Customer Relationship Management **Credits:** 3 hours
- OR
- MKTG 4500 - Customer Relationship Management **Credits:** 3 hours
- CIS 4600 - Business Database Applications **Credits:** 3 hours
- CIS 4610 - Database for Business Analytics **Credits:** 3 hours
- CIS 4640 - Business Data Mining **Credits:** 3 hours
- MKTG 3740 - Advertising and Promotion **Credits:** 3 hours
- MKTG 3780 - Marketing Analytics **Credits:** 3 hours

Customized Specialization

Select any three (3) courses listed below. Students are highly encouraged to consult with an EBM major coordinator or advisor to select his/her elective courses.

- CIS 2610 - Business Mobile Programming **Credits:** 3 hours
- CIS 2640 - Applied Analytics Foundations **Credits:** 3 hours
- CIS 2650 - Programming for Data Analytics **Credits:** 3 hours
- CIS 2660 - Networking and Data Communications **Credits:** 3 hours
- CIS 2800 - Internet Programming **Credits:** 3 hours

- CIS 3600 - Systems Analysis and Design **Credits:** 3 hours
- CIS 3620 - Practical Project Management **Credits:** 3 hours
- CIS 3640 - Visual Analytics **Credits:** 3 hours
- CIS 3660 - Information Assurance and Compliance **Credits:** 3 hours
- CIS 4100 - Internship **Credits:** 1 to 4 hours
- CIS 4500 - Customer Relationship Management **Credits:** 3 hours
OR
- MKTG 4500 - Customer Relationship Management **Credits:** 3 hours
- CIS 4600 - Business Database Applications **Credits:** 3 hours
- CIS 4610 - Database for Business Analytics **Credits:** 3 hours
- CIS 4640 - Business Data Mining **Credits:** 3 hours
- CIS 4700 - Mobile Commerce Development **Credits:** 3 hours
- CIS 4960 - Independent Study **Credits:** 1 to 4 hours
- CIS 5550 - Topics in Computer Information Systems **Credits:** 3 hours
- CIS 5650 - Big Data Analytics **Credits:** 3 hours
- MKTG 3740 - Advertising and Promotion **Credits:** 3 hours
- MKTG 3780 - Marketing Analytics **Credits:** 3 hours
- MKTG 4770 - Consumer Behavior **Credits:** 3 hours
- MKTG 4780 - Special Topics in Marketing **Credits:** 3 hours
- MKTG 4790 - Marketing Internship **Credits:** 1 to 3 hours

Economics (ECBJ)(30 Hours)

Students should contact a faculty advisor through the Economics department, 5307 Freidman.

In addition to the completion of the program requirements for the B.B.A. degree, all students must satisfactorily complete the following:

Requirements

A major in economics consists of a minimum of 30 hours of credit in the department. The following are required courses for majors:

- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- ECON 2090 - Introductory Economic Statistics **Credits:** 3 hours
- ECON 3390 - Exploring Economic Data **Credits:** 3 hours
OR
- CIS 2640 - Applied Analytics Foundations **Credits:** 3 hours
- ECON 4030 - Intermediate Microeconomics **Credits:** 3 hours
OR
- ECON 4031 - Intermediate Microeconomics with Calculus **Credits:** 3 hours
- ECON 4060 - Intermediate Macroeconomics **Credits:** 3 hours
- ECON 4090 - Econometrics **Credits:** 3 hours

Advanced Electives

In conjunction with an Economics advisor, students will select an additional 9 semester hours of advanced courses (3000-5000 level).

Cognate: Mathematics

A major in economics is also required to take one semester of mathematics as a cognate course.

- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 2000 - Calculus with Applications **Credits:** 4 hours

Honors in Economics

Economics majors may apply for and receive the Honors in Economics designation on their official transcript. At the time of application, economics majors must have completed 24 credit hours in economics. Applicants must also have completed at least 90 credit hours overall. At least 15 of the credit hours used for the Honors designation must be completed at Western Michigan University. A minimum overall Western Michigan University GPA of 3.5 and a GPA of 3.75 in Economics is required for the Honors designation. Students must also submit a substantial writing sample that shows a capacity for original thought in the interpretation, analysis, and effective communication of economic information. Application forms may be obtained in the Department of Economics Advising Office, 5451 Friedmann Hall. Information is also available at the Department of Economics website: wmich.edu/economics/scholarships.

Health Informatics and Information Management (HIBJ) (50-55 hours)

Admission to this program is suspended.

Health Informatics and Information Management (HiiM) major is a cross-disciplinary academic program that integrates courses from multiple colleges at Western Michigan University (WMU). At present, HiiM major is offered by two colleges (i.e., College of Health and Human Services and Haworth College of Business).

Students who complete HiiM major from the Haworth College of Business will receive a Bachelor of Business Administration (B.B.A.) degree.

Admission Requirements

Only the Office of Admissions and Orientation grants admission to Western Michigan University for undergraduate students. Application forms may be obtained from that office or the University's website at wmich.edu.

Because the resources required for this major are integrated across colleges and are limited, there is an application process for students seeking admission to the HiiM program. Admission criteria will be determined by a committee that is composed of HiiM faculty advisors from each hosting college.

Applicants will be evaluated for admission at least twice (i.e., fall and spring semesters) based on each applicant's academic performance. Acceptance will only be confirmed when the student completes the application process and is accepted into the HiiM program. Students who either do not complete the application process or who are not accepted into the program will be removed from any classes that are restricted to HiiM majors.

To seek admission to the HiiM program in fall semester, student applications must be completed by February 15 and students will be notified of their status no later than March 1. For spring semester admission, students must complete the application process by September 15 and will be notified of their status no later than October 1, HCoB students must begin the application

process in the HCoB Office of Student Advising and Admissions. Any HiiM major applicant must be an eligible WMU student who has been admitted to the College of Business and has completed all pre-HiiM course requirements, and has a minimum GPA of 2.75.

Due to limited program capacity, all applicants are evaluated on a competitive basis in terms of academic performance. In addition, the following materials and criteria may be reviewed and applied:

- Resume
- Statement of Purpose
- HiiM Advisor Interview
- Overall GPA

Acceptance standards are dynamically adjusted based on the available program capacity. Applicants that miss the application deadline will be considered in the next application cycle.

Program Requirements:

In addition to completing all pre-B.B.A. and B.B.A. requirements, HiiM majors in HCoB must complete with a grade of "C" or above:

Pre-Major Requirements (17-21 hours)

Basic Computing

Select one of the following:

- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours
- CIS 1100 - Business Computing **Credits:** 1 hour

Health Profession

- HSV 1040 - Introduction to the Health Disciplines and Inter-professional Practice **Credits:** 2 hours

Health Sciences

Select ALL of the following:

- MDSC 2010 - Medical Terminology **Credits:** 1 hour
- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours

Human Anatomy

Select one of the following:

- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- OT 2000 - Human Functional Anatomy **Credits:** 3 hours

Statistics

Select one of the following:

- STAT 2160 - Business Statistics **Credits:** 3 hours
- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Required Courses (24-25 hours)

Health Info Systems and Management

Select one of the following:

- NUR 2350 - Special Topics in Nursing **Credits:** 1 to 4 hours
(**Credits:** 3 hours needed)
- HSV 2350 - Special Topics in Interdisciplinary Health Services **Credits:** 1 to 4 hours
(**Credits:** 3 hours needed)
- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
(customized content)

Health Care Ethics

Select one of the following:

- NUR 3220 - Health Care Ethics **Credits:** 3 hours
- PHIL 2010 - Contemporary Problems in Ethics **Credits:** 4 hours
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours

And

- NUR 3330 - Health Informatics **Credits:** 3 hours
- CIS 3600 - Systems Analysis and Design **Credits:** 3 hours
- CIS 3660 - Information Assurance and Compliance **Credits:** 3 hours
- CIS 4600 - Business Database Applications **Credits:** 3 hours
- HSV 4800 - Healthcare Management **Credits:** 3 hours

HiiM Capstone Project

Select one of the following:

- NUR 4300 - Special Topics in Nursing **Credits:** 1 to 6 hours
(**Credits:** 3 hours needed)
- HSV 4350 - Special Topics in Health and Human Services **Credits:** 1 to 4 hours
(**Credits:** 3 hours needed)
- CIS 4990 - Enterprise Project **Credits:** 3 hours

HCoB Elective Specialty Courses

Select one of the following specialty tracks:

A. Data Analysis (DAN)

Select three courses from the following list:

- CIS 2640 - Applied Analytics Foundations **Credits:** 3 hours
- CIS 3620 - Practical Project Management **Credits:** 3 hours
- CIS 3640 - Visual Analytics **Credits:** 3 hours
- CIS 4640 - Business Data Mining **Credits:** 3 hours

B. Health Information Networking (HIN)

Select three courses from the following list:

- CIS 2660 - Networking and Data Communications **Credits:** 3 hours
- CIS 5550 - Topics in Computer Information Systems **Credits:** 3 hours
Topics for CIS 5550:
 - Advanced Networking **Credits:** 3 hours
 - Network Security **Credits:** 3 hours
 - Health Information Networking **Credits:** 3 hours

C. Management (MGMT)

Take all three courses from the following list:

- MGMT 2520 - Human Resource Management **Credits:** 3 hours
- MGMT 3010 - Experiential Leadership and Strategy I **Credits:** 6 hours
- MGMT 3580 - Labor and Employee Relations **Credits:** 3 hours

Integrated Supply Management (ISUJ)(43 hours)

Admission Requirements

Only the Office of Admissions and Orientation grants admission to Western Michigan University for undergraduate students. Application forms may be obtained from that office or the University's website at wmich.edu.

The Integrated Supply Management (ISM) major is in high demand. Because the resources required for this major are limited, there is an acceptance process for students seeking to pursue the Integrated Supply Management degree. Upon acceptance into the Haworth College of Business, students requesting the ISM major will be conditionally designated as an ISM major to facilitate registration for courses. Acceptance will only be confirmed when the student completes the application process and is accepted into the program. Students who either do not complete the application process or who are not accepted into the program will be removed from any classes restricted to ISM majors.

Students must complete the application process for spring semester admission by December 1 and will be notified of their status no later than December 23. The application process for acceptance in fall semester must be completed by April 15 and students will be notified of their status no later than May 15. Students must begin the application process in the Haworth College of Business Office of Advising and Admissions. Students applying to the ISM program must be eligible for and complete an application to the Haworth College of Business or already be accepted into the Haworth College of Business.

Applicants are evaluated using the following four criteria:

- Resume
- Statement of Purpose
- ISM Faculty Member Interview
- Overall GPA

Because most employers require a minimum 3.0 GPA to be considered for internships or full-time employment, the student's overall GPA is a critical factor in the acceptance decision.

In addition to the courses listed below, ISM majors must complete an internship or have related work experience prior to graduation.

Required Courses

- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
- EDMM 1501 - Processes and Materials in Manufacturing Laboratory **Credits:** 1 hour
- EDMM 3280 - Quality Assurance and Control **Credits:** 3 hours
- MGMT 2800 - Introduction to Supply Management **Credits:** 3 hours
- MGMT 3200 - Managing ERP Systems **Credits:** 3 hours
- MGMT 3810 - Applied Six Sigma Problem-Solving **Credits:** 3 hours
- MGMT 4640 - Production Management and Control **Credits:** 3 hours
- MKTG 3720 - Sourcing and Purchasing **Credits:** 3 hours
- MKTG 4630 - Supply Chain Logistics **Credits:** 3 hours

And Either:

- EDMM 4880 - Applied Process Reengineering **Credits:** 3 hours
OR
- MKTG 4880 - Applied Process Reengineering **Credits:** 3 hours

And Either:

- LAW 4840 - International Business Law **Credits:** 3 hours
OR
- LAW 4860 - Marketing and Sales Law **Credits:** 3 hours

And Either:

- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
OR
- EDMM 4870 - Manufacturing Productivity Techniques **Credits:** 3 hours
OR
- EM 5120 - Management of Service Operations **Credits:** 3 hours

Electives

Select two additional courses (6 credit hours) from the following:

- Basic or intermediate foreign language courses (1000, 1010, 2000 or 2010)
- ACTY 3100 - Financial Accounting I **Credits:** 3 hours
- ACTY 3220 - Cost and Managerial Accounting **Credits:** 3 hours
- BCM 4540 - Intercultural Business Communication **Credits:** 3 hours
- BUS 3960 - Study Abroad Seminar **Credits:** 1 to 6 hours
- CIS 2640 - Applied Analytics Foundations **Credits:** 3 hours
- CIS 3640 - Visual Analytics **Credits:** 3 hours
- CIS 4640 - Business Data Mining **Credits:** 3 hours
- EDMM 3050 - Work Analysis **Credits:** 3 hours
- EM 5080 - Advanced Quality Management **Credits:** 3 hours
- FIN 3100 - Introduction to Financial Markets **Credits:** 3 hours
- FIN 4420 - International Finance **Credits:** 3 hours
- GEOG 2440 - Economic Geography **Credits:** 3 hours
- IEE 5200 - Modern Industrial Practices **Credits:** 3 hours
- MGMT 2140 - Exploring Entrepreneurship **Credits:** 3 hours
- MKTG 2750 - Global Negotiation **Credits:** 3 hours

OR

A major or minor in the following areas (if offered and available): accounting, business analytics, computer information systems, economics, entrepreneurship, finance, food and consumer package goods marketing, foreign language, international business, management, marketing or sales and business marketing.

Minors

Entrepreneurship Minor

Any undergraduate student at Western Michigan University can complete an Entrepreneurship minor. The minor requires a minimum of fifteen credit hours consisting of three required courses and two approved electives. The student should consult with a designated university-wide entrepreneurship minor advisor at their college prior to enrolling in courses for the minor. It is preferred that a student take electives offered in their college.

Required Courses

- MGMT 2140 - Exploring Entrepreneurship **Credits:** 3 hours
- FIN 2420 - Entrepreneurial Finance **Credits:** 3 hours
- IEE 3010 - Entrepreneurial Engineering II: Product and Service Design **Credits:** 3 hours

Approved Electives

- MKTG 3600 - Professional Selling **Credits:** 3 hours
- MGMT 4140 - Building the Business **Credits:** 3 hours
- MGMT 3140 - Small Business Management **Credits:** 3 hours
- MGMT 3340 - Business Model Design **Credits:** 3 hours

- MGMT 4340 - Family Business Management **Credits:** 3 hours
- MGMT 3010 - Experiential Leadership and Strategy I **Credits:** 6 hours
- MGMT 4010 - Experiential Leadership and Business Strategy II **Credits:** 3 hours
- MGMT 4380 - Entrepreneurship Practicum **Credits:** 3 hours
- FCS 3290 - Promotion in the Merchandising Environment **Credits:** 3 hours
- FCS 1260 - The Fashion Industry **Credits:** 3 hours
- FCS 3300 - Entrepreneurship in Family and Consumer Sciences **Credits:** 3 hours
- IEE 2010 - Entrepreneurial Engineering I: Cost and Financial Analysis **Credits:** 3 hours
- PADM 2000 - Introduction to Public and Nonprofit Service **Credits:** 3 hours
- PADM 5870 - Fund Raising for Nonprofit Organizations **Credits:** 3 hours
- PADM 5830 - Grant Writing **Credits:** 3 hours

General Business Minor (GBZN)(18 hours)

Students pursuing the General Business minor must complete at least 33% of all minor courses at WMU. Any student who completes the B.B.A. program requirements will automatically receive a general business minor. Students pursuing a degree other than a B.B.A. degree may minor in General Business by completing the following:

Required Courses

- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- FIN 3200 - Business Finance **Credits:** 3 hours
- OR
- FIN 2420 - Entrepreneurial Finance **Credits:** 3 hours

Elective Courses

Choose one course (3 credit hours) from the following:

- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
- BUS 2200 - Introduction to Global Business **Credits:** 3 hours
- LAW 3800 - Legal Environment **Credits:** 3 hours

International Business Minor (INTN)(15 hours)

Contact the Haworth College of Business Advising Office for information on the international-business minor. Students should consult with an international-business faculty advisor prior to enrolling in courses for the minor.

The international-business minor consists of three components:

Four Business Content Courses (12 hours)

Other courses taken at an approved study-abroad location may be used to satisfy this requirement.

- BCM 4540 - Intercultural Business Communication **Credits:** 3 hours
- BUS 3960 - Study Abroad Seminar **Credits:** 1 to 6 hours
(**Credits:** 3 hours needed)
- ECON 3800 - International Economics **Credits:** 3 hours
- FIN 4420 - International Finance **Credits:** 3 hours
- LAW 4840 - International Business Law **Credits:** 3 hours
- MGMT 4100 - Global Human Resource Management **Credits:** 3 hours
- MKTG 4750 - International Marketing **Credits:** 3 hours

One Cultural Content Course (3 or 4 hours)

Courses that qualify are listed below. Other courses taken at an approved study-abroad location or other WMU courses could also meet this requirement. Consult with an international-business advisor to determine if a course not listed below can be used as an elective. Note that courses cannot be counted towards more than one major or minor.

- Foreign Language Study (1000, 1010, 2000, 2010) **Credits:** 4 hours
- ANTH 3560 - Food and Culture **Credits:** 3 hours
- GEOG 3830 - Geography of Europe **Credits:** 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) **Credits:** 3 hours

The following courses also satisfy General Education Area III:

- ANTH 3470 - Ethnicity/Multiculturalism **Credits:** 3 hours
- GEOG 2440 - Economic Geography **Credits:** 3 hours

The following courses also satisfy General Education Area IV:

- ANTH 3390 - Cultures of Latin America **Credits:** 3 hours
- ANTH 3400 - World Cultures **Credits:** 3 hours
- ANTH 3410 - Global Africa Past and Present **Credits:** 3 hours
- ANTH 3580 - The African Diaspora: Across the Americas **Credits:** 3 hours
- ARAB 2750 - Life and Culture of the Arabs **Credits:** 3 hours
- CHIN 2750 - Chinese Life and Culture **Credits:** 3 hours
- FREN 2750 - Francophone Culture **Credits:** 3 hours
- GEOG 3810 - South America **Credits:** 3 hours
- GEOG 3820 - Mexico and the Caribbean **Credits:** 3 hours
- GEOG 3860 - Geography of Africa **Credits:** 3 hours
- GEOG 3890 - Monsoon Asia **Credits:** 3 hours
- GEOG 3900 - China, Japan, and Korea: Lands and Cultures **Credits:** 3 hours
- HIST 3760 - Modern East Asia **Credits:** 3 hours
- HIST 3850 - Modern Middle East **Credits:** 3 hours
- JPNS 2750 - Japanese Life and Culture **Credits:** 3 hours

The following course also satisfies General Education Area V:

- HIST 3330 - The World since 1945 **Credits:** 3 hours

Language fluency or a semester of study abroad

Demonstrated foreign language fluency (successful completion of a foreign language course at the 2010-level or equivalent proficiency).

or

Participation in an approved semester-long study abroad or internship program.

Accountancy

Ola Smith, Chair
3190 Schneider Hall
Telephone: (269) 387-5210

Sunday Bonifas
Caroline Burke
Kellie Carr
Mingming Feng
Donald W. Gribbin
Jerry G. Kreuze
Sheldon A. Langsam
Dawn Mason
James Penner
Amanda Remo
Jagjit S. Saini
Thomas Schultz
Inna Voytsekhivska

The Department of Accountancy offers both a major and minor in accountancy. A major in accountancy prepares students for careers in business, industry, government, nonprofit organizations, and public accounting as auditors, tax accountants, corporate accountants, internal auditors, and consultants.

General advising takes place in the Haworth College of Business Office of Academic Advising and Admissions. Accountancy faculty provide advising for accountancy majors, minors and elective choices.

Bachelor of Business Administration

Accountancy Major (ACTJ)(28 hours)

The accountancy major will prepare students to become career-ready accounting professionals. Foundational, core, and elective courses focus on four accounting tracks:

- Financial/Public
- Managerial
- Tax
- Accounting Systems and Analytics

Qualifications for Accounting Certification Exams

A graduate of the Haworth College of Business with a major in Accountancy will qualify to take many of the professional certification exams. Since the qualifying rules differ by state, and are subject to change, the student is responsible for determining if additional criteria need to be met for a specific exam or state.

Transfer Credits

The Department of Accountancy must approve transfer credits. All accountancy majors must take a minimum of 12 hours of accounting courses at WMU.

Required Courses

- ACTY 2000 - Careers in Accounting **Credits:** 1 hour
(ACTY 2000 can take the place of BUS 1000 and/or FYE 2100.)
- ACTY 3100 - Financial Accounting I **Credits:** 3 hours
- ACTY 3110 - Financial Accounting II **Credits:** 3 hours
- ACTY 3130 - Accounting Information Systems and Controls **Credits:** 3 hours
- ACTY 3220 - Cost and Managerial Accounting **Credits:** 3 hours
- ACTY 3240 - Introductory Tax Accounting **Credits:** 3 hours
- ACTY 4160 - Auditing **Credits:** 3 hours

Accountancy majors must complete one of the following courses:

- ECON 3200 - Money and Banking **Credits:** 3 hours
- ECON 3240 - Public Finance **Credits:** 3 hours
- ECON 3400 - Managerial Economics **Credits:** 3 hours
- ECON 3450 - Business, Government, and Society **Credits:** 3 hours
- ECON 4030 - Intermediate Microeconomics **Credits:** 3 hours
- ECON 4060 - Intermediate Macroeconomics **Credits:** 3 hours

Elective Courses

Select two additional courses (6 credit hours) from the following:

- ACTY 4110 - Advanced Accounting **Credits:** 3 hours
- ACTY 4130 - Accounting Systems: Analytics and Technology **Credits:** 3 hours
- ACTY 4140 - Governmental and Nonprofit Accounting **Credits:** 3 hours
- ACTY 4220 - Cost Management and Analytics **Credits:** 3 hours
- ACTY 4240 - Advanced Tax Accounting **Credits:** 3 hours

Minors

Accountancy Minor (ACTN)(15 hours)

Accountancy is the language of business. The Accountancy Minor will help prepare student to become successful professionals in their chosen careers. Foundational and elective courses include topics such as understanding and analyzing costs, budgets, and financial statements.

The Accountancy Minor (ACTN) requires 15 total credit hours as shown below:

Required Courses:

- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- ACTY 2110 - Principles of Accounting II **Credits:** 3 hours
- ACTY 3100 - Financial Accounting I **Credits:** 3 hours

Elective Courses:

Students must select two additional courses (6 credit hours) from available accountancy courses.

Business Information Systems

Mike Tarn, Chair
Main Office: 3310 Schneider Hall
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Kuanchin Chen
Mohammad Daneshvar Kakhki
Beth Ernst
Anne-Marie Guidy-Oulai
Bernard Han
Bidyut Hazarika
Seyed Mohammadreza Mousavizadeh Kashipaz
Ting-Yu Mu
Muhammad A. Razi
Alan Rea
Veronica Rice McCray
Utkarsh Shrivastava
Carrie Jiahe Song

The Department of Business Information Systems offers a major in computer information systems, and supports interdisciplinary majors in Digital Marketing and Electronic Commerce with the Department of Marketing, and Cybersecurity with the Department of Computer Science (please see the interdisciplinary major section of the catalog). In addition, the department offers minors in business communications, business analytics, business computer information systems, , and health informatics and information management.

Program Requirements

Course requirements for each of the majors and minors can be found under each program. Course prerequisites are listed after the course descriptions. Any deviations from these course requirements must have the written approval of the department chairperson.

Advising for majors and minors takes place in the Haworth College of Business Office of Academic Advising and Admissions. Students are also encouraged to discuss majors, minors and elective choices with faculty members in their areas of interest.

Bachelor of Business Administration

Business Analytics

The Business Analytics Major provides students with a strong foundation in analytical methods, techniques, and tools that allows them to play a key role in making data-driven business decisions. To gain real insights from analytics, one needs to master ways to decipher a sea of data coming from a variety of sources, in different formats, flowing at increasingly accelerating rates, and stored in volumes within or beyond the capabilities of traditional tools.

Required Courses

- CIS 2640 - Applied Analytics Foundations **Credits:** 3 hours
- CIS 2650 - Programming for Data Analytics **Credits:** 3 hours
- CIS 3640 - Visual Analytics **Credits:** 3 hours
- CIS 4610 - Database for Business Analytics **Credits:** 3 hours
- CIS 4640 - Business Data Mining **Credits:** 3 hours

- CIS 5650 - Big Data Analytics **Credits:** 3 hours

Electives

Select three additional courses (9 credit hours) from the following:

- CIS 2600 - Business Application Programming **Credits:** 3 hours
- CIS 3620 - Practical Project Management **Credits:** 3 hours
- STAT 5610 - Applied Multivariate Statistical Methods **Credits:** 3 hours
- STAT 5680 - Regression Analysis **Credits:** 3 hours
- CIS 4500 - Customer Relationship Management **Credits:** 3 hours
- CIS 4960 - Independent Study **Credits:** 1 to 4 hours
- CIS 5550 - Topics in Computer Information Systems **Credits:** 3 hours

Computer Information Systems Major (CMIJ)(24 hours)

Required Courses [5 courses (15 credit hours)]

Please note:

- Sequencing for the required courses must be as follows:
(1) CIS 2600 or CIS 2610 or CIS 2800, (2) CIS 3600, (3) CIS 4600, (4) CIS 4640, (5) CIS 4990
- Prerequisite for CIS 4640 is CIS 2700 and (MGMT 2500 or MKTG 2500) or instructor approval.
- CIS 2600 - Business Application Programming **Credits:** 3 hours
OR
- CIS 2610 - Business Mobile Programming **Credits:** 3 hours
OR
- CIS 2800 - Internet Programming **Credits:** 3 hours
- CIS 3600 - Systems Analysis and Design **Credits:** 3 hours
- CIS 4600 - Business Database Applications **Credits:** 3 hours
- CIS 4640 - Business Data Mining **Credits:** 3 hours
- CIS 4990 - Enterprise Project **Credits:** 3 hours

Electives [3 courses (9 credit hours)]

Please choose your electives based on the following career pathways you plan to pursue. Electives may be taken at the same time as your required courses subject to their prerequisite requirements. If you are not sure, please make an appointment with the CIS major coordinator or a CIS faculty advisor to seek advice before choosing your electives.

Career Pathway: Business Data Analyst

- CIS 2640 - Applied Analytics Foundations **Credits:** 3 hours
- CIS 3640 - Visual Analytics **Credits:** 3 hours
- CIS 2650 - Programming for Data Analytics **Credits:** 3 hours
OR
- CIS 3620 - Practical Project Management **Credits:** 3 hours

Career Pathway: Big Data Analyst

- CIS 2650 - Programming for Data Analytics **Credits:** 3 hours
- CIS 4610 - Database for Business Analytics **Credits:** 3 hours
- CIS 5650 - Big Data Analytics **Credits:** 3 hours

Career Pathway: E-Commerce Developer

- CIS 2800 - Internet Programming **Credits:** 3 hours
- CIS 2900 - User experience Design **Credits:** 3 hours
- CIS 3900 - Business Web Architecture **Credits:** 3 hours

Career Pathway: Mobile Application Developer

- CIS 2610 - Business Mobile Programming **Credits:** 3 hours
- CIS 3900 - Business Web Architecture **Credits:** 3 hours
- CIS 4700 - Mobile Commerce Development **Credits:** 3 hours

Career Pathway: Networking and Information Security

- CIS 2660 - Networking and Data Communications **Credits:** 3 hours
- CIS 3660 - Information Assurance and Compliance **Credits:** 3 hours
- CIS 5550 - Topics in Computer Information Systems **Credits:** 3 hours
OR
- CIS 4100 - Internship **Credits:** 1 to 4 hours
OR
- CIS 4960 - Independent Study **Credits:** 1 to 4 hours

Career Pathway: Consultant/System Architect/Program Analyst

- CIS 3620 - Practical Project Management **Credits:** 3 hours
- CIS 4500 - Customer Relationship Management **Credits:** 3 hours
- CIS 4100 - Internship **Credits:** 1 to 4 hours
OR
- CIS 4960 - Independent Study **Credits:** 1 to 4 hours

Career Pathway: Custom (individual design based on student's background)

Select any three (3) courses listed in the above Career Pathways. Student is highly encouraged to consult with CIS major coordinator or a CIS major advisor to select his or her elective courses.

Additional courses for Custom Career Pathway:

- CIS 5550 - Topics in Computer Information Systems **Credits:** 3 hours

Minors

Business Analytics Minor (BUAN)(15 hours)

Any undergraduate student at Western Michigan University can complete a Business Analytics minor. The minor requires a minimum of fifteen credit hours consisting of five required courses. CIS majors are required to substitute CIS 4640 with a course from the approved list. Interested students should consult with a designated Business Analytics advisor prior to enrolling in courses for the minor.

Required Courses (5 courses - 15 credits)

- STAT 2160 - Business Statistics **Credits:** 3 hours
- CIS 2640 - Applied Analytics Foundations **Credits:** 3 hours
- CIS 2650 - Programming for Data Analytics **Credits:** 3 hours
- CIS 3640 - Visual Analytics **Credits:** 3 hours
- CIS 4640 - Business Data Mining **Credits:** 3 hours

Note:

1. Courses taken to fulfill the Business Analytics minor cannot be double counted as required courses for the student's major.
2. CIS majors must substitute one of the following courses for CIS 4640, which is required for the CIS major:
 - CIS 3620 - Practical Project Management **Credits:** 3 hours
 - CIS 4100 - Internship **Credits:** 1 to 4 hours
 - CIS 4500 - Customer Relationship Management **Credits:** 3 hours
 - CIS 4610 - Database for Business Analytics **Credits:** 3 hours
 - CIS 4960 - Independent Study **Credits:** 1 to 4 hours
 - CIS 5550 - Topics in Computer Information Systems **Credits:** 3 hours

Computer Information Systems Minor (CMIN)(15 hours)

Required Courses

- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
- CIS 3600 - Systems Analysis and Design **Credits:** 3 hours
- CIS 4600 - Business Database Applications **Credits:** 3 hours

Elective Courses

Select two courses (6 credit hours) from the following:

- CIS 2600 - Business Application Programming **Credits:** 3 hours
- CIS 2610 - Business Mobile Programming **Credits:** 3 hours
- CIS 2640 - Applied Analytics Foundations **Credits:** 3 hours
- CIS 2660 - Networking and Data Communications **Credits:** 3 hours

- CIS 2800 - Internet Programming **Credits:** 3 hours
- CIS 2900 - User experience Design **Credits:** 3 hours
- CIS 3620 - Practical Project Management **Credits:** 3 hours
- CIS 3640 - Visual Analytics **Credits:** 3 hours
- CIS 3660 - Information Assurance and Compliance **Credits:** 3 hours
- CIS 3900 - Business Web Architecture **Credits:** 3 hours
- CIS 4500 - Customer Relationship Management **Credits:** 3 hours
- CIS 4640 - Business Data Mining **Credits:** 3 hours
- CIS 4700 - Mobile Commerce Development **Credits:** 3 hours
- CIS 4960 - Independent Study **Credits:** 1 to 4 hours
- CIS 4980 - Readings **Credits:** 1 to 4 hours
- CIS 4990 - Enterprise Project **Credits:** 3 hours
- CIS 5550 - Topics in Computer Information Systems **Credits:** 3 hours

Finance and Commercial Law

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H. Justin Pace
Craig Peterson
Matthew Ross
Tim F. Scheu
Judith Swisher
Jamie Weathers
Devrim Yaman

The Finance and Commercial Law Department offers majors in business law, finance and personal financial planning and minors in finance, law, and real estate.

Program Requirements

Course requirements for each of the two majors and four minors can be found under each program. Course prerequisites are listed after the course descriptions. Any deviations from these course requirements must have the written approval of the department chairperson.

Advising for majors and minors takes place in the Haworth College of Business Office of Academic Advising and Admissions. Students are also encouraged to discuss majors, minors and elective choices with faculty members in their areas of interest.

Bachelor of Business Administration

Business Law

The Business Law Major is an interdisciplinary program housed in the Finance and Commercial Law Department of the Haworth College of Business. It is designed for students with varied interests, including those considering attending law school, a career in criminal justice, or in business or government, where a working knowledge of legal issues and the legal system would be useful. The Business Law Major will provide undergraduate students with a foundation in the law from several diverse disciplines, enhancing critical thinking skills along with a sound background in legal issues.

In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, Business Law Majors must complete 30 credit hours in the following:

Foundational Courses (12 hours)

Choose FOUR of the following:

- LAW 3500 - Computer Law **Credits:** 3 hours
- LAW 3820 - Business Law **Credits:** 3 hours
- LAW 3840 - Criminal Law and Procedure **Credits:** 3 hours
- LAW 4840 - International Business Law **Credits:** 3 hours
- LAW 4860 - Marketing and Sales Law **Credits:** 3 hours
- LAW 4870 - Accounting Ethics and Legal Liability **Credits:** 3 hours
- LAW 4880 - Legal Aspects of Entrepreneurship **Credits:** 3 hours
- FIN 3720 - Estate Planning **Credits:** 3 hours

Perspectives Courses (6-8 hours)

Choose TWO of the following:

- COM 3070 - Freedom of Expression **Credits:** 3 hours
- HIST 4245 - Topics in U.S. History and Culture **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
- PHIL 3130 - Philosophy of Law **Credits:** 3 hours
- PSCI 3200 - The American Judicial Process **Credits:** 4 hours
- PSCI 3700 - Issues in Contemporary Politics **Credits:** 3 to 4 hours
- PSCI 3250 - Criminal Justice Policy **Credits:** 3 hours
- PSCI 4200 - Constitutional Law **Credits:** 3 hours
- PSCI 4210 - Gender and Law **Credits:** 3 hours
- PSCI 4220 - Civil Rights and Liberties **Credits:** 3 hours
- PSCI 4230 - The First Amendment **Credits:** 3 hours
- PSCI 4240 - Environmental Law **Credits:** 3 hours
- SOC 3630 - Courts and Society **Credits:** 3 hours

WMU Cooley Law School First Year Courses (12 hours)

(Cross-listed as A-S 5100 - Topics in Legal Studies)

Choose FOUR of the following:

- CIVP105LECT - Civil Procedure I
- CIVP209LECT - Civil Procedure II
- CONT108LECT - Contracts I
- CONT213LECT - Contracts II
- CRLP107LECT - Criminal Law
- CRLP305LECT - Criminal Procedure
- PRSE109LECT - Property I
- PRSE207LECT - Property II
- TOEQ106LECT - Torts I
- TOEQ304LECT - Torts II

Baccalaureate-Level Writing Requirement

All BBA students are required to take BCM 3700. Business Law students are required to take the designated Law Section of BCM 3700.

Finance Major (FINJ) (24 hours)

Major Requirements

- Advanced economics course at the 3000-level or above **Credits:** 3 hours
- FIN 3100 - Introduction to Financial Markets **Credits:** 3 hours
- FIN 3450 - Computer Applications in Finance **Credits:** 3 hours
- FIN 3510 - Investment Analysis **Credits:** 3 hours

Electives (12 hours)

The remaining twelve hours shall be selected from the list below, in consultation with an advisor from the Finance faculty:

- FIN 3300 - Real Estate Fundamentals **Credits:** 3 hours
- FIN 3310 - Real Estate Finance **Credits:** 3 hours
- FIN 3350 - Small Business Finance **Credits:** 3 hours
- FIN 3360 - Funding New and Growing Ventures **Credits:** 3 hours
- FIN 3410 - eFinance **Credits:** 3 hours
- FIN 3600 - Risk and Insurance **Credits:** 3 hours
- FIN 3720 - Estate Planning **Credits:** 3 hours
- FIN 3730 - Retirement Planning and Employee Benefits **Credits:** 3 hours
- FIN 4120 - Global Financial Markets **Credits:** 3 hours
- FIN 4250 - Short Term Financial Management **Credits:** 3 hours
- FIN 4260 - Corporate Finance: Theory and Practice **Credits:** 3 hours
- FIN 4320 - Real Estate Investments **Credits:** 3 hours
- FIN 4330 - Real Estate Appraisal **Credits:** 3 hours
- FIN 4370 - Real Estate Management **Credits:** 3 hours
- FIN 4420 - International Finance **Credits:** 3 hours
- FIN 4480 - Internships in Finance **Credits:** 1 to 5 hours
- FIN 4530 - Securities Analysis **Credits:** 3 hours
- FIN 4710 - Applications in Personal Financial Planning **Credits:** 3 hours
- FIN 5530 - Student Managed Investment Fund **Credits:** 3 hours

Proper sequencing of major electives will allow a student in finance to study:

Corporate Finance

- FIN 3410 - eFinance **Credits:** 3 hours
- FIN 4250 - Short Term Financial Management **Credits:** 3 hours
- FIN 4260 - Corporate Finance: Theory and Practice **Credits:** 3 hours
- FIN 4420 - International Finance **Credits:** 3 hours

Investments

- FIN 4320 - Real Estate Investments **Credits:** 3 hours

- FIN 4420 - International Finance **Credits:** 3 hours
- FIN 4530 - Securities Analysis **Credits:** 3 hours
- FIN 5530 - Student Managed Investment Fund **Credits:** 3 hours

Financial Markets

- FIN 4120 - Global Financial Markets **Credits:** 3 hours
- FIN 4420 - International Finance **Credits:** 3 hours

Real Estate

- FIN 3300 - Real Estate Fundamentals **Credits:** 3 hours
- FIN 3310 - Real Estate Finance **Credits:** 3 hours
- FIN 4320 - Real Estate Investments **Credits:** 3 hours
- FIN 4330 - Real Estate Appraisal **Credits:** 3 hours
- FIN 4370 - Real Estate Management **Credits:** 3 hours

Personal Financial Planning (FNPJ)(24 hours)

Personal financial planners guide people in planning for their financial future by assisting them with investments, tax planning, and insurance decisions. Students will gain knowledge of valuation of securities, insurance, estate planning, retirement planning, and employee benefits. Career opportunities in this growing field exist for personal financial planning majors in commercial banking, personal financial planning, insurance and money management. This major is certified by the CFP Board. Students who take the indicated elective courses meet the formal education requirement to sit for the CFP® Certification examination.

Required Courses

- Advanced economics course at the 3000-level or above **Credits:** 3 hours
- FIN 3100 - Introduction to Financial Markets **Credits:** 3 hours
- FIN 3510 - Investment Analysis **Credits:** 3 hours

Elective Courses

Select five additional courses (15 credit hours) from the following:

- ACTY 3240 - Introductory Tax Accounting **Credits:** 3 hours
Required course for students planning to sit for the CFP® Certification examination.
- FIN 3300 - Real Estate Fundamentals **Credits:** 3 hours
- FIN 3310 - Real Estate Finance **Credits:** 3 hours
- FIN 3450 - Computer Applications in Finance **Credits:** 3 hours
- FIN 3600 - Risk and Insurance **Credits:** 3 hours
Required course for students planning to sit for the CFP® Certification examination.
- FIN 3720 - Estate Planning **Credits:** 3 hours
Required course for students planning to sit for the CFP® Certification examination.
- FIN 3730 - Retirement Planning and Employee Benefits **Credits:** 3 hours
Required course for students planning to sit for the CFP® Certification examination.
- FIN 4320 - Real Estate Investments **Credits:** 3 hours

- FIN 4330 - Real Estate Appraisal **Credits:** 3 hours
- FIN 4370 - Real Estate Management **Credits:** 3 hours
- FIN 4480 - Internships in Finance **Credits:** 1 to 5 hours
- FIN 4530 - Securities Analysis **Credits:** 3 hours
- FIN 4710 - Applications in Personal Financial Planning **Credits:** 3 hours
Required course for students planning to sit for the CFP® Certification examination.
- FIN 5530 - Student Managed Investment Fund **Credits:** 3 hours

Minors

Finance Minor (FINN)(15 hours)

Required Courses

- FIN 3100 - Introduction to Financial Markets **Credits:** 3 hours
- FIN 3200 - Business Finance **Credits:** 3 hours
- FIN 3510 - Investment Analysis **Credits:** 3 hours

Elective Courses

Select two additional courses (6 credit hours) from available finance courses at the 3000-level or above in consultation with a faculty advisor. Students should use the list of finance major elective options as a reference.

Law Minor (LAWN)(21-23 hours)

Required Course (3 hours)

- LAW 3800 - Legal Environment **Credits:** 3 hours

Foundational Courses (12 hours)

Choose FOUR of the following:

- LAW 3500 - Computer Law **Credits:** 3 hours
- LAW 3820 - Business Law **Credits:** 3 hours
- LAW 3840 - Criminal Law and Procedure **Credits:** 3 hours
- LAW 4840 - International Business Law **Credits:** 3 hours
- LAW 4860 - Marketing and Sales Law **Credits:** 3 hours
- LAW 4870 - Accounting Ethics and Legal Liability **Credits:** 3 hours
- LAW 4880 - Legal Aspects of Entrepreneurship **Credits:** 3 hours
- FIN 3720 - Estate Planning **Credits:** 3 hours

Real Estate Minor (REAN)(15 hours)

Required Courses

- FIN 3200 - Business Finance **Credits:** 3 hours
- FIN 3300 - Real Estate Fundamentals **Credits:** 3 hours

Elective Courses

Select three additional courses (9 credit hours) in consultation with a real estate advisor from the following:

- FIN 3310 - Real Estate Finance **Credits:** 3 hours
- FIN 4320 - Real Estate Investments **Credits:** 3 hours
- FIN 4330 - Real Estate Appraisal **Credits:** 3 hours
- FIN 4370 - Real Estate Management **Credits:** 3 hours
- FIN 4480 - Internships in Finance **Credits:** 1 to 5 hours
(This course should be taken for 3 credit hours.)

Management

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Laurel Ofstein
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Thomas Scannell
Christina Stamper
Chen Wang
Xiaodan Wang

The Management Department offers majors in leadership and business strategy, integrated supply management, human resource management, entrepreneurship, a minor in leadership and business strategy, human resource management, and participates in the university-wide minor in entrepreneurship. Advising for majors and minors takes place in the Haworth College of Business Office of Academic Advising and Admissions. Students are also encouraged to discuss majors, minors and elective choices with faculty members in their areas of interest.

Bachelor of Business Administration

Entrepreneurship (ENTJ) (27 hours)

The Entrepreneurship major provides students with a strong foundation in entrepreneurial concepts. Students are suggested to specialize in a secondary area based on a completion of a minor, co-major or second major in any area of their choice.

Required Courses

In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, Entrepreneurship majors must also complete 27 credit hours of the following:

- MGMT 2140 - Exploring Entrepreneurship **Credits:** 3 hours
- MGMT 3350 - Building the Entrepreneurial Business **Credits:** 3 hours
- MGMT 4350 - Growing the Entrepreneurial Business **Credits:** 3 hours
- MKTG 3600 - Professional Selling **Credits:** 3 hours
- FIN 3350 - Small Business Finance **Credits:** 3 hours

Capstone Course

And one of the following:

- MGMT 4740 - Entrepreneurial Strategy **Credits:** 3 hours

Electives

In addition to the requirements above, students may select three electives from the courses listed below. Electives cannot double-count towards a minor, co-major, or second major if selected by the student.

Select three additional courses (9 credit hours) from any of the following:

- MGMT 3340 - Business Model Design **Credits:** 3 hours
- MGMT 4640 - Production Management and Control **Credits:** 3 hours
- MGMT 4360 - Technology Entrepreneurship **Credits:** 3 hours
- LAW 4880 - Legal Aspects of Entrepreneurship **Credits:** 3 hours
- MKTG 3730 - Digital and Social Media Marketing **Credits:** 3 hours
- MGMT 4380 - Entrepreneurship Practicum **Credits:** 3 hours
- FIN 3360 - Funding New and Growing Ventures **Credits:** 3 hours
- MGMT 3500 - Managing Diversity in Organizations **Credits:** 3 hours
- MGMT 2520 - Human Resource Management **Credits:** 3 hours
- MGMT 4040 - Business and Society **Credits:** 3 hours
- MGMT 4100 - Global Human Resource Management **Credits:** 3 hours
- MGMT 3580 - Labor and Employee Relations **Credits:** 3 hours
- MGMT 4650 - Managing for Quality **Credits:** 3 hours
- BUS 3960 - Study Abroad Seminar **Credits:** 1 to 6 hours
- BUS 3961 - Sustainability Study Abroad Seminar **Credits:** 3 hours
- MGMT 3010 - Experiential Leadership and Strategy I **Credits:** 6 hours

Additional Information:

As part of the globally engaged strategic goal of the Haworth College of Business, entrepreneurship students are encouraged to look for and take advantage of opportunities through domestic travel and study abroad programs.

Entrepreneurship majors are strongly encouraged to complete a minor, co-minor, or a second major in their desired area of specialization.

Human Resource Management Major (HRMJ)(27 hours)

In addition to the BBA requirements, the Human Resources Management major consists of eight required courses (24 hours) and one elective course (3 hours).

Required Courses

- MGMT 2520 - Human Resource Management **Credits:** 3 hours
- MGMT 3540 - HR Metrics and Management Systems **Credits:** 3 hours

- MGMT 3560 - HR Training and Development **Credits:** 3 hours
- MGMT 3580 - Labor and Employee Relations **Credits:** 3 hours
- MGMT 4070 - Change Management **Credits:** 3 hours
- MGMT 4100 - Global Human Resource Management **Credits:** 3 hours
- MGMT 4320 - Total Rewards **Credits:** 3 hours
- MGMT 4510 - Staffing Organizations **Credits:** 3 hours

Electives (3 hours)

Select one:

- FIN 3600 - Risk and Insurance **Credits:** 3 hours
- FIN 3730 - Retirement Planning and Employee Benefits **Credits:** 3 hours
- LAW 3840 - Criminal Law and Procedure **Credits:** 3 hours
- MGMT 3010 - Experiential Leadership and Strategy I **Credits:** 6 hours
- MGMT 3500 - Managing Diversity in Organizations **Credits:** 3 hours

Leadership and Business Strategy (LBSJ)(24 hours)

Students taking the Leadership and Business Strategy major must complete a second major in another field in addition to the requirements for this major. The second major will satisfy the university requirement for a major and a minor.

Program Requirements

- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MGMT 3010 - Experiential Leadership and Strategy I **Credits:** 6 hours
- MGMT 3011 - Leading in Business Organizations **Credits:** 3 hours
- MGMT 4010 - Experiential Leadership and Business Strategy II **Credits:** 3 hours
- BUS 4750 - Strategic Business Solutions **Credits:** 3 hours

Elective Courses (9 hours total)

Elective Courses (6 hours total)

- MGMT 2140 - Exploring Entrepreneurship **Credits:** 3 hours
- MGMT 2520 - Human Resource Management **Credits:** 3 hours
- MGMT 2750 - Analytical Foundations **Credits:** 3 hours
- MGMT 3140 - Small Business Management **Credits:** 3 hours
- MGMT 3340 - Business Model Design **Credits:** 3 hours
- MGMT 3500 - Managing Diversity in Organizations **Credits:** 3 hours
- MGMT 3580 - Labor and Employee Relations **Credits:** 3 hours
- MGMT 4000 - Topics in Management **Credits:** 3 hours
- MGMT 4040 - Business and Society **Credits:** 3 hours
- MGMT 4070 - Change Management **Credits:** 3 hours
- MGMT 4100 - Global Human Resource Management **Credits:** 3 hours
- MGMT 4140 - Building the Business **Credits:** 3 hours

- MGMT 4320 - Total Rewards **Credits:** 3 hours
- MGMT 4340 - Family Business Management **Credits:** 3 hours
- MGMT 4510 - Staffing Organizations **Credits:** 3 hours
- MGMT 4640 - Production Management and Control **Credits:** 3 hours
- MGMT 4650 - Managing for Quality **Credits:** 3 hours

Minors

Human Resource Management Minor (HRMN)(15 hours)

To be admitted to this minor, you must have an overall GPA of at least 3.00 and have completed at least 30 hours at Western Michigan University (for transfer students, at least 15 hours at Western). The minor requires fifteen credit hours consisting of the following courses:

Required Courses (12 credit hours)

- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MGMT 2520 - Human Resource Management **Credits:** 3 hours
- MGMT 4320 - Total Rewards **Credits:** 3 hours
- MGMT 4510 - Staffing Organizations **Credits:** 3 hours

Elective Course (3 hours)

Any course taught by the Haworth College of Business (ACTY, BCM, BUS, CIS, FIN, LAW, MGMT, MKTG).

Leadership and Business Strategy Minor (LBSN)(18 hours)

The minor in Leadership and Business Strategy requires 18 credit hours consisting of the following four required courses and one elective:

Required Courses

- BUS 1750 - Business Enterprise **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MGMT 3010 - Experiential Leadership and Strategy I **Credits:** 6 hours
- MGMT 3011 - Leading in Business Organizations **Credits:** 3 hours

Electives

Choose one of the following:

- BUS 3960 - Study Abroad Seminar **Credits:** 1 to 6 hours
- MGMT 2140 - Exploring Entrepreneurship **Credits:** 3 hours
- MGMT 2520 - Human Resource Management **Credits:** 3 hours
- MGMT 2750 - Analytical Foundations **Credits:** 3 hours

- MGMT 3140 - Small Business Management **Credits:** 3 hours
- MGMT 3500 - Managing Diversity in Organizations **Credits:** 3 hours
- MGMT 3580 - Labor and Employee Relations **Credits:** 3 hours
- MGMT 4000 - Topics in Management **Credits:** 3 hours
- MGMT 4040 - Business and Society **Credits:** 3 hours
- MGMT 4100 - Global Human Resource Management **Credits:** 3 hours
- MGMT 4140 - Building the Business **Credits:** 3 hours
- MGMT 4650 - Managing for Quality **Credits:** 3 hours

Marketing

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John Weitzel
Zachary Williams
Hu (Jeffrey) Xie
Marcellis Zondag
Russell Zwanka

The Department of Marketing offers four majors: marketing, advertising and promotion, food and consumer package goods marketing, and sales and business marketing. The department also supports two interdisciplinary majors: (1) ebusiness marketing with the Department of Business Information systems and (2) integrated supply management with the Department of Management and the College of Engineering. In addition, the department offers minors in advertising and promotion, and in marketing.

Program Requirements

Course requirements for each of the four majors and two minors can be found under each program. Course prerequisites are listed after the course descriptions. Any deviations from these course requirements and prerequisites must have the written approval of the department chairperson.

Advising for majors and minors takes place in the Haworth College of Business Office of Academic Advising and Admissions. Students are also encouraged to discuss majors, minors and elective choices with faculty members in their areas of interest.

Applying for a minor

To be eligible to apply for a minor either in advertising and promotion, or in marketing, a student must have completed a minimum of 56 credit hours with an overall WMU grade point average of at least 2.50. However, meeting these minimum requirements does not guarantee admission into either minor, as the Department of Marketing receives far more minor applications than it has the capacity to accept.

Bachelor of Business Administration

Advertising And Promotion Major (ADVJ)(27 hours)

The advertising and promotion major prepares students for a variety of promotion-related positions, such as account management, media planning, and advertising sales. Graduates typically find employment in the advertising industry or in firms with marketing communications, promotion, or interactive marketing departments. Students are encouraged to pursue a related minor in art, communication, English (writing emphasis), or imaging to enhance their creative skills.

Required Courses:

- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- MKTG 3710 - Marketing Research **Credits:** 3 hours
- MKTG 3740 - Advertising and Promotion **Credits:** 3 hours
- MKTG 4720 - Advertising Media Strategy **Credits:** 3 hours
- MKTG 4740 - Creative Strategy **Credits:** 3 hours
- MKTG 4770 - Consumer Behavior **Credits:** 3 hours
- MKTG 4810 - Integrated Marketing Communications Campaigns **Credits:** 3 hours

Elective Courses:

Select two additional courses from the following:

- MKTG 3600 - Professional Selling **Credits:** 3 hours
- MKTG 3730 - Digital and Social Media Marketing **Credits:** 3 hours
- MKTG 3800 - Sport Marketing **Credits:** 3 hours
- MKTG 4750 - International Marketing **Credits:** 3 hours
- MKTG 4780 - Special Topics in Marketing **Credits:** 3 hours

Food and Consumer Package Goods Marketing Major (FMKJ)(30 hours)

Western Michigan University is one of the premier universities in the United States offering a four-year, fully accredited business degree in food and consumer package goods marketing. The mission of this major is to prepare students for professional careers within the industry and provide the necessary tools for continuous professional growth. The Food and Consumer Package Marketing major provides experiential learning opportunities such as study-abroad, internships, and tours of industry, business networking, and the annual Food Marketing Conference. The WMU major is one of only a select number of universities with accreditation in Category Management, which allows students to pursue personal certification in this field. The Food and Consumer Package Goods Marketing major also provides career opportunities within retail, consumer package goods, data analytics and supply-chain management.

Required Courses:

- MKTG 2900 - Introduction to Food and CPG Industries **Credits:** 3 hours
- MKTG 2910 - Retail Merchandising **Credits:** 3 hours
- MKTG 3710 - Marketing Research **Credits:** 3 hours
- MKTG 3921 - Food and CPG Marketing Analytics **Credits:** 3 hours
- MKTG 3930 - Food and CPG Sales **Credits:** 3 hours

- MKTG 3970 - Food and CPG Internship **Credits:** 3 hours
- MKTG 4840 - Marketing Logistics **Credits:** 3 hours
- MKTG 4920 - Category Management **Credits:** 3 hours
- MKTG 4940 - Food and CPG Marketing Issues and Strategies **Credits:** 3 hours

Elective Courses:

Select three hours from the following:

- MKTG 3730 - Digital and Social Media Marketing **Credits:** 3 hours
- MKTG 3740 - Advertising and Promotion **Credits:** 3 hours
- MKTG 3960 - Survey of Food and CPG Industries **Credits:** 3 hours
- MKTG 4770 - Consumer Behavior **Credits:** 3 hours
- CIS 2640 - Applied Analytics Foundations **Credits:** 3 hours
- CIS 3640 - Visual Analytics **Credits:** 3 hours
- BUS 3960 - Study Abroad Seminar **Credits:** 1 to 6 hours
- MGMT 3200 - Managing ERP Systems **Credits:** 3 hours
- MGMT 4340 - Family Business Management **Credits:** 3 hours
- MKTG 4500 - Customer Relationship Management **Credits:** 3 hours
- FCS 1020 - Introduction to the Food Service Industry **Credits:** 2 hours
- FCS 4740 - Global Food Systems and Sustainability **Credits:** 3 hours

Marketing Major (MKTJ)(24 hours)

Marketing, more than any other business function, deals with people. The Marketing major prepares students for careers in a wide range of industries, as sound marketing is critical to the success of every type of organization, including business-to-consumer companies, business-to-business companies, consumer goods and service companies, as well as non-profit organizations. Marketing majors pursue a variety of career paths including those related to branding, strategy, consumer/marketing research, consumer experience, promotion, channel and sales management.

Required Courses:

- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- MKTG 3710 - Marketing Research **Credits:** 3 hours
- MKTG 3780 - Marketing Analytics **Credits:** 3 hours
- MKTG 4770 - Consumer Behavior **Credits:** 3 hours
- MKTG 4860 - Marketing Strategy **Credits:** 3 hours

Elective Courses:

The Marketing Department offers a wide array of elective courses that span most content areas of the marketing discipline. Students may elect **any** (3) three courses from the list of available courses below. Students are **strongly encouraged** to meet with a major advisor to discuss their three elective course options, sequencing, and career plans. As a guideline, a few content categories are provided as an example of how students can purposely align their elective choices with their potential career interests.

- MKTG 2900 - Introduction to Food and CPG Industries **Credits:** 3 hours
- MKTG 3600 - Professional Selling **Credits:** 3 hours

- MKTG 3720 - Sourcing and Purchasing **Credits:** 3 hours
- MKTG 3730 - Digital and Social Media Marketing **Credits:** 3 hours
- MKTG 3740 - Advertising and Promotion **Credits:** 3 hours
- MKTG 3760 - Sales Management **Credits:** 3 hours
- MKTG 3800 - Sport Marketing **Credits:** 3 hours
- MKTG 4500 - Customer Relationship Management **Credits:** 3 hours
OR
- CIS 4500 - Customer Relationship Management **Credits:** 3 hours
- MKTG 4750 - International Marketing **Credits:** 3 hours
- MKTG 4780 - Special Topics in Marketing **Credits:** 3 hours
- MKTG 4791 - Advanced Digital Marketing Strategies **Credits:** 3 hours
- MKTG 4820 - Advanced Sports Marketing **Credits:** 3 hours
- MKTG 4840 - Marketing Logistics **Credits:** 3 hours
- MKTG 4980 - Readings in Marketing **Credits:** 1 to 3 hours
- BUS 3960 - Study Abroad Seminar **Credits:** 1 to 6 hours

Content Categories:

Elective courses that are related to Digital Marketing

- MKTG 3730 - Digital and Social Media Marketing **Credits:** 3 hours
- MKTG 4500 - Customer Relationship Management **Credits:** 3 hours
OR
- CIS 4500 - Customer Relationship Management **Credits:** 3 hours
- MKTG 4791 - Advanced Digital Marketing Strategies **Credits:** 3 hours

Elective courses that are related to Marketing Research and Analytics

- MKTG 4500 - Customer Relationship Management **Credits:** 3 hours

Elective courses that are related to Sport Marketing

- MKTG 3800 - Sport Marketing **Credits:** 3 hours
- MKTG 4820 - Advanced Sports Marketing **Credits:** 3 hours

Sales And Business Marketing Major (SBMJ)(24 hours)

The sales and business marketing major prepares students for sales and marketing careers with firms that emphasize business-to-business marketing. The major is highly interactive with most major assignments being role-plays within the Kaiser Sales Lab. Successful sales and business marketing majors tend to be competitive and are dedicated to the hard work required of the major. There is a highly supportive but challenging culture within the major that creates the tradition of success.

Required Courses:

- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- MKTG 3600 - Professional Selling **Credits:** 3 hours

- MKTG 3710 - Marketing Research **Credits:** 3 hours
- MKTG 3760 - Sales Management **Credits:** 3 hours
- MKTG 4100 - Selling Skills Development **Credits:** 3 hours
- MKTG 4600 - Advanced Selling Strategies **Credits:** 3 hours
- MKTG 4700 - Business Marketing Strategy **Credits:** 3 hours

Elective Courses:

Select one additional course (3 hours) from the following:

- MKTG 2900 - Introduction to Food and CPG Industries **Credits:** 3 hours
- MKTG 3720 - Sourcing and Purchasing **Credits:** 3 hours
- MKTG 3730 - Digital and Social Media Marketing **Credits:** 3 hours
- MKTG 3740 - Advertising and Promotion **Credits:** 3 hours
- MKTG 3800 - Sport Marketing **Credits:** 3 hours
- MKTG 4750 - International Marketing **Credits:** 3 hours
- MKTG 4780 - Special Topics in Marketing **Credits:** 3 hours

or either:

- MKTG 4630 - Supply Chain Logistics **Credits:** 3 hours
- OR
- MKTG 4840 - Marketing Logistics **Credits:** 3 hours

Recommendation:

It is strongly recommended that students considering employment in manufacturing-related industries complete one or more of the following courses either to fulfill their General Education Distribution Area VII requirement or as an elective:

- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
(elective)
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
(Distribution Area VII)

Minors

Advertising and Promotion Minor (ADV N) (21 to 22 hours)

Note: This minor is not available to students pursuing a major in the Department of Marketing. Non-business students are limited to only one minor and a maximum of 30 credit hours in the Haworth College of Business.

Required Courses:

- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- MKTG 3710 - Marketing Research **Credits:** 3 hours
- MKTG 3740 - Advertising and Promotion **Credits:** 3 hours

- MKTG 4770 - Consumer Behavior **Credits:** 3 hours
- STAT 2160 - Business Statistics **Credits:** 3 hours
OR
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Electives:

Select two additional courses (6 hours) from the following:

- MKTG 3730 - Digital and Social Media Marketing **Credits:** 3 hours
- MKTG 4720 - Advertising Media Strategy **Credits:** 3 hours
- MKTG 4740 - Creative Strategy **Credits:** 3 hours
- MKTG 4750 - International Marketing **Credits:** 3 hours

Marketing Minor (MKTN) (15 hours)

Note: This minor is not available to students pursuing a major in the Department of Marketing. Non-business students are limited to only one minor and a maximum of 30 credit hours in the Haworth College of Business. To formally declare a Marketing Minor (MKTN), students must first contact and meet with a Haworth College of Business Advisor in room 2350 Schneider Hall, business-adv-office@wmich.edu or (269) 387-5075.

About Marketing

Marketing, more than any other business function, deals with people. Sound marketing is critical to the success of every type of organization, including business-to-consumer companies, business-to-business companies, consumer goods and service companies, as well as non-profit organizations and entrepreneurs. The Marketing minor complements several major areas of study including (but not limited to): Management, Business Analytics, Economics, Public Relations, Graphic Design, Fashion Merchandising, Tourism and Travel, Organizational Communication, Sociology, Psychology, or Statistics. Students who study marketing can pursue a variety of career paths including those related to branding, strategy, consumer/marketing research, consumer experience, promotion, channel and sales management.

Required Courses:

- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- MKTG 3710 - Marketing Research **Credits:** 3 hours

Electives:

Select three courses (9 hours) from the following:

- MKTG 2900 - Introduction to Food and CPG Industries **Credits:** 3 hours
- MKTG 3600 - Professional Selling **Credits:** 3 hours
- MKTG 3720 - Sourcing and Purchasing **Credits:** 3 hours
- MKTG 3730 - Digital and Social Media Marketing **Credits:** 3 hours
- MKTG 3740 - Advertising and Promotion **Credits:** 3 hours
- MKTG 3760 - Sales Management **Credits:** 3 hours
- MKTG 3780 - Marketing Analytics **Credits:** 3 hours
- MKTG 3800 - Sport Marketing **Credits:** 3 hours
- MKTG 4500 - Customer Relationship Management **Credits:** 3 hours

- MKTG 4750 - International Marketing **Credits:** 3 hours
- MKTG 4770 - Consumer Behavior **Credits:** 3 hours
- MKTG 4780 - Special Topics in Marketing **Credits:** 3 hours
- MKTG 4840 - Marketing Logistics **Credits:** 3 hours
- BUS 3960 - Study Abroad Seminar **Credits:** 1 to 6 hours

Note:

MKTG 4760 cannot be counted toward both a Management major and a Marketing minor.

Military Science and Leadership

LTC Brandon Tennimon, Chair

Main Office: Campus Services Building

Telephone: (269) 387-8120

Fax: (269) 387-8112

Mrs. Cris Obreiter

MAJ Andrew Davis

CPT Rhonda Owsley

CPT Bob Naylor (Grand Rapids Extension)

CPT Mickey Rosalez

CPT Ken Stoodt (Grand Rapids Extension)

MSG Branden Velazquez

SFC Elijah Phillips

Mr. Kent Kauffman

Mr. William Parks

Mr. Rick Rigsby

The Department of Military Science and Leadership 1000 and 2000 level courses are open to all University students. Courses are intended to develop responsibility, individual confidence, leadership and tactical skills, and to broaden students' knowledge of the role of the military in society. The department offers a Military Science and Leadership program, which can lead to an officer's commission in the Army Reserve, Army National Guard, or Regular Army upon successful completion of the program. Merit based ROTC scholarships are available to highly qualified students on a competitive basis without regard to financial need.

The chair of the department and all instructors are officers or noncommissioned officers of the United States Army assigned to the department by permission of the University. They administer the Military Science and Leadership program and conduct all classes offered by the department. The government provides uniforms and financial assistance for students who are contracted in the program.

Career Opportunities

Army ROTC increases opportunities for students by providing options and developing leadership potential for a civilian and/or military career. To enter the Advanced Course, a student agrees to finish the ROTC instruction, then accept a commission as a second lieutenant and an assignment in either active or reserve forces duty.

The active duty career option is usually a minimum of three years for non-scholarship students and assignment to a leadership position similar to the junior management level in the civilian sector. Scholarship students generally have longer active duty commitments. Scholarship students generally have longer active duty commitments. The starting salary for a second lieutenant on active duty is approximately \$52,000, plus benefits.

The reserve forces career option combines the benefits of a civilian job with the leadership and management experience gained in the Army Reserve or National Guard. The reserve forces obligation is three to six months on active duty attending the Basic Officer Leader Course and the remainder of an eight-year obligation in the reserve forces.

ROTC Admission Requirements

The 1000 and 2000 level ROTC courses are open to all University students with no military obligation as participating students.

To be eligible to enter into the Advanced Course (Commissioning Program) and take 3000 and 4000 level ROTC courses students must be a full-time student, be a U.S. Citizen, be not more than 31 years of age at the time of commissioning, and meet specified benchmarking standards and other contracting criteria.

Students pursuing a minor in military science and leadership may participate in 3000 and 4000 level ROTC courses but will not attend leadership lab and not be given a commissioning credit.

The chair of the department reserves the right to deny admission or disenroll a student from any level ROTC course for not upholding Army values and standards.

Scholarships

Army ROTC has one of the largest scholarship programs in the nation.

Awards are competitively based on ability, not on income. ROTC scholarships are offered for two, three, and four years. Four and three-year scholarships are awarded to high school seniors. Three-year scholarships for incoming freshmen winners are upgraded to a four-year scholarship by WMU if the student meets all requirements after their first year. Three-year and two-year scholarships are awarded to students already enrolled in the University. It is not a requirement to be enrolled in ROTC to compete for a scholarship.

ROTC scholarships pay for full tuition and fees (except aviation fees) at WMU and provide \$1200 annually for books and fees. They also provide a monthly living stipend. Nursing scholarships are available which cover all of the above plus pay for select nursing fees. Additionally, WMU provides Army ROTC scholarship winners with an additional \$3,000 annually towards on-campus housing.

Facilities

The department is located in the Campus Services Building near the College of Health and Human Services and features a computer lab, a smokeless range, and supply facilities. Leadership labs are conducted in the field areas near the department's building. The department also operates the rappel tower located on campus and conducts field training at Fort Custer Training Center near Augusta, Michigan.

More information about the ROTC program is available at the ROTC office in the Campus Services Building, by calling (269) 387-8120 or (269) 387-8122, or online at wmich.edu/rotc.

Military Science and Leadership - Four Year Program

The four-year military science and leadership program is divided into a Basic Course (first two years) and an Advanced Course (last two years) and is offered as a minor program by the University. Non-contracted students who participate in the Basic Course incur no military service requirement.

Basic Course

The Basic Course is designed to give students a general knowledge of the role of national defense and also provides knowledge of leadership skills needed by military officers. Students completing the Basic Course have an opportunity to be considered for the Advanced Course program and obtain a commission in the active Army or Reserve components. ROTC students take at least one military science and leadership course each semester. First year students normally take MSL 1010 in the fall and MSL 1020 in the spring semester. Sophomore students take MSL 2010 during the fall and MSL 2020 during the spring.

Exceptions to the above requirements must be approved by the chair of the department. Students who have had three years of junior ROTC (High School JROTC) or who have completed basic training in any service may, with the approval of the chair of the department, have certain portions of the Basic Course waived. Students transferring from other institutions who have started any ROTC program will have their records reviewed to determine proper placement credit.

Advanced Course

Students successfully completing the Basic Course may be enrolled in the Advanced Course with the permission of the chair of the department. The major emphasis of the Advanced Course is the development of individual leadership and military skills. During the junior year, students complete MSL 3010 and 3020. Between the junior and senior year, students will attend a 37-day

ROTC Advanced Camp at Fort Knox, Kentucky. During the senior year, students complete MSL 4010 and MSL 4020. HIST 3200, American Military History, or an equivalent course, is also required for commissioning.

Students who have less than four years, but at least two years, until graduation should contact the department about alternate entry options. Students who meet criteria outlined in *Basic Course* above may have some requirements waived and students with no military experience may be eligible for course compression or summer training to meet eligibility requirements subject to availability.

Minors

Military Science and Leadership Minor (MSLN)

A department minor slip is required.

Four-Year Program

Freshman Year (2 hours)

- MSL 1010 - Introduction to the Army and Critical Thinking **Credits:** 1 hour
and
- MSL 1020 - Introduction to the Profession of Arms **Credits:** 1 hour

Sophomore Year (4 hours)

- MSL 2010 - Leadership and Decision Making **Credits:** 2 hours
and
- MSL 2020 - Army Doctrine and Team Development **Credits:** 2 hours

Junior Year (6 hours)

- MSL 3010 - Unit Training and the Warfighting Functions **Credits:** 3 hours
and
- MSL 3020 - Applied Leadership in Small Unit Operations **Credits:** 3 hours

Senior Year (6 hours)

- MSL 4010 - Mission Command and the Army Profession **Credits:** 3 hours
and
- MSL 4020 - Mission Command and the Company Grade Officer **Credits:** 3 hours

Two-Year Program

Prerequisite: Current or Prior Military Service or Basic Camp, or approval of department chair.

Junior Year (6 hours)

- MSL 3010 - Unit Training and the Warfighting Functions **Credits:** 3 hours
and
- MSL 3020 - Applied Leadership in Small Unit Operations **Credits:** 3 hours

Senior Year (6 hours)

- MSL 4010 - Mission Command and the Army Profession **Credits:** 3 hours
and
- MSL 4020 - Mission Command and the Company Grade Officer **Credits:** 3 hours

Additional Requirements

In addition to the courses listed above, all students in the military science and leadership minor program must complete one course from each group below:

A. Military History

- HIST 3200 - American Military History **Credits:** 3 hours

B. Mathematics, Statistics, and Quantitative Reasoning

In general, any mathematics or statistics course that satisfies the Proficiency 3 or 4b under the General Education Program Courses will also satisfy the mathematics/quantitative reasoning requirement for the Military Science and Leadership Minor.

- MATH 1140 - Essential Quantitative Reasoning **Credits:** 3 hours
- MATH 1160 - Finite Mathematics with Applications **Credits:** 3 hours
- MATH 1180 - Precalculus Mathematics **Credits:** 4 hours
- MATH 1220 - Calculus I **Credits:** 4 hours
- MATH 1500 - Number Concepts for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 1510 - Geometry for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
- MATH 2000 - Calculus with Applications **Credits:** 4 hours
- MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers **Credits:** 4 hours
- STAT 1600 - Discovery with Data **Credits:** 3 hours
- STAT 2160 - Business Statistics **Credits:** 3 hours
- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- STAT 2830 - Methods of Data Analysis **Credits:** 3 hours
- STAT 3620 - Probability **Credits:** 4 hours
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

C. Political Science and International Relations

Students pursuing the Military Science and Leadership Minor are required to acquire an advanced knowledge of political science with a primary focus on international relations or foreign policy. Courses meeting this requirement include:

- PSCI 2400 - Comparative Politics **Credits:** 3 hours

- PSCI 2500 - International Relations **Credits:** 4 hours
- PSCI 3110 - American Politics and the Media **Credits:** 3 hours
- PSCI 3140 - The Presidency **Credits:** 3 hours
- PSCI 3400 - European Politics **Credits:** 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours
- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours

D. Psychology, Sociology, and Teamwork

In addition to studying human behavior and interaction in the Military Science and Leadership Courses, students pursuing the Military Science and Leadership Minor are required to acquire additional knowledge of human behavior and interaction in a more rigorous manner through a course in psychology, sociology, or other discipline specific teamwork oriented course. Courses meeting this requirement include:

- EDMM 3020 - Engineering Teams: Theory and Practice **Credits:** 3 hours
- PSY 1000 - General Psychology **Credits:** 3 hours
- SOC 2000 - Principles of Sociology **Credits:** 3 hours
- SOC 2100 - Modern Social Problems **Credits:** 3 hours
- SOC 3000 - Sociological Theory **Credits:** 3 hours
- SOC 3040 - Nonwestern World **Credits:** 4 hours
- SOC 3140 - Ethnic Relations **Credits:** 3 hours
- SOC 3200 - Introduction to Social Psychology **Credits:** 3 hours
- SOC 3340 - East Asia and the World **Credits:** 3 hours
- SOC 3350 - Sociology of Contemporary Latin American **Credits:** 3 hours

College of Education and Human Development

College of Education and Human Development

Deans Office 2301 Sangren Hall

Ming Li
Dean

Marcia Feters
Associate Dean and Director of Teacher Education

Andrea Beach
Associate Dean

Mission

Embracing WMU's goals to be learner centered, discovery driven, and globally engaged, the College of Education and Human Development is committed to:

- Developing exceptional education and human development professionals who positively impact our global society
- Advancing knowledge through teaching, scholarship, creative works, and service
- Enhancing the university and its stakeholders through transformative field experiences and collaborations

Vision

Be the premier choice for a diverse community of education and human development learners by offering a portfolio of regionally, nationally and internationally recognized programs.

Academic Departments:

Counselor Education and Counseling Psychology
Educational Leadership, Research and Technology

Family and Consumer Sciences
Human Performance and Health Education
Special Education and Literacy Studies
Teaching, Learning, and Educational Studies

Centers and Offices:

Office of Admissions and Advising
Office of Clinical Experiences
Office of Teacher and Administrator Certification
Center for Counseling and Psychological Services
Merze Tate Grant and Innovation Center
Dorothy J. McGinnis Reading Center and Clinic
Student Success Center

Curricula for Teachers

The program for prospective teachers consists of three parts: (1) WMU Essential Studies, designed to develop an intellectual foundation of appropriate depth and breadth in liberal arts and general studies; (2) advanced specialized study, in a major and

minor or two major field(s) structured to develop a high level of academic competence and understanding; and (3) professional education study organized to prepare teacher candidates to work effectively in schools.

Prospective teachers choose to work toward eligibility for the **Michigan Elementary Standard Certificate** (valid for teaching all subjects in grades kindergarten through fifth, all subjects in self-contained classrooms in grades kindergarten through eighth, and major/minor subjects in grades kindergarten through eighth) **OR** the **Michigan Secondary Standard Certificate** (valid for major and minor subjects in grades six through twelve or kindergarten through twelve).

The following undergraduate curricula lead to certification and are offered in the College of Education and Human Development: Elementary Education and Special Education. Students seeking admission to these curricula must contact the Office of Admissions and Advising, 2421 Sangren Hall.

Students electing to major in Art, Workforce Education and Development, Music, Physical and Health Education, and Special Education may be certified to teach in their specialized area in grades K-12 by completing the curriculum and certification requirements.

Students seeking admission to one of the following curricula will work with the appropriate advisor in the College of Fine Arts:

- Art (see School of Art advisor)
- Music (see School of Music for audition)

Teaching certificates are recommended only for those students who satisfactorily complete an approved teacher education program with the required grade point average for their program, pass the appropriate MTTC subject area test(s), complete a background check and provide any necessary documentation, hold valid CPR and First Aid credentials from an approved agency, and have a bachelor's degree.

Office of Admissions and Advising

2421 Sangren Hall
(269) 387-3474

wmich.edu/education/advising
cehd-advising@wmich.edu

Staff:

Christine Robinson, Director
Anitra White, Administrative Assistant II
Timothy Sprangel, Administrative Assistant I
Derek Andree, Assistant Director
Andrea Bau, Senior Advisor
Amanda Larson, Advisor
Amanda Lozier, Advisor
Shannon Myers, Senior Advisor
Pam Sward, Advisor

The Office of Admissions and Advising provides information regarding teacher education curricula and processes applications for admissions to those curricula in the College of Education and Human Development. The office also provides academic advisement for students enrolled in both teaching and human development curricula within the College and advises post-baccalaureate students seeking initial teacher certification and second bachelors degrees.

All students seeking admission to teacher education curricula as entering freshmen, transfers, or as students changing curricula must contact the Office of Admissions and Advising. All students declaring a preference for a curriculum leading to a teaching certificate will be assigned a pre-education designator at the time of admission to the University.

Students wishing to enter the **Elementary or Early Childhood Elementary Education** program must meet the following **minimum requirements at the time of application**:

- Completion of at least 35 credit hours
- Completion of all Western Michigan University Intellectual Skills Development courses if required (e.g. MATH 1090, LS 1040, ENGL 1000)
- Completion of an approved college level writing course
- Completion with a grade of "CB" or better ED 2500: Human Development
- Achievement of a cumulative grade point average (GPA) of 3.0 or better
- Achievement of reading, writing, and math proficiencies - see advisor for specific requirements
- Completion of a background check and submission of any necessary additional documentation

Once all of the above requirements have been met, a formal application requesting admission to the program must be submitted to the Office of Admissions and Advising, 2421 Sangren Hall.

Students wishing to enter the **Special Education** program must meet the following **minimum requirements at the time of application** (February 1) for consideration - admission to the Special Education program is not guaranteed:

- Completion of 56 hours (Spring semester hours may be counted)
- Completion of all Western Michigan University Intellectual Skills Development courses if required (e.g., MATH 1090, LS 1040, ENGL 1000)
- Completion of an approved college level writing course
- Completion of ED 2500: Human Development: Applications in Education or an approved course, with a grade of "CB" or better
- Achievement of a cumulative grade point average (GPA) of 3.0 or better
- Achievement of reading, writing, and math proficiencies - see advisor for specific requirements
- Completion of a background check and submission of any necessary additional documentation
- Submission of Letter of Intent
- Completion of a formal application for admission to Special Education by *February 1*. **Admission applications will be processed once a year.**

Students wishing to enter the **Physical Education and Health Education K-12 or Workforce Education and Development teacher education** programs must meet the following **minimum requirements at the time of application**:

- Completion of at least 35 credit hours
- Completion of all Western Michigan University Intellectual Skills Development courses if required (e.g. MATH 1090, LS 1040, ENGL 1000)
- Completion of an approved college level writing course
- Completion with a grade of "C" or better ED: 2500 Human Development (for Workforce Education and Development) or HPHE 2400 (Physical Education and Health Education K-12)
- Achievement of a cumulative grade point average (GPA) of 2.75 or better
- Achievement of reading, writing, and math proficiencies - see advisor for specific requirements
- Completion of a background check and submission of any necessary additional documentation
- Once all of the above requirements have been met, a formal application requesting admission to the program must be submitted to the Office of Admissions and Advising, 2421 Sangren Hall.

Teacher Testing

Public Act 282 (1992) amends Section 1531 of Public Act 451 (1976), as amended by Public Act 267 (1986), mandates the implementation of a teacher certification testing program in Michigan effective July 1, 1992. Under the provisions of this act candidates for a secondary certification must pass a subject exam in their major or minor to be certified. Candidates for an elementary certification must pass the elementary certification examination.

This act also requires the passing of appropriate and available test(s) prior to the addition of new subjects or grade-levels endorsements

Information regarding required teacher testing may be obtained from the Office of Admissions and Advising, 2421 Sangren Hall or the college website.

Appeals

A student aggrieved by an action taken within the College of Education and Human Development has the right to appeal such action by filing an appeal form in the Dean's Office within twenty-one (21) days of the aggrieved action. Appeals may be reviewed by the Academic and Professional Standards Committee. Information about the appeal procedure is available in the Dean's Office.

Office of Teacher and Administrator Certification

2421 Sangren Hall

(269) 387-3473

wmich.edu/teachercertification

Staff:

Laura Ciccantell, Certification Officer

Nicole Lockwood-Womack, Certification Advisor

Anitra White, Administrative Assistant II

Timothy Sprangel, Administrative Assistant I

The Office of Teacher and Administrator Certification processes recommendations for administrator, counseling, and initial Standard and Standard CTE teacher certification. The office provides advising regarding Michigan certification laws, rules and policies, and requirements for additional grade-level and subject endorsements. Michigan certification laws and requirements change frequently. Please see the certification website or contact the certification office for the most current information.

TRIO Future Educator Success Program Office

3530 Sangren Hall

(269) 387-3500

wmich.edu/trio-future-educators

Staff:

M'Myia Hughes, TRIO FESP Director

Nateya Moore, Program Services Coordinator

Harmony Williams, Administrative Assistant II

The TRiO Future Educator Success Program is a federally funded grant program that promotes the success of future teachers from Western Michigan University who are first-generation college, income-eligible students or students with disabilities. Services include a robust first year experience, career and graduate school exploration, financial assistance, leadership opportunities, mentorship and more.

Office of Clinical Experiences

2421 Sangren Hall

(269) 387-3466

wmich.edu/clinicalexperiences

Staff:

Jennifer Young Heymoss, Director

Angie Boynton, Coordinator of Clinical Experiences

Kerry Hegele, Coordinator of Clinical Experiences

Anitra White, Administrative Assistant II

Timothy Sprangel, Administrative Assistant I

The Office of Clinical Experiences is responsible for the coordination and oversight of all clinical experiences for teacher candidates, including intern teaching associated with teacher education curricula.

Intern Teaching

The following criteria must be met prior to undertaking intern teaching:

- Completion of all required course work.
- Completion of a background check and submission of any necessary additional documentation.
- Proof of having met the GPA and course requirements as conveyed in the student's course catalog year.
- Recommendation from major and minor departments.
- Completion of methods course(s) in major and/or minor.
- Passing scores on the Michigan basic skills examination.
- Proof of graduation audit.

Students must apply for their internship at least one year prior to the semester in which they plan to complete their intern teaching requirements. Students may not select their placements for intern teaching. Placements are made by the Office of Clinical Experiences based on programmatic needs and are usually within a 30 mile radius from the main campus and/or in designated partnership schools. Students may not enroll in other course work during intern teaching.

Please note: To be recommended for teacher certification, students must achieve at least a grade of "C" in ED 4100: Seminar in Education and "credit" in Intern Teaching, in addition to having met all other requirements for graduation.

Health and Liability Insurance

Students engaged in their final internship must give evidence of having health insurance at the time of course enrollment. Liability insurance coverage will be provided by the University through a fee assessed at the time of enrollment in courses requiring clinical experiences.

Student Success Center

2421 Sangren Hall

(269) 387-3474

wmich.edu/education/academics/student-success

Staff:

Melissa Holman, Student Success Manager

Precious Miller, Student Success Coach

Anitra White, Administrative Assistant II

Timothy Sprangel, Administrative Assistant I

The College of Education and Human Development at Western Michigan University makes the success of our students a priority. The Student Success Center offers programming and services for all CEHD students. There are no eligibility requirements.

Dorothy J. McGinnis Reading Center and Clinic

Elizabeth Isidro, Director

Cathi Shepherd, Coordinator

4511 Sangren Hall

(269) 387-3470

The primary purpose of the Dorothy J. McGinnis Reading Center and Clinic is to provide clinical experiences in literacy (reading and writing) assessment and instruction for undergraduate and graduate students enrolled at Western Michigan University who are preparing to work with children (Kindergarten through 12th grade) in literacy instruction. All activities and experiences designed by clinic instructors and students provide literacy assessment, diagnosis, tutoring in one-on-one or small class, and coaching in a clinical setting. Additional services the Reading Center offers are consultative literacy workshops and seminars for teachers, schools, and organizations in southwestern Michigan. The Reading Center also houses a library, serving educators and children in the community with a large collection of children and young adult literature for use in all content areas. Furthermore, the clinic provides students in education an opportunity to observe and participate in the administration of educational and clinical assessments, and the procedures employed in interviewing children, parents as well as procedures in interviewing children, parents, and school personnel. Also, the center serves as a partner to various educational organizations and schools in

the community and provides literacy enrichment experiences for families and youth, including summer programs.. See Department of Special Education and Literacy Studies course listings for reading courses offered.

Interdisciplinary Programs - College of Education and Human Development

Bachelor of Science

Education and Human Development Major (EHDJ)

The Education and Human Development major provides students who wish to graduate from the College of Education and Human Development (CEHD) the opportunity to pursue educational goals which cannot readily be accommodated in the majors offered in the CEHD academic departments. Students will work with the designated CEHD staff advisor to create a guided program of study that will then be approved by the faculty program coordinator.

Program requirements include:

1. all WMU Essential Studies and WMU degree requirements,
2. at least one course with a practicum, field experience, or off-campus experiential learning component,
3. a minimum of 45 major credits articulated with a CEHD advisor and approved by the EHDJ faculty program coordinator,
4. at least 30 of the 45 major credits must be from CEHD departments, and
5. *WFED 3050 - Career and Employability Skills*, in which students will complete a capstone portfolio that includes evidence of meeting all EHDJ major learning outcomes.

The Education and Human Development major does not require a minor. It cannot be declared as a second major and students who have completed an undergraduate degree will not be able to enroll in the Education and Human Development major as a second bachelor's degree.

Any undergraduate student in the college of Education and Human Development who has completed at least 77 credits (or will complete 77 credits within the currently enrolled term) and has at least a 2.0 cumulative GPA is eligible to apply for the Education and Human Development major. Students interested in this option should contact the CEHD Director of Advising to begin the planning process. Those applying to the major are expected to develop a written statement outlining how their educational goals align with the learning objectives for the major and how the proposed course of study accomplishes the goals.

Counselor Education and Counseling Psychology

Patrick H. Munley, Chair
Main Office: 3521 Sangren
Telephone: (269) 387-5100
Fax: (269) 387-5090

Carla R. Adkison-Johnson
Mary L. Anderson
Mary Z. Anderson
Samuel T. Beasley
Stephanie Burns
Andrew Clay
Stephen E. Craig
Jennifer Foster
LaShonda Fuller
Kelley Holladay
Phillip D. Johnson
Kelly A. McDonnell
Joseph R. Morris
Glinda Rawls
Tangela Roberts
Eric M. Sauer
Jennipher Wiebold

The Department of Counselor Education and Counseling Psychology offers professional education in the field of counseling psychology and in the following concentrations in counselor education: college counseling; clinical mental health counseling; marriage, couple and family counseling; school counseling; rehabilitation counseling and teaching. Most of the courses are open to graduate students only, but some courses are open to qualified undergraduates.

Educational Leadership, Research and Technology

Donna Talbot, Chair
Main Office: 3571 Sangren
Telephone: (269) 387-3896
Fax: (269) 387-3696

The Educational Leadership, Research, and Technology Department offers one undergraduate minor and a number of graduate degrees focused on preparing leaders and researchers for a variety of public and private organizations. A primary focus of all degrees is to produce a diverse academic and professional community of ethically engaged and intellectually active scholars and scholar-practitioners.

Minors offered in the department include:

Leadership for Social Change

Academic Advising
College of Education and Human Development Undergraduate Advising
2421 Sangren Hall

Advisors are available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, and help solve academic problems. Careful and regular planning with an advisor is critical to program completion in a timely manner. Substitution and transfer credit must be approved by a faculty member in the minor or the department chair.

Minors

Leadership for Social Change Minor

The minor in Leadership for Social Change is a 15-credit hour program offered through the Department of Educational Leadership, Research and Technology in the College of Education and Human Development. The Leadership for Social Change minor complements a variety of academic majors and encourages students to become leaders who advocate for positive social change and to consider the role of leadership through the lens of their major field of study. Throughout the courses, students will explore their own leadership strengths, practice applying leadership theories to current societal issues, and develop a leadership philosophy that connects their personal passions with their academic major. The ultimate goal of this minor is to help students understand how they can make a difference and how they can provide leadership in a diverse society.

Program Requirements

Required Courses (12 hours)

- EDLD 2000 - Exploring Leadership in a Changing World **Credits:** 3 hours
- EDLD 2020 - Leadership Skills for Social Change **Credits:** 3 hours
- EDLD 3020 - Leadership and Advocacy for a Diverse Society **Credits:** 3 hours
- EDLD 4795 - Capstone in Leadership for Social Change **Credits:** 3 hours

Elective (3 credit hours)

Students may choose one elective class focused on leadership with approval of faculty advisor.

Family and Consumer Sciences

Suzan Ayers, Interim Chair
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Karen R. Blaisure
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Marcy Peake
Bernard Proeschl
Arezoo Rojhani
Mary Simpson
Chitra Singh
Kelly Weathers
Caroline B. Webber
Zee-Sun Yun

The mission of the Department of Family and Consumer Sciences is to provide integrative educational programs and conduct research focused on reciprocal relationships among individuals, families, and their near environments toward the goal of improving the quality of life within a dynamic world community.

Curricula offered in the department include:

Child and Family Development
Nutrition and Dietetics
Family and Consumer Sciences Teacher Education
Family Studies
Foodservice Operations and Sustainability
Industrial Technology Education
Interior Design
Occupational Education Studies
Business Education
Fashion Merchandising and Design: Merchandising
Fashion Merchandising and Design: Design and Development
Workforce Education and Development
Youth and Community Development

Minors offered in the department include:

Family Science
Fashion Merchandising
Foodservice Operations and Sustainability
Industrial Technology Education
Interior Design
Workforce Education and Development
Vocational-Technical
 Drafting
 Graphic Arts

Academic Advising

College of Education and Human Development Undergraduate Advising
2421 Sangren Hall

Advisors are available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, and help solve academic problems. Careful and regular planning with an advisor is critical to program completion in a timely manner. Substitutions and transfer credit must be approved by a faculty member in the major or the department chair.

Field Experience and Internship Programs

Programs offered in child and family development, nutrition and dietetics, family studies, foodservice operations and sustainability, interior design, fashion merchandising and design, and youth community development are designed to develop occupational competencies in their respective areas. These programs, which are sponsored jointly with businesses and agencies, provide students with an opportunity to complete a four-year program leading to a Bachelor of Science degree.

Workforce Education and Development

Workforce education and development is a curriculum that prepares students to qualify as teachers in Michigan middle and junior high schools, secondary high schools, and area technical centers in non-vocational and vocational education subject areas.

Areas of workforce education and development offered by the department that do not require vocational endorsements include majors in industrial technology education, and secondary education in business, as well as minors in industrial technology, workforce education and development, and family life education. The program requirements are listed below under Non-Vocational Majors and Minors.

Areas of workforce education and development offered by the department that require vocational endorsements include majors in family and consumer sciences education, secondary education in business, as well as minors in vocational-technical (drafting and graphic arts).

Non-Vocational Majors

The requirements for each of the two non-vocational majors are described within the programs. The non-vocational majors are Industrial Technology Education and Secondary Education in Business.

Vocational Minors

The requirements for each of the vocational minors are described within the programs. The vocational minors are Vocational-Technical (Drafting and Graphic Arts).

Majors in non-vocational teacher preparation programs may also earn one of the vocational minors in consultation with the advisor.

Bachelor of Arts or Bachelor of Science

Family and Consumer Sciences Teacher Education

The Family and Consumer Sciences Teacher Education major is designed to prepare teachers for family and consumer science-related subjects in middle, junior, and senior high schools. The student must complete the major in Family and Consumer Sciences Teacher Education and an approved teachable minor offered for Secondary Education Curriculum.

1. Minimum Hours Required For This Curriculum (126 hours)

2. General Education Requirements (37 hours)

3. Group Major Requirements from the following courses (36 hours)

- WFED 3050 - Career and Employability Skills **Credits:** 3 hours
- FCS 1650 - Culinary Skills **Credits:** 3 hours
- FCS 2090 - Family Resource Management **Credits:** 3 hours
- FCS 2100 - Human Sexuality **Credits:** 3 hours
- FCS 2150 - Adolescent Development **Credits:** 3 hours
- FCS 2660 - Personal Nutrition **Credits:** 3 hours
- FCS 3180 - Intimate Relationships: Friends, Family, and Marriage **Credits:** 3 hours
- FCS 4130 - Later Life Family Relationships **Credits:** 3 hours
- FCS 4150 - Effective Parenting **Credits:** 3 hours
- FCS 5680 - Gender, Culture, and Families **Credits:** 3 hours
- HOL 1000 - Choices in Living **Credits:** 3 hours

Select one of the following:

- FCS 1240 - Apparel Construction I **Credits:** 3 hours
- FCS 1550 - Design Principles **Credits:** 3 hours
- FCS 5240 - Socio-Psychological Aspects of Dress **Credits:** 3 hours

4. Approved Minor for Secondary Education Curriculum (20 hours)

5. Career and Technical Education (15 hours)

- WFED 3480 - Student Assessment and Management **Credits:** 3 hours
- WFED 5100 - Special Populations in Workforce Education and Development **Credits:** 3 hours
- WFED 5120 - Principles of Workforce Education and Development **Credits:** 3 hours
- WFED 5130 - Teaching Methods in Workforce Education and Development **Credits:** 3 hours
- WFED 5420 - Curriculum Development in Workforce Education and Development **Credits:** 3 hours

6. Required Education Courses (18 hours)

Students in the Family and Consumer Sciences Teacher Education major should see the advisor to select a course that will satisfy the Baccalaureate-Level Writing requirement.

- WFED 4100 - Seminar in Education **Credits:** 2 hours
- WFED 4750 - Intern Teaching in Workforce Education and Development **Credits:** 10 hours
- LS 3050 - K-12 Content Area Literacy **Credits:** 3 hours

Select Either:

- ED 2500 - Human Development: Applications in Education **Credits:** 3 hours
- or

- FCS 2140 - Child Development **Credits:** 3 hours

7. Related Work Experience

A total of 200 work hours required for this major. The work hours may be voluntary or paid work experience and must be completed in three of the following areas: family services, children/youth services, consumer services, or educational services.

Industrial Technology Education Major

The Industrial Technology Education group major is designed to prepare teachers of industrial technology education (formerly known as industrial technology or industrial arts) for middle, junior, and senior high schools. The student must complete the group major in Industrial Technology Education and an approved teachable minor offered for Secondary Education Curriculum or a vocational minor in Drafting or Graphic Arts. Students who complete the requirements for the vocational minor are eligible for vocational certification.

1. Minimum Hours Required For This Curriculum (135 hours)

2. General Education Requirements (37 hours)

3. Required Cognates (5 hours)

- PHYS 1070 - Elementary Physics **Credits:** 4 hours
- PHYS 1080 - Elementary Physics Laboratory **Credits:** 1 hour

4. Industrial Technology Education Teaching Major (37 hours)

- AVS 2800 - Transportation Technology: Policy, Perils, and Promise **Credits:** 3 hours
or
- EDMM 1220 - Automobile in Society **Credits:** 3 hours
- ENGL 1050 - Foundations in Written Communication: Strategies, Behaviors, Success **Credits:** 3 hours
- FCS 1490 - Design Communication I: Mechanical and Digital Drafting **Credits:** 3 hours
- FCS 2400 - Woodworking **Credits:** 3 hours
- FCS 3530 - Intro to Interior Construction I **Credits:** 3 hours
- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- EDMM 1430 - Product Design Fundamentals **Credits:** 3 hours
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
- EDMM 2001 - Applied Electricity/Electronics **Credits:** 3 hours
- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours
- EDMM 2500 - Plastics Properties and Processing **Credits:** 3 hours
- EDMM 2540 - Machining Processes **Credits:** 3 hours

5. Approved Minor for Secondary Education Curriculum (min 20 hours)

Each student must choose a teachable vocational minor or a secondary education non-vocational minor.

Approved vocational minors are Drafting or Graphic Arts and require 4000 of recent (within 6 years of degree completion) and relevant (drafting or graphic arts) work. Vocational minor requirements are listed in the Vocational-Technical Minor" section of the catalog.

Approved non-vocational minors are listed in the "Secondary Education Curriculum" section of the catalog.

6. Professional Education Courses (24 hours)

- WFED 3050 - Career and Employability Skills **Credits:** 3 hours
- WFED 3480 - Student Assessment and Management **Credits:** 3 hours
- WFED 5100 - Special Populations in Workforce Education and Development **Credits:** 3 hours
- WFED 5120 - Principles of Workforce Education and Development **Credits:** 3 hours
- WFED 5130 - Teaching Methods in Workforce Education and Development **Credits:** 3 hours
- WFED 5420 - Curriculum Development in Workforce Education and Development **Credits:** 3 hours
- LS 3050 - K-12 Content Area Literacy **Credits:** 3 hours

Either

- ED 2500 - Human Development: Applications in Education **Credits:** 3 hours
or
- FCS 2140 - Child Development **Credits:** 3 hours

7. Directed Internship (12 hours)

- WFED 4100 - Seminar in Education **Credits:** 2 hours
- WFED 4750 - Intern Teaching in Workforce Education and Development **Credits:** 10 hours

Bachelor of Science

Business Education

The Business Education major is designed to prepare teachers for business education subjects in the middle, junior, and senior high schools. The student must complete the major in Business Education and an approved teachable minor offered for Secondary Education Curriculum.

A minimum of 122 hours is required for this curriculum.

General Education/Liberal Arts Requirements (37 hours)

Required Core Courses (72 hours)

- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- ACTY 2110 - Principles of Accounting II **Credits:** 3 hours
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
(Previously BUS 2700)

- WFED 3050 - Career and Employability Skills **Credits:** 3 hours
- WFED 3480 - Student Assessment and Management **Credits:** 3 hours
- WFED 5100 - Special Populations in Workforce Education and Development **Credits:** 3 hours
- WFED 5120 - Principles of Workforce Education and Development **Credits:** 3 hours
- WFED 5130 - Teaching Methods in Workforce Education and Development **Credits:** 3 hours
- WFED 5420 - Curriculum Development in Workforce Education and Development **Credits:** 3 hours
- WFED 4100 - Seminar in Education **Credits:** 2 hours
- WFED 4750 - Intern Teaching in Workforce Education and Development **Credits:** 10 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- FIN 2420 - Entrepreneurial Finance **Credits:** 3 hours
- LAW 3800 - Legal Environment **Credits:** 3 hours
- LS 3050 - K-12 Content Area Literacy **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MGMT 2800 - Introduction to Supply Management **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours

Either

- FCS 2140 - Child Development **Credits:** 3 hours
OR
- ED 2500 - Human Development: Applications in Education **Credits:** 3 hours

Either

- FCS 2250 - Computer Applications **Credits:** 3 hours
OR
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours

Electives

As needed for graduation total of 122 hours.

Baccalaureate-Level Writing Requirement

Students in the Secondary Education in Business will satisfy the Baccalaureate-Level Writing requirement by taking WFED 3050: Career and Employability Skills.

Business Education Group Major

The Business Education Group Major is designed to prepare teachers for business education in middle, junior, and senior high schools. The student must complete the Business Education Group Major plus 12 additional credit hours. There is no minor required for this major.

1. Minimum hours required for this curriculum (122 hours)

2. General Education Requirements (37 hours)

3. Teaching Major from the following cognate courses (36 hours)

- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- ACTY 2110 - Principles of Accounting II **Credits:** 3 hours
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- BUS 2200 - Introduction to Global Business **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- FCS 2090 - Family Resource Management **Credits:** 3 hours
- FIN 2420 - Entrepreneurial Finance **Credits:** 3 hours
- LAW 3800 - Legal Environment **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MGMT 2800 - Introduction to Supply Management **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours

Select either:

- FCS 2250 - Computer Applications **Credits:** 3 hours
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours

4. Additional Group Major cognate courses (12 hours)

- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- MGMT 2140 - Exploring Entrepreneurship **Credits:** 3 hours

One course selected from the following:

- ECON 3040 - The Organization of Industries **Credits:** 3 hours
- ECON 3090 - The Economics of Gender and Race **Credits:** 3 hours
- ECON 3100 - Labor Economics **Credits:** 3 hours
- ECON 3150 - Sports Economics **Credits:** 3 hours
- ECON 3180 - The Economics of Medical Care **Credits:** 3 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- ECON 3800 - International Economics **Credits:** 3 hours
- ECON 3870 - Studies in Asian Economies **Credits:** 3 hours
- ECON 3880 - African Economies **Credits:** 3 hours
- ECON 3890 - Latin American Economies **Credits:** 3 hours

5. Professional Education Courses (24 hours)

- WFED 3050 - Career and Employability Skills **Credits:** 3 hours
- WFED 3480 - Student Assessment and Management **Credits:** 3 hours
- WFED 5100 - Special Populations in Workforce Education and Development **Credits:** 3 hours

- WFED 5120 - Principles of Workforce Education and Development **Credits:** 3 hours
- WFED 5130 - Teaching Methods in Workforce Education and Development **Credits:** 3 hours
- WFED 5420 - Curriculum Development in Workforce Education and Development **Credits:** 3 hours
- LS 3050 - K-12 Content Area Literacy **Credits:** 3 hours

Select either:

- ED 2500 - Human Development: Applications in Education **Credits:** 3 hours
- FCS 2140 - Child Development **Credits:** 3 hours

6. Directed Internship (12 hours)

- WFED 4100 - Seminar in Education **Credits:** 2 hours
- WFED 4750 - Intern Teaching in Workforce Education and Development **Credits:** 10 hours

Child and Family Development (122 hours)

The Child and Family Development major prepares individuals to work with infants, toddlers, preschoolers, school-age children, and their families in a variety of settings. Students explore relationships among children, families and their environment and culture with the goal of improving quality of life within communities and society at large. This program meets State of Michigan requirements for childcare center directors. It is not meant to provide Michigan Teacher Certification.

The Child and Family Development major includes knowledge about human growth and development; parent education; family dynamics; societal factors that influence family life; human sexuality; interpersonal relationships; family resource management; family law and public policy; and ethics. Students graduate with a solid understanding and knowledge of how to teach and /or develop curriculum for what are often sensitive and personal issues.

Graduates of this program are eligible to be granted provisional status as a Certified Family Life Educator (CFLE) by the National Council on Family Relations. Graduates with this major hold positions such as parent educators, child life specialists, and early childhood educators in school readiness programs, child development centers, youth and community programs, and alternate education settings.

Classes in this major are available in three formats: Online (students complete all classes online), Hybrid (mix of online and on-campus methods), or Face-to-face (all classes at the main campus).

There is no minor required with this major.

1. General Education Requirements (37 hours)

2. Required Core Family Science Courses (36 hours)

Grade of "C" or better is required in Core Family Science Courses.

- FCS 1010 - Introduction to Family Science **Credits:** 3 hours
- FCS 1030 - Lifespan Development **Credits:** 3 hours
- FCS 2100 - Human Sexuality **Credits:** 3 hours
- FCS 2170 - Diverse Children, Families, and Communities **Credits:** 3 hours
- FCS 2190 - Principles of Research in Family Science **Credits:** 3 hours

- FCS 3170 - Crises and Resiliency in Families **Credits:** 3 hours
- FCS 3180 - Intimate Relationships: Friends, Family, and Marriage **Credits:** 3 hours
- FCS 4120 - Family Policy **Credits:** 3 hours
- FCS 4150 - Effective Parenting **Credits:** 3 hours
(Students will satisfy the Baccalaureate-level Writing requirement by successfully completing FCS 4150.)
- FCS 4190 - Teaching Family Life Education **Credits:** 3 hours
- FCS 4290 - Internship **Credits:** 2 to 6 hours
(6 credit hours total are required)

3. Required Child & Family Development Courses (20 hours)

Grade of "C" or better is required in Child and Family Development Courses.

- FCS 2020 - Field Experience **Credits:** 1 to 3 hours
(2 credit hours total are required)
- FCS 2090 - Family Resource Management **Credits:** 3 hours
- FCS 2140 - Child Development **Credits:** 3 hours
- FCS 2250 - Computer Applications **Credits:** 3 hours
- FCS 3140 - Infant and Toddler Development **Credits:** 3 hours
- FCS 3160 - Early Childhood Assessment and Curricula **Credits:** 3 hours
- FCS 3190 - Administration of Programs for Young Children **Credits:** 3 hours

4. Required Related Cognate Course (3 hours)

- COM 1040 - Public Speaking **Credits:** 3 hours

5. Suggested Elective Courses (NOT REQUIRED):

As needed for graduation total of 122 hours.

- FCS 2050 - Topics in Family and Consumer Sciences **Credits:** 1 to 3 hours
- FCS 2150 - Adolescent Development **Credits:** 3 hours
- OR
- FCS 5250 - The Adolescent in Development **Credits:** 3 hours
- FCS 2660 - Personal Nutrition **Credits:** 3 hours
- FCS 3150 - Global Ecology of the Family **Credits:** 3 hours
- FCS 4130 - Later Life Family Relationships **Credits:** 3 hours
- FCS 5100 - Teaching Sexuality Education **Credits:** 3 hours
- FCS 5110 - Kinship Care Family Members: Strengths and Challenges **Credits:** 3 hours
- FCS 5220 - Topics in Family and Consumer Sciences **Credits:** 1 to 3 hours
- FCS 5350 - Communication Skills for Working with Families Across the Lifespan **Credits:** 3 hours
- FCS 5500 - Raising Children in Contemporary Society **Credits:** 3 hours
- FCS 5510 - Families and Hospitalization I **Credits:** 3 hours
- SPED 5300 - Introduction to Special Education **Credits:** 3 hours

Family Studies (122 hours)

The Family Studies major prepares students to use preventative and educational approaches in a variety of settings to strengthen individual and family well-being across the life span. Students explore relationships among individuals, families and their environment and culture with the goal of improving quality of life within communities and society at large.

The Family Studies major provides skills and knowledge to enrich individual and family life. It includes knowledge about how families work, the interrelationship of families and society, human growth and development throughout the lifespan, parent education, human sexuality, family resource management, the effects of policy and legislation on families, ethical considerations in professional conduct, and a solid understanding and knowledge of how to teach and /or develop curriculum for what are often sensitive and personal issues.

Graduates of the program are eligible to be granted provisional status as a Certified Family Life Educator (CFLE) by the National Council on Family Relations. Recent graduates hold positions such as sexuality educators, caseworkers, family court workers, substance abuse assessment specialists, and volunteer and activity directors in state government, community programs and public and private agencies.

Classes in this major are available in three formats: Online (students complete all classes online), Hybrid (mix of online and on-campus methods), or Face-to-face (all classes at the main campus).

1. General Education Requirements (37 hours)

2. Required Core Family Science Courses (36 hours)

Grade of "C" or better is required in Core Family Science Courses.

- FCS 1010 - Introduction to Family Science **Credits:** 3 hours
- FCS 1030 - Lifespan Development **Credits:** 3 hours
- FCS 2100 - Human Sexuality **Credits:** 3 hours
- FCS 2170 - Diverse Children, Families, and Communities **Credits:** 3 hours
- FCS 2190 - Principles of Research in Family Science **Credits:** 3 hours
- FCS 3170 - Crises and Resiliency in Families **Credits:** 3 hours
- FCS 3180 - Intimate Relationships: Friends, Family, and Marriage **Credits:** 3 hours
- FCS 4120 - Family Policy **Credits:** 3 hours
- FCS 4150 - Effective Parenting **Credits:** 3 hours
(Students will satisfy the Baccalaureate-level Writing requirement by successfully completing FCS 4150.)
- FCS 4190 - Teaching Family Life Education **Credits:** 3 hours
- FCS 4290 - Internship **Credits:** 2 to 6 hours
(6 credit hours total are required)

3. Required Family Studies Courses (17 hours)

Grade of "C" or better is required in Family Studies Courses.

- FCS 2020 - Field Experience **Credits:** 1 to 3 hours
(2 credit hours total are required)
- FCS 2090 - Family Resource Management **Credits:** 3 hours
- FCS 2250 - Computer Applications **Credits:** 3 hours
- FCS 2660 - Personal Nutrition **Credits:** 3 hours
- FCS 4130 - Later Life Family Relationships **Credits:** 3 hours

Required Family Studies Cognate Course

- FCS 3150 - Global Ecology of the Family **Credits:** 3 hours

4. Required Related Cognate Course (3 hours)

- COM 1040 - Public Speaking **Credits:** 3 hours

5. Suggested Elective Courses (NOT REQUIRED):

As needed for graduation total of 122 hours.

- FCS 2050 - Topics in Family and Consumer Sciences **Credits:** 1 to 3 hours
- FCS 2140 - Child Development **Credits:** 3 hours
- FCS 2150 - Adolescent Development **Credits:** 3 hours
- FCS 3140 - Infant and Toddler Development **Credits:** 3 hours
- FCS 4130 - Later Life Family Relationships **Credits:** 3 hours
- FCS 5100 - Teaching Sexuality Education **Credits:** 3 hours
- FCS 5110 - Kinship Care Family Members: Strengths and Challenges **Credits:** 3 hours
- FCS 5220 - Topics in Family and Consumer Sciences **Credits:** 1 to 3 hours
- FCS 5350 - Communication Skills for Working with Families Across the Lifespan **Credits:** 3 hours
- FCS 5500 - Raising Children in Contemporary Society **Credits:** 3 hours
- ADA 2250 - Drug Use: Personal and Social Impact **Credits:** 3 hours
- COM 4750 - Family Communication **Credits:** 3 hours
- GWS 3200 - Women, Globalization and Social Change **Credits:** 3 hours
- PADM 2000 - Introduction to Public and Nonprofit Service **Credits:** 3 hours
- SOC 2600 - Introduction to Criminal Justice Studies **Credits:** 3 hours
- SOC 4540 - Juvenile Delinquency and Justice **Credits:** 3 hours
- SWRK 2100 - Introduction to Social Work: Advocates for Social Justice **Credits:** 3 hours

Fashion Merchandising and Design

The Fashion Merchandising and Design major has two emphases: The Merchandising Emphasis and the Design and Development Emphasis. The **merchandising emphasis** is designed to prepare students for careers in retailing and related fields. The four-year program includes studies in merchandising, marketing, and management. A minor is optional, though many students select a general business, marketing or management minor. Other related fields can also be selected as minor studies, e.g., communication, journalism, or world language.

Students who graduate with a merchandising emphasis pursue careers in retail management, buying or marketing. Career opportunities also exist in the apparel and textile wholesaling fields.

The **design and development emphasis** prepares students for careers in the design and manufacturing production cycle of the apparel/softlines industry, careers including design, pattern drafting, and quality control, or with textile-producing companies as technicians or fashion analysts. Individuals interested in the Design and Development option may complete up to 18 hours of design study at the Fashion Institute of Technology in New York City, Regent's University in London, England, or Florence University of the Arts in Florence, Italy during their junior or senior year. A minor in business, communication, or art is recommended.

Fashion Merchandising and Design: Merchandising

Candidates for the Bachelor of Science degree with the Merchandising Emphasis must complete the following program of 122 hours.

1. General Education Requirements (37 hours)

2. Required Core Courses (30 hours)

Students in the merchandising emphasis will satisfy the Baccalaureate Writing requirement by successfully completing FCS 3300 Entrepreneurship in FCS.

- FCS 1260 - The Fashion Industry **Credits:** 3 hours
- FCS 1550 - Design Principles **Credits:** 3 hours
- FCS 2020 - Field Experience **Credits:** 1 to 3 hours
Credits: 3 hours required
- FCS 3050 - Professional Job Search Strategies **Credits:** 3 hours
- FCS 3260 - History of Fashion **Credits:** 3 hours
- FCS 3300 - Entrepreneurship in Family and Consumer Sciences **Credits:** 3 hours
- FCS 4220 - Product Development **Credits:** 3 hours
- FCS 5240 - Socio-Psychological Aspects of Dress **Credits:** 3 hours
OR
- FCS 5340 - Consumer Behavior in the Fashion Environment **Credits:** 3 hours
OR
- FCS 5440 - Global Aspects of the Fashion Industry **Credits:** 3 hours

Required Core Cognate Courses

- FCS 2200 - Textiles **Credits:** 3 hours
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours
OR
- FCS 2250 - Computer Applications **Credits:** 3 hours

3. Required Merchandising Courses (12 hours)

- FCS 2260 - Fashion/Retail Buying **Credits:** 3 hours
- FCS 3200 - Visual Merchandising **Credits:** 3 hours
- FCS 3290 - Promotion in the Merchandising Environment **Credits:** 3 hours
- FCS 4300 - Merchandising Seminar **Credits:** 3 hours

4. Required Related Courses (21 hours)

- MGMT 2520 - Human Resource Management **Credits:** 3 hours
- MKTG 2900 - Introduction to Food and CPG Industries **Credits:** 3 hours
OR
- MKTG 3600 - Professional Selling **Credits:** 3 hours
OR
- MKTG 4750 - International Marketing **Credits:** 3 hours

Required Related Cognate Courses

- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- COM 1040 - Public Speaking **Credits:** 3 hours
- OR
- COM 1700 - Interpersonal Communication **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours

5. Related Electives (Choose 6 hours)

- FCS 2090 - Family Resource Management **Credits:** 3 hours
- FCS 2300 - Computer Aided Design for Fashion **Credits:** 3 hours
- FCS 2530 - Fashion Illustration **Credits:** 3 hours
- FCS 3150 - Global Ecology of the Family **Credits:** 3 hours
- FCS 4050 - Travel/Study Seminar **Credits:** 1 to 4 hours
- FCS 4290 - Internship **Credits:** 2 to 6 hours
Credits: 3 to 6 hours
- FCS 5220 - Topics in Family and Consumer Sciences **Credits:** 1 to 3 hours
(FMD related)
- FCS 5240 - Socio-Psychological Aspects of Dress **Credits:** 3 hours
- FCS 5340 - Consumer Behavior in the Fashion Environment **Credits:** 3 hours
- FCS 5440 - Global Aspects of the Fashion Industry **Credits:** 3 hours
- FCS 5980 - Independent Study in Family and Consumer Sciences **Credits:** 1 to 6 hours

Note:

FCS 5240, 5340 and 5440 can be taken as an elective if not used as a required core course.

Off campus study option:

Up to 18 credit hours may be applied toward the Fashion Merchandising and Design: Merchandising major by successful completion of 1-6 courses at one of our approved partner institutions. Students may enroll in pre-approved courses at Regents University Fashion School (London) or Florence University of the Arts (Florence), usually in the junior or senior year. Off campus study courses must be planned and approved in advance. Tuition and room and board rates of partner institution apply for off campus options. See your academic advisor or program faculty for more information.

6. Electives - As needed for graduation total of 122 hours.

Design and Development Emphasis

Candidates for the Bachelor of Science degree with the Design and Development Emphasis must complete the following program of 122 semester hours.

1. General Education Requirements (37 hours)

2. Required Core Courses (33 hours)

Students in the design and development emphasis will satisfy the Baccalaureate Writing requirement by successfully completing FCS 3300 - Entrepreneurship in FCS.

- FCS 1260 - The Fashion Industry **Credits:** 3 hours
- FCS 1550 - Design Principles **Credits:** 3 hours
- FCS 2020 - Field Experience **Credits:** 1 to 3 hours
Credits: 3 hours required
- FCS 2260 - Fashion/Retail Buying **Credits:** 3 hours
- FCS 3050 - Professional Job Search Strategies **Credits:** 3 hours
- FCS 3260 - History of Fashion **Credits:** 3 hours
- FCS 3300 - Entrepreneurship in Family and Consumer Sciences **Credits:** 3 hours
- FCS 4220 - Product Development **Credits:** 3 hours
- FCS 5240 - Socio-Psychological Aspects of Dress **Credits:** 3 hours
Or
- FCS 5340 - Consumer Behavior in the Fashion Environment **Credits:** 3 hours
Or
- FCS 5440 - Global Aspects of the Fashion Industry **Credits:** 3 hours

Required Core Cognate Courses

- FCS 2200 - Textiles **Credits:** 3 hours
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours
OR
- FCS 2250 - Computer Applications **Credits:** 3 hours

3. Required Courses (27 hours)

- FCS 1240 - Apparel Construction I **Credits:** 3 hours
- FCS 2220 - Fashion Design Studio I **Credits:** 3 hours
- FCS 2240 - Apparel Construction II **Credits:** 3 hours
- FCS 2300 - Computer Aided Design for Fashion **Credits:** 3 hours
- FCS 4240 - Apparel Line Development **Credits:** 3 hours
- FCS 2530 - Fashion Illustration **Credits:** 3 hours
- FCS 3220 - Fashion Design Studio II **Credits:** 3 hours

Required Cognate Courses

- BUS 1750 - Business Enterprise **Credits:** 3 hours
- COM 1040 - Public Speaking **Credits:** 3 hours
OR
- COM 1700 - Interpersonal Communication **Credits:** 3 hours

4. Related Electives (Choose 12 hours)

- FCS 2090 - Family Resource Management **Credits:** 3 hours

- FCS 3200 - Visual Merchandising **Credits:** 3 hours
- FCS 3150 - Global Ecology of the Family **Credits:** 3 hours
- FCS 3290 - Promotion in the Merchandising Environment **Credits:** 3 hours
- FCS 4300 - Merchandising Seminar **Credits:** 3 hours
- FCS 5240 - Socio-Psychological Aspects of Dress **Credits:** 3 hours
- FCS 5340 - Consumer Behavior in the Fashion Environment **Credits:** 3 hours
- FCS 5440 - Global Aspects of the Fashion Industry **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours

Note:

FCS 5240, 5340, and 5440 can be taken as an elective if not used as a required core course.

5. Related Experiential Electives Choose (3 hours)

- FCS 2050 - Topics in Family and Consumer Sciences **Credits:** 1 to 3 hours (FMD related)
- FCS 4290 - Internship **Credits:** 2 to 6 hours
- FCS 5220 - Topics in Family and Consumer Sciences **Credits:** 1 to 3 hours (FMD related)
- FCS 5900 - Project/Problems in Family and Consumer Sciences **Credits:** 1 to 4 hours
- FCS 5980 - Independent Study in Family and Consumer Sciences **Credits:** 1 to 6 hours

Note:

Off campus study option:

Up to 18 credit hours may be applied toward the Fashion Merchandising and Design: Design & Development major by successful completion of 1-6 courses at one of our approved partner institutions. Students may enroll in pre-approved courses at Regents University Fashion School (London), Florence University of the Arts (Florence) or Fashion Institute of Technology (New York City), usually in the junior or senior year. Off campus study courses must be planned and approved in advance. Tuition and room and board rates of partner institution apply for off campus options. See your academic advisor or program faculty for more information.

6. Electives - As needed for graduation total of 122 hours.

Food Service Operations and Sustainability

The Food Service Operations and Sustainability curriculum is scientifically oriented for in depth study of foods in relation to the business field. Students may pursue supervisory/managerial careers in hospitals, extended care facilities, school systems, hotel or restaurant food services, industrial food services, food service companies that sell food and equipment and governmental food and health agencies.

Classes in this major are available in three formats: Online (students complete all classes online), Hybrid (mix of online and on-campus methods), or Face-to-face (all classes at the main campus).

There is no minor required with this major.

A minimum of 122 hours is required for this curriculum.

1. General Education Requirements (37 hours)

2. Required FCS Courses (44 hours)

- FCS 1020 - Introduction to the Food Service Industry **Credits:** 2 hours
- FCS 1650 - Culinary Skills **Credits:** 3 hours
- FCS 2020 - Field Experience **Credits:** 1 to 3 hours
Credits: 3 hours
- FCS 2660 - Personal Nutrition **Credits:** 3 hours
- FCS 2700 - Advanced Culinary Skills and Food Service **Credits:** 4 hours
- FCS 2720 - Food Purchasing and Resource Management **Credits:** 3 hours
- FCS 3300 - Entrepreneurship in Family and Consumer Sciences **Credits:** 3 hours
(Students in the Foodservice Operations and Sustainability major will satisfy the Baccalaureate-Level Writing requirement by successfully completing FCS 3300.)
- FCS 3680 - Quantity Foods **Credits:** 4 hours
- FCS 3700 - Introduction to Food Systems and Sustainability **Credits:** 3 hours
- FCS 4290 - Internship **Credits:** 2 to 6 hours
Credits: 3 hours
- FCS 4660 - Institutional Management **Credits:** 4 hours
- FCS 4700 - Food and Beverage Systems **Credits:** 3 hours
- FCS 4720 - Farm to Table and Sustainability **Credits:** 3 hours
- FCS 4740 - Global Food Systems and Sustainability **Credits:** 3 hours

3. Required Related Cognate Courses (41 hours)

Select one:

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
and
- BIOS 1100 - Biological Sciences Laboratory **Credits:** 1 hour
OR
- BIOS 1980 - Human Form and Function **Credits:** 4 hours

And

- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- MATH 1160 - Finite Mathematics with Applications **Credits:** 3 hours
- PSY 1000 - General Psychology **Credits:** 3 hours
- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- ACTY 2110 - Principles of Accounting II **Credits:** 3 hours
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours

- SOC 2000 - Principles of Sociology **Credits:** 3 hours

And

Select one:

- COM 1700 - Interpersonal Communication **Credits:** 3 hours
or
- COM 1000 - Communication and Community Engagement **Credits:** 3 hours
or
- COM 1040 - Public Speaking **Credits:** 3 hours

4. Related Elective Courses (Chose a minimum of 20 hours)

- BIOS 2400 - Human Physiology **Credits:** 4 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
and
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
and
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
and
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour
- COM 2000 - Human Communication Theory **Credits:** 3 hours
- COM 2800 - Introduction to Organizational Communication **Credits:** 3 hours
- COM 1040 - Public Speaking **Credits:** 3 hours
- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
OR
- FCS 2250 - Computer Applications **Credits:** 3 hours
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours
- ECON 3040 - The Organization of Industries **Credits:** 3 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- ECON 3200 - Money and Banking **Credits:** 3 hours
- ECON 3400 - Managerial Economics **Credits:** 3 hours
- ENVS 3000 - Introduction to Sustainability: A Local to Global Survey **Credits:** 3 hours
- FIN 2420 - Entrepreneurial Finance **Credits:** 3 hours
- FIN 3200 - Business Finance **Credits:** 3 hours
- GEOG 3200 - Culinary Tourism **Credits:** 3 hours
- HPHE 1700 - Introduction to Recreation/Sport Management **Credits:** 3 hours
- HPHE 2100 - Event Strategic Planning for Special Events **Credits:** 3 hours
- HPHE 3100 - Event Management Advanced Applications **Credits:** 3 hours
- HPHE 3110 - Event Marketing **Credits:** 3 hours
- LAW 3800 - Legal Environment **Credits:** 3 hours
- MGMT 2520 - Human Resource Management **Credits:** 3 hours
- MGMT 2800 - Introduction to Supply Management **Credits:** 3 hours
- MGMT 3010 - Experiential Leadership and Strategy I **Credits:** 6 hours
- MGMT 3140 - Small Business Management **Credits:** 3 hours

- MGMT 3200 - Managing ERP Systems **Credits:** 3 hours
- MGMT 4040 - Business and Society **Credits:** 3 hours
- MKTG 2900 - Introduction to Food and CPG Industries **Credits:** 3 hours
- MKTG 3720 - Sourcing and Purchasing **Credits:** 3 hours
- MKTG 3730 - Digital and Social Media Marketing **Credits:** 3 hours
- MKTG 3740 - Advertising and Promotion **Credits:** 3 hours
- MKTG 4740 - Creative Strategy **Credits:** 3 hours
- PADM 2000 - Introduction to Public and Nonprofit Service **Credits:** 3 hours
- PHIL 2010 - Contemporary Problems in Ethics **Credits:** 4 hours
- PHIL 2200 - Critical Thinking **Credits:** 3 hours
- PHIL 3140 - Philosophy and Public Affairs **Credits:** 3 hours
- PHIL 4100 - Professional Ethics **Credits:** 3 hours
- PHIL 5440 - Practical Ethics **Credits:** 3 hours
- PSY 2444 - Organizational Psychology **Credits:** 3 hours
- STAT 2160 - Business Statistics **Credits:** 3 hours
- OR
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

5. Electives - As needed for graduation total of 122 hours.

Interior Design Major

The interior design program provides integrative learning through a multi-disciplinary course of study that includes courses in art, business, communications and interior design. Students are encouraged to combine a major in interior design with a minor in marketing, management, art, or communications. Graduates are employed in interior design firms, architectural firms, interior/facilities management divisions of large corporations, home furnishings retail, institutional and commercial furnishings, marketing positions and showroom management.

Most of the interior design courses are in the studio format where students integrate a variety of subjects to solve complex design problems. At the heart of the interior design program is the goal that students will understand human interaction with the environment to enhance quality of life. Students focus on the reciprocal relationships of humans and their interior environments.

The program is accredited by CIDA (Council for Interior Design Accreditation) and by NASAD (National Association of Schools of Art and Design).

There is no minor required with this major.

Admission Requirements

Only the Office of Admissions grants admission to Western Michigan University for undergraduate students. Students may be admitted to the university as pre-interior design majors. Students can apply to University's at wmich.edu.

Portfolio Review Requirement

During their fourth semester in the program, students in the PRE-ITD program will submit to a portfolio review, held annually toward the end of the spring semester, which is the basis for selective admission to the upper division of the curriculum. The purpose of the review is to encourage excellence in design and recognize those students best prepared for the challenge of the upper level interior design sequence of courses.

To apply for the portfolio review:

1. Students must complete the following courses:

- FCS 1490 - Design Communication I: Mechanical and Digital Drafting **Credits:** 3 hours
- FCS 1500 - Introduction to Interior Design **Credits:** 3 hours
- FCS 1560 - Psychology and Philosophy of the Built Environment **Credits:** 3 hours
- FCS 1570 - Design Communication II: Sketching (Freehand and Digital) **Credits:** 3 hours
- FCS 1590 - Design Communication III: Graphic Representation **Credits:** 3 hours
- FCS 2420 - Design History of the Built Environment **Credits:** 3 hours
- FCS 2480 - Studio I: Space Planning **Credits:** 3 hours
- FCS 2500 - Design Communication IV: Digital Design **Credits:** 3 hours

And cognate course:

- FCS 2200 - Textiles **Credits:** 3 hours
(Fall or Spring 1st Year)

2. The courses listed above must be completed with an average grade of 3.0

3. The University overall grade point average must be no less than 2.5

4. To be considered for acceptance into the upper-level sequence of courses, students must have completed or be enrolled in the following courses at the time of their portfolio review.

All program required courses must be completed with an average GPA of 3.0.

- FCS 2490 - Studio II: Residential Design **Credits:** 3 hours
- FCS 3530 - Intro to Interior Construction I **Credits:** 3 hours
- FCS 2440 - Interior Materials **Credits:** 3 hours

5. The review

The review will consist of a 20-minute presentation by the student to the Interior Design faculty. The student will submit a statement detailing why they are interested in the field of interior design and what they perceive to be their strengths and weaknesses as a student of design. Application materials will also include an essay (topic to be selected by the faculty) and student portfolio materials showing their abilities in 2D and 3D design, drafting, free hand drawing, etc.

Up to eighteen (18) students will be selected from the portfolio review applicants each year to advance to the upper-level of the interior design program. Students who are denied advancement may retake courses or redo projects before reapplying for portfolio review the following spring semester.

A Minimum of 122 Hours is Required for this Curriculum

1. WMU Essential Studies Requirements

2. Required Core Courses (65 hours)

- FCS 1490 - Design Communication I: Mechanical and Digital Drafting **Credits:** 3 hours
- FCS 1500 - Introduction to Interior Design **Credits:** 3 hours
- FCS 1560 - Psychology and Philosophy of the Built Environment **Credits:** 3 hours
- FCS 1570 - Design Communication II: Sketching (Freehand and Digital) **Credits:** 3 hours
- FCS 1590 - Design Communication III: Graphic Representation **Credits:** 3 hours
- FCS 2420 - Design History of the Built Environment **Credits:** 3 hours
- FCS 2500 - Design Communication IV: Digital Design **Credits:** 3 hours
- FCS 2480 - Studio I: Space Planning **Credits:** 3 hours
- FCS 2490 - Studio II: Residential Design **Credits:** 3 hours
- FCS 3530 - Intro to Interior Construction I **Credits:** 3 hours
- FCS 2440 - Interior Materials **Credits:** 3 hours
- FCS 3570 - Interior Light and Color **Credits:** 3 hours
- FCS 3510 - Studio III: Commercial Design I **Credits:** 3 hours
- FCS 3550 - Design Communication V: 3D **Credits:** 3 hours
- FCS 3560 - Intro to Interior Construction II **Credits:** 3 hours
- FCS 3590 - Studio IV: Commercial Design II **Credits:** 3 hours
- FCS 2020 - Field Experience **Credits:** 1 to 3 hours
(300 total hours required)
- FCS 4520 - Professional Practices **Credits:** 3 hours
- FCS 4510 - Studio V: Capstone Project Design I **Credits:** 4 hours
- FCS 4530 - Interior Design Project Management **Credits:** 3 hours
- FCS 4590 - Studio VI: Capstone Project Design II **Credits:** 4 hours

3. Required Related Cognate Courses (33 hours)

- FCS 2200 - Textiles **Credits:** 3 hours
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- ENGL 1050 - Foundations in Written Communication: Strategies, Behaviors, Success **Credits:** 3 hours
- ART 1080 - Form and Space **Credits:** 3 hours
- ART 2200 - Caves to Cathedrals **Credits:** 3 hours
- ART 2210 - Modern and Postmodern **Credits:** 3 hours
- COM 1040 - Public Speaking **Credits:** 3 hours
- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours

Either:

(Fall or Spring 1st Year)

- FCS 2250 - Computer Applications **Credits:** 3 hours
OR
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours

Nutrition and Dietetics

The Didactic Program in Nutrition and Dietetics (DPD) leads to a Bachelor of Science degree and is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics. Based on data from the U.S. Bureau of Labor Statistics *Occupational Outlook* (2016), "Employment of dietitians and nutritionists is projected to grow by 15 percent from 2016 to 2026. This projected growth is due to the awareness about the role of food in preventing and treating illnesses, such as diabetes. More dietitians and nutritionists will be needed to provide care for patients with various chronic medical conditions and to advise people who want to improve their overall health."

Program graduates are eligible to apply for post-graduate internship programs. Graduates must complete the internship and pass the registration examination for dietitians in order to qualify for certification as Registered Dietitian Nutritionist (RDN). Students apply for admission to internships during the last semester of their senior year or after graduation. Appointment to internships is competitive. Students are selected on the basis of a variety of criteria including, grade point average (GPA), work and volunteer experience, and recommendation letters. Most dietetic internships require that applicants have a GPA of at least 3.0. After registration, the dietitian is eligible for positions in: hospitals such as clinical dietitian or director of food and nutrition services; commercial food establishments such as restaurants, hotels and industrial facilities; schools, colleges, universities and the armed forces; community health agencies. For more information on career opportunities in nutrition and dietetics visit www.eatright.org.

Students applying to the professional component (years 3 and 4) of the DPD must be admitted to Western Michigan University prior to applying to the Nutrition and Dietetics program. Only the Office of Admissions and Orientation grants admission to Western Michigan University for undergraduate students. See the University website at wmich.edu.

There is no minor required with this major.

Admission Requirements:

All students are initially admitted to the Pre- Nutrition and Dietetics program. They apply for admission to the professional component of the Nutrition and Dietetics program (years 3 and 4) once all required Pre-Nutrition and Dietetics courses have been completed. The admission criteria and application procedures are described below.

Transfer students applying to the professional component (years 3 and 4) of the DPD must be admitted to Western Michigan University prior to applying to the Nutrition and Dietetics program. Only the Office of Admission and Orientation grants admission to Western Michigan University for undergraduate students. See the University website at wmich.edu.

Minimum Admission Requirements

1. Attainment of a cumulative GPA of 3.0 or above on a 4.0 scale.
2. Completion of required courses or the equivalent under Pre-Nutrition and Dietetics with no grade lower than a "C" in any of the following courses: ENGL 1050, BIOS 1120, CHEM 1100/1110, FCS 2600, CHEM 1120/1130, BIOS 2400, BIOS 2320, CHEM 3700/3710.
3. Completion of the majority (70%) of WMU general education requirements is strongly suggested prior to applying to the Nutrition and Dietetics program.
4. Completion of a letter of application stating reasons for selecting Nutrition and Dietetics as a career and short- and long-term professional goals.

Admission Process:

Applicants must complete the DPD application form and write a letter of application. Applications will not be reviewed until all application materials have been received. The application deadline is September 15 of each academic year. All applications are reviewed and admission determined by the DPD selection committee, consisting of full-time and part-time DPD faculty. Applications may be obtained [online](#).

Applicants should include the following:

1. A completed DPD application form.
2. Official transcripts from all Universities and colleges attended, and student copies of WMU transcripts.

3. A word-processed letter of application (maximum length 1 1/2 pages in font size 12 and double spaced) stating reasons for selecting Nutrition and Dietetics as a career and short- and long-term professional goals.
4. A non-refundable application fee of \$20 (make check payable to the Department of Family and Consumer Sciences).
5. Please place all materials in an envelope and send to the address below.

Note: Some practicum sites may require background checks, drug screening tests and/or vaccinations such as TB screening. It is the student's responsibility to provide evidence that these requirements have been met.

Application materials should be sent to:

College of Education and Human Development Admissions and Advising Office
 2421 Sangren Hall
 Western Michigan University
 1903 W. Michigan Ave.
 Kalamazoo, MI 49008-5275

Pre-Nutrition and Dietetics Required Courses

- MATH 1110 - Algebra II **Credits:** 3 hours
- FCS 1000 - Career Seminar **Credits:** 1 to 2 hours
Credits: 1 hour required
- FCS 1650 - Culinary Skills **Credits:** 3 hours
- FCS 2600 - Nutrition **Credits:** 3 hours
- FCS 2250 - Computer Applications **Credits:** 3 hours
OR
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours

Pre-Nutrition and Dietetics Required Cognate Courses

- ENGL 1050 - Foundations in Written Communication: Strategies, Behaviors, Success **Credits:** 3 hours
- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- COM 1700 - Interpersonal Communication **Credits:** 3 hours
- PSY 1000 - General Psychology **Credits:** 3 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
AND
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- SOC 2000 - Principles of Sociology **Credits:** 3 hours
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
AND
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
AND
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour

In addition:

Applicants must have completed approximately 70% of University's General Education Requirements. Note: Some of the required Pre-Nutrition and Dietetics courses fulfill the General Education Requirements of the University (PLEASE SEE THE RECOMMENDED COURSE SEQUENCE FOR THE NUTRITION AND DIETETICS CURRICULUM). Please schedule a conference with an academic advisor in the College of Education and Human Development's Advising Office for more information about the University's General Education and graduation requirements. For more information about the Nutrition and Dietetics curriculum, admission to internships, and registration examination, please contact the program director, Dr. Arezoo Rojhani (arezoo.rojhani@wmich.edu).

Nutrition and Dietetics Curriculum Recommended Course Sequence

First Year Pre-Nutrition and Dietetics (courses listed by semester):

Fall semester (15 hours)

- General Education **Credits:** 4 hours
- MATH 1110 - Algebra II **Credits:** 3 hours
- FCS 1000 - Career Seminar **Credits:** 1 to 2 hours
Credits: 1 hour required
- ENGL 1050 - Foundations in Written Communication: Strategies, Behaviors, Success **Credits:** 3 hours
With a grade of "C" or better. Satisfies General Education Proficiency 1.
- BIOS 1120 - Principles of Biology **Credits:** 3 hours
With a grade of "C" or better.

Spring semester (16 hours)

- COM 1700 - Interpersonal Communication **Credits:** 3 hours
Satisfies General Education Proficiency 4.
- PSY 1000 - General Psychology **Credits:** 3 hours
Satisfies General Education Area V.
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
With a grade of "C" or better. Satisfies General Education Area VI.
AND
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
With a grade of "C" or better. Satisfies General Education Area VI.
- SOC 2000 - Principles of Sociology **Credits:** 3 hours
Satisfies General Education Area V.
- FCS 1650 - Culinary Skills **Credits:** 3 hours

Second Year Pre-Nutrition and Dietetics (courses listed by semester):

Fall semester (14 hours)

- General Education **Credits:** 3 hours
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
With a grade of "C" or better.
AND
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
With a grade of "C" or better.

- BIOS 2400 - Human Physiology **Credits:** 4 hours
With a grade of "C" or better.

And either:

- FCS 2250 - Computer Applications **Credits:** 3 hours
OR
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours
Satisfies General Education Area VII.

Spring semester (15 hours)

- General Education **Credits:** 4 hours
- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
With a grade of "C" or better.
- FCS 2600 - Nutrition **Credits:** 3 hours
With a grade of "C" or better.
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
With a grade of "C" or better.
AND
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour
With a grade of "C" or better.

Third Year Nutrition and Dietetics (courses listed by semester):

Fall semester (17 hours)

- General Education **Credits:** 3 hours
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours
Satisfies General Education Area VII.
- FCS 3150 - Global Ecology of the Family **Credits:** 3 hours
Satisfies General Education Area IV.
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours
Satisfies General Education Proficiency 3.

Spring semester (16 hours)

- Elective **Credits:** 3 hours
- FCS 3460 - Nutrition Education and Counseling **Credits:** 3 hours
- FCS 3600 - Lifespan Nutrition **Credits:** 3 hours
- FCS 3650 - Understanding Research in Dietetics **Credits:** 3 hours
- FCS 3680 - Quantity Foods **Credits:** 4 hours

Fourth Year Nutrition and Dietetics (courses listed by semester):

Fall semester (14 hours)

- FCS 4600 - Medical Nutrition Therapy I **Credits:** 4 hours
- FCS 4630 - Medical Nutrition Therapy Laboratory I **Credits:** 1 hour
- FCS 4620 - Community Nutrition **Credits:** 3 hours
- FCS 4670 - Professional Issues in Dietetics **Credits:** 2 hours
- FCS 4680 - Advanced and Experimental Foods **Credits:** 4 hours

Spring semester (14 hours)

- Elective **Credits:** 3 hours
- FCS 4610 - Medical Nutrition Therapy II **Credits:** 4 hours
- FCS 4640 - Medical Nutrition Therapy Laboratory II **Credits:** 1 hour
- FCS 4660 - Institutional Management **Credits:** 4 hours
- FCS 4690 - Nutrient Metabolism **Credits:** 3 hours

Credit hour breakdown:

Total Credit Hours for Program: 101 hours

Total Credit Hours for Graduation: 122 hours

Number of weeks in semester excluding examination time: 14 weeks

1 credit = didactic hours/week = 0.83 lecture hours/week (50 minutes)

1 credit = laboratory hours/week = 2.0 laboratory hours/week

A minimum of 122 Hours is required for the Nutrition and Dietetics program (NDDJ).

1. General Education Requirements (37 hours)

2. Required Core Courses (46 hours)

Minimum "C" grade required.

- FCS 1000 - Career Seminar **Credits:** 1 to 2 hours
Credits: 1 hour
- FCS 1650 - Culinary Skills **Credits:** 3 hours
- FCS 2600 - Nutrition **Credits:** 3 hours
- FCS 3460 - Nutrition Education and Counseling **Credits:** 3 hours
- FCS 3600 - Lifespan Nutrition **Credits:** 3 hours
- FCS 3650 - Understanding Research in Dietetics **Credits:** 3 hours
- FCS 3680 - Quantity Foods **Credits:** 4 hours
- FCS 4600 - Medical Nutrition Therapy I **Credits:** 4 hours
- FCS 4610 - Medical Nutrition Therapy II **Credits:** 4 hours
- FCS 4620 - Community Nutrition **Credits:** 3 hours
- FCS 4630 - Medical Nutrition Therapy Laboratory I **Credits:** 1 hour
- FCS 4640 - Medical Nutrition Therapy Laboratory II **Credits:** 1 hour
- FCS 4660 - Institutional Management **Credits:** 4 hours
- FCS 4670 - Professional Issues in Dietetics **Credits:** 2 hours

- FCS 4680 - Advanced and Experimental Foods **Credits:** 4 hours
Students in the Nutrition and Dietetics major will satisfy the Baccalaureate-level Writing requirement by successfully completing FCS 4680.
- FCS 4690 - Nutrient Metabolism **Credits:** 3 hours

3. Required Related Courses (30 hours)

Minimum "C" grade required.

- MATH 1110 - Algebra II **Credits:** 3 hours
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Required Related Cognate Courses

- COM 1700 - Interpersonal Communication **Credits:** 3 hours
- ENGL 1050 - Foundations in Written Communication: Strategies, Behaviors, Success **Credits:** 3 hours
- FCS 3150 - Global Ecology of the Family **Credits:** 3 hours
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours
- PSY 1000 - General Psychology **Credits:** 3 hours
- SOC 2000 - Principles of Sociology **Credits:** 3 hours

And either:

- FCS 2250 - Computer Applications **Credits:** 3 hours
OR
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours

4. Required Science Cognate Courses (26 hours)

Minimum "C" grade required

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
AND
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
AND
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
AND
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour

5. Electives - As needed for graduation total of 122 hours.

Occupational Education Studies

Geraldine Schma, Advisor

This Bachelor of Science program is designed for those who wish to become a certified teacher in a technical/occupational subject area. The program leads to a state of Michigan Secondary Provisional Certificate with a vocational endorsement. The program appeals to individuals desiring to teach technical/occupational subjects in comprehensive high schools, trade academies, area career and technical centers. The Office of Teacher Certification within the College of Education and Human Development processes all recommendations for certification and advises students seeking additional teaching endorsements.

Admission Requirements

In addition to the regular University admission requirements, applicants to this program must also meet the following prerequisites required for all degree candidates recommended for teaching certification by the College of Education and Human Development at the time of application:

1. Complete ED 2500 Human Development: Applications in Education or an approved course with a grade of "C" or better;
2. possess a cumulative grade point average of 2.5 or higher; and,
3. achieve passing scores of the Michigan Test for Teacher Certification (MTTC)-Basic Skills Test.

When admission has been granted, the Office of Admissions and Advising will prepare a credit evaluation which will enable the advisor to prepare a program outline prior to the first registration.

Program Requirements For Occupational Education Studies

1. Complete a teachable major:

A minimum of 30 hours in a teachable technical/occupational program of study, which is approved by the Michigan Department of Education for the OES program and completed at one of the collaborating Michigan community colleges. If an approved program of study was not followed at a Michigan community college, the passing scores of the Michigan Occupational Competency Assessment Center (MOCAC) must be submitted.

2. Complete a teachable minor:

A minimum of 20 hours in a teaching minor sequence for Secondary Education Curriculum approved in consultation with a university advisor.

3. Complete work experience:

A minimum of 4,000 hours of recent and relevant work experience required in the teachable major.

4. Complete the following 21 hours of Professional Education Courses:

- WFED 3050 - Career and Employability Skills **Credits:** 3 hours
- WFED 3480 - Student Assessment and Management **Credits:** 3 hours
- WFED 5100 - Special Populations in Workforce Education and Development **Credits:** 3 hours
- WFED 5120 - Principles of Workforce Education and Development **Credits:** 3 hours
- WFED 5130 - Teaching Methods in Workforce Education and Development **Credits:** 3 hours
- WFED 5420 - Curriculum Development in Workforce Education and Development **Credits:** 3 hours

- LS 3050 - K-12 Content Area Literacy **Credits:** 3 hours

5. Complete the following 12 hours internship and seminar courses:

- WFED 4100 - Seminar in Education **Credits:** 2 hours
- WFED 4750 - Intern Teaching in Workforce Education and Development **Credits:** 10 hours

Workforce Education and Development Major

This major intends to prepare graduates for a variety of workforce education and development roles. Graduates from the program have the opportunity to become trainers and job placement specialists in business and industry, higher education, social services, and the government sectors.

Program Requirements

Candidates for the major in Workforce Education and Development must complete the following program of 69 hours.

Required Courses (39 hours)

- BUS 1750 - Business Enterprise **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- WFED 3050 - Career and Employability Skills **Credits:** 3 hours
- COM 1700 - Interpersonal Communication **Credits:** 3 hours
- PSY 1000 - General Psychology **Credits:** 3 hours
- FCS 2140 - Child Development **Credits:** 3 hours
- OR
- ED 2500 - Human Development: Applications in Education **Credits:** 3 hours
- OR
- PSY 1600 - Child Psychology **Credits:** 3 hours
- FCS 2250 - Computer Applications **Credits:** 3 hours
- OR
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours
- FCS 2090 - Family Resource Management **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- PADM 2000 - Introduction to Public and Nonprofit Service **Credits:** 3 hours
- PSY 2444 - Organizational Psychology **Credits:** 3 hours

Required Workforce Development Professional Level Courses

WFED 5121, 4010, 4020, 4030, 5750, 5120, 5130, and 5420 are required. Students are required to earn 30 credits in professional level workforce education and development courses. Students taking WFED 5750 for 9 credits will fulfill this requirement. Students taking WFED 5750 for 3 or 6 credits must fulfill this requirement by taking WFED 5100, 5010, or 5430.

- WFED 5121 - Career Exploration in Workforce Development **Credits:** 3 hours
- WFED 4010 - Adult Teaching and Learning Strategies **Credits:** 3 hours

- WFED 4020 - Career Assessment and Development **Credits:** 3 hours
- WFED 4030 - Training Systems in Organizations **Credits:** 3 hours
- WFED 5750 - Internship in Workforce Development and Leadership **Credits:** 3 to 9 hours
- WFED 5010 - Topics in International Workforce Education and Development **Credits:** 3 hours
- WFED 5100 - Special Populations in Workforce Education and Development **Credits:** 3 hours
- WFED 5120 - Principles of Workforce Education and Development **Credits:** 3 hours
- WFED 5130 - Teaching Methods in Workforce Education and Development **Credits:** 3 hours
- WFED 5420 - Curriculum Development in Workforce Education and Development **Credits:** 3 hours
- WFED 5430 - Work-site Based Education Programs **Credits:** 3 hours

Youth and Community Development

The BS in Youth and Community Development is a course of professional development for youth workers in afterschool and out-of-school time programs, and informal learning environments. It is based on theoretical perspectives in childhood, adolescent, and family development, best pedagogical practices, and grounded in an ethic of family engagement and social action. It prepares change agents to transform communities through an intentional investment in youth with interdisciplinary coursework and community-based experiences.

The BS program in Youth and Community Development is situated at the intersection of developmental theory, socio-ecological context, and youth worker skills and competencies. This program is rooted in community psychology and the prevention sciences to provide a foundation for studying setting-level interventions and developmental needs. This program invites students to critically examine youth in context of families and communities, root causes, and how individuals and organizations can address social inequalities. Students will study the practice of the youth worker to develop understandings and competencies in organizing effective learning environments and experiences to promote human flourishing.

The undergraduate program will prepare youth development professionals to take roles in diverse youth-serving, family, and community settings. Graduates may pursue careers in afterschool, community service, and youth activism programs; public and private human services organizations and agencies; dropout prevention and alternative education; and juvenile justice. Students may also assume positions in informal learning environments such as museums, nature centers, environmental education, outdoor and adventure programs.

The BS in Youth and Community Development is designed to build the skills and knowledge outlined in the National AfterSchool Association's Core Knowledge and Competencies for AfterSchool and Youth Development Professionals.

Graduates of this program may seek provisional status as a Certified Family Life Educator (CFLE) by the National Council on Family Relations.

All courses are delivered in-person, and many courses are also delivered online or hybrid (online and in-person).

There is no minor required with this major.

General Education Requirements (37 hours)

Required Core Family Science Courses (36 hours)

Grade of "C" or better is required in Core Family Science Courses.

- FCS 1010 - Introduction to Family Science **Credits:** 3 hours
- FCS 1030 - Lifespan Development **Credits:** 3 hours
- FCS 2100 - Human Sexuality **Credits:** 3 hours
- FCS 2170 - Diverse Children, Families, and Communities **Credits:** 3 hours

- FCS 2190 - Principles of Research in Family Science **Credits:** 3 hours
- FCS 3170 - Crises and Resiliency in Families **Credits:** 3 hours
- FCS 3180 - Intimate Relationships: Friends, Family, and Marriage **Credits:** 3 hours
- FCS 4120 - Family Policy **Credits:** 3 hours
- FCS 4150 - Effective Parenting **Credits:** 3 hours
(Students will satisfy the Baccalaureate-level Writing requirement by successfully completing FCS 4150.)
- FCS 4190 - Teaching Family Life Education **Credits:** 3 hours
- FCS 4290 - Internship **Credits:** 2 to 6 hours

Required Youth Development Courses (18 hours)

Grade of "C" or better is required in Youth Development Courses.

- FCS 2140 - Child Development **Credits:** 3 hours
- FCS 2150 - Adolescent Development **Credits:** 3 hours
- FCS 2660 - Personal Nutrition **Credits:** 3 hours
- FCS 3110 - Youth Development Foundations **Credits:** 3 hours
- FCS 3120 - Curriculum and Assessment in Youth Development **Credits:** 3 hours
- FCS 4110 - Youth Development Skills and Processes **Credits:** 3 hours

Required Related Courses (9 hours)

- ED 5950 - Experiential Education and Place-Based Learning **Credits:** 3 hours
- ES 5850 - Social Justice and Community Organizing **Credits:** 3 hours

Choose One Course (3 hours)

- COM 1040 - Public Speaking **Credits:** 3 hours
- WFED 5150 - Grant Writing for Workforce Education and Development **Credits:** 3 hours
- FCS 2090 - Family Resource Management **Credits:** 3 hours
- FCS 2250 - Computer Applications **Credits:** 3 hours
- FCS 5100 - Teaching Sexuality Education **Credits:** 3 hours
- FCS 5220 - Topics in Family and Consumer Sciences **Credits:** 1 to 3 hours
- FCS 5250 - The Adolescent in Development **Credits:** 3 hours
- SPED 5300 - Introduction to Special Education **Credits:** 3 hours
- FCS 5350 - Communication Skills for Working with Families Across the Lifespan **Credits:** 3 hours
- FCS 5510 - Families and Hospitalization I **Credits:** 3 hours
- FCS 5520 - Families and Hospitalization II **Credits:** 3 hours
- FCS 5680 - Gender, Culture, and Families **Credits:** 3 hours
- Or other course with approval of an advisor **Credits:** 3 hours

Electives

As needed for graduation total of 122 hours.

Minors

Family Science Minor

Required Minor Courses (24 hours)

- FCS 1010 - Introduction to Family Science **Credits:** 3 hours
- FCS 1030 - Lifespan Development **Credits:** 3 hours
- FCS 2170 - Diverse Children, Families, and Communities **Credits:** 3 hours
- FCS 2190 - Principles of Research in Family Science **Credits:** 3 hours
- FCS 3150 - Global Ecology of the Family **Credits:** 3 hours
- FCS 3170 - Crises and Resiliency in Families **Credits:** 3 hours
- FCS 3180 - Intimate Relationships: Friends, Family, and Marriage **Credits:** 3 hours
- FCS 4150 - Effective Parenting **Credits:** 3 hours
(Baccalaureate writing requirement)

Fashion Merchandising Minor

Program Requirements

Candidates for the minor in Fashion Merchandising must complete the following program of 18 hours.

Of the 18 hour total, students must complete a minimum of 6 hours at the 3000-level or higher.

1. Required Courses (12 hours)

- FCS 1260 - The Fashion Industry **Credits:** 3 hours
- FCS 1550 - Design Principles **Credits:** 3 hours
- FCS 2200 - Textiles **Credits:** 3 hours
- FCS 2260 - Fashion/Retail Buying **Credits:** 3 hours

2. Electives Choose (6 hours)

- FCS 3200 - Visual Merchandising **Credits:** 3 hours
- FCS 3260 - History of Fashion **Credits:** 3 hours
- FCS 3290 - Promotion in the Merchandising Environment **Credits:** 3 hours
- FCS 4300 - Merchandising Seminar **Credits:** 3 hours
- FCS 5240 - Socio-Psychological Aspects of Dress **Credits:** 3 hours
- FCS 5340 - Consumer Behavior in the Fashion Environment **Credits:** 3 hours
- FCS 5440 - Global Aspects of the Fashion Industry **Credits:** 3 hours

Food Service Operations and Sustainability Minor

This program offers a foundation of core competencies and practices in the food service profession both for individuals and businesses. The minor is 21 credit hours and may complement a major in other subjects.

Program Guide:

- FCS 1020 - Introduction to the Food Service Industry **Credits:** 2 hours
- FCS 1650 - Culinary Skills **Credits:** 3 hours
- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- FCS 2700 - Advanced Culinary Skills and Food Service **Credits:** 4 hours
- FCS 2720 - Food Purchasing and Resource Management **Credits:** 3 hours
- FCS 3700 - Introduction to Food Systems and Sustainability **Credits:** 3 hours
- FCS 4700 - Food and Beverage Systems **Credits:** 3 hours

Industrial Technology Education Minor

Required Cognates (5 hours)

- PHYS 1070 - Elementary Physics **Credits:** 4 hours
- PHYS 1080 - Elementary Physics Laboratory **Credits:** 1 hour

Required Courses (24 hours)

- FCS 1490 - Design Communication I: Mechanical and Digital Drafting **Credits:** 3 hours
- FCS 2400 - Woodworking **Credits:** 3 hours
- FCS 3530 - Intro to Interior Construction I **Credits:** 3 hours
- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- EDMM 1430 - Product Design Fundamentals **Credits:** 3 hours
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
- EDMM 2001 - Applied Electricity/Electronics **Credits:** 3 hours
- EDMM 2500 - Plastics Properties and Processing **Credits:** 3 hours

Interior Design Minor

This program offers a foundation of core practices and issues in the Interior Design profession. The minor is 18 credit hours and may complement a major in other related subjects.

Program Guide:

- FCS 1490 - Design Communication I: Mechanical and Digital Drafting **Credits:** 3 hours
- FCS 1500 - Introduction to Interior Design **Credits:** 3 hours
- FCS 1560 - Psychology and Philosophy of the Built Environment **Credits:** 3 hours
- FCS 1570 - Design Communication II: Sketching (Freehand and Digital) **Credits:** 3 hours
- FCS 2440 - Interior Materials **Credits:** 3 hours
- FCS 2480 - Studio I: Space Planning **Credits:** 3 hours

Vocational-Technical Minor

Drafting

1. Required Courses (20 hours)

- CS 1021 - Introduction to Engineering Computing I: Spreadsheets **Credits:** 1 hour
- CS 1023 - Introduction to Engineering Computing III: Computer Programming **Credits:** 1 hour
- EDMM 1440 - Descriptive Geometry **Credits:** 3 hours
- EDMM 3440 - Product and Machine Design **Credits:** 3 hours
- EDMM 3480 - Designing for Production **Credits:** 3 hours
- EDMM 3540 - Metrology **Credits:** 3 hours
- EDMM 3580 - Computer-Aided Manufacturing **Credits:** 3 hours
- EDMM 4460 - Advanced Computer-Aided Design (CAD) **Credits:** 3 hours

2. Related Work Experience

This minor requires an Industrial Technology major plus 4000 clock hours of recent and relevant work experience or 2000 clock hours plus 400 planned hours in FCS 2020 or 6220.

Graphic Arts

1. Required Courses (21 hours)

- GPS 1500 - Introduction to Graphic and Printing Science **Credits:** 4 hours
- GPS 1570 - Imaging Systems **Credits:** 3 hours
- GPS 2150 - Introduction to Ink **Credits:** 4 hours
- GPS 2510 - Multimedia Publication and Design **Credits:** 3 hours
- GPS 2570 - Computer Graphics and Prepress **Credits:** 3 hours
- GPS 3500 - Offset Lithography **Credits:** 4 hours
- GPS 3580 - Flexography **Credits:** 4 hours

2. Related Work Experience

This minor requires an Industrial Technology major plus 4000 clock hours of recent and relevant work experience or 2000 clock hours plus 400 planned hours in FCS 2020 or 6220.

Workforce Education and Development Minor

This minor will prepare graduates for positions in business, non-profits, and post-secondary education working with adults in a training and development role. This minor aligns well with majors in business, psychology, and communication as well as those with technical degrees that will be teaching community college or training adults.

Program requirements:

Candidates for the minor in Workforce Education and Development must complete the following program of 15 hours.

1. Required Courses (12 hours)

- WFED 3050 - Career and Employability Skills **Credits:** 3 hours
- WFED 5120 - Principles of Workforce Education and Development **Credits:** 3 hours
- WFED 4010 - Adult Teaching and Learning Strategies **Credits:** 3 hours
- OR
- WFED 5130 - Teaching Methods in Workforce Education and Development **Credits:** 3 hours
- WFED 4030 - Training Systems in Organizations **Credits:** 3 hours
- OR
- WFED 5420 - Curriculum Development in Workforce Education and Development **Credits:** 3 hours

2. Elective Courses (choose 3 hours)

- WFED 4020 - Career Assessment and Development **Credits:** 3 hours
- WFED 5010 - Topics in International Workforce Education and Development **Credits:** 3 hours
- WFED 5100 - Special Populations in Workforce Education and Development **Credits:** 3 hours
- WFED 5121 - Career Exploration in Workforce Development **Credits:** 3 hours
- WFED 5430 - Work-site Based Education Programs **Credits:** 3 hours

Human Performance and Health Education

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The Human Performance and Health Education Department offers students the opportunity to pursue career development in six major areas of study and six minors. The professional programs are based on the following concepts: (1) balanced undergraduate preparation enables the student to later specialize at the graduate level, (2) exposure to practical experiences throughout the professional sequence is critical, (3) elective choices enhance professional options, and (4) continual review of curriculum facilitates program effectiveness.

Students who desire specialized professional preparation may select from the following:

Majors

1. Athletic Training Professional Program
2. Exercise Science
3. Physical and Health Education Teacher Education: K-12
4. Recreation/Sport Management

Minors

1. Coaching
2. Event Management

Students are expected to work closely with the College of Education and Human Development Advising Office.

Transfer Students

Transfer credits from four-year schools and community colleges may be included in majors and minors. However, a minimum of one-half of the required semester hours for a major or a minor must be taken at Western Michigan University.

For those seeking teaching certification in Health Education or Physical Education, the following Human Performance and Health Education teaching methods course(s) must be included in the hours at WMU: (1) Health Education (majors and minors): HPHE 3120 and 4120; 3520 (majors only); (2) Physical Education: HPHE 4470 and 4480. Transfer students in physical education must participate in Human Performance and Health Education entry skill and fitness assessments administered during

HPHE 1500. Transfer students should contact the HPHE 1500 course instructor at the beginning of the first semester of work at WMU.

University General Education Requirement

Each student must complete 37 hours of work in approved General Education courses and/or non-professional courses in the College of Arts and Sciences. For additional information please refer to the General Education section of this catalog.

Undergraduate Program Admission Policy

Students interested in Recreation or Exercise Science may enter the program by declaring their major to a College of Education and Human Development advisor and completing the appropriate introductory course with a grade of "C" or better.

Physical Education and School Health Education students must complete the following requirements prior to application:

1. Completion of 35 credit hours (transfer hours included).
2. Completion of HPHE 1500 or HPHE 1550 (with a grade of "C" or better) and BIOS 1120 for Health, Physical Education Teacher/Coach majors and associated minors.
3. Completion of all cognate courses is required. Physical Education Teacher-Coach majors/minors must complete BIOS 1120, BIOS 2110, BIOS 2400, and HPHE 1110. Health Education (Community or School Emphasis) majors/minors must complete BIOS 1120, BIOS 2110, BIOS 2400, PSY 1000 or PSY 1500, and SOC 2000).
4. Acceptance into the program will proceed throughout the year. Students meeting the qualifications stated above will be admitted into Human Performance and Health Education department programs. **Students must be admitted into the department to enroll in courses on the "restricted list."** Such courses require the prerequisite work included in the Human Performance and Health Education department Admission Policy.

Athletic Training students are referred to the "Admission Standards" section within the "Athletic Training Professional Program".

Prior to admission to Intern Teaching, the following must be met:

- Completion of all required courses.
- Passing scores on Michigan Basic Skills Test.
- Accumulative GPA of 2.5 or above.
- An overall GPA of 2.5 in the professional education sequence and no grade lower than a "C" in any professional education course.
- Completion of methods course(s) in major and/or minor with a minimum grade of "C".

General Physical Education

A maximum of eight (8) hours of general activity physical education may be applied toward electives for graduation credit.

All courses are co-ed. Course descriptions may be obtained from the Human Performance and Health Education office.

- PEGN 1000-level courses - are open to all students and emphasize beginning activity skills.
- PEGN 1700-1830 - Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, Studs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.
- PEGN 2000-level courses - are open to all students who have completed a 1000-level course in the activity or the equivalent. (** Prerequisite 2490 or Red Cross Intermediate Card)
- PEGN 3000-level courses - are open to all students desiring additional experience in an activity and who have completed the 2000-level course or permission of instructor to enroll.
- PEGN 4000 - A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

Bachelor of Arts or Bachelor of Science

Recreation/Sport Management Major (122 hours)

The Recreation/Sport Management Curriculum is designed to allow students to concentrate on either **Recreation Management** or **Sport Management**. The Recreation Management Concentration prepares students for leadership/administrative roles in public, non-profit, commercial, and recreational sport organizations. The Sport Management Concentration prepares students for roles in sport organizations on the interscholastic, intercollegiate, professional and recreational levels. The electives in this program allow for student flexibility in preparing for employment in any of the different areas in the fields of recreation and sport. Students in both concentrations will complete a supervised internship experience.

No minor required.

General Education (37 hours)

A list of approved General Education courses can be found in the "Graduation Requirements and Academic Advising" section of this catalog.

Baccalaureate-Level Writing Requirement

Students who have chosen the Recreation/Sport Management major will satisfy the Baccalaureate-Level Writing requirement by successfully completing the following course:

- HPHE 4320 - Research and Writing in Recreation/Sport **Credits:** 3 hours

Recreation Management Concentration (70 hours)

Required Cognates (17 hours)

- BUS 1750 - Business Enterprise **Credits:** 3 hours
- COM 1000 - Communication and Community Engagement **Credits:** 3 hours
- GEOG 2440 - Economic Geography **Credits:** 3 hours
- HPHE 1110 - Healthy Living **Credits:** 2 hours
- HPHE 1490 - Computer Applications in HPHE **Credits:** 3 hours

Required Recreation Management Courses (38 hours)

- HPHE 1700 - Introduction to Recreation/Sport Management **Credits:** 3 hours
- HPHE 2100 - Event Strategic Planning for Special Events **Credits:** 3 hours
- HPHE 2720 - Administration of Recreational Sports **Credits:** 3 hours
- HPHE 2900 - Inclusive and Special Recreation **Credits:** 3 hours
- HPHE 3710 - Practical Recreational Programming and Leadership **Credits:** 3 hours
- HPHE 4320 - Research and Writing in Recreation/Sport **Credits:** 3 hours
- HPHE 3760 - Management of Recreational/Sport **Credits:** 3 hours

- HPHE 3990 - Practicum in Recreation/Sport **Credits:** 3 hours
- HPHE 4700 - Facilities and Risk Management **Credits:** 3 hours
- HPHE 4720 - Recreation for the Aging **Credits:** 3 hours
- HPHE 4970 - Senior Seminar in Recreation/Sport **Credits:** 2 hours
- HPHE 4990 - Recreation/Sport Internship **Credits:** 6 hours

Recreation Management Cognates (Choose 15 hours)

- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- BLS 3050 - Introduction to Adults with Disabilities **Credits:** 3 hours
- COM 1040 - Public Speaking **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 3090 - The Economics of Gender and Race **Credits:** 3 hours
- ECON 3150 - Sports Economics **Credits:** 3 hours
- ENGL 3060 - Rhetoric, Writing, and American Culture **Credits:** 3 hours
- FIN 2420 - Entrepreneurial Finance **Credits:** 3 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours
- GEOG 4260 - Natural Disasters and Risk Management **Credits:** 3 hours
- GEOS 3120 - Geology of the National Parks and Monuments **Credits:** 3 hours
- GRN 1000 - Introduction to Aging Studies **Credits:** 3 hours
- HIST 2120 - American Culture **Credits:** 3 hours
- HIST 2125 - Sport in American Culture **Credits:** 3 hours
- HPHE 1810 - First Aid **Credits:** 2 hours
- HPHE 2350 - Theory of Coaching **Credits:** 2 hours
- HPHE 3810 - Instructor First Aid **Credits:** 2 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- MKTG 3800 - Sport Marketing **Credits:** 3 hours
- PHIL 2010 - Contemporary Problems in Ethics **Credits:** 4 hours

Choose one from the following:

- STAT 1600 - Discovery with Data **Credits:** 3 hours
- OR
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Sport Management Concentration (70-86 hours)

Required Cognates (14 hours)

- BUS 1750 - Business Enterprise **Credits:** 3 hours
- COM 1000 - Communication and Community Engagement **Credits:** 3 hours
- GEOG 2440 - Economic Geography **Credits:** 3 hours
- HPHE 1110 - Healthy Living **Credits:** 2 hours
- HPHE 1490 - Computer Applications in HPHE **Credits:** 3 hours

Required HPHE Courses (32 hours)

- HPHE 1700 - Introduction to Recreation/Sport Management **Credits:** 3 hours
- HPHE 2720 - Administration of Recreational Sports **Credits:** 3 hours
- HPHE 3710 - Practical Recreational Programming and Leadership **Credits:** 3 hours
- HPHE 4320 - Research and Writing in Recreation/Sport **Credits:** 3 hours
- HPHE 3760 - Management of Recreational/Sport **Credits:** 3 hours
- HPHE 3980 - Sport Media **Credits:** 3 hours
- HPHE 4700 - Facilities and Risk Management **Credits:** 3 hours
- HPHE 5610 - Legal Issues in Sport **Credits:** 3 hours
- HPHE 4970 - Senior Seminar in Recreation/Sport **Credits:** 2 hours
- HPHE 4990 - Recreation/Sport Internship **Credits:** 6 hours

Required Electives (Choose 9 hours)

- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
- COM 1040 - Public Speaking **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- ECON 3150 - Sports Economics **Credits:** 3 hours
- FIN 2420 - Entrepreneurial Finance **Credits:** 3 hours
- FIN 3200 - Business Finance **Credits:** 3 hours
- HIST 2125 - Sport in American Culture **Credits:** 3 hours
- HPHE 1810 - First Aid **Credits:** 2 hours
- HPHE 2350 - Theory of Coaching **Credits:** 2 hours
- HPHE 3810 - Instructor First Aid **Credits:** 2 hours
- LAW 3800 - Legal Environment **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- MKTG 3800 - Sport Marketing **Credits:** 3 hours
- PHIL 2010 - Contemporary Problems in Ethics **Credits:** 4 hours

Choose one from the following:

- STAT 1600 - Discovery with Data **Credits:** 3 hours
- OR
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Required Minor (15-21 hours)

Choose one of the approved minors listed below:

Minors in the College of Education and Human Development (see the CoEHD advisor for more information)

- Coaching Minor (Non-Teaching)(31 hours)
- Event Management Minor (15 hours)

Minors in the School of Communication (Must meet School of Communication requirements)(see the COM advisor for more information)

- Communication Minor (18 hours)
- Journalism Minor (18 hours)

Minor in the Haworth College of Business (Must meet College of Business requirements)(see the HCoB advisor for more information)

- General Business Minor (18 hours)

Students can also petition the Sport Management Program Coordinator to approve another minor.

Bachelor of Science

Athletic Training Professional Program

Admission to this major is suspended.

The Western Michigan University Department of Human Performance and Health Education offers an entry-level professional program leading to a Bachelor of Science in Athletic Training. This program prepares students for certification by the Board of Certification for the Athletic Trainer. Eligibility requirements for admission to the Athletic Training Professional Program require prospective students to complete the pre-program requirements. Admission into the Athletic Training Professional Program is selective with the annual enrollment limited to approximately 15 students each year. Due to the competitive nature of this program, the criteria for admittance should be regarded as minimum standards for admittance.

The criteria for acceptance will include a minimum 2.5 overall grade point average, a minimum of "C" grade in selected cognate and core requirements, an interview, letters of recommendation, positive clinical instructor evaluations received during fulfillment of clinical evaluation rotation hours, and a completed application. Students who have transferred from other institutions will be reviewed on a per-case basis.

Accreditation

University developed, the Athletic Training Professional Program is based on accreditation standards by the Commission on Accreditation of Athletic Training Education (CAATE). The program is in compliance with the requirements necessary for CAATE accreditation. Graduates of CAATE accredited programs are eligible to sit for the Board of Certification (BOC) Examination.

Pre-Program Phase

This component of the athletic training program is designed to provide the student with the opportunity to learn more about the athletic training profession by taking HPHE 1530: Introduction to Athletic Training and other cognates that are prerequisites for admittance to the Athletic Training Professional Program. During this time, the athletic training student will be required to obtain a minimum of 75 hours of clinical exposure while being assigned to a preceptor. This experience will be completed in the University's Intercollegiate Athletic Department and approved affiliated sites. Upon completion of the pre-program requirements, the athletic training student must apply and be accepted to the professional program.

Admission Standards

Pre-program Requirements and Criteria for Admission

1. Accepted to Western Michigan University.
2. The completion of an observation period in an environment that provides athletic training services. A certified athletic trainer/preceptor must endorse verification of a total of 75 hours.

3. Submission of completed application for admission to the Athletic Training Professional Program. Applications can be obtained by contacting the ATPP Program Director.
4. Ability to fulfill all of the technical standards that are required of the athletic training student. The technical standards can be found on the ATPP website wmich.edu/humanperformance/athletictraining. Students must also complete a physical with immunization record (including HIV status) and current TB testing.

The criteria listed below should be completed or be in the process of completion at the time of application to be considered for admission to the Athletic Training Professional Program. The selection committee evaluates the candidates and will determine who will be accepted to the Athletic Training Professional Program. The criteria include overall grade point average, minimum of "C" grade in selected core requirements, interview, positive preceptor evaluations received during fulfillment of clinical education observation hours, and a completed application. Students who have transferred from other institutions will be reviewed on a per-case basis. After the interview, each candidate will receive notification from the program director regarding admission status. Students accepted into the professional program will be required to schedule an appointment with their academic advisor and register for the required courses. Matriculation will begin the next semester and will continue for a minimum of four semesters. Candidates not accepted to the ATPP can appeal the decision by submitting a formal response to the program director within thirty days of the notification. Students that are not accepted may apply for readmission during the next admission period.

Minimum criteria for acceptance:

1. Demonstrated knowledge and interest in the Athletic Training profession.
2. Experience in the health care field. Seventy-five clock hours of observation are required under the supervision of an preceptor.
3. Grade point average. A minimum **overall** grade point average of 2.5 and a minimum grade of "C" in each of the required courses.
4. Space available in the Athletic Training Professional program.
5. Special considerations i.e. transfer student from another Program.
6. Meet all pre-program requirements.

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- HPHE 1100 - Athletic Taping and Bracing Technique **Credits:** 1 hour
- HPHE 1490 - Computer Applications in HPHE **Credits:** 3 hours
- HPHE 1530 - Introduction to Athletic Training **Credits:** 3 hours
- HPHE 1810 - First Aid **Credits:** 2 hours
- HPHE 2530 - Injury/Illness Survey and Management **Credits:** 3 hours
- PSY 1000 - General Psychology **Credits:** 3 hours

Select Either

- HOL 1000 - Choices in Living **Credits:** 3 hours
- or
- HPHE 1110 - Healthy Living **Credits:** 2 hours

Note:

Potential applicants are advised that they will need to submit to a criminal background check and drug screening prior to certain clinical rotations. Failure of either of these screenings can be grounds for dismissal from the program.

Professional Program Requirements

The Athletic Training Professional Program consists of core courses taken in a prescribed sequence over a continuous four-semester process that takes a minimum of two years to complete. Upon admission to the ATPP, the student is required to adhere to all technical standards. The technical standards form is included in the application packet. During each semester the student is required to register for the corresponding Athletic Training Field Experience course (HPHE 4010, HHPE 4020, HPHE 4030, and HPHE 4040). To complete the required clinical competencies for Athletic Training Field Experience courses, each student will be required to obtain clinical rotation hours for each semester. Graduation requirements are consistent with the University standards for graduation with the following exceptions: 1) a 2.5 overall grade point average; 2) a minimum of "C" grade in each core course; and 3) completion of the following course work:

- HPHE 2400 - Human Motor Development and Learning **Credits:** 3 hours
- HPHE 2530 - Injury/Illness Survey and Management **Credits:** 3 hours
- HPHE 2540 - Medical Conditions in Athletic Training **Credits:** 3 hours
- HPHE 2950 - Functional Anatomy and Biomechanics **Credits:** 3 hours
- HPHE 2980 - Exercise Physiology **Credits:** 3 hours
- HPHE 3150 - Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education **Credits:** 3 hours
- HPHE 3825 - Athletic Injury Evaluation of the Lower Extremity **Credits:** 3 hours
- HPHE 3830 - Athletic Injury Evaluation of the Upper Extremity **Credits:** 3 hours
- HPHE 3840 - Therapeutic Modalities **Credits:** 3 hours
- HPHE 3960 - Principles for Strength and Conditioning **Credits:** 3 hours
- HPHE 3970 - Exercise and Sports Nutrition **Credits:** 3 hours
- HPHE 4010 - Athletic Training Field Experience I **Credits:** 3 hours
- HPHE 4020 - Athletic Training Field Experience II **Credits:** 3 hours
- HPHE 4030 - Athletic Training Field Experience III **Credits:** 3 hours
- HPHE 4040 - Athletic Training Field Experience IV **Credits:** 3 hours
- HPHE 4430 - Professional Development in Athletic Training **Credits:** 3 hours
- HPHE 4860 - Therapeutic Exercise for Athletic Injuries **Credits:** 3 hours
- HPHE 4870 - Sports Medicine Seminar **Credits:** 3 hours

Additional Requirements

Students can repeat a course only once in order to obtain the minimum of a "C" grade. Should a student fail to pass satisfactorily an athletic training course at the end of a second enrollment s/he will be dropped from the program. Students who wish to continue in the program must notify the Program Director in writing. Students whose cumulative grade point average falls below 2.5 will also be placed on probation and removed from the program. These students will not be allowed to progress in the athletic training course work until the grade point average is raised to 2.5. The return to the program is contingent upon availability of space in the athletic training professional program. Students who return to the program must comply with all requirements in effect at that time. Students can appeal decisions by submission of a formal response to the program director within thirty (30) days of the notification of the formal action.

No minor required for this program.

Exercise Science Professional Program (126 hours)

The Exercise Science Professional Program is a scientifically-based curriculum which includes coursework in the basic sciences, the physiology and biomechanics of exercise, fitness assessment and exercise testing, exercise prescription and training, behavior modification, and the clinical aspects of exercise.

The Exercise Science program integrates classroom study with hands-on practical experiences in order to provide the student with a comprehensive level of academic preparation. Many courses include laboratory or field work experiences and all students complete a 450 hour internship in order to gain experience in their chosen career path.

The Exercise Science program prepares students for careers in: Personal Training, Health and Fitness Promotion, Corporate Wellness, Cardiac Rehabilitation, and Strength and Conditioning. The Exercise Science program is also appropriate for students interested in pursuing advanced or professional degrees in: Physical Therapy, Occupational Therapy, Medicine or Chiropractic, Exercise Physiology or Biomechanics.

No minor required.

Baccalaureate-Level Writing Requirement

Students who have chosen the Exercise Science Professional Program will satisfy the Baccalaureate-Level Writing Requirement by successfully completing HPHE 4440: Professional Development in Exercise Science.

General Education

A list of approved General Education courses can be found in the "Graduation and Academic Advising" section earlier in this catalog.

Required Cognates (25 - 36 hours)

- BIOS 1100 - Biological Sciences Laboratory **Credits:** 1 hour
AND
- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- PSY 1000 - General Psychology **Credits:** 3 hours

Select:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
AND
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
AND
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
AND
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour

OR select:

- CHEM 1000 - Introduction to General Chemistry **Credits:** 3 hours

Select:

- PHYS 1130 - General Physics I **Credits:** 4 hours
AND
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
AND

- PHYS 1150 - General Physics II **Credits:** 4 hours
AND
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour

OR select:

- PHYS 1070 - Elementary Physics **Credits:** 4 hours
AND
- PHYS 1080 - Elementary Physics Laboratory **Credits:** 1 hour

Select:

- HPHE 1110 - Healthy Living **Credits:** 2 hours
OR
- HOL 1000 - Choices in Living **Credits:** 3 hours

Required Courses (37 - 38 hours)

- HPHE 1520 - Foundations of Exercise Science **Credits:** 3 hours
- HPHE 2950 - Functional Anatomy and Biomechanics **Credits:** 3 hours
- HPHE 2980 - Exercise Physiology **Credits:** 3 hours
- HPHE 3150 - Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education **Credits:** 3 hours
- HPHE 3960 - Principles for Strength and Conditioning **Credits:** 3 hours
- HPHE 3970 - Exercise and Sports Nutrition **Credits:** 3 hours
- HPHE 4440 - Professional Development in Exercise Science **Credits:** 3 hours
- HPHE 4450 - Exercise Testing and Prescription **Credits:** 3 hours
- HPHE 4690 - Fitness Management **Credits:** 3 hours
- HPHE 4910 - Exercise Management of Chronic Diseases and Disorders **Credits:** 3 hours
- HPHE 4980 - Exercise Science Internship **Credits:** 6 hours

Select:

- HPHE 3500 - Modification of Health Behavior **Credits:** 2 hours
OR
- PSY 4630 - Health Psychology **Credits:** 3 hours

Select (cognate):

- HPHE 1810 - First Aid **Credits:** 2 hours
OR
- HPHE 3810 - Instructor First Aid **Credits:** 2 hours

Personal Option Program Cognates (Minimum 20 hours)

Students must earn a minimum of 20 credit hours from the following list of courses:

- BIOS 2500 - Genetics **Credits:** 4 hours
- BIOS 3500 - Human Physiology for Majors **Credits:** 5 hours
- BIOS 5310 - Biology of Aging **Credits:** 3 hours
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
AND
- CHEM 3560 - Introductory Biochemistry Laboratory **Credits:** 1 hour
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
AND
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
AND
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
AND
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- FCS 2600 - Nutrition **Credits:** 3 hours
- FCS 2660 - Personal Nutrition **Credits:** 3 hours
- FCS 3600 - Lifespan Nutrition **Credits:** 3 hours
- FCS 4620 - Community Nutrition **Credits:** 3 hours
- HOL 5310 - Introduction to Holistic Health **Credits:** 3 hours
- HOL 5350 - Holistic Approaches to Stress **Credits:** 3 hours
- HOL 5520 - Healing through Movement **Credits:** 3 hours
- HOL 5550 - Successful Aging-Holistic Perspectives **Credits:** 3 hours
- HPHE 4690 - Fitness Management **Credits:** 3 hours
- HPHE 4800 - Heart Disease and Rehabilitation **Credits:** 3 hours
- MDSC 2010 - Medical Terminology **Credits:** 1 hour
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours
- PHIL 3550 - Philosophy of Science **Credits:** 3 hours

Health Education Major

Admission to this major is suspended.

Successful completion of the health education major makes the candidate eligible for K-12 teacher licensure in Michigan.

Students must complete the education sequence required by the Department of Teaching, Learning, and Educational Studies, including the intern teaching experience. Subject area tests of competence administered by the Michigan Department of Education must be passed prior to certification by that agency. In addition, Health Education majors must serve as a teaching assistant for one semester in a content specific course (i.e., HPHE 1110, 1810, 2200, 2210, 2220, 3160, 3170, 3810). Students must complete HPHE 1550, 2200, 2210, and 2220 prior to application for teaching assistantship. Candidates should obtain teaching assistant applications from the Human Performance and Health Education department office to register for this experience. Health Education majors are expected to have **valid** first aid and CPR certificates prior to intern teaching or an internship.

Baccalaureate-Level Writing Requirement

Students will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:

- HPHE 4500 - Cultural Dynamics in Human Performance and Health Education **Credits:** 3 hours

Required Cognates (17 hours)

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- PSY 1000 - General Psychology **Credits:** 3 hours
- SOC 2000 - Principles of Sociology **Credits:** 3 hours

Professional Education Sequence (24 hours)

- ED 2500 - Human Development: Applications in Education **Credits:** 3 hours
- ES 3950 - School and Society **Credits:** 3 hours
- HPHE 4100 - Physical Education Intern Seminar **Credits:** 1 or 2 hours
- HPHE 4750 - Intern Teaching: Physical Education **Credits:** 5 or 10 hours
- LS 3050 - K-12 Content Area Literacy **Credits:** 3 hours
- SPED 4290 - Learners with Disabilities in Secondary Education Programs **Credits:** 3 hours

Professional Preparation (39 hours)

- Required Teaching Assistant
- HPHE 1550 - Foundations of Health Education **Credits:** 3 hours
- HPHE 2200 - Health Concepts and Strategies **Credits:** 4 hours
- HPHE 2210 - Healthy Behaviors **Credits:** 4 hours
- HPHE 2220 - Basic Health Concepts III **Credits:** 3 hours
- HPHE 3120 - Planning School Health Programs **Credits:** 3 hours
- HPHE 3160 - Issues in Health Education **Credits:** 2 hours
- HPHE 3500 - Modification of Health Behavior **Credits:** 2 hours
- HPHE 3520 - Teaching Health in the Elementary School **Credits:** 2 hours
- HPHE 3540 - Human Sexuality Education **Credits:** 4 hours
- HPHE 3810 - Instructor First Aid **Credits:** 2 hours
- HPHE 4120 - Teaching Skills and Strategies **Credits:** 3 hours
- HPHE 4140 - Measurement and Evaluation in Health Education **Credits:** 3 hours
- HPHE 4500 - Cultural Dynamics in Human Performance and Health Education **Credits:** 3 hours

Electives (4 hours)

Elective courses recommended for Health Education majors may be selected from the following:

- FCS 2600 - Nutrition **Credits:** 3 hours
- FCS 2660 - Personal Nutrition **Credits:** 3 hours
- HPHE 3000 - Seminar Series **Credits:** 1 to 4 hours
- HPHE 3160 - Issues in Health Education **Credits:** 2 hours
- HPHE 5160 - Issues in Health Education **Credits:** 1 to 3 hours
- SOC 4120 - Child Abuse **Credits:** 3 hours

Physical and Health Education Teacher Education: K-12

Successful completion of the Physical and Health Education Teacher Education: K-12 program prepares a student to be eligible for K-12 certification in the teaching of physical education and health education in Michigan. Students must complete the education sequence including the two full semesters of intern teaching experience. Physical/Health Education majors must complete the teaching assistantship courses (HPHE 1501, HPHE 1502) for one semester each. Students should obtain teaching assistant applications from the Human Performance and Health Education department office. In addition, students will complete a minimum of 60 clock hours of observation and participation in both elementary and secondary public schools in Physical and Health Education settings as well as an extensive lab experience with exceptional children (in HPHE 3640).

No minor required.

Admissions and Professional Program Requirements

All education students are coded Pre-Education upon admission to the University. Candidates may apply for advancement to the Physical and Health Education Teacher Education: K-12 professional curriculum after 35 credits earned toward their degree. A minimum cumulative grade point average of 2.75 must be attained for advancement from the Pre-Education curriculum to the Physical and Health Education Teacher Education: K-12 professional curriculum. Pre-Education students are not permitted to enroll in upper-level professional education courses until admission requirements are met and application is approved.

A grade of "C" or higher must be earned in all professional education coursework: HPHE 3460, HPHE 4100, HPHE 4470, HPHE 4480, LS 3050.

A minimum cumulative grade point average of 2.75 must be attained for enrollment in Intern Teaching.

Baccalaureate-Level Writing Requirement

Students who have chosen the Physical and Health Education Teacher Education: K-12 major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:

- HPHE 4500 - Cultural Dynamics in Human Performance and Health Education **Credits:** 3 hours

General Education

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

Physical and Health Education Teacher Education: K-12

K-12 State Provisional Certificate
Health Education (MA) and
Physical Education (MB) OR
Physical and Health Education (MC)

Required Cognates (11-12 hours)

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
OR
- BIOS 1600 - Biological Form and Function **Credits:** 3 hours
OR
- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours

Required Professional Content and Theory Courses (43 hours)

- HPHE 1500 - Foundations of Physical and Health Education **Credits:** 3 hours
- HPHE 1501 - Teaching Assistantship: Physical Education **Credits:** 1 hour
- HPHE 1502 - Teaching Assistantship: Health Education **Credits:** 1 hour
- HPHE 2200 - Health Concepts and Strategies **Credits:** 4 hours
- HPHE 2210 - Healthy Behaviors **Credits:** 4 hours
- HPHE 2400 - Human Motor Development and Learning **Credits:** 3 hours
- HPHE 3150 - Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education **Credits:** 3 hours
- HPHE 4500 - Cultural Dynamics in Human Performance and Health Education **Credits:** 3 hours

Required Professional Content and Theory Cognate Courses

- HPHE 1610 - Skills and Instruction of Invasion Games **Credits:** 3 hours
- HPHE 1620 - Skills and Instruction of Net/Wall Games **Credits:** 3 hours
- HPHE 1630 - Skills and Instruction of Target/Striking/Fielding Games **Credits:** 3 hours
- HPHE 1640 - Skills and Instruction of Early Elementary and Rhythmic Movements **Credits:** 3 hours
- HPHE 1650 - Skills and Instruction of Fitness Activities **Credits:** 3 hours
- HPHE 2950 - Functional Anatomy and Biomechanics **Credits:** 3 hours
- HPHE 2980 - Exercise Physiology **Credits:** 3 hours

Professional Pedagogical Sequence (17 hours)

Must be admitted to the professional education program to take these courses.

- HPHE 3460 - Physical and Health Education Methods: Special Populations **Credits:** 3 hours
- HPHE 3120 - Planning School Health Programs **Credits:** 3 hours
- HPHE 4470 - Health Education: K-12 Methods **Credits:** 4 hours
- HPHE 4480 - Physical Education: K-12 Methods **Credits:** 4 hours
- LS 3050 - K-12 Content Area Literacy **Credits:** 3 hours

Intern Teaching (24 hours)

All coursework must be completed.

- HPHE 4100 - Physical Education Intern Seminar **Credits:** 1 or 2 hours
(2 hours needed)
- HPHE 4110 - Intern Seminar: Health Education **Credits:** 2 hours
- HPHE 4750 - Intern Teaching: Physical Education **Credits:** 5 or 10 hours
(10 hours needed)
- HPHE 4755 - Intern Teaching: Health Education **Credits:** 10 hours

Physical Education - Teacher/Coach Major (130 hours)

Admission to this major is suspended.

Successful completion of the Physical Education - Teacher/Coach major makes a student eligible for K-12 certification for the teaching of physical education in Michigan. Students must complete the education sequence required by the Department of Education and Professional Development including the intern teaching experience. Physical Education major and minor students must serve as a teaching assistant for one semester in a general physical education course during their first 60 hours at Western Michigan University. Students should obtain teaching assistant applications from the Human Performance and Health Education department office to register for this experience. In addition, students must complete a minimum of 60 clock hours of observation and participation in both elementary and secondary public schools as well as an extensive lab experience with exceptional children.

To complete the coaching requirements of this major, students are required to engage in course work leading to MHSAA Coaches Advancement Program Beginning Certification, fulfill extensive field work in coaching special populations and successfully complete a seasonal field internship in a youth sport activity.

Baccalaureate-Level Writing Requirement

Students who have chosen the Physical Education-Teacher/Coach major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:

- HPHE 4500 - Cultural Dynamics in Human Performance and Health Education **Credits:** 3 hours

General Education

A list of approved General Education courses can be found in “Graduation Requirements and Academic Advising” earlier in this catalog.

Physical Education - Teacher/Coach Major (42 hours)

Admission to this major is suspended.

K-12 State Provisional Certificate

Required Cognates (14 hours)

- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- HPHE 1110 - Healthy Living **Credits:** 2 hours

Required Professional Theory Courses (17 hours)

- HPHE 1500 - Foundations of Physical and Health Education **Credits:** 3 hours
- HPHE 2950 - Functional Anatomy and Biomechanics **Credits:** 3 hours
- HPHE 2980 - Exercise Physiology **Credits:** 3 hours
- HPHE 3150 - Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education **Credits:** 3 hours
- HPHE 3810 - Instructor First Aid **Credits:** 2 hours
- HPHE 4500 - Cultural Dynamics in Human Performance and Health Education **Credits:** 3 hours

Required Coaching Theory/Techniques Courses (9 hours)

- HPHE 2350 - Theory of Coaching **Credits:** 2 hours
- HPHE 4000 - Field Experience/Internship in HPHE **Credits:** 1 to 8 hours

Required Professional Content Courses (13 hours)

Select two hours of PEGN Aquatics **Credits:** 2 hours

Professional Pedagogical Sequence (21 hours)

- ES 3950 - School and Society **Credits:** 3 hours
- HPHE 2400 - Human Motor Development and Learning **Credits:** 3 hours
- HPHE 2430 - Physical Education Methods: Early Elementary Movement/Physical Activities **Credits:** 3 hours
- HPHE 3460 - Physical and Health Education Methods: Special Populations **Credits:** 3 hours
- HPHE 4100 - Physical Education Intern Seminar **Credits:** 1 or 2 hours
Credits: 2 hours
- HPHE 4470 - Health Education: K-12 Methods **Credits:** 4 hours
- HPHE 4480 - Physical Education: K-12 Methods **Credits:** 4 hours
- HPHE 4750 - Intern Teaching: Physical Education **Credits:** 5 or 10 hours
Credits: 10 hours
- LS 3050 - K-12 Content Area Literacy **Credits:** 3 hours

Required Teaching Assistant

Minors

Coaching Minor (Non-Teaching) (31 hours)

This minor does not certify a student to teach physical education. The coaching minor will provide instruction leading to the MHSAA Coaches Advancement Program Intermediate Level Certification. Students fulfill extensive field work in coaching special populations and successfully complete a seasonal field leadership in a youth sport activity. The coaching minor is not a teachable minor.

Required Cognates (12 hours)

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
(The course satisfies General Education Area VI: Natural Science with Laboratory if taken with BIOS 1100.)
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours

Required Courses (14 hours)

- HPHE 2350 - Theory of Coaching **Credits:** 2 hours
- HPHE 2950 - Functional Anatomy and Biomechanics **Credits:** 3 hours
- HPHE 2980 - Exercise Physiology **Credits:** 3 hours
- HPHE 3350 - Advanced Theory of Coaching **Credits:** 2 hours

- HPHE 4000 - Field Experience/Internship in HPHE **Credits:** 1 to 8 hours
Credits: 2 hours needed

And either:

- HPHE 3810 - Instructor First Aid **Credits:** 2 hours
or
- HPHE 1810 - First Aid **Credits:** 2 hours

Activity Courses (3 hours)

Select one:

- HPHE 1610 - Skills and Instruction of Invasion Games **Credits:** 3 hours
- HPHE 1620 - Skills and Instruction of Net/Wall Games **Credits:** 3 hours
- HPHE 1630 - Skills and Instruction of Target/Striking/Fielding Games **Credits:** 3 hours
- HPHE 1640 - Skills and Instruction of Early Elementary and Rhythmic Movements **Credits:** 3 hours
- HPHE 1650 - Skills and Instruction of Fitness Activities **Credits:** 3 hours

Officiating (2 hours)

Event Management Minor (15 hours)

The Event Management minor offers students the opportunity to learn the management techniques needed to successfully plan, implement and evaluate meetings, festivals and special events. Course materials will provide theory and applications that will prepare students for careers event planning in the commercial, non-profit and governmental sectors. The program consists of 15 hours of required courses and the completion of HPHE 1700 as a cognate.

Required Courses

- HPHE 2100 - Event Strategic Planning for Special Events **Credits:** 3 hours
- HPHE 3100 - Event Management Advanced Applications **Credits:** 3 hours
- HPHE 3110 - Event Marketing **Credits:** 3 hours
- HPHE 4199 - Practicum in Event Management **Credits:** 3 hours
- FIN 2420 - Entrepreneurial Finance **Credits:** 3 hours

Required Cognate

- HPHE 1700 - Introduction to Recreation/Sport Management **Credits:** 3 hours

Health Education Minor

Admission to this minor is suspended.

Health Education: School is especially appropriate for those specializing in middle/junior high school education, in special education, and in secondary education with majors in such areas as biology, physical education, English, math, and family and

consumer sciences. Candidates also must pass subject area tests of competence administered by the Michigan Department of Education prior to certification by that office. School health minors are expected to have valid first aid and CPR certificates prior to teaching. Students completing requirements are eligible for certification to teach health education in grades 6-12 in Michigan.

Cognates (17 hours)

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- PSY 1000 - General Psychology **Credits:** 3 hours
- SOC 2000 - Principles of Sociology **Credits:** 3 hours

Health Education: School Courses (26 hours)

- HPHE 1550 - Foundations of Health Education **Credits:** 3 hours
- HPHE 2200 - Health Concepts and Strategies **Credits:** 4 hours
- HPHE 2210 - Healthy Behaviors **Credits:** 4 hours
- HPHE 2220 - Basic Health Concepts III **Credits:** 3 hours
- HPHE 3120 - Planning School Health Programs **Credits:** 3 hours
- HPHE 3540 - Human Sexuality Education **Credits:** 4 hours
- HPHE 3810 - Instructor First Aid **Credits:** 2 hours
- HPHE 4120 - Teaching Skills and Strategies **Credits:** 3 hours
- HPHE 4140 - Measurement and Evaluation in Health Education **Credits:** 3 hours

Physical Education: Secondary Education Minor

Admission to this minor is suspended.

Hours Required for this minor (28 hours plus 11 hours of BIOS Cognates)

Cognates (11 hours)

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours

Required Professional Courses (19 hours)

- HPHE 1500 - Foundations of Physical and Health Education **Credits:** 3 hours
- HPHE 1810 - First Aid **Credits:** 2 hours
- HPHE 2400 - Human Motor Development and Learning **Credits:** 3 hours
- HPHE 3460 - Physical and Health Education Methods: Special Populations **Credits:** 3 hours
- HPHE 4470 - Health Education: K-12 Methods **Credits:** 4 hours
- HPHE 4480 - Physical Education: K-12 Methods **Credits:** 4 hours

Required Teaching Assistant Experience

Apply in HPHE Office after completion of HPHE 1500 and BIOS Cognates.

Required Professional Activity Courses (9 hours)

- HPHE 1650 - Skills and Instruction of Fitness Activities **Credits:** 3 hours

And

Choose 6 credit hours from the list below:

- HPHE 1610 - Skills and Instruction of Invasion Games **Credits:** 3 hours
OR
- HPHE 1620 - Skills and Instruction of Net/Wall Games **Credits:** 3 hours
OR
- HPHE 1630 - Skills and Instruction of Target/Striking/Fielding Games **Credits:** 3 hours
OR
- HPHE 1640 - Skills and Instruction of Early Elementary and Rhythmic Movements **Credits:** 3 hours

OR

- HPHE 2350 - Theory of Coaching **Credits:** 2 hours
- HPHE 3000 - Seminar Series **Credits:** 1 to 4 hours

Recreation Minor

Admission to this minor is suspended.

The recreation minor is designed to prepare students to assume leadership roles in public, non-profit, private, or commercial recreation agencies and organizations.

Please note in course descriptions when courses are offered and the suggested sequence of course work.

Hours Required for this minor (24)

Required Courses (24 hours)

- HPHE 1700 - Introduction to Recreation/Sport Management **Credits:** 3 hours
- HPHE 2900 - Inclusive and Special Recreation **Credits:** 3 hours
- HPHE 3710 - Practical Recreational Programming and Leadership **Credits:** 3 hours
- HPHE 3760 - Management of Recreational/Sport **Credits:** 3 hours
- HPHE 4700 - Facilities and Risk Management **Credits:** 3 hours
- HPHE 4720 - Recreation for the Aging **Credits:** 3 hours

Other

Courses By Topic - Human Performance and Health Education

Athletic Training Courses

- HPHE 1100 - Athletic Taping and Bracing Technique **Credits:** 1 hour
- HPHE 1110 - Healthy Living **Credits:** 2 hours
- HPHE 1490 - Computer Applications in HPHE **Credits:** 3 hours
- HPHE 1530 - Introduction to Athletic Training **Credits:** 3 hours
- HPHE 1810 - First Aid **Credits:** 2 hours
- HPHE 2400 - Human Motor Development and Learning **Credits:** 3 hours
- HPHE 2530 - Injury/Illness Survey and Management **Credits:** 3 hours
- HPHE 2540 - Medical Conditions in Athletic Training **Credits:** 3 hours
- HPHE 2950 - Functional Anatomy and Biomechanics **Credits:** 3 hours
- HPHE 2980 - Exercise Physiology **Credits:** 3 hours
- HPHE 3150 - Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education **Credits:** 3 hours
- HPHE 3810 - Instructor First Aid **Credits:** 2 hours
- HPHE 3825 - Athletic Injury Evaluation of the Lower Extremity **Credits:** 3 hours
- HPHE 3830 - Athletic Injury Evaluation of the Upper Extremity **Credits:** 3 hours
- HPHE 3840 - Therapeutic Modalities **Credits:** 3 hours
- HPHE 3960 - Principles for Strength and Conditioning **Credits:** 3 hours
- HPHE 3970 - Exercise and Sports Nutrition **Credits:** 3 hours
- HPHE 4010 - Athletic Training Field Experience I **Credits:** 3 hours
- HPHE 4020 - Athletic Training Field Experience II **Credits:** 3 hours
- HPHE 4030 - Athletic Training Field Experience III **Credits:** 3 hours
- HPHE 4040 - Athletic Training Field Experience IV **Credits:** 3 hours
- HPHE 4500 - Cultural Dynamics in Human Performance and Health Education **Credits:** 3 hours
- HPHE 4860 - Therapeutic Exercise for Athletic Injuries **Credits:** 3 hours
- HPHE 4870 - Sports Medicine Seminar **Credits:** 3 hours

Exercise Science Courses

- HPHE 1520 - Foundations of Exercise Science **Credits:** 3 hours
- HPHE 2950 - Functional Anatomy and Biomechanics **Credits:** 3 hours
- HPHE 2980 - Exercise Physiology **Credits:** 3 hours
- HPHE 3150 - Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education **Credits:** 3 hours
- HPHE 3500 - Modification of Health Behavior **Credits:** 2 hours
- HPHE 3960 - Principles for Strength and Conditioning **Credits:** 3 hours
- HPHE 3970 - Exercise and Sports Nutrition **Credits:** 3 hours
- HPHE 4440 - Professional Development in Exercise Science **Credits:** 3 hours
- HPHE 4450 - Exercise Testing and Prescription **Credits:** 3 hours
- HPHE 4690 - Fitness Management **Credits:** 3 hours

Health Education Academic Courses

- HPHE 1550 - Foundations of Health Education **Credits:** 3 hours
- HPHE 1810 - First Aid **Credits:** 2 hours

- HPHE 2200 - Health Concepts and Strategies **Credits:** 4 hours
- HPHE 2210 - Healthy Behaviors **Credits:** 4 hours
- HPHE 2220 - Basic Health Concepts III **Credits:** 3 hours
- HPHE 3120 - Planning School Health Programs **Credits:** 3 hours
- HPHE 3160 - Issues in Health Education **Credits:** 2 hours
- HPHE 3310 - Community Health Education Planning **Credits:** 3 hours
- HPHE 3500 - Modification of Health Behavior **Credits:** 2 hours
- HPHE 3520 - Teaching Health in the Elementary School **Credits:** 2 hours
- HPHE 3540 - Human Sexuality Education **Credits:** 4 hours
- HPHE 3810 - Instructor First Aid **Credits:** 2 hours
- HPHE 4120 - Teaching Skills and Strategies **Credits:** 3 hours
- HPHE 4140 - Measurement and Evaluation in Health Education **Credits:** 3 hours
- HPHE 4310 - Community Health Education Interventions: Individual Strategies **Credits:** 3 hours
- HPHE 4960 - Community Health Education Internship **Credits:** 4 to 6 hours
- HPHE 5160 - Issues in Health Education **Credits:** 1 to 3 hours

Physical Education Academic Courses

- HPHE 1500 - Foundations of Physical and Health Education **Credits:** 3 hours
- HPHE 1520 - Foundations of Exercise Science **Credits:** 3 hours
- HPHE 1810 - First Aid **Credits:** 2 hours
- HPHE 2350 - Theory of Coaching **Credits:** 2 hours
- HPHE 2400 - Human Motor Development and Learning **Credits:** 3 hours
- HPHE 2430 - Physical Education Methods: Early Elementary Movement/Physical Activities **Credits:** 3 hours
- HPHE 2950 - Functional Anatomy and Biomechanics **Credits:** 3 hours
- HPHE 2980 - Exercise Physiology **Credits:** 3 hours
- HPHE 3000 - Seminar Series **Credits:** 1 to 4 hours
- HPHE 3150 - Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education **Credits:** 3 hours
- HPHE 3350 - Advanced Theory of Coaching **Credits:** 2 hours
- HPHE 3460 - Physical and Health Education Methods: Special Populations **Credits:** 3 hours
- HPHE 3500 - Modification of Health Behavior **Credits:** 2 hours
- HPHE 3960 - Principles for Strength and Conditioning **Credits:** 3 hours
- HPHE 3970 - Exercise and Sports Nutrition **Credits:** 3 hours
- HPHE 4000 - Field Experience/Internship in HPHE **Credits:** 1 to 8 hours
- HPHE 4310 - Community Health Education Interventions: Individual Strategies **Credits:** 3 hours
- HPHE 4440 - Professional Development in Exercise Science **Credits:** 3 hours
- HPHE 4450 - Exercise Testing and Prescription **Credits:** 3 hours
- HPHE 4470 - Health Education: K-12 Methods **Credits:** 4 hours
- HPHE 4480 - Physical Education: K-12 Methods **Credits:** 4 hours
- HPHE 4500 - Cultural Dynamics in Human Performance and Health Education **Credits:** 3 hours
- HPHE 4800 - Heart Disease and Rehabilitation **Credits:** 3 hours
- HPHE 4980 - Exercise Science Internship **Credits:** 6 hours

Physical Education Professional Activity Courses

Recreation Courses

- HPHE 1700 - Introduction to Recreation/Sport Management **Credits:** 3 hours
- HPHE 2100 - Event Strategic Planning for Special Events **Credits:** 3 hours
- HPHE 2900 - Inclusive and Special Recreation **Credits:** 3 hours
- HPHE 3100 - Event Management Advanced Applications **Credits:** 3 hours
- HPHE 3110 - Event Marketing **Credits:** 3 hours
- HPHE 3710 - Practical Recreational Programming and Leadership **Credits:** 3 hours
- HPHE 3760 - Management of Recreational/Sport **Credits:** 3 hours
- HPHE 3990 - Practicum in Recreation/Sport **Credits:** 3 hours
- HPHE 4000 - Field Experience/Internship in HPHE **Credits:** 1 to 8 hours
- HPHE 4199 - Practicum in Event Management **Credits:** 3 hours
- HPHE 4320 - Research and Writing in Recreation/Sport **Credits:** 3 hours
- HPHE 4700 - Facilities and Risk Management **Credits:** 3 hours
- HPHE 4720 - Recreation for the Aging **Credits:** 3 hours
- HPHE 4970 - Senior Seminar in Recreation/Sport **Credits:** 2 hours
- HPHE 4990 - Recreation/Sport Internship **Credits:** 6 hours

Open to Upperclass and Graduate Students

- HPHE 5000 - Studies in Human Performance and Health Education **Credits:** 1 to 2 hours
- HPHE 5160 - Issues in Health Education **Credits:** 1 to 3 hours
- HPHE 5980 - Readings in Human Performance and Health Education **Credits:** 1 to 2 hours

Human Performance and Health Education - Restricted Course List

Restricted Course List

- HPHE 2200 - Health Concepts and Strategies **Credits:** 4 hours
- HPHE 2210 - Healthy Behaviors **Credits:** 4 hours
- HPHE 2220 - Basic Health Concepts III **Credits:** 3 hours
- HPHE 2400 - Human Motor Development and Learning **Credits:** 3 hours
- HPHE 2430 - Physical Education Methods: Early Elementary Movement/Physical Activities **Credits:** 3 hours
- HPHE 2900 - Inclusive and Special Recreation **Credits:** 3 hours
- HPHE 2950 - Functional Anatomy and Biomechanics **Credits:** 3 hours
- HPHE 2980 - Exercise Physiology **Credits:** 3 hours
- HPHE 3120 - Planning School Health Programs **Credits:** 3 hours
- HPHE 3150 - Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education **Credits:** 3 hours
- HPHE 3160 - Issues in Health Education **Credits:** 2 hours
- HPHE 3300 - Grants and Fund Development in Sports, Recreation and Events **Credits:** 3 hours
- HPHE 3310 - Community Health Education Planning **Credits:** 3 hours
- HPHE 3460 - Physical and Health Education Methods: Special Populations **Credits:** 3 hours
- HPHE 3500 - Modification of Health Behavior **Credits:** 2 hours
- HPHE 3520 - Teaching Health in the Elementary School **Credits:** 2 hours
- HPHE 3540 - Human Sexuality Education **Credits:** 4 hours

- HPHE 3710 - Practical Recreational Programming and Leadership **Credits:** 3 hours
- HPHE 3760 - Management of Recreational/Sport **Credits:** 3 hours
- HPHE 3810 - Instructor First Aid **Credits:** 2 hours
- HPHE 3825 - Athletic Injury Evaluation of the Lower Extremity **Credits:** 3 hours
- HPHE 3830 - Athletic Injury Evaluation of the Upper Extremity **Credits:** 3 hours
- HPHE 3840 - Therapeutic Modalities **Credits:** 3 hours
- HPHE 3960 - Principles for Strength and Conditioning **Credits:** 3 hours
- HPHE 3970 - Exercise and Sports Nutrition **Credits:** 3 hours
- HPHE 3990 - Practicum in Recreation/Sport **Credits:** 3 hours
- HPHE 4000 - Field Experience/Internship in HPHE **Credits:** 1 to 8 hours
- HPHE 4100 - Physical Education Intern Seminar **Credits:** 1 or 2 hours
- HPHE 4120 - Teaching Skills and Strategies **Credits:** 3 hours
- HPHE 4310 - Community Health Education Interventions: Individual Strategies **Credits:** 3 hours
- HPHE 4320 - Research and Writing in Recreation/Sport **Credits:** 3 hours
- HPHE 4440 - Professional Development in Exercise Science **Credits:** 3 hours
- HPHE 4450 - Exercise Testing and Prescription **Credits:** 3 hours
- HPHE 4470 - Health Education: K-12 Methods **Credits:** 4 hours
- HPHE 4480 - Physical Education: K-12 Methods **Credits:** 4 hours
- HPHE 4500 - Cultural Dynamics in Human Performance and Health Education **Credits:** 3 hours
- HPHE 4690 - Fitness Management **Credits:** 3 hours
- HPHE 4700 - Facilities and Risk Management **Credits:** 3 hours
- HPHE 4720 - Recreation for the Aging **Credits:** 3 hours
- HPHE 4750 - Intern Teaching: Physical Education **Credits:** 5 or 10 hours
- HPHE 4800 - Heart Disease and Rehabilitation **Credits:** 3 hours
- HPHE 4860 - Therapeutic Exercise for Athletic Injuries **Credits:** 3 hours
- HPHE 4870 - Sports Medicine Seminar **Credits:** 3 hours
- HPHE 4910 - Exercise Management of Chronic Diseases and Disorders **Credits:** 3 hours
- HPHE 4960 - Community Health Education Internship **Credits:** 4 to 6 hours
- HPHE 4970 - Senior Seminar in Recreation/Sport **Credits:** 2 hours
- HPHE 4980 - Exercise Science Internship **Credits:** 6 hours
- HPHE 4990 - Recreation/Sport Internship **Credits:** 6 hours
- HPHE 3100 - Event Management Advanced Applications **Credits:** 3 hours
- HPHE 3110 - Event Marketing **Credits:** 3 hours
- HPHE 4199 - Practicum in Event Management **Credits:** 3 hours

Special Education and Literacy Studies

Regena Fails Nelson, Interim Chair

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The Department of Special Education and Literacy Studies (SPLS) offers undergraduate and graduate programs focused on preparation of educational professionals with expertise in meeting the needs of PK-12 students with diverse abilities and backgrounds. Special education faculty offer a number of program options at the undergraduate, masters, and doctoral levels with an emphasis on the application of research-generated practices to improve students' educational and post-school outcomes. Literacy studies faculty offer doctoral studies of Literacy and Teaching English to Speakers of Other Languages (TESOL), and masters programs that leads to the Reading Specialist Endorsement K-12, and the English as a Second Language Endorsement, and oversee the language arts and literacy curriculum for all elementary education majors. This instruction integrates teaching literacy and language development throughout the curriculum and across the educational continuum. Within each program area, faculty are engaged in research initiatives that enhance student learning and school/community engagement.

Special Education

Admission

Students who desire to major in Special Education will be admitted to the pre-education curriculum of the College of Education and Human Development. This status, however, does not assure admission to the Professional Education Curriculum of the department. The selection of students to the Professional Education Curriculum in Special Education occurs in February each year after review of all applications by a departmental faculty committee.

Each year the Special Education program establishes the maximum number of new students who can be admitted to the special education curricula for the following year. The minimum criteria for admission consideration include:

1. Completion of the Western Michigan University College of Education and Human Development Pre-Education Curriculum or equivalent transfer.
2. Attainment of junior status (at least 56 semester hours completed by commencement of the program).
3. Attainment of a minimum 3.0 grade point average.
4. Achievement of passing scores on the Michigan Test for Teacher Certification (MTTC) - Professional Readiness Exam.
5. Completion of a letter of intent for admission into the program including professional goals and explaining why a special education degree is sought.
6. Submission of an application for admission to the Special Education Professional Education Curriculum by the announced date.
7. Completion of Criminal background check.

All completed applications will be evaluated using the following specific criteria:

1. Grade point average at the time of application
2. Semester hours completed
3. Letter of intent
4. Personal interview with faculty
5. Writing sample taken at the interview

Students selected for admission will comprise a cohort which will begin taking courses in the Special Education sequence the following fall semester. Courses must be taken in the prescribed sequence. Six semesters (course work plus intern teaching) are required to complete the Professional Curriculum in Special Education.

Further information regarding admission requirements and procedures may be obtained by directly contacting the department.

Advising

The College of Education and Human Development staff advisors and Special Education faculty provide advising to all students who wish to major in Special Education, whether or not they are currently enrolled in the department's curricula. Students are expected to meet with College of Education and Human Development advisors and Special Education advisors early in their college careers.

Intern Teaching

Students complete internships in General (Elementary) Education, Learning Disabilities, and Emotional Impairments. Special Education Intern teaching placement is made only within prescribed areas in Southwest Michigan or in Europe. Intern Teaching placement in or near home school districts should not be anticipated or expected.

Special Education Curricula

Bachelor of Science

State Elementary Provisional Certificate
Minimum Hours Required 151-152 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the Special Education Curriculum will satisfy the Baccalaureate-Level Writing Requirement by successfully completing SPED 3300 - Foundations of Special Education, which is included in the curriculum requirements for each of the special education endorsements.

Endorsement Areas

Students who have chosen the Special Education curriculum will complete an endorsement in Learning Disabilities and in Emotional Impairments.

Bachelor of Science

Special Education and Elementary Education: Learning Disabilities and Emotional Impairments K-12

Cognate: Elementary Education Content Area Requirements (49-50 hours)

- ART 1480 - Direct Encounter with the Arts **Credits:** 4 hours
Or
- MATH 1500 - Number Concepts for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 1510 - Geometry for Elementary/Middle School Teachers **Credits:** 4 hours

- MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers **Credits:** 4 hours
- ENGL 3820 - Literature for the Young Child **Credits:** 4 hours
- ECON 1000 - Economics for Elementary Education **Credits:** 3 hours
- GEOG 1020 - World Geography through Media and Maps **Credits:** 3 hours
- HIST 2100 - American History to 1877 **Credits:** 3 hours
- HIST 2020 - World History to 1500 **Credits:** 3 hours
- Or
- HIST 3290 - Michigan History **Credits:** 3 hours
- PSCI 2000 - National Government **Credits:** 3 hours
- BIOS 1700 - Life Science for Non-Majors **Credits:** 3 hours
- PHYS 1800 - Physics: Inquiry and Insights **Credits:** 3 hours
- GEOG 1900 - Exploring Earth Science: The Atmosphere **Credits:** 3 hours
- CHEM 2800 - Active Chemistry **Credits:** 3 hours
- HOL 1000 - Choices in Living **Credits:** 3 hours
- Or
- HPHE 1110 - Healthy Living **Credits:** 2 hours
- ED 2500 - Human Development: Applications in Education **Credits:** 3 hours
(Requires grade of "CB" or better)

Professional Level Elementary Education Requirements (50 hours)

Students must meet Elementary Education admissions requirements or be accepted into the Special Education professional program in order to take the Professional Level Elementary Education classes listed below.

A minimum grade of "CB" must be earned in all Professional Level Elementary Education courses.

- LS 3770 - Literacy I: Early Literacy and Language Acquisition **Credits:** 3 hours
- LS 3780 - Literacy II: Literacy/Language Arts across Disciplines **Credits:** 3 hours
- ENGL 3690 - Writing in the Elementary School **Credits:** 3 hours
- HPHE 3400 - Physical Education for the Elementary Classroom Teacher **Credits:** 2 hours
- HPHE 3520 - Teaching Health in the Elementary School **Credits:** 2 hours
- MATH 3520 - Teaching of Elementary/Middle School Mathematics **Credits:** 3 hours
- EDT 3470 - Technology for Elementary Education **Credits:** 3 hours
- SPED 4270 - Learners with Disabilities in Elementary and Middle School Programs **Credits:** 3 hours
- ED 4010 - Teaching Elementary School Science **Credits:** 3 hours
- ED 4070 - Teaching Elementary Social Studies **Credits:** 3 hours
- ED 4300 - Creativity in the Elementary Classroom **Credits:** 3 hours
- ED 3710 - Elementary Classroom Organization and Management **Credits:** 3 hours
- ED 4500 - Pre-Internship in Elementary Education **Credits:** 3 hours
- ED 4710 - Intern Teaching: Elementary/Middle School **Credits:** 5, 8, or 10 hours
- ED 4100 - Seminar in Education **Credits:** 1 to 2 hours

Course Requirements in Learning Disabilities (32 hours)

Students must be accepted into the Special Education professional program in order to take the Special Education classes listed below.

A minimum grade of "CB" must be earned in all Special Education classes.

Note: Students must see a department advisor regarding the sequence in which the courses must be completed.

- SPED 3300 - Foundations of Special Education **Credits:** 3 hours
- SPED 3380 - Prevention and Intervention Techniques for Establishing Positive School Environments **Credits:** 3 hours
- SPED 4330 - Assessment and Data-Based Decision Making in Special Education **Credits:** 3 hours
- SPED 4340 - Evidence-Based Instruction I: Focus on K-5 Foundations of Reading, Written Language, and Content Areas **Credits:** 3 hours
- SPED 4040 - Field Experience in Special Education II: Data-Based Decision Making and Effective Instruction **Credits:** 3 hour
- SPED 3390 - Collaboration and Communication in Special Education **Credits:** 3 hours
- SPED 4350 - Evidence-Based Instruction II: Focus on 6-12 Language Arts, Math, Science and Social Studies **Credits:** 3 hours
- SPED 4810 - Field Experience in Special Education III: Strategic Interventions for Learners with High Incidence Disabilities **Credits:** 3 hour
- SPED 4100 - Seminar in Special Education: Learning Disabilities and Emotional Impairments **Credits:** 2 hours
- SPED 4760 - Intern Teaching in Special Education: Learning Disabilities **Credits:** 6 hours

Course Requirements in Emotional Impairments (20 hours)

- SPED 3310 - Field Experience in Special Education I: Effective Instruction **Credits:** 3 hour
- SPED 3700 - Introduction to Emotional Impairments **Credits:** 3 hours
- SPED 3710 - Field Experience in Emotional Impairments **Credits:** 3 hour
- SPED 3750 - Strategic Interventions for Social and Academic Behaviors **Credits:** 3 hours
- SPED 4100 - Seminar in Special Education: Learning Disabilities and Emotional Impairments **Credits:** 2 hours
- SPED 4750 - Intern Teaching in Special Education: Emotional Impairments **Credits:** 6 hours

Minor

There is no minor required.

Teaching, Learning, and Educational Studies

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The Department of Teaching, Learning, and Educational Studies offers undergraduate programs focused on preparation of educational professionals with expertise in Early Childhood Education, Elementary Education, and Secondary Education. Programs of study are designed to assist students in meeting state teacher certification requirements.

Students must contact the College of Education and Human Development Office of Admissions and Advising, 2421 Sangren Hall, to be admitted to the teacher education curriculum. Once admitted, the student will be assigned an advisor who will assist the student in program planning and scheduling the sequence of courses, including an internship.

Bachelor of Arts or Bachelor of Science

Secondary Education Curriculum (122 hours)

Admission to this program is suspended.

State Secondary Provisional Certificate
(For the preparation of teachers in Grades 6-12 or K-12 with group minor)

Minimum hours required (122 hours)

This curriculum may require more than 122 credit hours.

Candidates may apply for advancement to the Secondary Education curriculum after 60 hours earned toward their secondary education degree. A minimum grade point average of 3.0* must be attained for advancement from the Pre-Education curriculum to the Secondary Education curriculum. Pre-Education curriculum students are not permitted to enroll in upper-level professional education courses until admission requirements are met and application is approved.

A minimum grade point average of 3.0** must be attained and maintained for admission and continued enrollment in Intern Teaching and passage of appropriate MTTC content test in major is required for recommendation for the teaching certificate.

*Candidates with a GPA between 2.75 and 2.99 may be granted provisional admission. Candidates with a GPA that falls between 2.50 and 2.75 may appeal and request provisional admission. Candidates admitted under "Provisional Admission" can continue in their program provided they receive a CB or above in all Professional Education Coursework.

**Candidates with a GPA below this threshold may appeal the decision and the request will be considered by an advisory committee.

University General Education Requirement (Minimum 37 hours)

The University General Education Requirement is 37 hours, not including baccalaureate-level writing course.

Professional Education Program (38 - 55 hours)

Minimum grade of "CB" required in each of these courses and a grade point average of 2.75 maintained in all courses after admission to teacher education.

Secondary Education for students with majors in the College of Arts and Sciences.

- A "methods of teaching" course in either the major or minor **Credits:** 3 to 17 hours (both, if required by the respective major and minor departments.)
- ES 2000 - Introduction to U.S. Education **Credits:** 3 hours
- ED 3000 - Adolescent Development and School Learning **Credits:** 3 hours
- LS 4050 - Secondary Content Literacy **Credits:** 3 hours
- ED 4060 - Instructional Design and Methodology in Secondary Education **Credits:** 3 hours
- ED 4065 - Secondary Teaching Methods Pre-Internship **Credits:** 1 hour
- ED 4085 - Organizing Learning Environments **Credits:** 3 hours
- ED 4086 - Classroom Environments Pre-Internship **Credits:** 1 hour
- ES 3950 - School and Society **Credits:** 3 hours
- SPED 4290 - Learners with Disabilities in Secondary Education Programs **Credits:** 3 hours
- ED 4100 - Seminar in Education **Credits:** 1 to 2 hours
- ED 4750 - Intern Teaching: Middle School/Secondary **Credits:** 5 or 10 hours
Credits: 10 hours

Notes:

ED 4060 and ED 4065 must be taken concurrently.

ED 4085 and ED 4086 must be taken concurrently.

ED 4750 and ED 4100 comprise the "intern teaching semester".

Candidates may retake ED 3000, LS 4050, ED 4060, ED 4065, ED 4085, ED 4086, ES 3950, SPED 4290 and content area "methods of teaching" courses only one time for a total of two times taking these courses.

Major/Minor Requirements

A minimum of one major (at least 30 semester hours, or 36 hours for a group major, or 50 hours for a comprehensive major) plus a minimum of one minor (at least 20 semester hours or 24 for a group minor) must be selected from the list below of Approved Majors and Minors for the Secondary Education Curriculum.

Electives

Elective credit may be used as needed to complete minimum graduation requirements and/or credits that do not qualify in the above categories. The candidate must satisfy the requirements for the B.A. or B.S. degree.

Approved Majors And Minors For The Secondary Education Curriculum.

Only programs listed below are acceptable for secondary education.

Majors-At least 30 semester hours. Choose one.

See catalog entry or advisor for information about major requirements.

Art Education (AEFJ)
Biology (BYSJ)
Chemistry (CHSJ)
Earth Science (ERSJ)
English (ENSJ)
Family and Consumer Sciences Teacher Education (FCSJ)
French (FHSJ)
German (GRSJ)
Health Education, School (HESJ)
History (HYSJ)
Industrial Technology Education (TNSJ)
Latin (LTSJ)
Mathematics (MHSJ)
Music Education: Instrumental: Secondary Education (MISJ)
Music Education: Choral/General: Secondary Education (MCSJ)
Physical Education: Teacher/Coach: Secondary (PDEJ)
Physics (PHSJ)
Political Science (PSSJ)
Secondary Education in Business (SUSJ)
Secondary Education in Business - group major (SGSJ)
Secondary Integrated Science Education (ISSJ)
Social Studies: Secondary Education (with specific minors) (SLSJ)
Spanish (SPSJ)

Minors-At least 20 semester hours. Choose one.

See catalog entry or advisor for information about minor requirements.

Arabic (ARSN)
Biology (BYSN)
Chemistry (CHSN)
Chinese (CISN)
English (ENSN)
French (FHSN)
German (GRSN)
Health Education (HESN)
History (HYSN)
Industrial Technology Education (ITEN)

Japanese (JPSN)
Latin (LTSN)
Mathematics (MHSN)
Physical Education (PESN)
Physics (PHSN)
Political Science (POSN)

Baccalaureate-Level Writing Requirement

Students who have chosen the Secondary Curriculum will satisfy the Baccalaureate-Level Writing Requirement by successfully completing

- ES 3950 - School and Society **Credits:** 3 hours

Notes:

Professional Education Program for Art and Music majors—See the School of Art and the School of Music in this catalog.

Professional Education Program for Physical and Health Education Teacher Education: K-12 —See the Department of Human Performance and Health Education in this catalog.

Professional Education Program for Workforce Education and Development, Industrial Technology Education, Family and Consumer Sciences Teacher Education, and Business Education—See the Department of Family and Consumer Sciences in this catalog.

Bachelor of Science

Early Childhood Elementary Education (129 hours)

Michigan Elementary Provisional Certificate plus the Early Childhood: General and Special Education (ZS) endorsement.

The Elementary Education Curriculum is designed to prepare students to assume teaching responsibilities in K-5 all subjects, and in self-contained classrooms in grades K-8 all subjects. The Early Childhood General and Special Education (ZS) endorsement prepares students to assume teaching responsibilities in Early Childhood Special and General Education settings for children birth to age 8.

Additional information may be obtained from the CEHD Office of Admissions and Advising, 2421 Sangren Hall.

University General Education Requirement (40 hours)

The University General Education Requirement is 37 hours. An additional three hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) are required for Michigan certification. All of the student's University General Education Requirements will be met by options within the professional education program and the approved minors. (Two courses at the 3000-4000 level are required.) Successful completion of BIOS 1700, PHYS 1800, and GEOG 1900 will satisfy General Education Area VI for students who complete the Early Childhood Elementary Education program.

I. Admission to the Professional Curriculum

All education students are coded Pre-Education upon admission to the University.

Candidates may apply for advancement to the Early Childhood Elementary Education professional curriculum after earning 35 credits toward their degree. A minimum cumulative grade point average of 3.0* must be attained for advancement from the Pre-Education curriculum to the Early Childhood Elementary Education professional curriculum. Pre-Education students are not permitted to enroll in upper-level professional education courses until admission requirements are met and application is approved. See "College of Education and Human Development Office of Admissions and Advising" for all admission requirements.

*Candidates with a cumulative GPA between 2.75 and 2.99 can be granted provisional admission to the Early Childhood Elementary Education professional curriculum. Candidates admitted under "Provisional Admission" can continue in their program provided they receive a "CB" or above in all professional education coursework.

II. Admission to Intern Teaching

A minimum cumulative grade point average of 3.0** must be attained for enrollment in Intern Teaching and for a recommendation for the teaching certificate.

**Candidates with a cumulative GPA below 3.0 may submit an appeal to complete their intern teaching and the request will be considered by an appeals committee. Decisions of the appeals committee are final.

III. Other Program Requirements

An overall grade point average of 3.0 is required in the professional education sequence of courses, and no grade lower than a "CB" may be earned in any professional education courses.

Students may retake professional education courses only one time for a total of two times taking the course.

Professional Education courses are: ED 3090, ED 3500, ED 3690, ED 3710, ED 4010, ED 4070, ED 4090, ED 4100, ED 4300, ED 4500, ED 4700, ES 3950, EDT 3470, ENGL 3690, HPHE 3400, HPHE 3520, LS 3770, LS 3780, MATH 3520, SPED 4270.

No minor required.

Cognate: Elementary Education Content Area Requirements (52-53 hours)

- ART 1480 - Direct Encounter with the Arts **Credits:** 4 hours
- OR
- MATH 1500 - Number Concepts for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 1510 - Geometry for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers **Credits:** 4 hours
- ENGL 3820 - Literature for the Young Child **Credits:** 4 hours
- ECON 1000 - Economics for Elementary Education **Credits:** 3 hours
- GEOG 1020 - World Geography through Media and Maps **Credits:** 3 hours
- HIST 2100 - American History to 1877 **Credits:** 3 hours
- HIST 2020 - World History to 1500 **Credits:** 3 hours
- PSCI 2000 - National Government **Credits:** 3 hours
- BIOS 1700 - Life Science for Non-Majors **Credits:** 3 hours
- PHYS 1800 - Physics: Inquiry and Insights **Credits:** 3 hours
- GEOG 1900 - Exploring Earth Science: The Atmosphere **Credits:** 3 hours
- CHEM 2800 - Active Chemistry **Credits:** 3 hours
- HOL 1000 - Choices in Living **Credits:** 3 hours
- OR
- HPHE 1110 - Healthy Living **Credits:** 2 hours
- ED 2500 - Human Development: Applications in Education **Credits:** 3 hours

(Requires a grade of "CB" or better)

Professional Level Elementary Education Requirements (50 hours)

Students must meet requirements for Admission to the Professional Curriculum (see above) in order to take the Professional Level Elementary Education classes listed below.

A minimum grade of "CB" must be earned in all Professional Level Elementary Education courses. Students may retake professional education courses only one time for a total of two times taking the course.

- LS 3770 - Literacy I: Early Literacy and Language Acquisition **Credits:** 3 hours
- LS 3780 - Literacy II: Literacy/Language Arts across Disciplines **Credits:** 3 hours
- ENGL 3690 - Writing in the Elementary School **Credits:** 3 hours
- HPHE 3400 - Physical Education for the Elementary Classroom Teacher **Credits:** 2 hours
- HPHE 3520 - Teaching Health in the Elementary School **Credits:** 2 hours
- MATH 3520 - Teaching of Elementary/Middle School Mathematics **Credits:** 3 hours
- EDT 3470 - Technology for Elementary Education **Credits:** 3 hours
- SPED 4270 - Learners with Disabilities in Elementary and Middle School Programs **Credits:** 3 hours
- ED 4010 - Teaching Elementary School Science **Credits:** 3 hours
- ED 4070 - Teaching Elementary Social Studies **Credits:** 3 hours
- ED 4300 - Creativity in the Elementary Classroom **Credits:** 3 hours
- ED 3710 - Elementary Classroom Organization and Management **Credits:** 3 hours
- ED 4500 - Pre-Internship in Elementary Education **Credits:** 3 hours
- ED 4710 - Intern Teaching: Elementary/Middle School **Credits:** 5, 8, or 10 hours
(**Credits:** 10 hours needed)
- ED 4100 - Seminar in Education **Credits:** 1 to 2 hours
(**Credits:** 2 hours needed)

Early Childhood Courses (24 hours)

Students must meet requirements for Admission to the Professional Curriculum (see above) in order to take the 3000 and 4000-level Early Childhood classes listed below.

A minimum grade of "CB" must be earned in all Professional Level Early Childhood courses. Students may retake professional education courses only one time for a total of two times taking the course.

- ED 2900 - K-8 Teaching as a Profession **Credits:** 3 hours
- ED 3090 - Assessment and Instruction in Early Childhood Inclusive Education **Credits:** 3 hours
- ED 3500 - Young Children, Their Families, and Their Society **Credits:** 3 hours
- ED 3690 - Early Childhood Classroom Organization and Management **Credits:** 3 hours
- ED 4090 - Seminar in Early Childhood Education **Credits:** 1 hour
- ED 4700 - Intern Teaching: Early Childhood **Credits:** 5 hours
- ED 5750 - Administration of Child Development Centers **Credits:** 3 hours
- ES 3950 - School and Society **Credits:** 3 hours

Other Requirements

The college-level writing may be met by completing ENGL 1050 - thought and Writing or an equivalent with a minimum grade of "C" or better.

The baccalaureate-level writing requirement is met by completing ES 3950 - School and Society.

Elementary Education Curriculum (129 hours)

Michigan Elementary Provisional Certificate

The Elementary Education Curriculum is designed to prepare students to assume teaching responsibilities in self-contained classrooms in grades K-8 all subjects, K-5 all subjects, 6-8 in content area majors or minors.

Additional information may be obtained from the CEHD Office of Admissions and Advising, 2421 Sangren Hall.

University General Education Requirement (40 hours)

The University General Education Requirement is 37 hours. An additional three hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) are required for Michigan certification. The majority of the student's University General Education Requirements will be met by options within the professional education program and the approved minors. (Two courses at the 3000-4000 level are required.) Successful completion of BIOS 1700, PHYS 1800, and GEOG 1900 will satisfy General Education Area VI for students who complete the Elementary Education program.

I. Admission to the Professional Curriculum

All education students are coded Pre-Education upon admission to the University. Candidates may apply for advancement to the Elementary Education professional curriculum after earning 35 credits toward their degree. A minimum cumulative grade point average of 3.0* must be attained for advancement from the Pre-Education curriculum to the Elementary Education professional curriculum. Pre-Education students are not permitted to enroll in upper-level professional education courses until admission requirements are met and application is approved. See "College of Education and Human Development Office of Admissions and Advising" for admission requirements.

*Candidates with a cumulative GPA between 2.75 and 2.99 can be granted provisional admission to the Elementary Education professional curriculum. Candidates admitted under "Provisional Admission" can continue in their program provided they receive a "CB" or above in all professional education coursework.

II. Admission to Intern Teaching

A minimum cumulative grade point average of 3.0** must be attained for enrollment in Intern Teaching and for a recommendation for the teaching certificate.

**Candidates with a cumulative GPA below 3.0 may submit an appeal to complete their intern teaching and the request will be considered by an appeals committee. Decisions of the appeals committee are final.

III. Other Program Requirements

An overall grade point average of 3.0 is required in the professional education sequence and no grade lower than a "CB" may be earned in any professional education courses.

Students may retake professional education courses only one time for a total of two times taking the course.

Professional Elementary Education courses are: ED 3100, ED 3710, ED 4010, ED 4070, ED 4100, ED 4300, ED 4500, ED/FCS 5750, ES 3950, EDT 3470, ENGL 3690, HPHE 3400, HPHE 3520, LS 3770, LS 3780, MATH 3520, SPED 4270.

Elementary Education Curriculum Requirements

Students who would like to become elementary teachers are required to complete:

- Core Elementary Education content courses outside of chosen major or minor area(s).

- Professional Level Elementary Education Courses
- A minimum of one subject area major* chosen from Mathematics, Integrated Science, Language Arts, or Social Studies.

Note: *In addition to selecting one or more subject area majors, students may also choose an additional subject area minor in Mathematics, Integrated Science, or Language Arts.

Requirements and approval for the required minors and majors are available in the CEHD Office of Admissions and Advising.

1. Core Elementary Education Content Courses (43-61 hours, required for all Elementary Education students)

Students must complete all content courses below that are not a part of their subject area major or minors with a minimum grade of "C" or better.

- MATH 1500 - Number Concepts for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 1510 - Geometry for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers **Credits:** 4 hours
- BIOS 1700 - Life Science for Non-Majors **Credits:** 3 hours
- CHEM 2800 - Active Chemistry **Credits:** 3 hours
- GEOG 1900 - Exploring Earth Science: The Atmosphere **Credits:** 3 hours
- GEOS 2900 - Earth Systems: Issues and Applications **Credits:** 3 hours
- PHYS 1800 - Physics: Inquiry and Insights **Credits:** 3 hours
- ENGL 3820 - Literature for the Young Child **Credits:** 4 hours
- ANTH 1200 - Peoples of the World **Credits:** 3 hours
- ECON 1000 - Economics for Elementary Education **Credits:** 3 hours
- GEOG 1020 - World Geography through Media and Maps **Credits:** 3 hours
- HIST 2100 - American History to 1877 **Credits:** 3 hours
- OR
- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
(Topic: History as Mystery **Credits:** 3 hours)
- HIST 2110 - American History since 1877 **Credits:** 3 hours
- OR
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 2020 - World History to 1500 **Credits:** 3 hours
- PSCI 2000 - National Government **Credits:** 3 hours
- ART 1480 - Direct Encounter with the Arts **Credits:** 4 hours
- OR
- DANC 2900 - Dance in the Elementary School **Credits:** 3 hours
- OR
- MUS 2400 - Music for the Classroom Teacher **Credits:** 3 hours
- HPHE 1110 - Healthy Living **Credits:** 2 hours

2. Professional Level Elementary Education Courses (56 hours)

Required for all Elementary Education students

An overall grade point average of 3.0 is required in the professional education sequence and no grade lower than a "CB" may be earned in any professional education courses. Students may retake professional education courses only one time for a total of two

times taking the course. Students must be accepted into the Elementary Education Professional program to take 3000, 4000, and 5000 level courses.

- ED 2500 - Human Development: Applications in Education **Credits:** 3 hours
- ED 2900 - K-8 Teaching as a Profession **Credits:** 3 hours
- ED 3100 - Educational Psychology of Childhood **Credits:** 3 hours
- ED 3710 - Elementary Classroom Organization and Management **Credits:** 3 hours
- ED 4010 - Teaching Elementary School Science **Credits:** 3 hours
- ED 4070 - Teaching Elementary Social Studies **Credits:** 3 hours
- ED 4300 - Creativity in the Elementary Classroom **Credits:** 3 hours
- ED 4500 - Pre-Internship in Elementary Education **Credits:** 3 hours
- EDT 3470 - Technology for Elementary Education **Credits:** 3 hours
- ES 3950 - School and Society **Credits:** 3 hours
- ENGL 3690 - Writing in the Elementary School **Credits:** 3 hours
- HPHE 3400 - Physical Education for the Elementary Classroom Teacher **Credits:** 2 hours
- HPHE 3520 - Teaching Health in the Elementary School **Credits:** 2 hours
- LS 3770 - Literacy I: Early Literacy and Language Acquisition **Credits:** 3 hours
- LS 3780 - Literacy II: Literacy/Language Arts across Disciplines **Credits:** 3 hours
- MATH 3520 - Teaching of Elementary/Middle School Mathematics **Credits:** 3 hours
- SPED 4270 - Learners with Disabilities in Elementary and Middle School Programs **Credits:** 3 hours
- ED 4100 - Seminar in Education **Credits:** 1 to 2 hours
(**Credits:** 2 hours needed)
- ED 4710 - Intern Teaching: Elementary/Middle School **Credits:** 5, 8, or 10 hours
(**Credits:** 10 hours needed)

3. Other Requirements For all Elementary Education Students

The college-level writing may be met by completing ENGL 1050 or an equivalent with a minimum grade of "C" or better. The baccalaureate-level writing requirement is met by completing ES 3950.

Subject area major* chosen from Mathematics, Integrated Science, Language Arts, or Social Studies.

Note: *In addition to selecting one or more subject area majors, students may also choose an additional subject area minor in Mathematics, Integrated Science, or Language Arts.

Content Requirements for Elementary/Middle School Math Major and Minor

Elementary/Middle School Math Major Courses (32 hours)

A minimum grade of "B" or better is required in MATH 1500, MATH 1510, MATH 2650, and MATH 3520. A grade of "C" or better is required in MATH 5531, 5540, 5550, and MATH 5501. A Minimum GPA of 2.5 must be obtained in the major. Students must be accepted into the Elementary Education Professional program to take 3000 and 5000 level courses.

- MATH 1500 - Number Concepts for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 1510 - Geometry for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 3520 - Teaching of Elementary/Middle School Mathematics **Credits:** 3 hours
- MATH 5531 - Number Systems and Proportional Reasoning for Middle Grades Teachers **Credits:** 4 hours

- MATH 5540 - Functions and Modeling for Middle Grades Teachers **Credits:** 4 hours
- MATH 5550 - Concepts of Calculus for Middle Grades Teachers **Credits:** 4 hours
- MATH 5501 - Teaching of Middle School Mathematics **Credits:** 3 hours
- MATH 5511 - Computing Technology in Middle School Mathematics **Credits:** 3 hours

Elementary/Middle School Math Minor Courses (23 hours)

A minimum grade of "B" or better is required in MATH 1500, MATH 1510, MATH 2650, and MATH 3520. A grade of "C" or better is required in MATH 5531. A Minimum GPA of 2.5 must be obtained in the minor. Students must be accepted into the Elementary Education Professional program to take 3000 and 5000 level courses.

- MATH 1500 - Number Concepts for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 1510 - Geometry for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers **Credits:** 4 hours
- MATH 3520 - Teaching of Elementary/Middle School Mathematics **Credits:** 3 hours
- MATH 5531 - Number Systems and Proportional Reasoning for Middle Grades Teachers **Credits:** 4 hours
- MATH 5540 - Functions and Modeling for Middle Grades Teachers **Credits:** 4 hours

Content Requirements for Elementary/Middle School Integrated Science Major and Minor

Elementary/Middle School Integrated Science Major Courses (40 hours)

A "C" grade or better in each content course and a grade of "CB" or better in ED 4010 must be attained to satisfy the requirements of this subject area major.

- BIOS 1700 - Life Science for Non-Majors **Credits:** 3 hours
- BIOS 2700 - Everyday Biology: Cells **Credits:** 3 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 2800 - Active Chemistry **Credits:** 3 hours
- GEOG 1900 - Exploring Earth Science: The Atmosphere **Credits:** 3 hours
- GEOS 2900 - Earth Systems: Issues and Applications **Credits:** 3 hours
- GEOS 3220 - Ocean Systems **Credits:** 3 hours
- PHYS 1000 - How Things Work **Credits:** 4 hours
- PHYS 1030 - Sky and Solar System Laboratory **Credits:** 1 hour
- PHYS 1040 - Introduction to the Sky and Solar System **Credits:** 3 hours
- PHYS 1800 - Physics: Inquiry and Insights **Credits:** 3 hours
- ED 4010 - Teaching Elementary School Science **Credits:** 3 hours

Elementary/Middle School Integrated Science Minor Courses (29 hours)

A "C" grade or better in each content course and a grade of "CB" or better in ED 4010 must be attained to satisfy the requirements of this subject area minor.

- BIOS 1700 - Life Science for Non-Majors **Credits:** 3 hours
- BIOS 2700 - Everyday Biology: Cells **Credits:** 3 hours

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 2800 - Active Chemistry **Credits:** 3 hours
- GEOG 1900 - Exploring Earth Science: The Atmosphere **Credits:** 3 hours
- GEOS 2900 - Earth Systems: Issues and Applications **Credits:** 3 hours
- PHYS 1030 - Sky and Solar System Laboratory **Credits:** 1 hour
- PHYS 1040 - Introduction to the Sky and Solar System **Credits:** 3 hours
- PHYS 1800 - Physics: Inquiry and Insights **Credits:** 3 hours
- ED 4010 - Teaching Elementary School Science **Credits:** 3 hours

Content Requirements for Elementary/Middle School Social Studies Major

Elementary/Middle School Social Studies Major Courses (37 hours)

A "C" grade or better in each content course and a grade of "CB" or better in ED 4070 must be attained to satisfy the requirements of this subject area major.

- ANTH 1200 - Peoples of the World **Credits:** 3 hours
- ECON 1000 - Economics for Elementary Education **Credits:** 3 hours
- GEOG 1020 - World Geography through Media and Maps **Credits:** 3 hours
- GEOG 2440 - Economic Geography **Credits:** 3 hours
- HIST 2100 - American History to 1877 **Credits:** 3 hours
- OR
- HIST 3100 - Topics in History **Credits:** 1 to 3 hours
(Topic: History as Mystery **Credits:** 3 hours)
- HIST 2110 - American History since 1877 **Credits:** 3 hours
- OR
- HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) **Credits:** 3 hours
- HIST 2020 - World History to 1500 **Credits:** 3 hours
- HIST 2030 - World History since 1500 **Credits:** 3 hours
- HIST 3290 - Michigan History **Credits:** 3 hours
- OR
- GEOG 3110 - Geography of Michigan **Credits:** 3 hours
- PSCI 2000 - National Government **Credits:** 3 hours
- PSCI 2020 - State and Local Government **Credits:** 4 hours
- OR
- SOC 3040 - Nonwestern World **Credits:** 4 hours
- ED 4070 - Teaching Elementary Social Studies **Credits:** 3 hours

Content Requirements for Elementary/Middle School Language Arts Major and Minor

Elementary/Middle School Language Arts Major Courses (31-33 hours)

A "C" grade or better in each content course must be attained to satisfy the requirements of this subject area major. Students must be accepted into the Elementary Education Professional Program to take LS 5100, 5160, TEL 5200, and ENGL 4800.

- ENGL 1100 - Literary Interpretation **Credits:** 4 hours
- ENGL 3820 - Literature for the Young Child **Credits:** 4 hours
- ENGL 3830 - Literature for the Intermediate Reader **Credits:** 4 hours
- ENGL 4790 - Writing in the Secondary School **Credits:** 4 hours
- ENGL 4800 - Teaching Literature in the Secondary Schools **Credits:** 4 hours
- LS 5100 - Diversity in Language, Literacy, and Learning **Credits:** 3 hours
- LS 5160 - Professional Symposium in Reading **Credits:** 3 hours

Choose one from the following:

- ENGL 2220 - Literatures and Cultures of the United States **Credits:** 4 hours
- ENGL 2230 - African American Literature **Credits:** 4 hours
- ENGL 4840 - Culture in Children's Literature **Credits:** 3 hours
- HISP 2750 - Latino Writing/Latino Culture **Credits:** 3 hours

Choose one from the following:

- ENGL 3740 - Language in the Elementary School **Credits:** 3 hours
- ENGL 3770 - Language and Learning in Multilingual Classrooms **Credits:** 3 hours
- ENGL 4720 - Language Variation in American English **Credits:** 4 hours
- TEL 5200 - Linguistic Principles for ESL and Bilingual Education **Credits:** 3 hours

Content Requirements for Elementary/Middle School Language Arts Minor

Elementary/Middle School Language Arts Minor Courses (32 hours)

A "C" grade or better in each content course must be attained to satisfy the requirements of this subject area minor. Students must be accepted into the Elementary Education Professional Program to take LS 3770, LS 3780, ENGL 3690, ED 4300, and TEL 5200. A "CB" grade or better is required in LS 3770, LS 3780, ENGL 3690, and ED 4300.

- ENGL 1100 - Literary Interpretation **Credits:** 4 hours
- ENGL 3820 - Literature for the Young Child **Credits:** 4 hours
- ENGL 3830 - Literature for the Intermediate Reader **Credits:** 4 hours
- LS 3770 - Literacy I: Early Literacy and Language Acquisition **Credits:** 3 hours
- LS 3780 - Literacy II: Literacy/Language Arts across Disciplines **Credits:** 3 hours
- ENGL 3690 - Writing in the Elementary School **Credits:** 3 hours
- ED 4300 - Creativity in the Elementary Classroom **Credits:** 3 hours

Choose one from the following:

- ENGL 2220 - Literatures and Cultures of the United States **Credits:** 4 hours
- ENGL 2230 - African American Literature **Credits:** 4 hours
- ENGL 4840 - Culture in Children's Literature **Credits:** 3 hours

Choose one from the following:

- TEL 5200 - Linguistic Principles for ESL and Bilingual Education **Credits:** 3 hours
- ENGL 3770 - Language and Learning in Multilingual Classrooms **Credits:** 3 hours
- ENGL 4720 - Language Variation in American English **Credits:** 4 hours

College of Engineering and Applied Sciences

College of Engineering and Applied Sciences

Houssam Toutanji
Dean

Matthew Cavalli
Associate Dean for Undergraduate Academic Affairs

Andrew Kline
Associate Dean for Research and Graduate Education

College Vision

To be the college of choice for tomorrow's engineers through excellence in education, discovery, and service.

Mission

Our mission is to

- Educate: develop career-ready engineering and applied science graduates for success in the global market;
- Discover: advance knowledge and innovation through high-quality research, teaching, and student engagement;
- Inspire: prepare our learning community for lifelong excellence, ethical behavior, and professional leadership;
- Transform: cultivate an inclusive learning environment, contributing to diversity in the engineering workforce; and
- Respond: answer challenges in our local and global communities to improve the well-being of society.

Academic Units:

Chemical and Paper Engineering
Computer Science
Civil and Construction Engineering
Electrical and Computer Engineering
Engineering Design, Manufacturing, and Management Systems
Industrial and Entrepreneurial Engineering & Engineering Management
Mechanical and Aerospace Engineering

Programs

The College of Engineering and Applied Sciences offers undergraduate programs that prepare graduates for productive careers in a wide variety of fields. Students should refer to the programs listed throughout the College section of the WMU *Undergraduate Catalog* for specific information relative to the academic program of interest.

The College offers graduate programs leading to master's degrees in Aerospace Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Computer Science, Electrical Engineering, Engineering Management, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering, and Paper and Printing Science. The College also offers Ph.D. degrees in Computer Science, Electrical and Computer Engineering, Industrial Engineering, Mechanical Engineering, Paper and Printing Science, and in Engineering and Applied Sciences. Students interested in a graduate program should see the WMU *Graduate Catalog* for more information.

Computer Aided Engineering Center (CAE Center)

Chris Rand, Director

The Computer-Aided Engineering (CAE) Center serves WMU faculty and students as well as business and industry. The Center supports state-of-the-art CAD/CAM (Computer-Aided Design/Computer-Aided Manufacturing) software as well as numerous

other computing packages that enhance the College's technical educational programs and provide relevant training for industrial personnel.

Academic Advising and Student Success

The Office of Advising and Student Success in Floyd Hall (Room E-102) provides a range of student services. Academic advisors are available to assist in program/degree planning, including discussing available electives and prerequisite requirements. Prerequisites are strictly enforced. Students should contact their academic advisor in the first semester of enrollment at Western Michigan University and plan to continue meeting with their advisor at least once per semester until graduation. Failure to meet with an academic advisor on a regular basis may result in difficulty receiving requested class schedules and/or in delayed graduation.

Any questions about transfer credits should be directed to a student's academic advisor. Discipline-specific guidance related to transferring credits to a CEAS program can be found at wmich.edu/engineer/advising/transfer-students.

In addition to dedicated academic advisors for each undergraduate program, the Office of Advising and Student Success hosts a retention advisor focused on supporting students who have experienced academic challenges that resulted in situations like academic probation. The Office is also home to a dedicated career services counselor to assist students with job searches, exploring career options, improving interviewing skills, and fine-tuning resumes. The STEM Talent Expansion (STEP) Program Director, who oversees tutoring within the College as well as several other student success programs, is also located within the Office.

Prerequisites Prerequisite requirements are designed to increase the probability of successful course completion and to guide the intellectual and professional development of students in each degree program. Therefore, prerequisites will be strictly enforced in all departmental courses. Exceptions must be approved by the department no later than the end of the "add" period of the semester or session. All exception requests should begin with the student's academic advisor.

Credit Hour Definition for the College of Engineering and Applied Sciences An undergraduate credit hour is a unit of academic measurement that represents the nominal average contact hours per week between students and instructor in a structured setting. Note that one credit hour for a laboratory class typically corresponds to approximately 3 hours of contact time per week. In addition to the contact hours, students should expect to spend approximately two additional hours per week per credit hour on previewing course topics, reviewing notes from class, studying for exams, completing homework assignments and reports, etc. Thus, for a three-credit course without a laboratory component, students should expect to spend approximately nine hours per week on class-related activities (including attending class).

Standard of Academic Honesty

All courses offered by the College will be conducted in concert with the high standards of the University as stated in the WMU Student Code. Each student is expected to support these standards by neither giving nor accepting assistance on tests, and by submitting only his or her own work for credit. Violations of the standard of academic honesty **will** result in appropriate disciplinary action. Such disciplinary action may include a failing grade in the course, reassignment of work, dismissal from the curriculum, probation, or dismissal from the University.

Computer Use in College Programs

Most degree programs offered in the College of Engineering and Applied Sciences require extensive use of computers. Although Western Michigan University and the College provide adequate computer facilities for student use, many students find it advantageous to have their own laptop computer (computer science majors are required to have their own laptop computers). The University maintains special marketing arrangements with several major computer manufacturers and is therefore able to offer substantial discounts to students and faculty for the purchase of computers and software. Current recommendations for computer specifications for CEAS students can be found at wmich.edu/engineer/current/technology/recommendations. Note that Computer Science students are required to have a laptop. Information can be found at the same link.

Professional and Honorary Societies

Student branches of professional and honorary societies provide opportunities for students to become more directly involved with specific activities in their areas of interest. Students interested in enhancing their understanding their chosen professional field are encouraged to participate in one of these societies. Students may obtain further information by contacting their academic advisor or department chair.

A majority of CEAS students are involved in one or more of the professional organizations that have student chapters on campus. Such involvement enhances the student experience by providing opportunities to interact with other students having similar interests, to gain a closer look at their future profession, and to plan and direct programs and projects.

Scholarships

Many scholarships are available to both first-year and continuing students in the College of Engineering and Applied Sciences. For the most current and accurate information on scholarship opportunities, students can visit wmich.edu/engineer/scholarships, they can call their individual department office, or they visit the website of the Office of Student Financial Aid at wmich.edu/finaid.

Engineering and Applied Sciences Students

Four common characteristics are prevalent among students who are attracted to engineering and applied sciences. First, engineering and applied sciences students possess a strong desire to make a difference in the world and to shape the future. Second, all show an interest in problem-solving - not only to know how something works, but why. Third, engineering and applied sciences students possess a degree of technical aptitude - the ability to think in mathematical and scientific terms - which, fourth, is coupled with a strong interest in mathematics and the sciences.

Graduates

Undergraduate programs offered by the College of Engineering and Applied Sciences prepare graduates for immediately productive careers and for continued professional practice in industry. Alumni of the WMU College of Engineering and Applied Sciences work in some of the most well-known and innovative companies around the world, holding positions of president, vice president, owner, plant manager, chief engineer, senior design engineer, sales manager, lawyer, and doctor.

Students interested in advanced studies in engineering and applied sciences may pursue Master of Science degrees in Computer Science, Engineering Management, Manufacturing Engineering, or Paper and Printing Science; or a Master of Science in Engineering in Aerospace Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering at WMU. Accelerated Master's programs, which allow high-achieving students to double count some credits towards both their undergraduate and master's degree are available in many disciplines. For more information see wmich.edu/engineer/academics/accelerated. Additionally, the College offers the Doctor of Philosophy in Civil Engineering, Computer Science, Electrical and Computer Engineering, Engineering and Applied Sciences, Industrial Engineering, Mechanical Engineering, and Paper and Printing Science.

Graduation Requirements - Bachelor of Science in Engineering

The baccalaureate programs in engineering are designed to be completed in four consecutive years. A student must meet all the requirements listed in any one of the catalogs in effect during the four-year period immediately prior to the date of graduation.

Graduation Requirements - Bachelor of Science in Computer Science

Students interested in an undergraduate degree in computer science will complete the computer science program and receive a B.S. in Computer Science. The program can be completed in four consecutive years.

Graduate students interested in computer science may pursue a Master of Science in Computer Science or a Ph.D. in Computer Science.

Students interested in degrees in computer science should read about the specifics of undergraduate computer science programs elsewhere in this *Undergraduate Catalog* or refer to computer science in the *Graduate Catalog*.

Professional Registration

Graduates of engineering programs are encouraged to seek professional registration. Eligibility requirements in Michigan are established by the Michigan Board of Professional Engineers. In general, only graduates of EAC/ABET (www.abet.org) accredited engineering programs are eligible to be licensed in Michigan. Students interested in professional registration should consult with their academic advisor or the Associate Dean for Undergraduate Academic Affairs.

Repeated Courses in the College of Engineering and Applied Sciences

Students in the College of Engineering and Applied Sciences may enroll in a course that is required in their degree program only three times. Any additional enrollments require prior written approval of their department chair. This is consistent with the *University Repeated Course Policy* as stated elsewhere in this catalog.

Appeal Procedure for Dismissal from a CEAS Program

This procedure applies when a student wants to appeal the decision to dismiss the student from a CEAS program. For a detailed explanation of the process of appeal, see *Course Grade and Program Dismissal Appeals* in the section entitled *Students Rights and Responsibilities* in *Academic Policies*.

Admission to Engineering Programs

Admission to Pre-Engineering, Pre-Engineering Technology, Computer Science, and Graphic and Printing Science Programs

All students admitted to the University and planning to pursue one of the following majors will be enrolled in the corresponding Pre-Engineering program (assuming sufficient math placement – see below):

Aerospace Engineering
Chemical Engineering
Civil Engineering
Computer Engineering
Construction Engineering
Electrical Engineering
Industrial and Entrepreneurial Engineering
Mechanical Engineering
Paper Engineering

All students admitted to the University and planning to pursue one of the following majors will be enrolled in the corresponding Pre-Engineering Technology program (assuming sufficient math placement – see below):

Engineering Design Technology
Engineering Management Technology
Manufacturing Engineering Technology

All students admitted to the University and planning to pursue a major in Computer Science will be directly admitted to the program (assuming sufficient math placement – see below).

All students admitted to the University and planning to pursue a major in Graphic and Printing Science will be directly admitted to the program.

For admission into the Pre-Engineering, Pre-Engineering Technology, Computer Science, or Graphic and Printing Science programs, students must meet all WMU admission requirements and be placed into Pre-Calculus (MATH 1180) or higher. Students who meet all other WMU admission criteria and are placed into Algebra II (MATH 1110) will be admitted to CEAS Preparatory. Placement is determined through the ALEKS Math Placement Exam, performance on the mathematics portion of the ACT or SAT exams, or AP/IB assessment scores. More information on math placement can be found at wmich.edu/step/aleks.

Students in CEAS Preparatory who have accumulated 12-16 (or more) credit hours and with a grade point average (GPA) of 3.00 or higher in MATH 1110 in no more than two attempts, may apply and be admitted into Pre-Engineering/Pre-Engineering Technology/Computer Science/Graphic and Printing Science. If unsuccessful at the first attempt in MATH 1110, students must have a GPA of 2.00 or higher in MATH 1110 to be given a second attempt to achieve a GPA of 3.00 or higher in MATH 1110.

Students who meet all other WMU admission criteria and are placed into Algebra I (MATH 1100) or below will be admitted to Exploratory Advising. A student may apply for admission to Pre-Engineering/Pre-Engineering Technology/Computer Science/Graphic and Printing Science if the student has a grade point average (GPA) of 3.0 or higher in MATH 1100 and MATH 1110. Students have two (2) chances to achieve a GPA of 3.00 or higher in MATH 1100 and MATH 1110.

For current WMU students, transfer students, and second degree students, their admission to the Pre-Engineering, Pre-Engineering Technology, Computer Science, or Graphic and Printing Science program will follow the same criteria described above, and it will be based on the last, highest-level mathematics course completed.

Academic Advising

All students enrolled in the Pre-Engineering, Pre-Engineering Technology, Computer Science, and Graphic and Printing Science majors will receive academic advising by the College of Engineering and Applied Sciences.

Enrollment Restrictions

Pre-Engineering and Pre-Engineering Technology students will not be permitted to enroll in any course offered by the College of Engineering and Applied Sciences at the 3000-level or above that is required in any of the engineering curricula.

Pre-Engineering Curriculum Requirements

Displayed below are the courses required in the Pre-Engineering curriculum for all students planning to pursue one of the engineering majors listed above. See the respective department catalog entry for full degree requirements.

Common Requirements for All Majors

MATH 1220 or 1700, and 1230 or 1710 8 hours

CHEM 1100 and 1110 4 hours

Additional Courses Required by Major

Aerospace Engineering CS 1200; ECE 2100; IEE 1020; ME 2320 and 2560; PHYS 2050 and 2060; PHYS 2070 and 2080. See the Department of Mechanical and Aerospace Engineering for complete Aerospace Engineering curriculum requirements.

Chemical Engineering CHEM 1120 and CHEM 1130; CHEG 1010, CHEG 1810, CHEG 2810; IEE 1020; and PHYS 2050 and PHYS 2060. WMU Essential Studies Level 1: Inquiry and Engagement Category; WMU Essential Studies Level 2: Artistic Theory and Practice Category. See the Department of Chemical and Paper Engineering for complete Chemical Engineering curriculum requirements.

Civil Engineering CCE 1001 and CCE 1002; EDMM 1420; CS 1022 and 1023; GEOS 1300; IEE 1020; ME 2560 and ME 2570; PHYS 2050 and PHYS 2060; and PHYS 2070 and PHYS 2080. See the Department of Civil and Construction Engineering for complete Civil Engineering curriculum requirements.

Computer Engineering CS 1110; ECE 2100; ECE 2500; IEE 1020; PHYS 2050 and PHYS 2060; and PHYS 2070 and PHYS 2080. See the Department of Electrical and Computer Engineering for complete Computer Engineering curriculum requirements.

Construction Engineering CCE 1001 and CCE 1002; EDMM 1420; CS 1022 and 1023; GEOS 1300; IEE 1020; ME 2560; ME 2570; PHYS 2050 and 2060; PHYS 2070 and 2080. See the Department of Civil and Construction Engineering for complete Construction Engineering curriculum requirements.

Electrical Engineering ECE 2100; ECE 2500; IEE 1020; PHYS 2050 and PHYS 2060; PHYS 2070 and PHYS 2080. See the Department of Electrical and Computer Engineering for complete Electrical Engineering curriculum requirements.

Industrial and Entrepreneurial Engineering IEE 1020; IEE 2050; IEE 2610; ME 2560; PHYS 2050 and PHYS 2060; and PHYS 2070 and PHYS 2080. See the Department of Industrial and Entrepreneurial Engineering and Engineering Management for complete Industrial and Entrepreneurial Engineering curriculum requirements.

Mechanical Engineering CS 1200; IEE 1020; ECE 2100; ME 2320; ME 2560; PHYS 2050 and PHYS 2060; PHYS 2070 and PHYS 2080. See the Department of Mechanical and Aerospace Engineering for complete Mechanical Engineering curriculum requirements.

Paper Engineering CHEG 1810; CHEG 2611; CHEM 1120 and CHEM 1130; IEE 1020; PHYS 2050 and PHYS 2060; and PAPR 2040. WMU Essential Studies Level 1: Inquiry and Engagement Category; WMU Essential Studies Level 2: Personal Wellness Category. See the Department of Chemical and Paper Engineering for complete Paper Engineering curriculum requirements.

Admission to an Engineering Curriculum

The student seeking a baccalaureate degree in Aerospace Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Construction Engineering, Electrical Engineering, Industrial Engineering, Mechanical Engineering, or Paper Engineering may apply for formal admission to one of these engineering curricula after successfully completing the pre-engineering curricular requirements.

- All students seeking admission to a degree-granting engineering curriculum must submit an application, following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. The College of Engineering and Applied Sciences processes admission applications to engineering curricula and makes admission decisions to these programs.
- Admission to an engineering curriculum is dependent on successful completion of all required courses or approved alternatives in the Pre-engineering curriculum with no grade less than "C." Only students in good academic standing as defined by the University are eligible for consideration for admission to an engineering curriculum.
- There are currently no established enrollment limits for admission to engineering curricula.

General Programs General programs in the College of Engineering and Applied Sciences are designed to meet specific student needs not satisfied by any other program in the college.

Pre-Engineering Curriculum

Non-engineering students who have not decided on a particular program in the College of Engineering and Applied Sciences may initially enroll in the Pre-Engineering Curriculum.

Written permission of the academic advisor is required to enroll in this curriculum beyond the second year.

Related Academic Programs

Cooperative Education (Co-op)

Students enrolled in engineering and related degree majors may gain experience and knowledge about a professional field of interest by enrolling in the cooperative education program. Additional information may be obtained from the Office of Advising and Student Success in Room E-102 Floyd Hall.

While on the job, students can enroll in a co-op course in their disciplines. During their employment periods, students are paid an appropriate salary by their employer. Single semester co-op work experiences are also available.

Co-op students work in such areas as manufacturing, assembly, research, design, quality control, and safety. They may perform tests, prepare engineering drawings, collect and record data, design tools and fixtures, and assist in supervision. The student's co-op program is supervised by a college coordinator.

Foundry Program

Any student enrolled in an engineering or related major and interested in a career in the metal casting industry may be admitted into the Foundry Program. While engaged in this special program, the student must also meet the requirements for a B.S. degree offered by the College of Engineering and Applied Sciences. The Foundry Program is designed to allow the student an opportunity to elect various specific interest courses while earning a degree in any standard major.

Foundry Program students must join the student chapter of the American Foundrymen's Society and register with the Foundry Educational Foundation. Upon reaching the sophomore year, it is recommended that all students apply for the Cooperative Education Program by contacting the Advising Office in agreement with many sponsoring industries.

Students following the Foundry Program are eligible to be considered for scholarship awards made available each semester by the Foundry Educational Foundation.

Interdisciplinary Programs - College of Engineering and Applied Sciences

Minors

Integrated Supply Management Minor

This program integrates business and technological concepts for a successful career in supply chain management. A major is designed for students in the Haworth College of Business and the minor is limited to students with majors in the College of Engineering and Applied Sciences. In completing the core course requirements for this minor, students may complete one or more of these courses through the course requirements of their undergraduate major or program. However, if the total number of credit hours earned for courses outside the student's major (or program) does not total at least 15, then the student must take courses from the prescribed electives to bring this total to 15 or more.

Core - (take all of the following):

- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- MKTG 3720 - Sourcing and Purchasing **Credits:** 3 hours
- MKTG 4630 - Supply Chain Logistics **Credits:** 3 hours

And either:

- EDMM 3260 - Operations Planning and Control **Credits:** 3 hours
or
- IEE 4160 - Operations Control in Industry **Credits:** 4 hours

And either:

- IEE 2620 - Probability and Quality for Engineers **Credits:** 3 hours
or
- IEE 2621 - Probability for Engineers **Credits:** 3 hours
AND
- IEE 2622 - Statistical Quality Control **Credits:** 2 hours
or
- EDMM 3280 - Quality Assurance and Control **Credits:** 3 hours

And either:

- EDMM 4880 - Applied Process Reengineering **Credits:** 3 hours
or
- MKTG 4880 - Applied Process Reengineering **Credits:** 3 hours

Electives

Select course(s) to achieve a total of 15 hours earned beyond the courses taken in the student's major or program.

- EDMM 4870 - Manufacturing Productivity Techniques **Credits:** 3 hours
- EM 5050 - Continuous Improvement in Operations **Credits:** 3 hours
- EM 5080 - Advanced Quality Management **Credits:** 3 hours
- MGMT 2800 - Introduction to Supply Management **Credits:** 3 hours
- MGMT 3810 - Applied Six Sigma Problem-Solving **Credits:** 3 hours

Chemical and Paper Engineering

Kecheng Li, Chair

Main Office: A-217 Floyd Hall (Parkview Campus)

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Qingliu Wu

Qiang Yang

Brian Young

The Department of Chemical and Paper Engineering offers three B.S. programs (chemical engineering, paper engineering, and graphic and printing science), as well as an M.S. program, and a Ph.D. program in Paper and Printing Science. The department also offers an M.S. program in Chemical Engineering and a Ph.D. program in Engineering. These programs provide extensive scientific and technical education and prepare graduates for professional employment in research and development, manufacturing, process engineering, marketing, and management. The paper program focuses on pulp, paper, environmental, and allied fields. The graphic and printing science program emphasizes printing science, prepress operations, inks, and related fields. The chemical engineering program focuses on the chemical process industries, with emphasis on energy management, life sciences, pollution prevention, pulp and paper, and related fields.

Accelerated Graduate Degree Program

The Department of Chemical and Paper Engineering offers two M.S. degrees as part of the Accelerated Graduate Degree Program (AGDP). The M.S. in Paper and Printing Science (Accelerated) and the M.S. in Engineering (Chemical - Accelerated) allows undergraduate students an opportunity to complete the requirements for both the bachelor's and master's degrees at an accelerated pace. Undergraduate students may count up to 12 (but not less than 6) credit hours of 5000/6000-level courses taken during their undergraduate studies at WMU toward a Master of Science in Paper and Printing Science within 24 months of completing their bachelor's degree in paper engineering (emphasis in paper engineering) chemical engineering (emphasis in pulp & paper), or graphic and printing science. Undergraduate students may count up to 12 (but not less than 6) credit hours of 5000/6000-level courses taken during their undergraduate studies at WMU toward a Master of Science in Engineering (Chemical) within 24 months of completing their bachelor's degree in chemical engineering. Students enrolled in AGDP in the Department of Chemical and Paper Engineering may choose either the thesis option or the non-thesis option, which will allow them to complete an AGDP degree by completing combined graduate and undergraduate credit hours.

Academic Advising

Students should contact the Chemical and Paper Engineering academic advisors as early as possible. An advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objective, discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credits must be approved by a departmental faculty advisor. The academic advisors for Chemical Engineering, Paper Engineering, and Graphic and Printing Science are Tammi Smith and Kyle Manninen, located in the College of Engineering and Applied Sciences Advising Office. Academic advising appointments may be made by calling (269) 276-3270 or by accessing the web at ceas.wmich.edu/west.

Work Experience

Industrial experience is encouraged through employment by paper, chemical processing, printing, or related companies for at least one of the three summers, as well as through employment in WMU's outstanding pilot plants. The pilot plants and laboratory facilities are among the best in the world. In addition, co-op experience through a contiguous academic semester is encouraged. The department assists the students in obtaining summer internships as it is a required curricular component in two of the three programs. Industrial internship is a required part of the curriculum in Paper Engineering, and Graphic and Printing Science programs. It is provided with elective credits in the Chemical Engineering program.

Additional Information

General information regarding advising, scholarships, and special programs of interest to students in this department may be found in the beginning of the College of Engineering and Applied Sciences' section of this catalog.

Students graduating with a major or minor in any of the departmental programs, must earn a grade of "C" or better in all CHEG and GPS and PAPR prefixed prerequisite courses or their equivalents.

Bachelor of Science

Graphic and Printing Science

Accredited by ACCGC

Program Educational Objectives: Our graduates are expected within a few years of graduation to attain the following in the areas of career growth, professional development, innovation, and service:

- Career Growth: as measured by metrics such as achieving proficiency in current position, increasing responsibility, diversity of job functions, recognition, progression and/or job advancement.
- Professional Development: as measured by metrics such as pursuing additional educational activities, professional certifications, leadership effectiveness, staying current with evolving technologies and/or demonstrating initiative.
- Service: as measured by metrics such as involvement in their communities, professional societies, and/or humanitarian endeavors.
- Innovation and entrepreneurship: as measured by metrics such as the development of new processes, devices, methods, patents, and/or founding a business.

Requirements

- Candidates for the Bachelor of Science in Graphic and Printing Science must satisfy all of the requirements of 124 hours and select one of the three emphasis areas (Business, multimedia or packaging). This includes 50 hours in Graphic and Printing Science core, 37 hours in a selected area of emphasis and WMU Essential Studies Program requirements.
- The requirement of departmental prefixed prerequisite will not be fulfilled with a grade less than "C". Requests for exceptions to this policy must follow the departmental appeal policy (available in the department office). If an exception is granted, the policy requires that the less than "C" grade be replaced within two regular semesters.
- No more than two grades of "D" or "DC" can be presented for graduation.
- No minor required.

Baccalaureate-Level Writing Requirement

Students who have chosen the Graphic and Printing Science major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing GPS 4850: Research Design.

Graphic and Printing Science Core (50 hours)

- CHP 3100 - Work Experience/Co-op **Credits:** 1 hour
- PAPR 1000 - Introduction to Pulp and Paper Manufacture **Credits:** 3 hours
- GPS 1500 - Introduction to Graphic and Printing Science **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- GPS 1570 - Imaging Systems **Credits:** 3 hours
- GPS 2150 - Introduction to Ink **Credits:** 4 hours
- GPS 2510 - Multimedia Publication and Design **Credits:** 3 hours
- GPS 2570 - Computer Graphics and Prepress **Credits:** 3 hours
- GPS 3500 - Offset Lithography **Credits:** 4 hours
- GPS 3570 - Color Management **Credits:** 3 hours
- GPS 3580 - Flexography **Credits:** 4 hours
- GPS 3590 - Rotogravure **Credits:** 4 hours
- GPS 4400 - Seminar **Credits:** 1 hour
- GPS 4580 - Digital Printing and Workflow **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category and the required Planetary Sustainability outcome.)
- GPS 4620 - Print Estimating **Credits:** 4 hours
- GPS 4630 - Finishing and Converting **Credits:** 3 hours
- GPS 4850 - Research Design **Credits:** 3 hours

Cognates: WMU Essential Studies Program Requirements

Students who have chosen the Graphic and Printing Science curriculum will satisfy the WMU Essential Studies Program Requirements as outlined within the course listings below. To satisfy these requirements students take courses in twelve (12) categories. Six (6) of the courses are designated within the program requirements and six (6) are free electives which students choose from a list of courses in the corresponding course category. Students will meet the planetary sustainability outcome in GPS 4850: Research Design and must select a course that satisfies the Diversity and Inclusion outcome when choosing a course in the other six (6) categories.

- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement Category Course Elective **Credit:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Course Elective **Credit:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category Course Elective **Credit:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category Course Elective **Credit:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category Course Elective **Credit:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category Course Elective **Credit:** 3 hours
- IEE 1020 - Technical Communication **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)
- MATH 1180 - Precalculus Mathematics **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)

AND

- IEE 2610 - Engineering Statistics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category)
AND
WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category Course
Elective **Credits:** 3 hours
OR
- STAT 2160 - Business Statistics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)
AND
WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category Course Elective **Credits:** 3 hours

Cognates: Areas of Emphasis

Emphasis in Business (37 hours minimum)

Required Courses (18 hours)

- BUS 1750 - Business Enterprise **Credits:** 3 hours
- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- FIN 3200 - Business Finance **Credits:** 3 hours

Elective Courses (19 hours)

- CHP 3100 - Work Experience/Co-op **Credits:** 1 hour
- GPS 4570 - Advanced Multimedia **Credits:** 3 hours
- GPS 5100 - Printability Analysis **Credits:** 3 hours
- PAPR 2420 - Coating **Credits:** 4 hours
- PAPR 4990 - Independent Studies **Credits:** 1 to 6 hours
- MGMT 2520 - Human Resource Management **Credits:** 3 hours
- MKTG 3710 - Marketing Research **Credits:** 3 hours
- MKTG 3740 - Advertising and Promotion **Credits:** 3 hours
- LAW 3500 - Computer Law **Credits:** 3 hours
- LAW 3800 - Legal Environment **Credits:** 3 hours
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
- EDMM 2500 - Plastics Properties and Processing **Credits:** 3 hours
- EDMM 3050 - Work Analysis **Credits:** 3 hours
- EDMM 3260 - Operations Planning and Control **Credits:** 3 hours
- EDMM 3280 - Quality Assurance and Control **Credits:** 3 hours
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
- MATH 2000 - Calculus with Applications **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
OR

- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

Emphasis in Multimedia (37 hours minimum)

Required Courses (18 hours)

- COM 1000 - Communication and Community Engagement **Credits:** 3 hours
- COM 1040 - Public Speaking **Credits:** 3 hours
- COM 2000 - Human Communication Theory **Credits:** 3 hours
- COM 2400 - Introduction to Media and Telecommunications **Credits:** 3 hours
- COM 2410 - Film Communication **Credits:** 3 hours
- COM 2560 - Digital Media: Planning and Operations **Credits:** 3 hours

Elective Courses (19 hours)

- CHP 3100 - Work Experience/Co-op **Credits:** 1 hour
- GPS 4570 - Advanced Multimedia **Credits:** 3 hours
- GPS 5100 - Printability Analysis **Credits:** 3 hours
- PAPR 2420 - Coating **Credits:** 4 hours
- PAPR 4990 - Independent Studies **Credits:** 1 to 6 hours
- COM 1700 - Interpersonal Communication **Credits:** 3 hours
- COM 2570 - Introduction to Audio Production **Credits:** 3 hours
- COM 3070 - Freedom of Expression **Credits:** 3 hours
- COM 3410 - Film Modes and Genres **Credits:** 3 hours
- COM 3420 - The International Film Industry **Credits:** 3 hours
- COM 3430 - Film History **Credits:** 3 hours
- COM 3540 - Web Design and Digital Communication **Credits:** 3 hours
- COM 4410 - Documentary in Film and Television **Credits:** 3 hours
- COM 4430 - Media and Social Change **Credits:** 3 hours
- COM 4440 - Mass Communication, News, and Public Affairs **Credits:** 3 hours
- COM 4450 - Media Criticism **Credits:** 3 hours
- MATH 1220 - Calculus I **Credits:** 4 hours
- OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
- MATH 2000 - Calculus with Applications **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
- OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- EDMM 3260 - Operations Planning and Control **Credits:** 3 hours

Emphasis in Packaging (37 hours minimum)

Required Courses (18 hours)

- PAPR 2040 - Stock Preparation and Papermaking **Credits:** 4 hours
- PAPR 2420 - Coating **Credits:** 4 hours
- MKTG 2900 - Introduction to Food and CPG Industries **Credits:** 3 hours

- EDMM 1420 - Engineering Graphics **Credits:** 3 hours

Elective Courses (19 hours)

- CHP 3100 - Work Experience/Co-op **Credits:** 1 hour
- GPS 4570 - Advanced Multimedia **Credits:** 3 hours
- GPS 5100 - Printability Analysis **Credits:** 3 hours
- PAPR 2550 - Paper Physics Fundamentals **Credits:** 4 hours
- PAPR 4990 - Independent Studies **Credits:** 1 to 6 hours
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours
- EDMM 2500 - Plastics Properties and Processing **Credits:** 3 hours
- EDMM 3260 - Operations Planning and Control **Credits:** 3 hours
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

Bachelor of Science in Engineering

Chemical Engineering

Accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Program Educational Objectives: Our graduates are expected within a few years of graduation to attain the following in the areas of career growth, professional development, innovation, and service:

- Career Growth: graduates are expected to attain: proficiency in current position, increasing responsibility, diversity of job functions, recognition, progression or job advancement.
- Professional Development: graduates are expected to attain: pursuit of additional educational activities, professional certifications or leadership opportunities.
- Service: graduates are expected to have involvement in the local community, professional societies, K-12 education, industry or humanitarian endeavors.
- Innovation and entrepreneurship: graduates are expected to attain: expertise in problem solving, new process, or methods development, in device or patent creation or in founding a business.

(For up-to-date educational objectives and learning outcomes, see the program's web page at wmich.edu/chemical-paper/chemical-engineering-accreditation)

Admission

- To be admitted to this engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section of this catalog.
- Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students should complete an application prior to

their first semester of enrollment. Only students in good academic standing, as defined by the University, will be admitted to this curriculum.

WMU Essential Studies Program Requirements

Students who have chosen the Chemical Engineering curriculum will satisfy the WMU Essential Studies Program Requirements as outlined within the course listings below. To satisfy these requirements student take courses in twelve (12) categories. Six (6) of the courses are designated within the Chemical Engineering program requirements and six (6) are free electives which students choose from a list of courses in the corresponding course category. Students will meet the planetary sustainability outcome in CHEH 4870: Senior Design Project and must select a course that satisfies the Diversity and Inclusion outcome when choosing a course in the other six (6) categories.

Requirements

Candidates for the Bachelor of Science in Engineering (Chemical) degree must satisfy the following requirements in addition to those required by Western Michigan University:

- The requirement of departmental prefixed prerequisite will not be fulfilled with a grade less than "C". Requests for exceptions to this policy must follow the departmental appeal policy (available in the department office). If an exception is granted, the policy requires that the less than "C" grade be replaced within two regular semesters.
- No more than two grades of "D" or "DC" may be presented for graduation.
- Students must complete the following program of 135 credit hours, which includes the courses in one of the Emphasis Areas presented below at the end of the 8-semester example schedule. One emphasis area must be selected and taken in its entirety. The schedules below are examples leading to graduation in eight semesters, beginning in fall. However, depending on the individual's curricular and scheduling needs, the program can take more than eight semesters.
- No minor required.

Major courses (33 hours)

- CHEG 2611 - Environmental Engineering I **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)
- CHEG 2960 - Material and Energy Balance **Credits:** 4 hours
- CHEG 3110 - Unit Operations in Chemical Engineering I **Credits:** 3 hours
- CHEG 3200 - Chemical Engineering Thermodynamics **Credits:** 3 hours
- CHEG 3810 - Computer Modeling and Simulation - Chemical Processes **Credits:** 1 hour
- CHEG 3120 - Unit Operations in Chemical Engineering II **Credits:** 3 hours
- CHEG 3300 - Mass Transfer **Credits:** 3 hours
- CHEG 4600 - Plant Economics and Project Design **Credits:** 3 hours
- CHEG 4830 - Process Control I **Credits:** 4 hours
- CHEG 4400 - Safety and Hazards Management in Chemical Processes **Credits:** 1 hour
- CHEG 4810 - Unit Operations Lab: Fluid Flow, Heat and Mass Transfer **Credits:** 2 hours
- CHEG 4870 - Senior Design Project **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category)

Pre-Engineering Cognates:

- CHEG 1010 - Introduction to Chemical Engineering **Credits:** 3 hours
- CHEG 1810 - Introduction to Chemical Engineering Computation **Credits:** 2 hours
- CHEG 2810 - Data Acquisition and Handling **Credits:** 1 hour
- CHEM 1100 - General Chemistry I **Credits:** 3 hours

- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- IEE 1020 - Technical Communication **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours

Additional Cognate Courses:

- IEE 2610 - Engineering Statistics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category)
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour
- CHEG 3550 - Bioprocess Engineering **Credits:** 3 hours
- CHEG 4100 - Chemical Reaction Engineering **Credits:** 3 hours

Emphasis Areas

Emphasis in Energy Management (17 hours minimum)

Required Courses (3 credit hours)

- CHEG 4440 - Energy Management Engineering **Credits:** 3 hours

Elective Courses (choose 14 hours minimum)

- CHEG 5200 - Renewable Energy and Energy Storage **Credits:** 3 hours
- CHEG 5250 - Sustainable Earth Resources Engineering **Credits:** 3 hours
- CHEG 5950 - Topics in Chemical Engineering **Credits:** 1 to 3 hours
- CHP 3100 - Work Experience/Co-op **Credits:** 1 hour

- ECE 2100 - Circuit Analysis **Credits:** 4 hours
- ECE 2110 - Machines and Electronic Circuits **Credits:** 3 hours
- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- ME 4320 - Thermodynamics II **Credits:** 3 hours
- ME 4330 - Environmental Systems Design in Buildings **Credits:** 3 hours
- ME 4390 - Design of Thermal Systems **Credits:** 3 hours

Emphasis in Life Sciences (17 hours minimum)

Including at least one 3000-level course (not including CHP 3100):

- BIOS 1620 - Ecology and Evolution **Credits:** 4 hours
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- BIOS 2500 - Genetics **Credits:** 4 hours
- BIOS 3500 - Human Physiology for Majors **Credits:** 5 hours
- BIOS 5310 - Biology of Aging **Credits:** 3 hours
- BIOS 5610 - Pharmacology **Credits:** 3 hours
- BIOS 5970 - Topics in Biological Sciences **Credits:** 3 to 4 hours
- CHEG 5100 - Medical and Biomolecular Engineering Concepts **Credits:** 3 hours
- CHEG 5950 - Topics in Chemical Engineering **Credits:** 1 to 3 hours
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
- CHP 3100 - Work Experience/Co-op **Credits:** 1 hour

Emphasis in Pollution Prevention and Sustainability (17 hours minimum)

Required Courses (3 credit hours)

- CHEG 4440 - Energy Management Engineering **Credits:** 3 hours

Elective Courses (14 credit hours minimum)

- CHEG 5200 - Renewable Energy and Energy Storage **Credits:** 3 hours
- CHEG 5250 - Sustainable Earth Resources Engineering **Credits:** 3 hours
- CHEG 5950 - Topics in Chemical Engineering **Credits:** 1 to 3 hours
- CHP 3100 - Work Experience/Co-op **Credits:** 1 hour
- PAPR 3531 - Wastewater Treatment Systems **Credits:** 3 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
- CHEM 3560 - Introductory Biochemistry Laboratory **Credits:** 1 hour
- IEE 3100 - Engineering Economy **Credits:** 3 hours

Emphasis in Pulp and Paper (17 hours minimum)

- CHP 3100 - Work Experience/Co-op **Credits:** 1 hour
- CHEG 5950 - Topics in Chemical Engineering **Credits:** 1 to 3 hours
- PAPR 1000 - Introduction to Pulp and Paper Manufacture **Credits:** 3 hours
- PAPR 2040 - Stock Preparation and Papermaking **Credits:** 4 hours
- PAPR 2420 - Coating **Credits:** 4 hours
- PAPR 2550 - Paper Physics Fundamentals **Credits:** 4 hours
- PAPR 3030 - Pulping and Bleaching **Credits:** 4 hours
- PAPR 4300 - Surface and Wet End Science **Credits:** 3 hours

The schedule below:

is an example leading to graduation in eight semesters, beginning in fall. However, depending on the individual's curricular and scheduling needs, the program can take more than eight semesters.

First Semester (17 hours)

The following courses are pre-engineering requirements:

- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement Category Course Elective **Credits:** 3 hours
- CHEG 1010 - Introduction to Chemical Engineering **Credits:** 3 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- IEE 1020 - Technical Communication **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)

Second Semester (18 hours)

The following courses are pre-engineering requirements:

- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Course Elective **Credits:** 3 hours
- CHEG 1810 - Introduction to Chemical Engineering Computation **Credits:** 2 hours
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- 10. MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- 11. PHYS 2050 - University Physics I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)

Third Semester (17 hours)

- Emphasis Elective **Credits:** 4 hours

- CHEG 2810 - Data Acquisition and Handling **Credits:** 1 hour
Pre-engineering requirement
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category)
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
Pre-engineering requirement
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Fourth Semester (19 hours)

- Emphasis Elective **Credits:** 4 hours
- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- CHEG 2611 - Environmental Engineering I **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)
- CHEG 2960 - Material and Energy Balance **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours

Fifth Semester (16 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category Course
Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category **Credits:** 3 hours
- CHEG 3110 - Unit Operations in Chemical Engineering I **Credits:** 3 hours
- CHEG 3200 - Chemical Engineering Thermodynamics **Credits:** 3 hours
- CHEG 3810 - Computer Modeling and Simulation - Chemical Processes **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours

Sixth Semester (16 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category Course
Elective **Credits:** 3 hours
- CHEG 3120 - Unit Operations in Chemical Engineering II **Credits:** 3 hours
- CHEG 3300 - Mass Transfer **Credits:** 3 hours
- CHEG 3550 - Bioprocess Engineering **Credits:** 3 hours
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour

Seventh Semester (17 hours)

- Emphasis Elective **Credits:** 3 hours
- CHEG 4100 - Chemical Reaction Engineering **Credits:** 3 hours
- CHEG 4600 - Plant Economics and Project Design **Credits:** 3 hours
- CHEG 4830 - Process Control I **Credits:** 4 hours
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- CHEM 3780 - Organic Chemistry Lab II **Credits:** 1 hour

Eighth Semester (15 hours)

- Emphasis Elective **Credits:** 6 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category **Credits:** 3 hours
- CHEG 4400 - Safety and Hazards Management in Chemical Processes **Credits:** 1 hour
- CHEG 4810 - Unit Operations Lab: Fluid Flow, Heat and Mass Transfer **Credits:** 2 hours
- CHEG 4870 - Senior Design Project **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category and the required Planetary Sustainability outcome.)

Paper Engineering

Accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Program Educational Objectives: Our graduates are expected within a few years of graduation to attain the following in the areas of career growth, professional development, innovation, and service:

- Career Growth: as measured by metrics such as achieving proficiency in current position, increasing responsibility, diversity of job functions, recognition, progression and/or job advancement.
- Professional Development: as measured by metrics such as pursuing additional educational activities, professional certifications, leadership effectiveness, staying current with evolving technologies and/or demonstrating initiative.
- Service: as measured by metrics such as involvement in their communities, professional societies, and/or humanitarian endeavors.
- Innovation and entrepreneurship: as measured by metrics such as the development of new processes, devices, methods, patents, and/or founding a business.

(For up-to-date educational objectives and learning outcomes, see the Department's web page at wmich.edu/chemical-paper/chem-engineering-accreditation)

Admission

- To be admitted to this engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section of this catalog.
- Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students should complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

WMU Essential Studies Program Requirements

Students who have chosen the Paper Engineering curriculum will satisfy the WMU Essential Studies Program Requirements as outlined within the course listings below. To satisfy these requirements student take courses in twelve (12) categories. Six (6) of the courses are designated within the Paper Engineering program requirements and six (6) are free electives which students choose from a list of courses in the corresponding course category. Students will meet the planetary sustainability outcome in PAPER 4870: Senior Design Project and must select a course that satisfies the Diversity and Inclusion outcome when choosing a course in the other six (6) categories.

Requirements

Candidates for the Bachelor of Science in Engineering (Paper) must satisfy the following requirements in addition to those required by Western Michigan University:

- The requirement of departmental prefixed prerequisite will not be fulfilled with a grade less than a "C". Requests for exceptions to this policy must follow the departmental appeal policy (available in the department office). If an exception is granted, the policy requires that the less than "C" grade be replaced within two regular semesters.
- No more than two grades of "D" or "DC" can be presented for graduation.
- Students must complete the following program of 135 semester credit hours, which includes the courses in one of the following emphasis areas: Process Engineering or Environmental Engineering and Sustainable Processes. One emphasis area must be elected and taken in its entirety. The schedules below are examples leading to graduation in eight semesters, beginning in fall. However, depending on the individual's curricular and scheduling needs, the program can take more than eight semesters.
- No minor required.

Major Courses (25 hours)

- PAPR 1000 - Introduction to Pulp and Paper Manufacture **Credits:** 3 hours
- PAPR 2040 - Stock Preparation and Papermaking **Credits:** 4 hours
Pre-engineering requirement
- PAPR 2550 - Paper Physics Fundamentals **Credits:** 4 hours
- PAPR 3030 - Pulping and Bleaching **Credits:** 4 hours
- PAPR 4400 - Seminar **Credits:** 1 hour
- PAPR 4600 - Plant Economics and Project Design **Credits:** 3 hours
- PAPR 4870 - Senior Design Project **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category)
- PAPR 4300 - Surface and Wet End Science **Credits:** 3 hours

Pre-Engineering Cognates:

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- IEE 1020 - Technical Communication **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- CHEG 2611 - Environmental Engineering I **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours

Additional Cognate Courses

- CHEG 1810 - Introduction to Chemical Engineering Computation **Credits:** 2 hours
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category)
- CHEG 2960 - Material and Energy Balance **Credits:** 4 hours
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- CHEG 3110 - Unit Operations in Chemical Engineering I **Credits:** 3 hours
- CHEG 3120 - Unit Operations in Chemical Engineering II **Credits:** 3 hours
- CHEG 3300 - Mass Transfer **Credits:** 3 hours
- PAPR 3330 - Carbohydrate and Lignin Chemistry **Credits:** 3 hours
OR
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- CHEG 3810 - Computer Modeling and Simulation - Chemical Processes **Credits:** 1 hour
- CHEG 4810 - Unit Operations Lab: Fluid Flow, Heat and Mass Transfer **Credits:** 2 hours
- CHEG 4830 - Process Control I **Credits:** 4 hours
- CHEG 4400 - Safety and Hazards Management in Chemical Processes **Credits:** 1 hour
OR
- GPS 4400 - Seminar **Credits:** 1 hour

Areas of Emphasis

Emphasis in Process Engineering (16 hours minimum)

Required Electives (4 hours)

- PAPR 2420 - Coating **Credits:** 4 hours

Elective Courses (choose 12 hours minimum):

- CHEG 3200 - Chemical Engineering Thermodynamics **Credits:** 3 hours
Preferred Elective
- CHEG 4100 - Chemical Reaction Engineering **Credits:** 3 hours
- CHP 3100 - Work Experience/Co-op **Credits:** 1 hour
- ECE 2100 - Circuit Analysis **Credits:** 4 hours
- GPS 5100 - Printability Analysis **Credits:** 3 hours
- IEE 3100 - Engineering Economy **Credits:** 3 hours
(Another course in IEE, MGMT, or COM can be substituted for IEE 3100 with approval of the advisor.)
- ME 2560 - Statics **Credits:** 3 hours
- STAT 5670 - Statistical Design and Analysis of Experiments **Credits:** 3 hours
Preferred Elective

Emphasis in Environmental Engineering and Sustainable Processes (16 hours minimum)

Required Electives (3 hours)

- CHEG 4440 - Energy Management Engineering **Credits:** 3 hours

Elective Courses (choose 13 hours minimum):

- CHP 3100 - Work Experience/Co-op **Credits:** 1 hour
- PAPR 3531 - Wastewater Treatment Systems **Credits:** 3 hours
- PAPR 2420 - Coating **Credits:** 4 hours
- ECON 3190 - Environmental Economics **Credits:** 3 hours
- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
- CHEG 3200 - Chemical Engineering Thermodynamics **Credits:** 3 hours
- CHEG 4100 - Chemical Reaction Engineering **Credits:** 3 hours
- CHEG 5200 - Renewable Energy and Energy Storage **Credits:** 3 hours
- CHEG 5250 - Sustainable Earth Resources Engineering **Credits:** 3 hours
- CHEM 2250 - Quantitative Analysis **Credits:** 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory **Credits:** 1 hour
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
- CHEM 3560 - Introductory Biochemistry Laboratory **Credits:** 1 hour
- IEE 3100 - Engineering Economy **Credits:** 3 hours

The schedule below:

is an example leading to graduation in eight semesters, beginning in fall. However, depending on the individual's curricular and scheduling needs, the program can take more than eight semesters.

First Semester (17 hours)

- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement Category Course Elective **Credits:** 3 hours
Pre-engineering requirement
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
Pre-engineering requirement
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
Pre-engineering requirement
- IEE 1020 - Technical Communication **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)
Pre-engineering requirement
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
Pre-engineering requirement
- PAPR 1000 - Introduction to Pulp and Paper Manufacture **Credits:** 3 hours

Second Semester (17 hours)

The following courses are pre-engineering requirements:

- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category Course Elective **Credits:** 3 hours
- CHEG 1810 - Introduction to Chemical Engineering Computation **Credits:** 2 hours
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- PAPR 2040 - Stock Preparation and Papermaking **Credits:** 4 hours

Third Semester (19 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category Course Elective **Credits:** 3 hours
- CHEM 3750 - Organic Chemistry I **Credits:** 3 hours
- CHEM 3760 - Organic Chemistry Lab I **Credits:** 1 hour
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category)
- PAPR 2550 - Paper Physics Fundamentals **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
Pre-engineering requirement
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
Pre-engineering requirement

Fourth Semester (19 hours)

- Emphasis Elective **Credits:** 3 hours
- CHEG 2611 - Environmental Engineering I **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)
Pre-engineering requirement
- CHEG 2960 - Material and Energy Balance **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
Pre-engineering requirement
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Fifth Semester (16 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Course Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category Course Elective **Credits:** 3 hours
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours
- CHEG 3110 - Unit Operations in Chemical Engineering I **Credits:** 3 hours
- PAPR 3030 - Pulping and Bleaching **Credits:** 4 hours

Sixth Semester (16 hours)

- Emphasis Elective **Credits:** 3 hours
- CHEG 3120 - Unit Operations in Chemical Engineering II **Credits:** 3 hours
- CHEG 3300 - Mass Transfer **Credits:** 3 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- PAPR 3330 - Carbohydrate and Lignin Chemistry **Credits:** 3 hours
OR
- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours

Seventh Semester (16 hours)

- Emphasis Elective **Credits:** 3 hours
- Emphasis Elective **Credits:** 4 hours
- CHEG 3810 - Computer Modeling and Simulation - Chemical Processes **Credits:** 1 hour
- CHEG 4830 - Process Control I **Credits:** 4 hours
- PAPR 4400 - Seminar **Credits:** 1 hour
- PAPR 4600 - Plant Economics and Project Design **Credits:** 3 hours

Eighth Semester (15 hours)

- Emphasis Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category Course Elective **Credits:** 3 hours
- CHEG 4810 - Unit Operations Lab: Fluid Flow, Heat and Mass Transfer **Credits:** 2 hours
- PAPR 4870 - Senior Design Project **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category)
- PAPR 4300 - Surface and Wet End Science **Credits:** 3 hours
- CHEG 4400 - Safety and Hazards Management in Chemical Processes **Credits:** 1 hour
OR
- GPS 4400 - Seminar **Credits:** 1 hour

Undergraduate Certificate

Undergraduate Certificate Program in Paper Engineering

The program will consist of 23 credits in Paper Engineering-virtually all the lecture/lab courses that a Paper Engineering major is currently taking in the BSE program.

The courses and the credits are provided below. It should be noted that the student should meet all the prerequisites and co-requisites to enroll in a particular course.

List of Courses

- PAPR 1000 - Introduction to Pulp and Paper Manufacture **Credits:** 3 hours
- PAPR 2040 - Stock Preparation and Papermaking **Credits:** 4 hours
- PAPR 2420 - Coating **Credits:** 4 hours

- PAPR 2550 - Paper Physics Fundamentals **Credits:** 4 hours
- PAPR 3030 - Pulping and Bleaching **Credits:** 4 hours
- PAPR 4300 - Surface and Wet End Science **Credits:** 3 hours

Minors

Chemical Engineering Minor

Requirements

A minor in Chemical Engineering may be earned by completing the following 20 semester hours of Chemical Engineering courses:

- CHEG 1010 - Introduction to Chemical Engineering **Credits:** 3 hours
- CHEG 2810 - Data Acquisition and Handling **Credits:** 1 hour
- CHEG 2960 - Material and Energy Balance **Credits:** 4 hours
- CHEG 3110 - Unit Operations in Chemical Engineering I **Credits:** 3 hours
- CHEG 3120 - Unit Operations in Chemical Engineering II **Credits:** 3 hours
- CHEG 3300 - Mass Transfer **Credits:** 3 hours
- CHEG 4100 - Chemical Reaction Engineering **Credits:** 3 hours

Prerequisites

In addition, students would complete the following as prerequisites for CHEG 4100.

- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 4300 - Physical Chemistry I **Credits:** 3 hours

Additional Information

The minor is most suitable for other engineering graduates, as well as physics and chemistry graduates, as they will have most of the prerequisites for the CHEG courses required for the minor.

Graphic and Printing Science Minor

Program requirements

A minor in Graphic and Printing Science may be earned by completing satisfactorily the following eighteen hours of departmental courses:

- GPS 1500 - Introduction to Graphic and Printing Science **Credits:** 4 hours
- GPS 1570 - Imaging Systems **Credits:** 3 hours
- GPS 2510 - Multimedia Publication and Design **Credits:** 3 hours

And at least eight hours elected from among:

- GPS 2150 - Introduction to Ink **Credits:** 4 hours
- GPS 2570 - Computer Graphics and Prepress **Credits:** 3 hours
- GPS 3500 - Offset Lithography **Credits:** 4 hours
- GPS 3570 - Color Management **Credits:** 3 hours
- GPS 3580 - Flexography **Credits:** 4 hours
- GPS 3590 - Rotogravure **Credits:** 4 hours
- GPS 4570 - Advanced Multimedia **Credits:** 3 hours
- GPS 4580 - Digital Printing and Workflow **Credits:** 3 hours

Paper Engineering Minor (20 hours)

A minor in paper engineering may be earned by completing a minimum of 20 semester hours from the following departmental courses:

Required Courses

Select either:

- PAPR 1000 - Introduction to Pulp and Paper Manufacture **Credits:** 3 hours
- PAPR 2040 - Stock Preparation and Papermaking **Credits:** 4 hours

Electives

The remainder of the 20 hours to be chosen from the following:

- PAPR 2420 - Coating **Credits:** 4 hours
- PAPR 2550 - Paper Physics Fundamentals **Credits:** 4 hours
- PAPR 3030 - Pulping and Bleaching **Credits:** 4 hours
- PAPR 4300 - Surface and Wet End Science **Credits:** 3 hours
- PAPR 4400 - Seminar **Credits:** 1 hour

Additional Information

The minor is suitable for other engineering majors, imaging majors in substrates track, and physics and chemistry majors, as they will have most of the prerequisites for these courses.

Civil and Construction Engineering

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The Department of Civil and Construction Engineering offers the following curricula:

Construction Engineering - B.S.E.
Civil Engineering - B.S.E.
Civil Engineering - M.S.E.
Civil Engineering - Ph.D.

These programs are designed to provide graduates with the background necessary to successfully assume a variety of positions in a wide variety of industries. The combination of specialized and general education is intended to allow employment flexibility, although most graduates are placed in industries closely related to their field of study.

The department offers the opportunity that allows for an Accelerated Master's degree. Details of the degree can be found on the department website (wmich.edu/civil-construction/academics/accelerated).

Academic Advising

Students should contact their advisor as early as possible. The advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and transfer credit must be approved by the advisor, the curriculum committee, and the department chair. The academic advisor is located in Room E-102 Floyd Hall, phone (269) 276-3270. Because of prerequisites and limited offering times, students must consult with an academic advisor for proper course sequence.

Approved Electives

Electives must be approved by the department academic advisor. While choice of electives is intended to provide flexibility for students, they must be selected to provide a thrust and add strength to the individual's program. Non-related courses will not normally be approved.

Lists of appropriate electives are available from the academic advising office.

Bachelor of Science in Engineering

Civil Engineering (CIVJ)

The Civil Engineering curriculum prepares students for entry level positions in the civil engineering profession. It was developed to provide students with knowledge in the areas of structural engineering, construction engineering, geotechnical engineering, transportation engineering, and water resources engineering. Technical, communication, and human relation skills are developed throughout the curriculum. Design is emphasized from the beginning of the curriculum.

Accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

For up-to-date educational objectives and learning outcomes, see department web page at wmich.edu/civil-construction/academics/abet/outcomes.

WMU Essential Studies Program Requirements

Students who have chosen the Civil or Construction Engineering curriculum will satisfy the WMU Essential Studies Program Requirements as outlined within the course listings below. To satisfy these requirements student take courses in twelve (12) categories. Six (6) of the courses are designated within the civil engineering program requirements and six (6) are free electives which students choose from a list of courses in the corresponding course category. Students will meet the planetary sustainability outcome in CCE 4850: Senior Project and must select a course that satisfies the Diversity and Inclusion outcome when choosing a course in the other six (6) categories.

Requirements

Candidates for the Bachelor of Science in Engineering must complete the following program of 126 semester credit hours as well as University requirements stated elsewhere in this catalog.

- A "C" or better must be earned in all courses with a CCE, IEE, EDMM or ME prefix.
- A student is required to earn a grade of "C" or better in the prerequisite courses for all CCE courses before enrollment is permitted in the next sequence course.
- No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
- No minor is required.

Civil Engineering Major Requirements (43 hours)

- CCE Structural Engineering Design Elective **Credits:** 3 hours
- CCE Construction Engineering Elective **Credits:** 3 hours
- CCE Elective **Credits:** 3 hours
- CCE Elective **Credits:** 3 hours
- CCE 2360 - Geomatics **Credits:** 3 hours
- CCE 3360 - Soil Mechanics **Credits:** 3 hours
- CCE 3080 - Civil and Construction Engineering Materials **Credits:** 3 hours
- CCE 3300 - Transportation Engineering **Credits:** 3 hours
- CCE 3330 - Construction Codes, Specifications, and Contracts **Credits:** 3 hours
- CCE 3860 - Structural Analysis **Credits:** 3 hours
- CCE 4300 - Traffic Design **Credits:** 3 hours
- CCE 4400 - Introduction to Structural Design **Credits:** 3 hours
- CCE 4561 - Foundation and Earth Retaining Structure Design **Credits:** 3 hours
- CCE 4830 - Project Design and Control **Credits:** 1 hour
- CCE 4850 - Senior Project **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category and the required Planetary Sustainability outcome)

Pre-Engineering Cognate Courses

- CCE 1001 - Introduction to Engineering Design **Credits:** 1 hour
- CCE 1002 - Introduction to Engineering Analysis **Credits:** 1 hour
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CS 1022 - Introduction to Engineering Computing II: Mathematical Software **Credits:** 1 hour
- CS 1023 - Introduction to Engineering Computing III: Computer Programming **Credits:** 1 hour
- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- IEE 1020 - Technical Communication **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- ME 2560 - Statics **Credits:** 3 hours
- ME 2570 - Mechanics of Materials **Credits:** 3 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Additional Cognate Courses

- CHEG 2611 - Environmental Engineering I **Credits:** 3 hours
- GEOS 1300 - Physical Geology **Credits:** 4 hours
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communications Category)
- IEE 3100 - Engineering Economy **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- ME 2580 - Dynamics **Credits:** 3 hours
- ME 3560 - Fluid Mechanics **Credits:** 3 hours

Construction Engineering (CENJ)

The Construction Engineering curriculum prepares students for entry-level positions in construction planning, management, or development. Technical, business, and human relations knowledge and skills are developed in classroom settings and on residential and commercial construction job sites.

Accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

For up-to-date educational objectives and learning outcomes, see department web page at wmich.edu/civil-construction/academics/abet/outcomes.

WMU Essential Studies Program Requirements

Students who have chosen the Civil or Construction Engineering curriculum will satisfy the WMU Essential Studies Program Requirements as outlined within the course listings below. To satisfy these requirements student take courses in twelve (12) categories. Six (6) of the courses are designated within the construction engineering program requirements and six (6) are free electives which students choose from a list of courses in the corresponding course category. Students will meet the planetary sustainability outcome in CCE 4850: Senior Project and must select a course that satisfies the Diversity and Inclusion outcome when choosing a course in the other six (6) categories.

Requirements

Candidates for the Bachelor of Science in Engineering (Construction) must complete the following program of 126 semester credit hours as well as University requirements stated elsewhere in this catalog.

- A "C" or better must be earned in all courses with a CCE, IEE, EDMM or ME prefix.
- A student is required to earn a grade of "C" or better in the prerequisite courses for all CCE courses before enrollment is permitted in the next sequence course.
- No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
- No minor required.

Construction Engineering Major Requirements (37 hours)

- Engineering Science or Design Elective **Credits:** 3 hours
- Engineering Science or Design Elective **Credits:** 3 hours
- CCE 2360 - Geomatics **Credits:** 3 hours
- CCE 3360 - Soil Mechanics **Credits:** 3 hours
- CCE 3080 - Civil and Construction Engineering Materials **Credits:** 3 hours
- CCE 3330 - Construction Codes, Specifications, and Contracts **Credits:** 3 hours
- CCE 3860 - Structural Analysis **Credits:** 3 hours
- CCE 4310 - Construction Planning and Scheduling **Credits:** 3 hours
- CCE 4360 - Construction Estimating, Bidding, and Cost Control **Credits:** 3 hours
- CCE 4400 - Introduction to Structural Design **Credits:** 3 hours
- CCE 4830 - Project Design and Control **Credits:** 1 hour
- CCE 4850 - Senior Project **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category and the required Planetary Sustainability outcome)
- CCE 4380 - Construction Project Management **Credits:** 3 hours

Pre-Engineering Cognate Courses

- CCE 1001 - Introduction to Engineering Design **Credits:** 1 hour
- CCE 1002 - Introduction to Engineering Analysis **Credits:** 1 hour
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CS 1022 - Introduction to Engineering Computing II: Mathematical Software **Credits:** 1 hour
- CS 1023 - Introduction to Engineering Computing III: Computer Programming **Credits:** 1 hour
- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- IEE 1020 - Technical Communication **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)

- IEE 2610 - Engineering Statistics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communications Category)
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- ME 2560 - Statics **Credits:** 3 hours
- ME 2570 - Mechanics of Materials **Credits:** 3 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Additional Cognate Courses

- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- GEOS 1300 - Physical Geology **Credits:** 4 hours
- FIN 3200 - Business Finance **Credits:** 3 hours
- IEE 3100 - Engineering Economy **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- ME 2580 - Dynamics **Credits:** 3 hours
- ME 3560 - Fluid Mechanics **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours

Computer Science

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Wuwei Shen
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The Department of Computer Science offers a Bachelor of Science program and a minor for undergraduates. The department also offers a master's program and a doctoral program for graduate students. All programs, both undergraduate and graduate, are in computer science. Also, the Statistics Department together with the computer Science Department jointly offer an undergraduate data sciences major program.

The accelerated graduate degree program gives an opportunity to undergraduate students in the Computer Science Department to complete the requirements for the master's degree at an accelerated pace. These undergraduate students may count up to 12 (but not fewer than 6) credit hours of 5000-level CS courses taken during their undergraduate studies toward a master's degree in computer science within 24 months after the completion of their bachelor's degree in computer science.

Computer science is the science of abstraction. Computer scientists focus on creating a model for a problem and developing techniques for solving it using software implementations on digital computers. Computer science emphasizes the software aspects both in theory and application rather than the physical construction of computers (hardware aspects). The department offers a number of introductory programming courses which may be taken by students in other majors as well as a complete program that provides in-depth focus in computer science.

The undergraduate program described here provides education in the field of computer science to prepare graduates for careers in many kinds of work, including all aspects of software development and maintenance, database and network design and management, consulting, education, and training. Graduate work provides education in both applications and systems areas.

The CS major includes core courses in programming, systems, algorithms, databases, web technologies and software product development. Additionally, elective courses in computer science include: artificial intelligence, distributed computing, graphics, mobile applications, networking, programming languages, software engineering, theory of computing, data sciences, machine learning, and computer and information security.

Additionally, a computer science major will study mathematics and statistics, science, general education subjects, and computer engineering. Mathematics is necessary for the analysis and comparison of computer languages, machines, algorithms, and data structures.

Academic Advising

Students should make an appointment with a computer science academic advisor as early as possible, certainly within the second semester of enrollment in computer science classes. Eligibility requirements for admittance into a major or minor program are available from the computer science advisor. An advisor is available to assist in individual program planning, to recommend electives appropriate for a student's educational objectives, to discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental advisor. Academic advising is available, usually by appointment, through Room E-102 Floyd Hall Advising Office, (269) 276-3270. Advising appointments can be made online at ceas.wmich.edu/west.

Additional Information

General information regarding counseling and types of degrees may be found under the beginning of the College of Engineering and Applied Sciences section of this catalog.

Students must satisfy prerequisites before enrolling in a course. Those who fail to earn a "C" or better grade in a prerequisite course will be denied permission to enroll in the next course - or unenrolled from that course if registration occurred prior to receiving their grade for the prerequisite course. The student will be responsible for further changes to his or her schedule and may work with the advisor to revise their schedule.

Enrollments in most 5000-level computer science classes will be restricted to upper-level undergraduates and graduate students in computer science.

Bachelor of Science

Computer Science

The Computer Science program has been accredited by the Computing Accreditation Commission of ABET, www.abet.org. The program contains both practical applications and underlying foundations of the discipline.

Program Educational Objectives:

Graduates will:

- Exhibit knowledge and skills sufficient for continued intellectual growth in computing.
- Develop mentoring skills and assume project leadership roles in the computing field.
- Be able to adapt to technological advances and become technical experts in at least one area of computing.
- Gain an understanding of business and organizational concepts within the computing field.
- Understand the roles of regulations and guidelines in their area of industry.

Student Outcomes:

Students will have an ability to:

- Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- Communicate effectively in a variety of professional contexts.
- Recognize professional responsibilities and make informed judgements in computing practice based on legal and ethical principles.
- Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- Apply computer science theory and software development fundamentals to produce computing-based solutions.

Requirements

Students enrolling in the Computer Science Program are required to own a laptop computer with minimum specifications set by the department. These specifications will be posted on the department website.

There is no minor required.

Candidates for the Bachelor of Science in Computer Science must satisfy the following requirements in addition to those required by Western Michigan University:

1. Mathematics/Statistics and Laboratory Science

To satisfy CAC/ABET accreditation requirements, all students must complete at least 30 credit hours of mathematics, statistics and laboratory science requirements which must include one approved laboratory science and a minimum of 15 credit hours in mathematics/statistics. Mathematics/statistics course work must include:

- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
- MATH 2300 - Elementary Linear Algebra **Credits:** 4 hours
- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- CS 1310 - Foundations of Computer Science **Credits:** 4 hours
(1 of the CS 1310 credits counts towards the 15 hour Math/Stat minimum)

Approved Mandatory Laboratory Science Courses

Students may meet the laboratory science requirement by taking one of the following:

- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
And
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- GEOS 1300 - Physical Geology **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
And
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour

Remaining Mathematics/Statistics and Laboratory Science

The remaining 10-11 credit hours of Mathematics/Statistics/Lab Science courses must be approved by a department advisor.

2. WMU Essential Studies Program Requirements

Students who have chosen the Computer Science curriculum will satisfy the WMU Essential Studies Program Requirements as outlined within the course listings below. To satisfy these requirements students take courses in twelve (12) categories. Six (6) of the courses are designated within the Computer Science program requirements and six (6) are free electives which students choose from a list of courses in the corresponding course category. Students must select courses that satisfy the Diversity and Inclusion and Planetary Sustainability outcomes when choosing their six (6) WMU Essential Studies free electives.

3. Minimum Grades

Students may receive at most two grades below a "C" in the following courses:

- All courses with a CS prefix
- ECE 2500
- Courses used for the Math/Stat/Science 30 credit hour requirement including required Math/Stat courses, the required Science course and any courses included as the Math/Stat/Science electives

4. Complete 122 Semester Credit Hours

Computer Science Requirements (24 hours)

- CS 3310 - Data and File Structures **Credits:** 3 hours
- CS 4310 - Design and Analysis of Algorithms **Credits:** 3 hours
- CS 3550 - Network Fundamentals **Credits:** 3 hours
- CS 4541 - Computer Systems Fundamentals **Credits:** 3 hours
- CS 4850 - Foundations of Programming Languages **Credits:** 3 hours
- CS 4610 - Reusable Software Architectures **Credits:** 3 hours
- CS 4900 - Software Systems Development I: Requirements and Design **Credits:** 3 hours
- CS 4910 - Software Systems Development II: Implementation, Testing **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category)

Cognate Courses

- Approved Laboratory Science Course **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- MATH/STAT/SCIENCE Approved Elective **Credits:** 4 hours
- MATH/STAT/SCIENCE Approved Elective **Credits:** 4 hours
- MATH/STAT/SCIENCE Approved Elective **Credits:** 4 hours
- Approved CS Elective **Credit:** 3 hours
- Approved CS Elective **Credit:** 3 hours
- Free WMU Elective **Credits:** 3 hours
- Free WMU Elective **Credits:** 3 hours
- Free WMU Elective **Credits:** 3 hours
- CS 1110 - Computer Science I **Credits:** 4 hours
- IEE 1020 - Technical Communication **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)

- COM 1040 - Public Speaking **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communications Category)
- CS 1120 - Computer Science II **Credits:** 4 hours
- ECE 2500 - Digital Logic **Credits:** 3 hours
- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- CS 1210 - Introduction to C **Credits:** 1 hour
- CS 1310 - Foundations of Computer Science **Credits:** 4 hours
- CS 2230 - Computer Organization and Assembly Language **Credits:** 3 hours
- CS 3500 - Introduction to Web Technologies **Credits:** 3 hours
- MATH 2300 - Elementary Linear Algebra **Credits:** 4 hours
- PHIL 3160 - Ethics in Engineering and Technology **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)
- CS 3240 - System Programming Concepts **Credits:** 3 hours
- CS 4430 - Database Management Systems **Credits:** 3 hours

Approved CS Elective

CS Elective courses must be taken from the set of CS 5000-level courses covering specific computing topics. Students should consult with a departmental advisor before enrolling in one of these courses, as certain 5000-level offerings are not appropriate for undergraduates. No more than one lower-level elective CS course (e.g., CS 2000 or CS 2100) may be included as an elective.

Free WMU Elective

Free Elective means the student may choose without restriction any course offered at the University. That is, the course need not be a WMU Essential Studies course nor a course in computer science.

Cybersecurity (CYCS)

The program contains both practical applications and underlying foundations of the discipline of Cybersecurity.

There is no minor required for this major.

Program Educational Objectives

Graduates will:

- Be employable and successful in a variety of professional cybersecurity positions.
- Possess backgrounds which qualify them to pursue graduate study in cybersecurity.
- Exhibit knowledge and skills sufficient for continued intellectual growth in cybersecurity.
- Possess an awareness and understanding of social and ethical issues in cybersecurity.
- Be able to communicate orally and in writing.
- Be able to work collaboratively with others.

Student Outcomes

Students will be able to:

- Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

- Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- Communicate effectively in a variety of professional contexts.
- Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- Apply security principles and practices to the environment, hardware, software, and human aspects of a system.
- Analyze and evaluate systems with respect to maintaining operations in the presence of risks and threats.

Baccalaureate-Level Writing Requirement

Students in this program will satisfy the Baccalaureate-Level Writing Requirement by successfully completing CYCS/CYIS 4910 - Cybersecurity Capstone Project 1.

Requirements

Students enrolling in the Cybersecurity program are required to own a laptop computer with minimum specifications set by the program. These specifications are posted on the program website.

Students enrolling in the Cybersecurity program are not required to declare and complete a minor.

Candidates for the Bachelor of Science in Cybersecurity must satisfy the following requirements in addition to those required by Western Michigan University:

1. Mathematics/Discrete Mathematics and Statistics

All students must complete at least six credit hours of mathematics, including discrete mathematics and statistics. Mathematics requirements will be satisfied by:

CYCS 1310 - Foundations of Cybersecurity **Credits:** 4 hours

(1 of the CYCS 1310 credits counts towards the six-hour Mathematics minimum)

CYCS 2110 - Cryptology Concepts and Techniques **Credits:** 3 hours

CYIS 3110 - Cybersecurity Data Analytics **Credits:** 3 hours

2. WMU Essential Studies

A list of approved WMU Essential Studies courses can be found in the "Graduation and Academic Advising" section in this catalog.

WMU Essential Studies requirements include one course from each of the following categories: Writing, Oral and Digital Communication, Quantitative Literacy, Inquiry and Engagement: Critical Thinking in the Arts and Humanities, Personal Wellness, World Language and Culture, Science and Technology, Scientific Literacy with Lab, Artistic Theory and Practice, Societies and Cultures, Local and National Perspectives, and Global Perspectives. No more than three WMU Essential Studies courses may be from any one course prefix.

3. Minimum Grades

Students may receive at most two grades below a "C" in the following courses:

All courses with a CYCS or CYIS prefix.

4. Complete 122 Semester Credit Hours

The schedule below is an example of one leading to graduation in eight semesters.

NOTE: Many of the early Cybersecurity (CYCS/CYIS) courses, CYCS 1110 and CYCS 1120, for example, have been designated to transfer to the Computer Science (CS) or Computer Information Systems (CIS) curriculum, and various CS and CIS classes would also transfer to the CYCS/CYIS curriculum. This gives students a great deal of flexibility in planning their course of study.

First Semester (16 hours)

- WMU Essential Studies **Credits** 3 hours
- WMU Essential Studies **Credits** 3 hours
- Free WMU Elective **Credits** 3 hours
- CYCS 1110 - Computer Programming 1 **Credits:** 4 hours
- CYIS 2310 - Ethics and Impacts **Credits:** 3 hours

Second Semester (16 hours)

- WMU Essential Studies **Credits** 4 hours
- Free WMU Elective **Credits** 4 hours
- CYCS 1120 - Computer Programming 2 **Credits:** 4 hours
- CYCS 1310 - Foundations of Cybersecurity **Credits:** 4 hours

Third Semester (15 hours)

- WMU Essential Studies **Credits** 3 hours
- WMU Essential Studies **Credits** 3 hours
- CYCS 1200 - Programming in C for Cybersecurity **Credits:** 3 hours
- CYCS 2110 - Cryptology Concepts and Techniques **Credits:** 3 hours
- CYIS 2710 - Windows System Administration **Credits:** 3 hours

Fourth Semester (15 hours)

- WMU Essential Studies **Credits** 3 hours
- WMU Essential Studies **Credits** 3 hours
- CYCS 2230 - Basic Computer Organization **Credits:** 3 hours
- CYIS 3110 - Cybersecurity Data Analytics **Credits:** 3 hours
- CYIS 2910 - Linux System Administration **Credits:** 3 hours

Fifth Semester (15 hours)

- WMU Essential Studies **Credits** 3 hours
- WMU Essential Studies **Credits** 3 hours

- CYCS 3240 - Secure Systems Programming Concepts **Credits:** 3 hours
- CYIS 3600 - Secure Systems Analysis and Design **Credits:** 3 hours
- CYIS 3900 - Secure Web Applications and Technologies **Credits:** 3 hours

Sixth Semester (16 hours)

- WMU Essential Studies **Credits** 3 hours
- Free WMU Elective **Credits** 4 hours
- CYCS 4540 - Operating Systems for Cybersecurity **Credits:** 3 hours
- CYIS 3660 - Cybersecurity Management Principles **Credits:** 3 hours
- CYIS 4600 - Secure Database Management Systems **Credits:** 3 hours

Seventh Semester (15 hours)

- WMU Essential Studies **Credits** 3 hours
- Free WMU Elective **Credits** 3 hours
- Free WMU Elective **Credits** 3 hours
- CYIS 3910 - Network+ **Credits:** 3 hours
- CYCS 4910 - Cybersecurity Capstone 1 **Credits:** 3 hours
OR
- CYIS 4910 - Cybersecurity Capstone Project 1 **Credits:** 3 hours

Eighth Semester (14 hours)

- WMU Essential Studies **Credits** 3 hours
- Free WMU Elective **Credits** 3 hours
- Free WMU Elective **Credits** 3 hours
- CYCS 4710 - Security+ **Credits:** 3 hours
- CYCS 4920 - Cybersecurity Capstone 2 **Credits:** 2 hours
OR
- CYIS 4920 - Cybersecurity Capstone Project 2 **Credits:** 2 hours

WMU Free Elective

Free Elective means the student may choose without restriction any course offered at the University. That is, the course need not be a WMU Essential Studies course nor a course in Cybersecurity. Given the total number of free electives, a student may often be able to concentrate these into one discipline and earn a minor in that department. However, Cybersecurity students are not required to have a minor.

Undergraduate Certificate

Undergraduate Certificate in Embedded Systems Venture

To serve our students, industry, and the local community through engaging undergraduate students at an early stage in interdisciplinary research that will promote the quality of life and economic development in the local community.

The specific objectives of this venture are as follows:

- Engage undergraduate students from an early stage to gain professional experience with embedded, mobile and real-time system development. Participating students will operate a full-scale consulting and development firm that specializes in embedded, mobile and real-time systems. The firm will offer research, design, development and technical documentation services to real-world clients including for-profit corporations and non-profit organizations.
- To serve our students by providing them with excellent education and practical experience. The venture will also provide our students with hands-on experience, innovative ideas, introduce them to industry trends, and guide them to investigate novel ideas in embedded, mobile and pervasive systems.
- To serve the industry by conducting interdisciplinary research to build innovative solutions that cater to their specific needs (biology, manufacturing, military, etc.)
- To serve the local community by promoting the quality of life and economic development through harnessing the latest development in embedded and mobile technologies.

Required Courses

The following courses will be required for student to participate in the Undergraduate Certificate in Embedded Systems Venture.

- CS 2230 - Computer Organization and Assembly Language **Credits:** 3 hours
- CS 3240 - System Programming Concepts **Credits:** 3 hours
- ECE 2500 - Digital Logic **Credits:** 3 hours
- ECE 3510 - Engineering of Real Time Systems **Credits:** 3 hours
- CS 3950 - Venture Project **Credits:** 1 to 3 hours
(Total of 6 credits. Three credits for each enrollment; enrollment in two consecutive semesters; a grade of "B" or better is required in the first enrollment for the student to be eligible for a second enrollment; enforced by the venture advisor as different ventures might have different requirements.)

Minors

Computer Science Minor

Computer Science Core (20 hours)

- CS 1110 - Computer Science I **Credits:** 4 hours
- CS 1120 - Computer Science II **Credits:** 4 hours
- CS 3310 - Data and File Structures **Credits:** 3 hours
- Computer Science Elective (Three courses) **Credits:** 9 hours*

Mathematics Cognate (4 hours)

Select one:

- MATH 1220 - Calculus I **Credits:** 4 hours
Or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
Or
- MATH 2000 - Calculus with Applications **Credits:** 4 hours

Computer Science Electives for minors

* Electives must be approved by an advisor, as some courses are more appropriate for CS minors in various majors. The set of courses which may be used as electives include CS courses in the CS major (including CS electives).

Programming Language/Technology Electives

- CS 2000 - Programming Language Experience **Credits:** 1 to 3 hours
Credits: 2 hours needed
- CS 2100 - Introductory Topics in Computing Technology **Credits:** 1 to 3 hours

Computer Science Electives

- CS 2230 - Computer Organization and Assembly Language **Credits:** 3 hours
- CS 4310 - Design and Analysis of Algorithms **Credits:** 3 hours
- CS 4540 - Operating Systems **Credits:** 3 hours
- CS 4850 - Foundations of Programming Languages **Credits:** 3 hours
- CS 4900 - Software Systems Development I: Requirements and Design **Credits:** 3 hours
- CS 4910 - Software Systems Development II: Implementation, Testing **Credits:** 3 hours
- CS 5250 - Computer Architecture **Credits:** 3 hours
- CS 5260 - Parallel Computations **Credits:** 3 hours
- CS 5270 - Computer Graphics **Credits:** 3 hours
- CS 5300 - Artificial Neural Systems **Credits:** 3 hours
- CS 5400 - Design of User Interfaces **Credits:** 3 hours
- CS 5430 - Database Systems **Credits:** 3 hours
- CS 5550 - Computer Networks and Distributed Systems **Credits:** 3 hours
- CS 5700 - Computer Security and Information Assurance **Credits:** 3 hours
- CS 5800 - Theory Foundations **Credits:** 3 hours
- CS 5810 - Compiler Design and Implementation **Credits:** 3 hours
- CS 5820 - Artificial Intelligence **Credits:** 3 hours
- CS 5950 - Advanced Topics in Computer and Information Science **Credits:** 1 to 3 hours
- CS 5990 - Independent Study in Computer Science **Credits:** 1 to 3 hours

Additional Prerequisites

Elective courses requiring additional prerequisites beyond those basic courses required in the minor: CS 2240, 4310, 4540, 4800, 4910, 5180, 5250, 5270, 5400, 5550, 5800, and 5810.

Electrical and Computer Engineering

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The Department of Electrical and Computer Engineering (ECE) offers two different undergraduate degrees; a B.S.E. in Electrical Engineering and a B.S.E. in Computer Engineering. Additionally, the department offers an M.S.E. in Electrical Engineering and an M.S.E. in Computer Engineering, as well as a Ph.D. in Electrical and Computer Engineering. An accelerated degree program allows qualified B.S.E. students to complete classes which count towards their M.S.E. degree while still enrolled as an undergraduate.

The undergraduate programs provide high-quality engineering education in the closely related fields of electrical and computer engineering. Graduates may pursue careers in a wide variety of fields, including design of systems and components, research and development, technical sales, manufacturing, consulting and technical instruction and teaching.

Areas of specialization within Electrical Engineering include electronics, control systems, instrumentation, power generation and transmission, semiconductor device fabrication, signal and imaging processing, and telecommunications. Cross-disciplinary work is becoming increasingly common, with EEs working in biomedical, automotive and computer related fields, for example.

Computer engineers can specialize in the design of reconfigurable digital systems, hardware and software for embedded systems, network design, computer architecture and digital integrated circuits. An increasing number of consumer products incorporate computer technology, linking to the Internet as well as directly to each other. Systems which were once stand-alone electromechanical in nature are now part of a larger system controlled by one or more processors. No longer fixed in place, many modern computing devices are part of mobile platforms, and this trend is expected to continue in the future.

Accelerated Degree Program

The Accelerated Master's Degree Program (AGDP) allows qualified undergraduate students in the Electrical Engineering program or in the Computer Engineering program to complete the requirements for the Master's degree at an accelerated pace. Currently, earning 126 undergraduate credit hours is required to receive a Bachelor's degree in Electrical Engineering; 129 undergraduate credit hours are required to receive a Bachelor's degree in Computer Engineering. The Master's degree requirement is 33 graduate credit hours with the non-thesis option, or 30 hours with the thesis option. In either case, at least 15 hours must be taken at the 6000-level. Having enrolled in the AGDP program students may count up to 12 credit hours of 5000-level courses taken during their undergraduate studies at WMU toward a Master's degree in either Electrical Engineering or in Computer Engineering. Full time students may be able to complete both their Bachelor's and Master's degrees in a five-year period.

Cooperative Education

Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in any area in which computer engineers or electrical engineers may be found.

Academic Advising

Students should contact the electrical and computer engineering academic advisor as early as possible. The advisor is available to assist in individual program planning, to recommend electives appropriate to a student's educational objectives, to discuss employment opportunities, and to help solve academic problems. The academic advisor is located in Room E-102, Floyd Hall, (269) 276-3270. The department chair's office is located in Room B-236 Floyd Hall, Parkview Campus, (269) 276-3150.

Course Substitution and Transfer Credit

Substitutions and transfer credit must be approved. Requests for substitutions and transfer credit must first be submitted to the electrical and computer engineering academic advisor. Requests are then evaluated based on a policy available in the department.

Bachelor of Science in Engineering

Computer Engineering

Accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Program Educational Objectives

Computer Engineering Graduates, within a few years of graduation, should:

- Use their understanding of computer engineering fundamentals to solve problems in professional practice while exhibiting rigorous analysis and creative design skills that reflect their technical depth and ability to draw on multiple disciplines;
- Continue their intellectual development through professional development courses, including online learning opportunities, and/or graduate education; and
- Practice their career in a manner consistent with a high degree of professional ethics, and participate in their community and professional organizations.

(For up-to-date program educational objectives and learning outcomes, see the Department web page at wmich.edu/electrical-computer)

Admission

- To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.
- Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

WMU Essential Studies Program Requirements

Students who have chosen the Computer Engineering curriculum will satisfy the WMU Essential Studies Program Requirements as outlined within the course listings below. To satisfy these requirements student take courses in twelve (12) categories. Six (6) of the courses are designated within the computer engineering program requirements and six (6) are free electives which students choose from a list of courses in the corresponding course category. Students will meet the planetary sustainability outcome in

ECE 4820: Senior Project and must select a course that satisfies the Diversity and Inclusion outcome when choosing a course in the other six (6) categories.

Requirements

Candidates for the Bachelor of Science in Engineering (Computer) must satisfy the following requirements in addition to those required by Western Michigan University:

- A grade point average of 2.0 or better must be earned in courses presented for graduation with ECE, IEE, and ME prefixes.
- Students may enroll in an ECE course only after earning at least a "C" in its prerequisite course(s).
- No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
- The following program of 130 or more semester credit hours must be completed. For transfer students at least 16 credit hours of ECE course work must be completed at WMU. The schedule below is an example of one leading to graduation in eight semesters, beginning with fall. Pre-engineering requirements are indicated.

Computer Engineering Major

A major in computer Engineering leading to a BSE degree will consist of the following required courses:

- ECE 3100 - Network Analysis **Credits:** 3 hours
- ECE 3570 - Introduction to Computer Architecture **Credits:** 4 hours
- ECE 3710 - Linear Systems **Credits:** 3 hours
- ECE 3800 - Probabilistic Methods of Signal and System Analysis **Credits:** 3 hours
- ECE 4510 - Microcontroller Applications **Credits:** 4 hours
- ECE 4525 - Digital Design **Credits:** 4 hours
- ECE 4810 - Electrical/Computer Engineering Design I **Credits:** 2 hours
- ECE 4820 - Electrical/Computer Engineering Design II **Credits:** 3 hours

Required Cognates

A major in Computer Engineering leading to a BSE degree does not require a minor, however, it does require the following cognate courses:

- Engineering Science Elective (see your academic advisor) **Credits:** 3 hours
- Computer Science electives (see your academic advisor) **Credits:** 3 hours
- ECE or CS Electives (see your academic advisor) **Credits:** 12 hours
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- MATH 1450 - Discrete Mathematical Structures **Credits:** 3 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- PHYS 2050 - University Physics I **Credits:** 4 hours

- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- IEE 1020 - Technical Communication **Credits:** 3 hours
- IEE 3100 - Engineering Economy **Credits:** 3 hours
- IEE 3160 - Report Preparation **Credits:** 3 hours
- CS 1110 - Computer Science I **Credits:** 4 hours
- CS 1120 - Computer Science II **Credits:** 4 hours
- CS 3310 - Data and File Structures **Credits:** 3 hours
- ECE 2100 - Circuit Analysis **Credits:** 4 hours
- ECE 2210 - Electronics I **Credits:** 4 hours
- ECE 2500 - Digital Logic **Credits:** 3 hours
- ECE 2510 - Introduction to Microprocessors **Credits:** 4 hours

Computer Engineering Electives

Engineering Science Electives

Students must complete one elective course (minimum of 3 credit hours).

- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- PHYS 3090 - Introductory Modern Physics **Credits:** 4 hours
- PHYS 3300 - Thermodynamics **Credits:** 3 hours
- PHYS 4200 - Analytical Mechanics **Credits:** 3 hours
- PHYS 4600 - Quantum Mechanics **Credits:** 3 hours
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours
- ME 2320 - Thermodynamics I **Credits:** 3 hours
- ME 2560 - Statics **Credits:** 3 hours
- ME 2570 - Mechanics of Materials **Credits:** 3 hours
- ME 2580 - Dynamics **Credits:** 3 hours
- AE 2610 - Introduction to Aerospace Engineering **Credits:** 3 hours
- AE 3610 - Aerodynamics I **Credits:** 4 hours

Note:

Other courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computer Engineering Advisor and Department Chair.

Computer Science Elective Group

Students must complete one elective course (minimum of 3 credit hours).

- CS 4310 - Design and Analysis of Algorithms **Credits:** 3 hours
- CS 4540 - Operating Systems **Credits:** 3 hours
- CS 4850 - Foundations of Programming Languages **Credits:** 3 hours
- CS 5541 - Computer Systems **Credits:** 3 hours
- CS 5810 - Compiler Design and Implementation **Credits:** 3 hours

Electrical and Computer Engineering/Computer Science Elective Group

Students must complete a total of four elective courses (minimum of 12 credit hours).

It is strongly suggested that one additional CS and either ECE 4500 or ECE 4550 be taken.

- CS 3240 - System Programming Concepts **Credits:** 3 hours
- CS 4310 - Design and Analysis of Algorithms **Credits:** 3 hours
(When not taken as the CS Elective)
- CS 4430 - Database Management Systems **Credits:** 3 hours
- CS 4540 - Operating Systems **Credits:** 3 hours
(When not taken as the CS Elective)
- ECE 3510 - Engineering of Real Time Systems **Credits:** 3 hours
- ECE 4500 - Digital Electronics **Credits:** 4 hours
- ECE 4550 - Digital Signal Processing **Credits:** 3 hours
- ECE 4600 - Communication Systems **Credits:** 3 hours

Note:

Other 4000 or 5000-level Electrical and Computer Engineering or Computer Science courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computer Engineering Advisor and Department Chair.

First Semester (17 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category Course Elective **Credits:** 3 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
Pre-engineering requirement
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
Pre-engineering requirement
- ECE 2500 - Digital Logic **Credits:** 3 hours
Pre-engineering requirement
- IEE 1020 - Technical Communication **Credits:** 3 hours
Pre-engineering requirement
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)
- MATH 1220 - Calculus I **Credits:** 4 hours
Pre-engineering requirement
or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
Pre-engineering requirement
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)

Second Semester (16 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Course Elective **Credits:** 3 hours
- CS 1110 - Computer Science I **Credits:** 4 hours
Pre-engineering requirement
- MATH 1230 - Calculus II **Credits:** 4 hours

Pre-engineering requirement

or

- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
Pre-engineering requirement
- PHYS 2050 - University Physics I **Credits:** 4 hours
Pre-engineering requirement
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
Pre-engineering requirement
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)

Third Semester (17 hours)

- ECE 2100 - Circuit Analysis **Credits:** 4 hours
Pre-engineering requirement
- ECE 2510 - Introduction to Microprocessors **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
Pre-engineering requirement
- PHYS 2070 - University Physics II **Credits:** 4 hours
Pre-engineering requirement
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
Pre-engineering requirement

Fourth Semester (17 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category Course
Elective **Credits:** 3 hours
- CS 1120 - Computer Science II **Credits:** 4 hours
- ECE 3570 - Introduction to Computer Architecture **Credits:** 4 hours
- MATH 1450 - Discrete Mathematical Structures **Credits:** 3 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours

Fifth Semester (17 hours)

- CS 3310 - Data and File Structures **Credits:** 3 hours
- ECE 2210 - Electronics I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communications Category)
- ECE 3100 - Network Analysis **Credits:** 3 hours
- ECE 4525 - Digital Design **Credits:** 4 hours
- IEE 3100 - Engineering Economy **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)

Sixth Semester (16 hours)

- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities
Category Course Elective **Credits:** 3 hours
- ECE 3710 - Linear Systems **Credits:** 3 hours
- ECE 3800 - Probabilistic Methods of Signal and System Analysis **Credits:** 3 hours

- ECE 4510 - Microcontroller Applications **Credits:** 4 hours
- IEE 3160 - Report Preparation **Credits:** 3 hours

Seventh Semester (14 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category Course Elective **Credits:** 3 hours
- Engineering Science Elective **Credits:** 3 hours
or
- Computer Science Elective **Credits:** 3 hours
- Electrical and Computer Engineering/Computer Science Elective Group **Credits:** 3 hours
- Electrical and Computer Engineering/Computer Science Elective Group **Credits:** 3 hours
- ECE 4810 - Electrical/Computer Engineering Design I **Credits:** 2 hours
Permission form required to be signed by ECE advisor and department chair. Must complete IEE 3160 and ECE 2510 and ECE 3710, and either (ECE 3200 or ECE 3300) or (ECE 4525 and ECE 4510).

Eighth Semester (15 hours)

- WMU Essential Studies Level 3: Connections – Global Perspectives Category Course Elective **Credits:** 3 hours
- Engineering Science Elective **Credits:** 3 hours
or
- Computer Science Elective **Credits:** 3 hours
- Electrical and Computer Engineering Elective Group **Credits:** 3 hours
- Electrical and Computer Engineering Elective Group **Credits:** 3 hours
- ECE 4820 - Electrical/Computer Engineering Design II **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category)

Electrical Engineering

Accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Program Educational Objectives

Electrical Engineering Graduates, within a few years of graduation, should:

- Use their understanding of electrical engineering fundamentals to solve problems in professional practice while exhibiting rigorous analysis and creative design skills that reflect their technical depth and ability to draw on multiple disciplines;
- Continue their intellectual development through professional development courses, including online learning opportunities, and/or graduate education; and
- Practice their career in a manner consistent with a high degree of professional ethics, and participate in their community and professional organizations.

(For up-to-date program educational objectives and learning outcomes, see the Department web page at wmich.edu/electrical-computer)

Admission

- To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.
- Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

WMU Essential Studies Program Requirements

Students who have chosen the Electrical Engineering curriculum will satisfy the WMU Essential Studies Program Requirements as outlined within the course listings below. To satisfy these requirements student take courses in twelve (12) categories. Six (6) of the courses are designated within the electrical engineering program requirements and six (6) are free electives which students choose from a list of courses in the corresponding course category. Students will meet the planetary sustainability outcome in ECE 4820: Senior Project and must select a course that satisfies the Diversity and Inclusion outcome when choosing a course in the other six (6) categories.

Requirements

Candidates for the Bachelor of Science in Engineering (Electrical) must satisfy the following requirements in addition to those required by Western Michigan University:

- A grade point average of 2.0 or better must be earned in courses presented for graduation with ECE, IEE, and ME prefixes.
- Students may enroll in an ECE course only after earning at least a "C" in its prerequisite course(s).
- No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
- The following program of 126 or more semester credit hours must be completed. For transfer students at least 16 credit hours of ECE course work must be completed at WMU. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are indicated.

Electrical Engineering Major

A major in Electrical Engineering leading to a BSE degree will consist of the following required courses:

- ECE 2210 - Electronics I **Credits:** 4 hours
- ECE 3200 - Electronics II **Credits:** 4 hours
- ECE 3610 - Electromagnetic Fields **Credits:** 4 hours
- ECE 3300 - Electrical Machinery **Credits:** 4 hours
- ECE 4810 - Electrical/Computer Engineering Design I **Credits:** 2 hours
- ECE 4820 - Electrical/Computer Engineering Design II **Credits:** 3 hours

Plus three courses from the following list:

- ECE 4200 - Power Electronics **Credits:** 3 hours
 - ECE 4300 - Electrical Power Systems **Credits:** 3 hours
 - ECE 4510 - Microcontroller Applications **Credits:** 4 hours
 - ECE 4550 - Digital Signal Processing **Credits:** 3 hours
 - ECE 4600 - Communication Systems **Credits:** 3 hours
 - ECE 4700 - Feedback Systems **Credits:** 3 hours
 - ECE 4710 - Motion and Control **Credits:** 3 hours
- OR

- Any other 4000 or 5000 level ECE course with the prior approval of the ECE chair.

Required Cognates

A major in Electrical Engineering leading to a BSE degree does not require a minor, however, it does require the following cognate courses:

- Engineering Science Electives (see your academic advisor) **Credits:** 12 hours
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- IEE 1020 - Technical Communication **Credits:** 3 hours
- IEE 3100 - Engineering Economy **Credits:** 3 hours
- IEE 3160 - Report Preparation **Credits:** 3 hours
- CS 1110 - Computer Science I **Credits:** 4 hours
OR
- CS 1200 - Programming in C for Engineers **Credits:** 3 hours
- ECE 2100 - Circuit Analysis **Credits:** 4 hours
- ECE 2500 - Digital Logic **Credits:** 3 hours
- ECE 2510 - Introduction to Microprocessors **Credits:** 4 hours
- ECE 3100 - Network Analysis **Credits:** 3 hours
- ECE 3710 - Linear Systems **Credits:** 3 hours
- ECE 3800 - Probabilistic Methods of Signal and System Analysis **Credits:** 3 hours

And Either:

- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
OR
- PHYS 3090 - Introductory Modern Physics **Credits:** 4 hours
- PHYS 3100 - Introductory Modern Physics Lab **Credits:** 1 hour

Electrical Engineering Electives

Engineering Mathematics and Science Electives

Students must complete a total of four elective courses (minimum of 12 credit hours).

- CHEM 3770 - Organic Chemistry II **Credits:** 3 hours
- PHYS 3090 - Introductory Modern Physics **Credits:** 4 hours
(if not taken as science elective)
- PHYS 3300 - Thermodynamics **Credits:** 3 hours
- PHYS 4200 - Analytical Mechanics **Credits:** 3 hours
- PHYS 4600 - Quantum Mechanics **Credits:** 3 hours
- STAT 3640 - Foundations of Data Analysis **Credits:** 4 hours
- ME 2320 - Thermodynamics I **Credits:** 3 hours
- ME 2560 - Statics **Credits:** 3 hours
- ME 2570 - Mechanics of Materials **Credits:** 3 hours
- ME 2580 - Dynamics **Credits:** 3 hours
- AE 2610 - Introduction to Aerospace Engineering **Credits:** 3 hours
- AE 3610 - Aerodynamics I **Credits:** 4 hours

Note:

Other courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computer Engineering Advisor and Department Chair.

Electrical and Computer Engineering Elective Group

Students must complete a total of three elective courses (minimum of 9 credit hours).

- ECE 4200 - Power Electronics **Credits:** 3 hours
- ECE 4300 - Electrical Power Systems **Credits:** 3 hours
- ECE 4510 - Microcontroller Applications **Credits:** 4 hours
- ECE 4550 - Digital Signal Processing **Credits:** 3 hours
- ECE 4600 - Communication Systems **Credits:** 3 hours
- ECE 4700 - Feedback Systems **Credits:** 3 hours
- ECE 4710 - Motion and Control **Credits:** 3 hours

Note:

Other 4000 or 5000 level Electrical and Computer Engineering courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computer Engineering Advisor and Department Chair.

First Semester (17 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category Course Elective **Credits:** 2 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
Pre-engineering requirement
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
Pre-engineering requirement
- ECE 2500 - Digital Logic **Credits:** 3 hours
- IEE 1020 - Technical Communication **Credits:** 3 hours

Pre-engineering requirement
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)

- MATH 1220 - Calculus I **Credits:** 4 hours
or
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
Pre-engineering requirement
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)

Second Semester (15-16 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Course
Elective **Credits:** 3 hours
- CS 1110 - Computer Science I **Credits:** 4 hours
or
- CS 1200 - Programming in C for Engineers **Credits:** 3 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
or
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
Pre-engineering requirement
- PHYS 2050 - University Physics I **Credits:** 4 hours
Pre-engineering requirement
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
Pre-engineering requirement
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)

Third Semester (16 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category Course
Elective **Credits:** 3 hours
- ECE 2510 - Introduction to Microprocessors **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
Pre-engineering requirement
- PHYS 2070 - University Physics II **Credits:** 4 hours
Pre-engineering requirement
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
Pre-engineering requirement

Fourth Semester (15-16 hours)

- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities
Category Course Elective **Credits:** 3 hours
- ECE 2100 - Circuit Analysis **Credits:** 4 hours
Pre-engineering requirement
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours

Science Elective Credits (4 hours)

Select one of the following:

- CHEM 1120 - General Chemistry II **Credits:** 3 hours
and
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
or
- PHYS 3090 - Introductory Modern Physics **Credits:** 4 hours
and
- PHYS 3100 - Introductory Modern Physics Lab **Credits:** 1 hour

Fifth Semester (17 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category Course Elective **Credits:** 3 hours
- Engineering Science Elective **Credits:** 3 hours
- ECE 2210 - Electronics I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communications Category)
- ECE 3100 - Network Analysis **Credits:** 3 hours
- ECE 3610 - Electromagnetic Fields **Credits:** 4 hours

Sixth Semester (16 hours)

- Engineering Science Elective **Credits:** 3 hours
- ECE 3200 - Electronics II **Credits:** 4 hours
- ECE 3710 - Linear Systems **Credits:** 3 hours
- ECE 3800 - Probabilistic Methods of Signal and System Analysis **Credits:** 3 hours
- IEE 3160 - Report Preparation **Credits:** 3 hours

Seventh Semester (15 hours)

- Engineering Science Elective **Credits:** 3 hours
- Electrical and Computer Engineering Elective Group **Credits:** 3 hours
- IEE 3100 - Engineering Economy **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)
- ECE 3300 - Electrical Machinery **Credits:** 4 hours
- ECE 4810 - Electrical/Computer Engineering Design I **Credits:** 2 hours
Permission form required to be signed by ECE advisor and department chair. Must complete IEE 3160 and ECE 2510 and ECE 3710, and either (ECE 3200 or ECE 3300) or (ECE 4525 and ECE 4510).

Eighth Semester (15 hours)

- WMU Essential Studies Level 3: Connections – Global Perspectives Category Course Elective **Credits:** 3 hours
- Engineering Science Elective **Credits:** 3 hours
- Electrical and Computer Engineering Elective Group **Credits:** 3 hours
- Electrical and Computer Engineering Elective Group **Credits:** 3 hours
- ECE 4820 - Electrical/Computer Engineering Design II **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category)

Engineering Design, Manufacturing and Management Systems

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Jorge Rodriguez
Thomas E. Swartz
Slobodan Urdarevik

The Department of Engineering Design, Manufacturing, and Management Systems offers the following curricula:

Bachelor of Science (Engineering Design Technology)
Bachelor of Science (Engineering Management Technology)
Bachelor of Science (Manufacturing Engineering Technology).

Graduates from these programs are employed in a wide variety of positions in both manufacturing and service industries. Several departmental minors are offered in plastics, automotive, cast metals and manufacturing. Students may also take other approved minors.

Cooperative Education

Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in their area of study, gaining valuable professional experience.

Academic Advising

Students should contact the Engineering Design, Manufacturing, and Management Systems departmental advisor as early as possible. The advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help resolve academic problems. Substitutions and transfer credit must be approved by the advisor, curriculum committee, and department chair. The advisor is located in Room E-102 Floyd Hall (269) 276-3260. Because of prerequisites and limited offering times, students must consult with an academic advisor for proper course sequence.

Engineering Technology Curricula

"Engineering Technology" is the profession in which knowledge of the applied mathematical and natural sciences gained by higher education, experience centered on practice, and competence developed in a specific field is devoted to application of engineering principles and the implementation of technological advances for the benefit of humanity through its focus on product improvement, manufacturing, and automation of technological processes and operation functions.

Bachelor of Science

Engineering Design Technology

Accredited by the Engineering Technology Commission ETAC of ABET, www.abet.org.

The Engineering Design Technology curriculum deals with design communication related to product and tooling activities of industry including documentation methods, graphic science, computer-aided design, industrial processes, and materials.

The program prepares students to assume such leadership roles as product designers, documentation and standards supervisors, technical publication specialists, or administrators. They are prepared to enter a variety of jobs such as supervision, quality control, and marketing in manufacturing-related industries.

The Engineering Design Technology Educational Objectives are:

- Plan, design, analyze, implement, and improve cost-effective manufacturing service systems.
- Build and use management tools to analyze and solve production problems effectively, and make decisions from a systems perspective.
- Communicate effectively in verbal, written, and graphic forms.
- Pursue professional growth and interact effectively in work environments.

The Engineering Design Technology Student Learning Outcomes are:

- An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, or technology to solve broadly-defined engineering problems.
- An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives.
- An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
- An ability to function effectively as a member or leader on a technical team.

(For up-to-date educational objectives and learning outcomes, see department web page at wmich.edu/edmms)

WMU Essential Studies Program Requirements

Students who have chosen the Engineering Design Technology curriculum will satisfy the WMU Essential Studies Program Requirements as outlined within the course listings below. To satisfy these requirements student take courses in twelve (12) categories. Six (6) of the courses are designated within the Engineering Design Technology program requirements and six (6) are free electives which students choose from a list of courses in the corresponding course category. Students will meet the planetary sustainability outcome in EDMM 1500: Introduction to Manufacturing and must select a course that satisfies the Diversity and Inclusion outcome when choosing a course in the other six (6) categories.

Requirements

Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:

- A "C" or better must be earned in all required courses with EDMM or IEE prefixes.
- No more than two grades of "DC" or "D" in courses presented for graduation may be counted for graduation.
- Complete the following program of 127 semester credit hours. The schedule below is one example leading to graduation in eight semesters. No minor is required.
- Prior to enrollment in 3000/4000-level courses, students must:
 - Place resume with Career and Student Employment Services
 - Complete the following courses with a grade of "C" or better: CHEM 1100 and CHEM 1110, IEE 1020, EDMM 2460, IEE 2610, PHYS 1150 and PHYS 1160, (MATH 1220 or MATH 1700),and (MATH 1230 or MATH 1710)
- The Engineering Design Technology curriculum requires students to complete twelve (12) WMU Essential Studies (WES) courses.

Required Major Courses

- EDMM 3540 - Metrology **Credits:** 3 hours
- EDMM 3440 - Product and Machine Design **Credits:** 3 hours
- EDMM 3460 - Programming for Computer-Aided Design **Credits:** 3 hours
- EDMM 4460 - Advanced Computer-Aided Design (CAD) **Credits:** 3 hours
- EDMM 4480 - Computer-Aided Analysis **Credits:** 3 hours
- EDMM 4490 - Advanced Product and Systems Design **Credits:** 3 hours
- EDMM 4910 - Multidisciplinary Senior Proposal **Credits:** 3 hours
- EDMM 4920 - Multidisciplinary Senior Project **Credits:** 2 hours
- EDMM 4930 - Multidisciplinary Senior Project Consultation **Credits:** 1 hour

Cognate Courses

At least one of these WMU Essential Studies (WES) courses must fulfill the Diversity and Inclusion requirements.

- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category **Credits:** 3 hours
 - WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category **Credits:** 3 hours
 - WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category **Credits:** 3 hours
 - Approved Elective **Credits:** 3 hours
 - WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category **Credits:** 3 hours
 - Approved Elective **Credits:** 3 hours
 - Approved Elective **Credits:** 3 hours
 - WMU Essential Studies Level 3: Connections – Global Perspectives Category **Credits:** 3 hours
 - WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category **Credits:** 3 hours
 - IEE 1020 - Technical Communication **Credits:** 3 hours
 - EDMM 1420 - Engineering Graphics **Credits:** 3 hours
 - EDMM 1430 - Product Design Fundamentals **Credits:** 3 hours
 - EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
 - MATH 1220 - Calculus I **Credits:** 4 hours
- OR

- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- EDMM 1440 - Descriptive Geometry **Credits:** 3 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
- OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- PHYS 1130 - General Physics I **Credits:** 4 hours
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
- CS 1200 - Programming in C for Engineers **Credits:** 3 hours
- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours
- EDMM 2540 - Machining Processes **Credits:** 3 hours
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
- PHYS 1150 - General Physics II **Credits:** 4 hours
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour
- EDMM 2001 - Applied Electricity/Electronics **Credits:** 3 hours
- EDMM 2500 - Plastics Properties and Processing **Credits:** 3 hours
- EDMM 2810 - Statics and Strength of Materials **Credits:** 4 hours
- EDMM 3020 - Engineering Teams: Theory and Practice **Credits:** 3 hours
- EDMM 2560 - Engineering Material Design **Credits:** 3 hours
- OR
- ME 2500 - Materials Science for Engineers **Credits:** 3 hours
- EDMM 2830 - Thermodynamics **Credits:** 2 hours
- EDMM 3480 - Designing for Production **Credits:** 3 hours
- EDMM 3840 - Fluid Mechanics and Hydraulics **Credits:** 3 hours
- EDMM 3200 - Engineering Cost Analysis **Credits:** 3 hours
- EDMM 2990 - Cooperative Education **Credits:** 1 to 3 hours
- EDMM 3120 - Systems Decision Making **Credits:** 3 hours
- EDMM 3500 - Production Thermoplastic Processing **Credits:** 3 hours
- EDMM 4520 - Die Casting **Credits:** 3 hours
- EDMM 4560 - Process Testing and Measurement **Credits:** 3 hours
- EDMM 4590 - Mold Design and Construction **Credits:** 3 hours
- EDMM 4870 - Manufacturing Productivity Techniques **Credits:** 3 hours
- EDMM 4880 - Applied Process Reengineering **Credits:** 3 hours
- EDMM 5500 - Advanced Plastics Processing **Credits:** 3 hours
- IEE 3420 - Ergonomics and Design **Credits:** 3 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- MSL 1020 - Introduction to the Profession of Arms **Credits:** 1 hour
- MSL 2020 - Army Doctrine and Team Development **Credits:** 2 hours
- MSL 3020 - Applied Leadership in Small Unit Operations **Credits:** 3 hours
- MSL 4020 - Mission Command and the Company Grade Officer **Credits:** 3 hours

First Semester (16 hours)

- IEE 1020 - Technical Communication **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)

- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- EDMM 1430 - Product Design Fundamentals **Credits:** 3 hours
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)
- MATH 1220 - Calculus I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)

Second Semester (16 hours)

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- EDMM 1440 - Descriptive Geometry **Credits:** 3 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
- PHYS 1130 - General Physics I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)

Third Semester (17 hours)

- CS 1200 - Programming in C for Engineers **Credits:** 3 hours
- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours
- EDMM 2540 - Machining Processes **Credits:** 3 hours
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communications Category)
- PHYS 1150 - General Physics II **Credits:** 4 hours
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour

Fourth Semester (16 hours)

- EDMM 2001 - Applied Electricity/Electronics **Credits:** 3 hours
- EDMM 2500 - Plastics Properties and Processing **Credits:** 3 hours
- EDMM 2810 - Statics and Strength of Materials **Credits:** 4 hours
- EDMM 3020 - Engineering Teams: Theory and Practice **Credits:** 3 hours
- EDMM 2560 - Engineering Material Design **Credits:** 3 hours
OR
- ME 2500 - Materials Science for Engineers **Credits:** 3 hours

Fifth Semester (17 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category* **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category* **Credits:** 2 hours
- EDMM 2830 - Thermodynamics **Credits:** 2 hours
- EDMM 3480 - Designing for Production **Credits:** 3 hours
- EDMM 3540 - Metrology **Credits:** 3 hours
- EDMM 3840 - Fluid Mechanics and Hydraulics **Credits:** 3 hours

Sixth Semester (15 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category* **Credits:** 3 hours
- EDMM 3200 - Engineering Cost Analysis **Credits:** 3 hours
- EDMM 3440 - Product and Machine Design **Credits:** 3 hours
- EDMM 3460 - Programming for Computer-Aided Design **Credits:** 3 hours
- EDMM 4460 - Advanced Computer-Aided Design (CAD) **Credits:** 3 hours

Seventh Semester (15 hours)

- Approved Technical Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category* **Credits:** 3 hours
- EDMM 4480 - Computer-Aided Analysis **Credits:** 3 hours
- EDMM 4490 - Advanced Product and Systems Design **Credits:** 3 hours
- EDMM 4910 - Multidisciplinary Senior Proposal **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category)

Eighth Semester (15 hours)

- Approved Technical Elective **Credits:** 3 hours
- Approved Technical Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category* **Credits:** 3 hours
- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category* **Credits:** 3 hours
- EDMM 4920 - Multidisciplinary Senior Project **Credits:** 2 hours
- EDMM 4930 - Multidisciplinary Senior Project Consultation **Credits:** 1 hour

Note:

* At least one of these WMU Essential Studies (WES) courses must fulfill the Diversity and Inclusion requirements.

Approved Technical Electives - EDT

- EDMM 2990 - Cooperative Education **Credits:** 1 to 3 hours
- EDMM 3120 - Systems Decision Making **Credits:** 3 hours
- EDMM 3500 - Production Thermoplastic Processing **Credits:** 3 hours
- EDMM 4520 - Die Casting **Credits:** 3 hours

- EDMM 4560 - Process Testing and Measurement **Credits:** 3 hours
- EDMM 4590 - Mold Design and Construction **Credits:** 3 hours
- EDMM 4870 - Manufacturing Productivity Techniques **Credits:** 3 hours
- EDMM 4880 - Applied Process Reengineering **Credits:** 3 hours
- EDMM 5500 - Advanced Plastics Processing **Credits:** 3 hours
- IEE 3420 - Ergonomics and Design **Credits:** 3 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- MSL 1020 - Introduction to the Profession of Arms **Credits:** 1 hour
- MSL 2020 - Army Doctrine and Team Development **Credits:** 2 hours
- MSL 3020 - Applied Leadership in Small Unit Operations **Credits:** 3 hours
- MSL 4020 - Mission Command and the Company Grade Officer **Credits:** 3 hours

Engineering Management Technology

Accredited by the Engineering Technology Commission ETAC of ABET, www.abet.org.

The Engineering Management Technology curriculum provides academic background in humanities, social sciences, communication, and technical subjects relating to manufacturing systems. Human relation skills used in industry when dealing with people are developed. The engineering manager may direct production employees working on line operations or may direct staff personnel specifically assigned to assist the line in meeting its objectives. Employment may be in the general areas of manufacturing and service industries.

The Engineering Management Technology Educational Objectives are:

- Plan, design, analyze, implement, and improve cost-effective manufacturing service systems.
- Build and use management tools to analyze and solve problems effectively and make decisions from a systems perspective.
- Communicate effectively in verbal, written, and graphic forms.
- Pursue professional growth and interact effectively in work environments.

The Engineering Management Technology Student Learning Outcomes are:

- An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, or technology to solve broadly-defined engineering problems
- An ability to design systems, components or processes for broadly-defined engineering technology problems appropriate to program educational objectives
- An ability to apply written, oral and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature
- An ability to conduct standard tests and measurements; to conduct, analyze and interpret experiments; and to apply experimental results to improve processes
- An ability to function effectively as a member or leader on a technical team

(For up-to-date Educational Objectives and Student Learning Outcomes, see department web page at wmich.edu/edmms)

WMU Essential Studies Program Requirements

Students who have chosen the Engineering Management Technology curriculum will satisfy the WMU Essential Studies Program Requirements as outlined within the course listings below. To satisfy these requirements student take courses in twelve (12) categories. Six (6) of the courses are designated within the Engineering Management Technology program requirements and six (6) are free electives which students choose from a list of courses in the corresponding course category. Students will meet the

planetary sustainability outcome in EDMM 1500: Introduction to Manufacturing and must select a course that satisfies the Diversity and Inclusion outcome when choosing a course in the other six (6) categories.

Requirements

Candidates for the Bachelor of Science must satisfy the following requirements in addition to those required by Western Michigan University:

- A grade point average of 2.0 or better must be earned in courses presented for graduation with EDMM, IEE, ECE, and MSE prefixes.
- No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
- Complete the following program of 127 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. No minor is required.
- Prior to enrollment in 3000/4000-level courses, students must 1) place resume with Career and Student Employment Services; 2) complete the following gate courses with a grade of "C" or better: CHEM 1100 and 1110; IEE 1020; EDMM 2460; IEE 2610; PHYS 1150 and 1160; MATH 1220 or 1700 or 2000; and have earned a GPA of 2.3 at WMU. These courses are indicated below.
- The Engineering Management Technology curriculum requires students to complete twelve (12) WMU Essential Studies (WES) courses.

CAEM Exam Requirement

The Certified Associate in Engineering Management (CAEM) exam is a graduation requirement for all undergraduate engineering management students. Each student is required to register for and take the Certified Associate in Engineering Management (CAEM) exam as administered by the American Society for Engineering Management (ASEM). Official proof of sitting for the exam must be provided to the Department of Engineering Design, Manufacturing, and Management Systems to fulfill the requirement and to be indicated as fulfilled in the student's permanent WMU record.

Baccalaureate-Level Writing Requirement

Students who have chosen the Engineering Management Technology curriculum will satisfy the Baccalaureate-Level Writing Requirement by successfully completing EDMM 4910: Multidisciplinary Senior Proposal and EDMM 4920: Multidisciplinary Senior Project.

Required Major Courses

- EDMM 3050 - Work Analysis **Credits:** 3 hours
- EDMM 3120 - Systems Decision Making **Credits:** 3 hours
- EDMM 3260 - Operations Planning and Control **Credits:** 3 hours
- EDMM 3280 - Quality Assurance and Control **Credits:** 3 hours
- EDMM 4120 - Industrial Systems Management **Credits:** 3 hours
- EDMM 4910 - Multidisciplinary Senior Proposal **Credits:** 3 hours
- EDMM 4040 - Plant Layout and Material Handling **Credits:** 4 hours
- EDMM 4920 - Multidisciplinary Senior Project **Credits:** 2 hours
- EDMM 4930 - Multidisciplinary Senior Project Consultation **Credits:** 1 hour

Cognate Courses

At least one of the WMU Essential Studies (WES) courses must fulfill the Diversity and Inclusion requirement.

- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category Course Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category Course Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Course Elective **Credits:** 3 hours
- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category Course Elective **Credits:** 3 hours
- Approved Technical Elective **Credit:** 3 hours
- Approved Technical Elective
- Approved Technical Elective **Credits:** 3 hours
- Approved Technical Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category Course Elective **Credits:** 3 hours
- Approved Technical Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category Course Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category Course Elective **Credits:** 3 hours
- IEE 1020 - Technical Communication **Credits:** 3 hours
- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
- MATH 1180 - Precalculus Mathematics **Credits:** 4 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- MATH 1220 - Calculus I **Credits:** 4 hours
- OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
- OR
- MATH 2000 - Calculus with Applications **Credits:** 4 hours
- PHYS 1130 - General Physics I **Credits:** 4 hours
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
- PHYS 1150 - General Physics II **Credits:** 4 hours
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour
- EDMM 2001 - Applied Electricity/Electronics **Credits:** 3 hours
- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours
- EDMM 2810 - Statics and Strength of Materials **Credits:** 4 hours
- EDMM 2560 - Engineering Material Design **Credits:** 3 hours
- OR
- ME 2500 - Materials Science for Engineers **Credits:** 3 hours
- EDMM 3020 - Engineering Teams: Theory and Practice **Credits:** 3 hours
- EDMM 3150 - Work Analysis and Design Lab **Credits:** 1 hour
- IEE 3160 - Report Preparation **Credits:** 3 hours
- EDMM 3200 - Engineering Cost Analysis **Credits:** 3 hours
- EDMM 4870 - Manufacturing Productivity Techniques **Credits:** 3 hours
- EDMM 2500 - Plastics Properties and Processing **Credits:** 3 hours
- EDMM 2540 - Machining Processes **Credits:** 3 hours

- EDMM 2990 - Cooperative Education **Credits:** 1 to 3 hours
- EDMM 3500 - Production Thermoplastic Processing **Credits:** 3 hours
- EDMM 3520 - Metal Casting **Credits:** 3 hours
- EDMM 3580 - Computer-Aided Manufacturing **Credits:** 3 hours
- EDMM 4520 - Die Casting **Credits:** 3 hours
- EDMM 4560 - Process Testing and Measurement **Credits:** 3 hours
- EDMM 4570 - Manufacturing for Sustainability **Credits:** 3 hours
- EDMM 4590 - Mold Design and Construction **Credits:** 3 hours
- EDMM 4880 - Applied Process Reengineering **Credits:** 3 hours
- EDMM 5500 - Advanced Plastics Processing **Credits:** 3 hours
- IEE 3420 - Ergonomics and Design **Credits:** 3 hours
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- BUS 2200 - Introduction to Global Business **Credits:** 3 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
- OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MKTG 2500 - Marketing Principles **Credits:** 3 hours
- MSL 1020 - Introduction to the Profession of Arms **Credits:** 1 hour
- MSL 2020 - Army Doctrine and Team Development **Credits:** 2 hours
- MSL 3020 - Applied Leadership in Small Unit Operations **Credits:** 3 hours
- MSL 4020 - Mission Command and the Company Grade Officer **Credits:** 3 hours

First Semester (16 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category Course
Elective **Credits:** 3 hours
- IEE 1020 - Technical Communication **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)
- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category and Planetary Sustainability)
- MATH 1180 - Precalculus Mathematics **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)

Second Semester (16 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category Course
Elective **Credits:** 3 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- MATH 1220 - Calculus I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
- OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours

(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)

OR

- MATH 2000 - Calculus with Applications **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
- PHYS 1130 - General Physics I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)

Third Semester (17 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Course Elective **Credits:** 3 hours
- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category)
- PHYS 1150 - General Physics II **Credits:** 4 hours
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour

Fourth Semester (16 hours)

- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category Course Elective **Credits:** 3 hours
- EDMM 2001 - Applied Electricity/Electronics **Credits:** 3 hours
- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours
- EDMM 2810 - Statics and Strength of Materials **Credits:** 4 hours
- EDMM 2560 - Engineering Material Design **Credits:** 3 hours
or
- ME 2500 - Materials Science for Engineers **Credits:** 3 hours

Fifth Semester (16 hours)

- Approved Technical Elective **Credit:** 3 hours
- EDMM 3020 - Engineering Teams: Theory and Practice **Credits:** 3 hours
- EDMM 3050 - Work Analysis **Credits:** 3 hours
- EDMM 3150 - Work Analysis and Design Lab **Credits:** 1 hour
- IEE 3160 - Report Preparation **Credits:** 3 hours
- EDMM 3200 - Engineering Cost Analysis **Credits:** 3 hours

Sixth Semester (15 hours)

- Approved Technical Elective **Credits:** 3 hours
- EDMM 3120 - Systems Decision Making **Credits:** 3 hours
- EDMM 3260 - Operations Planning and Control **Credits:** 3 hours
- EDMM 3280 - Quality Assurance and Control **Credits:** 3 hours
- EDMM 4870 - Manufacturing Productivity Techniques **Credits:** 3 hours

Seventh Semester (15 hours)

- Approved Technical Elective **Credits:** 3 hours
- Approved Technical Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category Course Elective **Credits:** 3 hours
- EDMM 4120 - Industrial Systems Management **Credits:** 3 hours
- EDMM 4910 - Multidisciplinary Senior Proposal **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category)

Eighth Semester (16 hours)

- Approved Technical Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category Course Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category Course Elective **Credits:** 3 hours
- EDMM 4040 - Plant Layout and Material Handling **Credits:** 4 hours
- EDMM 4920 - Multidisciplinary Senior Project **Credits:** 2 hours
- EDMM 4930 - Multidisciplinary Senior Project Consultation **Credits:** 1 hour

Note:

At least one of the WMU Essential Studies (WES) courses must fulfill the Diversity and Inclusion requirement.

Approved Technical Electives - UEM

- EDMM 2500 - Plastics Properties and Processing **Credits:** 3 hours
 - EDMM 2540 - Machining Processes **Credits:** 3 hours
 - EDMM 2990 - Cooperative Education **Credits:** 1 to 3 hours
 - EDMM 3500 - Production Thermoplastic Processing **Credits:** 3 hours
 - EDMM 3520 - Metal Casting **Credits:** 3 hours
 - EDMM 3580 - Computer-Aided Manufacturing **Credits:** 3 hours
 - EDMM 4520 - Die Casting **Credits:** 3 hours
 - EDMM 4560 - Process Testing and Measurement **Credits:** 3 hours
 - EDMM 4570 - Manufacturing for Sustainability **Credits:** 3 hours
 - EDMM 4590 - Mold Design and Construction **Credits:** 3 hours
 - EDMM 4880 - Applied Process Reengineering **Credits:** 3 hours
 - EDMM 5500 - Advanced Plastics Processing **Credits:** 3 hours
 - IEE 3420 - Ergonomics and Design **Credits:** 3 hours
 - BUS 1750 - Business Enterprise **Credits:** 3 hours
 - BUS 2200 - Introduction to Global Business **Credits:** 3 hours
 - MATH 1230 - Calculus II **Credits:** 4 hours
- OR
7. MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
 8. MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
 9. MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
 10. MGMT 2500 - Organizational Behavior **Credits:** 3 hours
 11. MKTG 2500 - Marketing Principles **Credits:** 3 hours

12. MSL 1020 - Introduction to the Profession of Arms **Credits:** 1 hour
13. MSL 2020 - Army Doctrine and Team Development **Credits:** 2 hours
14. MSL 3020 - Applied Leadership in Small Unit Operations **Credits:** 3 hours
15. MSL 4020 - Mission Command and the Company Grade Officer **Credits:** 3 hours

Manufacturing Engineering Technology

Accredited by the Engineering Technology Commission ETAC of ABET, www.abet.org.

The Manufacturing Engineering Technology curriculum offers preparation for entry positions in manufacturing industries. Understanding of materials and production processes equips graduates to plan manufacturing practices and to develop tooling, machines and systems necessary for efficient production. Program minors allow students to specialize in cast metals or plastics.

The Manufacturing Engineering Technology Educational Objectives are:

- Plan, design, analyze, implement, and improve cost-effective manufacturing service systems.
- Build and use management tools to analyze and solve production problems effectively, and make decisions from a systems perspective.
- Communicate effectively in verbal, written, and graphic forms.
- Pursue professional growth and interact effectively in work environments.

The Manufacturing Engineering Technology Student Learning Outcomes are:

- An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, or technology to solve broadly-defined engineering problems.
- An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives.
- An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
- An ability to function effectively as a member or leader on a technical team.

(For up-to-date Educational Objectives and Student Learning Outcomes, see department web page at wmich.edu/edmmms)

WMU Essential Studies Program Requirements

Students who have chosen the Manufacturing Engineering Technology curriculum will satisfy the WMU Essential Studies Program Requirements as outlined within the course listings below. To satisfy these requirements student take courses in twelve (12) categories. Six (6) of the courses are designated within the Manufacturing Engineering Technology program requirements and six (6) are free electives which students choose from a list of courses in the corresponding course category. Students will meet the planetary sustainability outcome in EDMM 1500: Introduction to Manufacturing and must select a course that satisfies the Diversity and Inclusion outcome when choosing a course in the other six (6) categories.

Requirements

- A "C" or better must be earned in all required courses with EDMM or IEE prefixes.
- No more than two grades of "DC" or "D" in courses presented for graduation may be counted for graduation.
- Complete the following program of 128 semester hours. The schedule below is one example leading to graduation in eight semesters. No minor is required.
- Prior to enrollment in 3000/4000-level courses, students must:
 - Place resume with Career and Student Employment Services

- Complete the following courses with a grade of "C" or better: CHEM 1100 and CHEM 1110, IEE 1020, EDMM 2460, IEE 2610, PHYS 1150 and PHYS 1160, and (MATH 1220 or MATH 1700)
- The Manufacturing Engineering Technology curriculum requires students to complete twelve (12) WMU Essential Studies (WES) courses.

Required Major Courses

- EDMM 3480 - Designing for Production **Credits:** 3 hours
- EDMM 3520 - Metal Casting **Credits:** 3 hours
- EDMM 3580 - Computer-Aided Manufacturing **Credits:** 3 hours
- EDMM 4540 - Fabrication, Assembly and Finishing **Credits:** 3 hours
- EDMM 4580 - Manufacturing Systems Integration **Credits:** 3 hours
- EDMM 4910 - Multidisciplinary Senior Proposal **Credits:** 3 hours
- EDMM 4570 - Manufacturing for Sustainability **Credits:** 3 hours
- EDMM 4920 - Multidisciplinary Senior Project **Credits:** 2 hours
- EDMM 4930 - Multidisciplinary Senior Project Consultation **Credits:** 1 hour

Cognate Courses

At least one of these WMU Essential Studies (WES) courses must fulfill the Diversity and Inclusion requirement.

- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category **Credits:** 3 hours
- Approved Elective **Credits:** 3 hours
- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category **Credits:** 3 hours
- Approved Technical Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category. **Credits:** 3 hours
- Approved Technical Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category **Credits:** 3 hours
- IEE 1020 - Technical Communication **Credits:** 3 hours
- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
- EDMM 1501 - Processes and Materials in Manufacturing Laboratory **Credits:** 1 hour
- MATH 1180 - Precalculus Mathematics **Credits:** 4 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- MATH 1220 - Calculus I **Credits:** 4 hours
- OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
- PHYS 1130 - General Physics I **Credits:** 4 hours
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours
- EDMM 2540 - Machining Processes **Credits:** 3 hours
- IEE 2610 - Engineering Statistics **Credits:** 3 hours

- EDMM 2830 - Thermodynamics **Credits:** 2 hours
- PHYS 1150 - General Physics II **Credits:** 4 hours
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour
- EDMM 2001 - Applied Electricity/Electronics **Credits:** 3 hours
- EDMM 2500 - Plastics Properties and Processing **Credits:** 3 hours
- EDMM 2810 - Statics and Strength of Materials **Credits:** 4 hours
- EDMM 3020 - Engineering Teams: Theory and Practice **Credits:** 3 hours
- EDMM 2560 - Engineering Material Design **Credits:** 3 hours
- OR
- ME 2500 - Materials Science for Engineers **Credits:** 3 hours
- EDMM 3540 - Metrology **Credits:** 3 hours
- EDMM 3840 - Fluid Mechanics and Hydraulics **Credits:** 3 hours
- EDMM 3260 - Operations Planning and Control **Credits:** 3 hours
- EDMM 3280 - Quality Assurance and Control **Credits:** 3 hours
- EDMM 3200 - Engineering Cost Analysis **Credits:** 3 hours
- EDMM 4020 - Engineering Leadership **Credits:** 3 hours
- EDMM 2990 - Cooperative Education **Credits:** 1 to 3 hours
- EDMM 3120 - Systems Decision Making **Credits:** 3 hours
- EDMM 3500 - Production Thermoplastic Processing **Credits:** 3 hours
- EDMM 4520 - Die Casting **Credits:** 3 hours
- EDMM 4560 - Process Testing and Measurement **Credits:** 3 hours
- EDMM 4590 - Mold Design and Construction **Credits:** 3 hours
- EDMM 4870 - Manufacturing Productivity Techniques **Credits:** 3 hours
- EDMM 4880 - Applied Process Reengineering **Credits:** 3 hours
- EDMM 5500 - Advanced Plastics Processing **Credits:** 3 hours
- EDMM 5520 - Casting Simulation and Solidification **Credits:** 3 hours
- IEE 3420 - Ergonomics and Design **Credits:** 3 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
- OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- MSL 1020 - Introduction to the Profession of Arms **Credits:** 1 hour
- MSL 2020 - Army Doctrine and Team Development **Credits:** 2 hours
- MSL 3020 - Applied Leadership in Small Unit Operations **Credits:** 3 hours
- MSL 4020 - Mission Command and the Company Grade Officer **Credits:** 3 hours

First Semester (17 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category* **Credits:** 3 hours
- IEE 1020 - Technical Communication **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)
- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)
- EDMM 1501 - Processes and Materials in Manufacturing Laboratory **Credits:** 1 hour
- MATH 1180 - Precalculus Mathematics **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)

Second Semester (16 hours)

WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category* **Credits:** 3 hours

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- MATH 1220 - Calculus I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
- PHYS 1130 - General Physics I **Credits:** 4 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)

Third Semester (16 hours)

- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours
- EDMM 2540 - Machining Processes **Credits:** 3 hours
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communications Category)
- EDMM 2830 - Thermodynamics **Credits:** 2 hours
- PHYS 1150 - General Physics II **Credits:** 4 hours
- PHYS 1160 - General Physics II Laboratory **Credits:** 1 hour

Fourth Semester (16 hours)

- EDMM 2001 - Applied Electricity/Electronics **Credits:** 3 hours
- EDMM 2500 - Plastics Properties and Processing **Credits:** 3 hours
- EDMM 2810 - Statics and Strength of Materials **Credits:** 4 hours
- EDMM 3020 - Engineering Teams: Theory and Practice **Credits:** 3 hours
- EDMM 2560 - Engineering Material Design **Credits:** 3 hours
OR
- ME 2500 - Materials Science for Engineers **Credits:** 3 hours

Fifth Semester (15 hours)

- Approved Technical Elective **Credits:** 3 hours
- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category* **Credits:** 3 hours
- EDMM 3480 - Designing for Production **Credits:** 3 hours
- EDMM 3520 - Metal Casting **Credits:** 3 hours
- EDMM 3540 - Metrology **Credits:** 3 hours
- EDMM 3840 - Fluid Mechanics and Hydraulics **Credits:** 3 hours

Sixth Semester (15 hours)

- Approved Technical Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category* **Credits:** 3 hours
- EDMM 3260 - Operations Planning and Control **Credits:** 3 hours
- EDMM 3280 - Quality Assurance and Control **Credits:** 3 hours
- EDMM 3580 - Computer-Aided Manufacturing **Credits:** 3 hours

Seventh Semester (15 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.* **Credits:** 3 hours
- EDMM 3200 - Engineering Cost Analysis **Credits:** 3 hours
- EDMM 4540 - Fabrication, Assembly and Finishing **Credits:** 3 hours
- EDMM 4580 - Manufacturing Systems Integration **Credits:** 3 hours
- EDMM 4910 - Multidisciplinary Senior Proposal **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category)

Eighth Semester (14 hours)

- Approved Technical Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category* **Credits:** 3 hours
- EDMM 4020 - Engineering Leadership **Credits:** 3 hours
- EDMM 4570 - Manufacturing for Sustainability **Credits:** 3 hours
- EDMM 4920 - Multidisciplinary Senior Project **Credits:** 2 hours
- EDMM 4930 - Multidisciplinary Senior Project Consultation **Credits:** 1 hour

Note:

* At least one of these WMU Essential Studies (WES) courses must fulfill the Diversity and Inclusion requirement.

Approved Technical Electives - MFT

- EDMM 2990 - Cooperative Education **Credits:** 1 to 3 hours
- EDMM 3120 - Systems Decision Making **Credits:** 3 hours
- EDMM 3500 - Production Thermoplastic Processing **Credits:** 3 hours
- EDMM 4520 - Die Casting **Credits:** 3 hours
- EDMM 4560 - Process Testing and Measurement **Credits:** 3 hours
- EDMM 4590 - Mold Design and Construction **Credits:** 3 hours
- EDMM 4870 - Manufacturing Productivity Techniques **Credits:** 3 hours
- EDMM 4880 - Applied Process Reengineering **Credits:** 3 hours
- EDMM 5500 - Advanced Plastics Processing **Credits:** 3 hours
- EDMM 5520 - Casting Simulation and Solidification **Credits:** 3 hours
- IEE 3420 - Ergonomics and Design **Credits:** 3 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
- OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours

- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- MSL 1020 - Introduction to the Profession of Arms **Credits:** 1 hour
- MSL 2020 - Army Doctrine and Team Development **Credits:** 2 hours
- MSL 3020 - Applied Leadership in Small Unit Operations **Credits:** 3 hours
- MSL 4020 - Mission Command and the Company Grade Officer **Credits:** 3 hours

Undergraduate Certificate

Undergraduate Certificate in Integrated Design and Manufacturing

To serve students, industry, and the local community through engaging students at an early stage in manufacturing and design that will lead to education and workforce pathways. The courses in this certificate program lead directly into the BS in Manufacturing Engineering Technology, BS in Engineering Design Technology, and the BS in Engineering Management degree programs at Western Michigan University. The courses in this certificate program may also be transferred for credit in associate degree programs at several Michigan Community Colleges.

Please note this is a 16 credit hour certificate program. At least 9 of the 16 credit hours required to complete this certificate must be fulfilled by courses taken from WMU.

Required Courses (10 hours)

The following courses will be required for student to participate in the Undergraduate Certificate in Integrated Design and Manufacturing.

- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- EDMM 1430 - Product Design Fundamentals **Credits:** 3 hours
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
- EDMM 1501 - Processes and Materials in Manufacturing Laboratory **Credits:** 1 hour

Approved Electives (6 hours)

Select at least two (2) courses.

- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours
- EDMM 2540 - Machining Processes **Credits:** 3 hours

Note:

Other EDMM courses may be used as electives subject to pre-approval.

Minors

Automotive Systems Minor

The automotive systems minor would be most suitable for engineering, engineering technology and applied sciences graduates as they will have most of the prerequisites for the minor. It is recommended that students fulfill their General Education Area VI

requirements by taking CHEM 1100 and CHEM 1110 and Proficiency 4b by taking MATH 1220 or MATH 2000 or MATH 1700. The automotive systems minor totals 15 hours.

Students must take 15 credit hours not in the major to satisfy the automotive systems minor requirements.

Core Classes

Take all of the following:

- EDMM 1220 - Automobile in Society **Credits:** 3 hours
- EDMM 2001 - Applied Electricity/Electronics **Credits:** 3 hours

Electives

Select course(s) to total of 15 hours not required for the student's major or program:

- EDMM 2220 - Mobile Energy Sources and Lubricants **Credits:** 3 hours
- EDMM 3240 - Automotive Power Systems **Credits:** 3 hours
- EDMM 3250 - Automotive Electrical Systems **Credits:** 3 hours
- EDMM 4250 - Automatic and Automated Drive Line Control Systems **Credits:** 3 hours
- EDMM 4260 - Automotive Structure, Ride, and Safety **Credits:** 3 hours

Cast Metals Minor

The cast metals minor would be most suitable for engineering, engineering technology and applied sciences graduates as they will have most of the prerequisites for the minor. It is recommended that students fulfill their General Education Area VI requirements by taking CHEM 1100 and CHEM 1110 and Proficiency 4b by taking MATH 1220 or MATH 2000 or MATH 1700. The cast metals minor totals 15 hours.

Students must take 15 credit hours not in the major to satisfy the cast metals minor requirements.

Required classes

- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours
- EDMM 2540 - Machining Processes **Credits:** 3 hours
- EDMM 3520 - Metal Casting **Credits:** 3 hours
- EDMM 4520 - Die Casting **Credits:** 3 hours
- ME 2500 - Materials Science for Engineers **Credits:** 3 hours

Electives

Select course(s) to achieve a total of 15 hours:

- IEE 3420 - Ergonomics and Design **Credits:** 3 hours
- EDMM 2990 - Cooperative Education **Credits:** 1 to 3 hours
- EDMM 4560 - Process Testing and Measurement **Credits:** 3 hours
- EDMM 4590 - Mold Design and Construction **Credits:** 3 hours
(must be in Casting industry)

- EDMM 5520 - Casting Simulation and Solidification **Credits:** 3 hours

Manufacturing Minor

The following courses will satisfy the manufacturing minor requirements. WMU policy prohibits the use of the same course in a major and in a minor:

Required Core Classes (9 hours)

- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
- EDMM 3280 - Quality Assurance and Control **Credits:** 3 hours

Approved Electives (6 hours)

Select at least (2) courses.

- ECE 2500 - Digital Logic **Credits:** 3 hours
- EDMM 2001 - Applied Electricity/Electronics **Credits:** 3 hours
- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours
- EDMM 2500 - Plastics Properties and Processing **Credits:** 3 hours
- EDMM 2540 - Machining Processes **Credits:** 3 hours
- EDMM 3260 - Operations Planning and Control **Credits:** 3 hours
- EDMM 3580 - Computer-Aided Manufacturing **Credits:** 3 hours

Additional Electives

Other EDMM or IEE course (3 hours) may be used as elective subject to pre-approval.

Notes:

Students may not count any class that is required in their major toward the required 15 hours for this minor.

General Education

It is recommended that students selecting the manufacturing minor fulfill their General Education Area VI requirements by taking CHEM 1100 and CHEM 1110 and/or PHYS 1130 and PHYS 1140 as well as Proficiency 3 by taking MATH 1220 or MATH 2000 or MATH 1700.

Plastics Processing Minor

The plastic processing minor would be most suitable for engineering, engineering technology and applied sciences graduates as they will have most of the prerequisites for the minor. It is recommended that students fulfill their General Education Area VI requirements by taking CHEM 1100 and CHEM 1110 and Proficiency 4b by taking MATH 1220 or MATH 2000 or MATH 1700. The plastic processing minor totals 15 hours.

Students must take 15 credit hours not in the major to satisfy the plastic processing minor requirements.

Required courses

- EDMM 2460 - CAD - Solid Modeling **Credits:** 3 hours
- EDMM 2540 - Machining Processes **Credits:** 3 hours
- EDMM 2500 - Plastics Properties and Processing **Credits:** 3 hours
- EDMM 3500 - Production Thermoplastic Processing **Credits:** 3 hours

Electives

Select course(s) to achieve a total of 15 hours:

- EDMM 2990 - Cooperative Education **Credits:** 1 to 3 hours
Must be in the Plastics industry (3 hours)
- EDMM 4560 - Process Testing and Measurement **Credits:** 3 hours
- EDMM 4590 - Mold Design and Construction **Credits:** 3 hours
- EDMM 5500 - Advanced Plastics Processing **Credits:** 3 hours

Industrial and Entrepreneurial Engineering & Engineering Management

Steven E. Butt, Chair
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Larry Mallak
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John Patten
Troy Place
Tom Swartz
Lee Wells
Bob White

The Department of Industrial and Entrepreneurial Engineering & Engineering Management offers the following curricula:

Bachelor of Science in Engineering (Industrial & Entrepreneurial)

Bachelor of Science in Engineering

Industrial and Entrepreneurial Engineering

Accredited by the Engineering Accreditation Commission (EAC) of ABET, www.abet.org.

The Industrial and Entrepreneurial Engineering curriculum provides the essential foundation, experience, and understanding in science, mathematics, entrepreneurship, humanities, and engineering so that graduates may find employment in a wide variety of industries. The program allows students to obtain a minor of their choice and receive credit for internships or international study as part of the 128 credit hour, four year curriculum. The program also provides a solid foundation for future graduate study. Industrial and entrepreneurial engineering involves traditional IE functions such as the design, installation, and improvement of systems integrating people, materials, and equipment. The program also provides substantial work in entrepreneurial engineering, including product innovation and design and financial aspects of starting new companies. Graduates are typically employed in startup as well as traditional companies in industries such as hotels, banks, food, transportation, and hospitals.

Industrial and Entrepreneurial Engineering Program Educational Objectives are:

Within a few years after graduation, IEE alumni are expected to be immersed in:

- Practice: Performing Industrial Engineering functions in public, private or academic sectors.
- Innovation: Engaging in intra/entrepreneurial activities leading to product, process, and/or system innovation.
- Knowledge: Continuing formal and/or informal education, applying lessons learned, and leading or mentoring others.

The Industrial and Entrepreneurial Engineering Student Learning Outcomes are:

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
- An ability to communicate effectively with a range of audiences
- An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal context
- An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies
- An understanding of the entrepreneurial process including how to design, develop and bring new products and processes to market

(For up-to-date educational objectives and learning outcomes, see department web page at wmich.edu/iecem)

Admission

- To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the Engineering and Applied Sciences' section. The pre-engineering course requirements for this curriculum are indicated below.
- Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

Requirements

Candidates for the Bachelor of Science in Engineering (Industrial and Entrepreneurial) must satisfy the following requirements in addition to those required by Western Michigan University:

- A grade point average of 2.0 or better must be earned in courses presented for graduation with IEE, ECE, and ME prefixes.
- No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
- Complete the following program of 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are indicated. No minor is required.

Required Major Courses

- IEE 2050 - Work Design **Credits:** 4 hours
- IEE 3010 - Entrepreneurial Engineering II: Product and Service Design **Credits:** 3 hours
- IEE 3110 - Introduction to Operations Research **Credits:** 3 hours
- IEE 3300 - Simulation Modeling and Analysis **Credits:** 3 hours
- IEE 3420 - Ergonomics and Design **Credits:** 3 hours
- IEE 4010 - Entrepreneurial Engineering III: Facilities Planning and Logistics **Credits:** 3 hours

- IEE 4160 - Operations Control in Industry **Credits:** 4 hours
- IEE 4180 - IE Senior Design Proposal **Credits:** 1 hour
- IEE 4190 - IEE Senior Design **Credits:** 3 hours

Cognate Courses

At least one of the following WMU Essential Studies (WES) courses must fulfill the Diversity and Inclusion requirement.

- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category Course Elective **Credits** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category Course Elective **Credits:** 3 hours
- Minor Elective **Credits:** 3 hours
- Minor Elective **Credits:** 3 hours
- Minor Elective **Credits:** 3 hours
- Minor Elective **Credits:** 3 hours
- Approved Technical Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Course Elective **Credits:** 3 hours
- Approved Technical Elective **Credits:** 3 hours
- Approved Technical Elective or Approved Internship **Credits:** 3 hours
- Minor Elective **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category Course Elective **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category Course Elective **Credits:** 3 hours
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- IEE 1020 - Technical Communication **Credits:** 3 hours
- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
- IEE 2010 - Entrepreneurial Engineering I: Cost and Financial Analysis **Credits:** 3 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
- ME 2560 - Statics **Credits:** 3 hours
- IEE 2621 - Probability for Engineers **Credits:** 3 hours
- IEE 2622 - Statistical Quality Control **Credits:** 2 hours
- IEE 3100 - Engineering Economy **Credits:** 3 hours
- IEE 3160 - Report Preparation **Credits:** 3 hours

- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- ECE 2100 - Circuit Analysis **Credits:** 4 hours
- ECE 2110 - Machines and Electronic Circuits **Credits:** 3 hours
- ECE 2120 - Electronic Circuits and Systems **Credits:** 3 hours
- ECE 2210 - Electronics I **Credits:** 4 hours
- ECE 2500 - Digital Logic **Credits:** 3 hours
- ME 2320 - Thermodynamics I **Credits:** 3 hours
- ME 2500 - Materials Science for Engineers **Credits:** 3 hours
- ME 2570 - Mechanics of Materials **Credits:** 3 hours
- ME 2580 - Dynamics **Credits:** 3 hours
- CHEG 2611 - Environmental Engineering I **Credits:** 3 hours
- IEE 2990 - Cooperative Education **Credits:** 1 to 3 hours
or
- IEE 5200 - Modern Industrial Practices **Credits:** 3 hours

First Semester (17 hours)

- WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category Course Elective **Credits** 3 hours
- MATH 1220 - Calculus I **Credits:** 4 hours
Pre-engineering Requirement
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
Pre-engineering requirement
(Satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category)
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
Pre-engineering requirement
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
Pre-engineering requirement
- IEE 1020 - Technical Communication **Credits:** 3 hours
Pre-engineering requirement
(Satisfies WMU Essential Studies Level 1: Foundations – Writing Category)
- EDMM 1420 - Engineering Graphics **Credits:** 3 hours

Second Semester (15 hours)

- WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category **Credits:** 3 hours
- MATH 1230 - Calculus II **Credits:** 4 hours
Pre-engineering Requirement
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
Pre-engineering requirement
- PHYS 2050 - University Physics I **Credits:** 4 hours
Pre-engineering requirement
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
Pre-engineering requirement
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category)

- IEE 2010 - Entrepreneurial Engineering I: Cost and Financial Analysis **Credits:** 3 hours

Third Semester (15 hours)

- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
Pre-engineering requirement
- PHYS 2070 - University Physics II **Credits:** 4 hours
Pre-engineering requirement
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
Pre-engineering requirement
- IEE 2610 - Engineering Statistics **Credits:** 3 hours
Pre-engineering requirement
(Satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category)
- ME 2560 - Statics **Credits:** 3 hours
Pre-engineering requirement

Fourth Semester (15 hours)

- Minor Elective Credits: 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category Course
Elective **Credits:** 3 hours
- IEE 2050 - Work Design **Credits:** 4 hours
Pre-engineering requirement
- IEE 2621 - Probability for Engineers **Credits:** 3 hours
- IEE 2622 - Statistical Quality Control **Credits:** 2 hours

Fifth Semester (16 hours)

- Minor Elective Credits: 3 hours
- IEE 3010 - Entrepreneurial Engineering II: Product and Service Design **Credits:** 3 hours
- IEE 3100 - Engineering Economy **Credits:** 3 hours
(Satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category)
- IEE 3160 - Report Preparation **Credits:** 3 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours

Sixth Semester (16 hours)

- Minor Elective Credits: 3 hours
- IEE 3110 - Introduction to Operations Research **Credits:** 3 hours
- IEE 3300 - Simulation Modeling and Analysis **Credits:** 3 hours
- IEE 3420 - Ergonomics and Design **Credits:** 3 hours
- ECE 2100 - Circuit Analysis **Credits:** 4 hours

Seventh Semester (17 hours)

- Minor Elective Credits: 3 hours

- Approved Technical Elective Credits: 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Course Elective Credits: 3 hours
- IEE 4010 - Entrepreneurial Engineering III: Facilities Planning and Logistics **Credits:** 3 hours
- IEE 4160 - Operations Control in Industry **Credits:** 4 hours
- IEE 4180 - IE Senior Design Proposal **Credits:** 1 hour

Eighth Semester (18 hours)

- Approved Technical Elective Credits: 3 hours
- Approved Technical Elective or Approved Internship Credits: 3 hours
- Minor Elective Credits: 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category Course Elective Credits: 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category Course Elective Credits: 3 hours
- IEE 4190 - IEE Senior Design **Credits:** 3 hours

Note:

At least one of the WMU Essential Studies (WES) courses must fulfill the Diversity and Inclusion requirement.

Approved Technical Electives

Please see an advisor prior to taking any course not on this list.

- ECE 2110 - Machines and Electronic Circuits **Credits:** 3 hours
- ECE 2120 - Electronic Circuits and Systems **Credits:** 3 hours
- ECE 2210 - Electronics I **Credits:** 4 hours
- ECE 2500 - Digital Logic **Credits:** 3 hours
- ME 2320 - Thermodynamics I **Credits:** 3 hours
- ME 2500 - Materials Science for Engineers **Credits:** 3 hours
- ME 2570 - Mechanics of Materials **Credits:** 3 hours
- ME 2580 - Dynamics **Credits:** 3 hours
- CHEG 2611 - Environmental Engineering I **Credits:** 3 hours
- IEE 2990 - Cooperative Education **Credits:** 1 to 3 hours
- OR
- IEE 5200 - Modern Industrial Practices **Credits:** 3 hours
(not both)

Mechanical and Aerospace Engineering

Chair

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Richard Meyer
Koorosh Naghshineh
Kapseong Ro
Bade Shrestha

The Department of Mechanical and Aerospace Engineering offers programs leading to the degree of Bachelor of Science in Engineering (Mechanical or Aerospace). The two programs are accredited by the Engineering Accreditation Commission of ABET, www.abet.org. The programs are designed to provide diverse expertise appropriate to the selected engineering discipline. The subject matter includes mathematics, general education, the basic sciences, the engineering sciences, product design, and computational tools for engineering. Electives are used to deepen or broaden the program.

The department offers the opportunity for an Accelerated Master's (ABM) degree. Details of the degree can be found in the college's website wmich.edu/engineer/academics/accelerated.

Mechanical engineers contribute in almost every industry. Mechanical engineers find career opportunities in areas such as: manufacturing, machine tool design, and product development; land, sea, air, and space vehicles and systems; energy conversion and energy distribution; computer hardware and computer software; environmental systems; and construction and urban development. WMU has strong historical ties to the automotive sector and our offerings in automotive engineering include internal combustion engines, engine design, vehicle design, vehicle dynamics, and vehicle structural design. Opportunities for mechanical engineers continue to develop with the rapid expansion of our knowledge base and population growth.

Aerospace Engineers have similar industrial career opportunities to those of mechanical engineers. The Aerospace Engineering program places additional emphasis on disciplines that provide career opportunities in the aerospace industries such as air and space vehicle design, flight testing, fluid and structural analysis, and systems engineering.

Academic Advising

Students should contact a Mechanical or Aerospace Engineering academic advisor as early as possible. Advisors are available to assist with individual program planning, to recommend electives appropriate to a student's educational objectives, to discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a

departmental advisor, the curriculum committee, and the department chair. The academic advisors are located in Room E-102 Floyd Hall, (269) 276-3270.

Scholarships and Awards

Several scholarships are available through the College of Engineering and Applied Sciences. These include, but are not limited to, scholarships through the Giffels Associates, Lakehead-Pipeline, Society of Manufacturing Engineers, H. H. Harris Foundation, Kalamazoo Antique Auto Restorers Club, Knight scholarship, and the college itself. Program announcements are distributed during the application period.

The Department of Mechanical and Aerospace Engineering also annually presents several awards, which include:

- MAE Merit Scholarship Award - to retain and encourage the students with excellent academic performance and to attract meritorious students into mechanical and aerospace engineering programs.
- Dean E. Bluman Memorial Award - presented to an outstanding student of mechanical engineering who has demonstrated interest and ability in liberal studies. This is in honor and recognition of the late Dr. Bluman who, during his tenure as Professor and Chairman of Mechanical Engineering, was an active supporter of liberal education for engineering students.
- Outstanding Mechanical Engineering Scholar Award - presented to a mechanical engineering student who is outstanding scholastically, involved in extra-curricular activities, and demonstrates leadership ability and the professionalism associated with mechanical engineering.
- Outstanding Aerospace Engineering Scholar Award - presented to an aerospace engineering student who is outstanding scholastically, involved in extra-curricular activities, and demonstrates leadership ability and the professionalism associated with aerospace engineering.
- Mechanical and Aerospace Engineering Presidential Scholar Award - presented to an outstanding undergraduate student from one of our programs who is selected using University-wide criteria which include senior standing, superior scholastic ability, extra-curricular involvement, and professional promise.

Cooperative Education

Mechanical Engineering students electing the cooperative education plan may choose to have up to 3 credits of co-op experience apply to their program as a Mechanical Engineering elective. Students enrolled in this course will be classified as having full-time student status for the purpose of loan deferments and insurance eligibility. A detailed description of this process is available through the Mechanical and Aerospace Engineering homepage. See: wmich.edu/sites/default/files/attachments/u593/2015/ME%20program%20co-op.pdf. Cooperative Education is currently not available for Aerospace Engineering students.

Internships

A number of students choose to do internships while continuing their studies. Taking a reduced course load enables the student to gain valuable engineering experience while being continuously enrolled.

Bachelor of Science in Engineering

Aerospace Engineering

Accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

The following Program Educational Objectives (PEO) are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve within two to five years after graduation.

- Career Growth: as demonstrated by metrics such as achieving proficiency in current position, increasing responsibility, diversity of job functions, recognition, progression and/or job advancement.

- Professional Development: as demonstrated by metrics such as pursuing additional educational activities, professional certifications, leadership effectiveness, staying current with evolving technologies and/or demonstrating initiative.
- Service: as demonstrated by metrics such as involvement in their communities, professional societies, and/or humanitarian endeavors.
- Innovation: as demonstrated by metrics such as the development of new processes, devices, methods, patents, and/or dissemination of knowledge.

(For up-to-date educational objectives and learning outcomes, see the department's Web site at wmich.edu/mechanical-aerospace/accreditation-information)

Admission

- To be admitted to this engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.
- Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

WMU Essential Studies Writing Category Requirement

Students who have chosen the Aerospace Engineering curriculum will satisfy the WMU Essential Studies Writing Category Requirement by successfully completing AE 4800: Aerospace Engineering Project.

Requirements

Candidates for the Bachelor of Science in Engineering (Aerospace) degree must satisfy the following requirements in addition to those required by Western Michigan University:

- A grade point average of 2.0 or better must be earned in courses presented for graduation with AE, ECE, IEE, EDMM, and ME prefixes.
- A student is required to earn a grade of "C" or better in all departmental prerequisite courses before enrollment is permitted in the next sequence course.
- No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
- Complete the following program of 129-130 semester credit hours. There is no minor required.
- The Aerospace Engineering curriculum requires students to complete 6 elective WMU Essential Studies (WES) courses, one course from each of the approved lists in the categories of "Inquiry and Engagement: Critical Thinking in the Arts and Humanities", "Artistic Theory and Practice", "World Language and Culture", "Societies and Cultures", "Global Perspectives", and "Personal Wellness".

Pre-engineering Cognate Courses

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(This course satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category.)
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours

- IEE 1020 - Technical Communication **Credits:** 3 hours
(This course satisfies WMU Essential Studies Level 1: Foundations – Writing Category.)
- CS 1200 - Programming in C for Engineers **Credits:** 3 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
(This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.)
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour
(This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.)
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- ECE 2100 - Circuit Analysis **Credits:** 4 hours
- ME 2320 - Thermodynamics I **Credits:** 3 hours
(This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.)
- ME 2560 - Statics **Credits:** 3 hours

Aerospace Engineering Requirements (35 hours)

- AE 2610 - Introduction to Aerospace Engineering **Credits:** 3 hours
(This course satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category.)
- AE 3610 - Aerodynamics I **Credits:** 4 hours
- AE 3710 - Aerodynamics II **Credits:** 3 hours
- AE 3800 - Flight Vehicle Performance **Credits:** 3 hours
- AE 4600 - Aircraft Stability and Control **Credits:** 3 hours
- AE 4630 - Aerospace Structural Design **Credits:** 3 hours
- AE 4660 - Aerospace Propulsion I **Credits:** 3 hours
- AE 4690 - Aircraft Design **Credits:** 3 hours
- AE 4700 - Orbital Mechanics **Credits:** 3 hours
- AE 4760 - Aerospace Propulsion II **Credits:** 3 hours
- ME 4790 - Mechanical Engineering Project Planning **Credits:** 1 hour
- ME 4800 - Mechanical Engineering Project **Credits:** 3 hours
(This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.)

Aerospace Engineering Cognate Electives

Students must complete a total of three elective courses from the list below.

Thermal/Fluid Science

- AE 5200 - Advanced Aerodynamics **Credits:** 3 hours
- ME 4310 - Heat Transfer **Credits:** 3 hours
- ME 4320 - Thermodynamics II **Credits:** 3 hours
- ME 5300 - Theoretical and Computational Fluid Mechanics **Credits:** 3 hours
- ME 5450 - Computational Fluid Dynamics I **Credits:** 3 hours

Structures/Material Science

- AE 5100 - Foundations of Structural Mechanics **Credits:** 3 hours
- ME 4570 - Experimental Solid Mechanics **Credits:** 3 hours
- ME 5610 - Finite Element Method **Credits:** 3 hours
- ME 5690 - Principles of Fatigue and Fracture **Credits:** 3 hours

Flight Dynamics and Control

- AE 4590 - Flight Test Engineering and Design **Credits:** 3 hours
- AE 5400 - Aerospace Vehicle Dynamics **Credits:** 3 hours
- ME 4710 - Motion and Control **Credits:** 3 hours
- ME 5410 - Continuous System Modeling & Simulation **Credits:** 3 hours
- ME 5430 - Mechanical Systems Control **Credits:** 3 hours

System/Component Design

- ME 3650 - Machine Design I **Credits:** 3 hours

Additional Cognate Courses

- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- PHYS 3090 - Introductory Modern Physics **Credits:** 4 hours
- ME 2570 - Mechanics of Materials **Credits:** 3 hours
- ME 2580 - Dynamics **Credits:** 3 hours
- ME 3350 - Instrumentation **Credits:** 3 hours
- ME 3600 - Control Systems **Credits:** 3 hours
- ME 3620 - Theory of Engineering Experimentation **Credits:** 3 hours

Mechanical Engineering

Accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

The following Program Educational Objectives (PEO) are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve within two to five years after graduation.

- Career Growth: as demonstrated by metrics such as achieving proficiency in current position, increasing responsibility, diversity of job functions, recognition, progression and/or job advancement.
- Professional Development: as demonstrated by metrics such as pursuing additional educational activities, professional certifications, leadership effectiveness, staying current with evolving technologies and/or demonstrating initiative.
- Service: as demonstrated by metrics such as involvement in their communities, professional societies, and/or humanitarian endeavors.
- Innovation: as demonstrated by metrics such as the development of new processes, devices, methods, patents, and/or dissemination of knowledge.

(For up-to-date educational objectives and learning outcomes, see the department's Web site at wmich.edu/mechanical-aerospace/accreditation-information)

Admission

- To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.
- Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

WMU Essential Studies Writing Category Requirement

Students who have chosen the Mechanical Engineering curriculum will satisfy the WMU Essential Studies Writing Category Requirement by successfully completing ME 4800: Mechanical Engineering Project.

Requirements

Candidates for the Bachelor of Science in Engineering (Mechanical) degree must satisfy the following requirements in addition to those required by Western Michigan University:

- A grade point average of 2.0 or better must be earned in courses presented for graduation with AE, ECE, IEE, EDMM, and ME prefixes.
- A student is required to earn a grade of "C" or better in all departmental prerequisite courses before enrollment is permitted in the next sequence course.
- No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
- Complete the following program of 129-131 semester credit hours. There is no minor required.
- The Mechanical Engineering curriculum requires students to complete 6 elective WMU Essential Studies (WES) courses, one course from each of the approved lists in the categories of "Inquiry and Engagement: Critical Thinking in the Arts and Humanities", "Artistic Theory and Practice", "World Language and Culture", "Societies and Cultures", "Global Perspectives", and "Personal Wellness".

Pre-engineering Cognate Courses

- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- MATH 1220 - Calculus I **Credits:** 4 hours
OR
- MATH 1700 - Calculus I, Science and Engineering **Credits:** 4 hours
(This course satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category.)
- MATH 1230 - Calculus II **Credits:** 4 hours
OR
- MATH 1710 - Calculus II, Science and Engineering **Credits:** 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- ENGL 1050 - Foundations in Written Communication: Strategies, Behaviors, Success **Credits:** 3 hours
OR
- IEE 1020 - Technical Communication **Credits:** 3 hours
(This course satisfies WMU Essential Studies Level 1: Foundations – Writing Category.)
- CS 1200 - Programming in C for Engineers **Credits:** 3 hours
- PHYS 2050 - University Physics I **Credits:** 4 hours
(This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.)
- PHYS 2060 - University Physics I Laboratory **Credits:** 1 hour

(This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.)

- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour
- ECE 2100 - Circuit Analysis **Credits:** 4 hours

Mechanical Engineering Requirements (43 hours)

- ME 2320 - Thermodynamics I **Credits:** 3 hours
(This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.)
- ME 2560 - Statics **Credits:** 3 hours
- ME 2500 - Materials Science for Engineers **Credits:** 3 hours
- ME 2570 - Mechanics of Materials **Credits:** 3 hours
- ME 2580 - Dynamics **Credits:** 3 hours
- ME 2615 - Introduction to Mechanical Engineering **Credits:** 3 hours
(This course satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category.)
- ME 3560 - Fluid Mechanics **Credits:** 3 hours
- ME 3580 - Mechanism Analysis **Credits:** 3 hours
- ME 3650 - Machine Design I **Credits:** 3 hours
- ME 3350 - Instrumentation **Credits:** 3 hours
- ME 3600 - Control Systems **Credits:** 3 hours
- ME 4310 - Heat Transfer **Credits:** 3 hours
- ME 4320 - Thermodynamics II **Credits:** 3 hours
- ME 4790 - Mechanical Engineering Project Planning **Credits:** 1 hour
- ME 4800 - Mechanical Engineering Project **Credits:** 3 hours
(This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.)

Mechanical Engineering Cognate Electives

Students must complete a total of five different elective courses from the list below (Group 1 and/or Group 2). Electives taken as part of a concentration count toward the total of five. Two must be design courses (marked with a "D" in the list) and two must have a laboratory experience (marked with an "L" in list).

Group 1: Electives from Undergraduate Courses

Note: A minimum grade of "C" is required in all prerequisites to Group 1 electives.

- ME 3670 - Internal Combustion Engines I **Credits:** 3 hours
(L)
- ME 4330 - Environmental Systems Design in Buildings **Credits:** 3 hours
(D)
This course has a prerequisite that is an elective.
- ME 4390 - Design of Thermal Systems **Credits:** 3 hours
(D, L)
This course has a prerequisite that is an elective.
- AE 4660 - Aerospace Propulsion I **Credits:** 3 hours
(L)

- ME 4680 - Engine Design **Credits:** 3 hours
(D, L)
This course has a prerequisite that is an elective.
- ME 4530 - Machine Design II **Credits:** 3 hours
(D)
- ME 4570 - Experimental Solid Mechanics **Credits:** 3 hours
(L)
- AE 4630 - Aerospace Structural Design **Credits:** 3 hours
(D)
- AE 4690 - Aircraft Design **Credits:** 3 hours
(D)
- ME 4700 - Vehicle Structural Design **Credits:** 3 hours
(D)
- AE 4600 - Aircraft Stability and Control **Credits:** 3 hours
- ME 4650 - Vehicle Dynamics **Credits:** 3 hours
- ME 4710 - Motion and Control **Credits:** 3 hours
(L)
- ME 3990 - Cooperative Education **Credits:** 1 hour
(Repeatable 3 times to count as one elective 3 credit course.)

Group 2: Electives from Graduate Courses (5000-level)

Note: A minimum grade of "B" is required in all prerequisites to Group 2 electives.

- ME 5300 - Theoretical and Computational Fluid Mechanics **Credits:** 3 hours
- ME 5390 - Advanced Thermal Design **Credits:** 3 hours
(D)
- ME 5450 - Computational Fluid Dynamics I **Credits:** 3 hours
- ME 5710 - Gas Dynamics **Credits:** 3 hours
- ME 5720 - Advanced Thermodynamics **Credits:** 3 hours
- ME 5770 - Fuel Cell and Alternative Energy **Credits:** 3 hours
(L)
- ME 5200 - Orthopaedic Biomechanics **Credits:** 3 hours
- ME 5500 - Modern Engineered Materials **Credits:** 3 hours
(D)
- ME 5530 - Advanced Product Engineering **Credits:** 3 hours
(D)
This course has a prerequisite that is an elective.
- ME 5610 - Finite Element Method **Credits:** 3 hours
- ME 5690 - Principles of Fatigue and Fracture **Credits:** 3 hours
- ME 5730 - Materials Selection in Design **Credits:** 3 hours
(D)
- ME 5750 - Tribology - Principles and Applications **Credits:** 3 hours
- ME 5410 - Continuous System Modeling & Simulation **Credits:** 3 hours
- ME 5430 - Mechanical Systems Control **Credits:** 3 hours
- ME 5550 - Intermediate Dynamics **Credits:** 3 hours
- ME 5580 - Mechanical Vibrations **Credits:** 3 hours
- ME 5640 - Engineering Noise Control **Credits:** 3 hours
(L)

- ME 5850 - Mechatronics **Credits:** 3 hours
- ME 5350 - Applied Spectroscopy **Credits:** 3 hours
- ME 5600 - Engineering Analysis **Credits:** 3 hours
- ME 5620 - Application of Numerical Methods in Engineering **Credits:** 3 hours

Additional Cognate Courses

- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
AND
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
OR
- PHYS 3090 - Introductory Modern Physics **Credits:** 4 hours
AND
- PHYS 3100 - Introductory Modern Physics Lab **Credits:** 1 hour
- ECE 2110 - Machines and Electronic Circuits **Credits:** 3 hours
- ME 3620 - Theory of Engineering Experimentation **Credits:** 3 hours

Mechanical Engineering Concentration in Solid Mechanics and Structures

Mechanical Engineering majors may choose to focus on the area of solid mechanics and structures as their area of specialty. To qualify for the Concentration in Solid Mechanics and Structures to be recorded in the student's transcript, students must complete the following courses at WMU with a grade of "C" or better:

- ME 3650 - Machine Design I **Credits:** 3 hours

And any combination of four courses from the following list of cognate electives:

- AE 4630 - Aerospace Structural Design **Credits:** 3 hours
- ME 4530 - Machine Design II **Credits:** 3 hours
- ME 4570 - Experimental Solid Mechanics **Credits:** 3 hours
- ME 4700 - Vehicle Structural Design **Credits:** 3 hours
- ME 5500 - Modern Engineered Materials **Credits:** 3 hours
- ME 5610 - Finite Element Method **Credits:** 3 hours
- ME 5690 - Principles of Fatigue and Fracture **Credits:** 3 hours
- ME 5730 - Materials Selection in Design **Credits:** 3 hours

Advising

Interested students should meet with a mechanical engineering advisor to plan a path to this concentration before choosing any of their ME electives.

Mechanical Engineering Concentration in Automotive

Mechanical Engineering majors may choose to focus on the area of automotive as their area of specialty. To qualify for the Concentration in Automotive to be recorded in the student's transcript, students must complete the following courses at WMU with a grade of "C" or better:

- ME 3650 - Machine Design I **Credits:** 3 hours

And any combination of four courses from the following list of cognate electives:

- ME 3670 - Internal Combustion Engines I **Credits:** 3 hours
- ME 4650 - Vehicle Dynamics **Credits:** 3 hours
- ME 4680 - Engine Design **Credits:** 3 hours
- ME 4700 - Vehicle Structural Design **Credits:** 3 hours
- ME 4710 - Motion and Control **Credits:** 3 hours
- ME 5730 - Materials Selection in Design **Credits:** 3 hours
- ME 5750 - Tribology - Principles and Applications **Credits:** 3 hours

Advising

Interested students should meet with a mechanical engineering advisor to plan a path to this concentration before choosing any of their ME electives.

Minors

Mechanical Engineering Minor

Program Requirements

Students must complete at WMU the following five courses with a minimum grade of "C":

- ME 2320 - Thermodynamics I **Credits:** 3 hours
- ME 2500 - Materials Science for Engineers **Credits:** 3 hours
(ME 2615 prerequisite will be waived)
- ME 2580 - Dynamics **Credits:** 3 hours
(Or ME 3600 - Control Systems, for students who receive credit for Dynamics in their major)
- ME 3560 - Fluid Mechanics **Credits:** 3 hours
- ME 3650 - Machine Design I **Credits:** 3 hours
(EDMM 1420 prerequisite will be waived)

Advising

The five required courses have prerequisites in sciences, mathematics and engineering. Interested students should meet with a mechanical engineering advisor to plan a path to the Minor degree. Since the sequence of study may take five semesters, we recommend scheduling a meeting with an advisor not later than in the third semester of study.

College of Fine Arts

College of Fine Arts

wmich.edu/finearts

Daniel Guyette
Dean

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Associate Dean

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Advising Director
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Academic Units

Art
Dance
Music
Theatre

Vision

The college will be a national leader in the preparation of artists, practitioners, teachers, and scholars through educational and creative excellence.

The college holds as its core values:

- Teaching through the integration of theory and practice
- Rigorous student/faculty engagement
- Faculty who are practicing artists
- Student engagement with arts professionals
- A diverse, inclusive and collaborative environment
- The intersection of artistic tradition and innovation
- Contributions to, and partnership with, our communities

Mission

The College of Fine Arts fosters, integrates, and promotes the academic, and artistic excellence of its departments and schools.

Art, Gwen Frostic School of

David Colson, Director
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Adriane Little
Nichole Maury
Ginger Owen
Paul Solomon
Yuanliang Sun
Vince J. Torano
Mary-Louise Totton
Kyle Triplett
Patricia E. Villalobos
Patrick Wilson

The main goal of the Gwen Frostic School of Art is to provide education in the visual arts to the students of Western Michigan University. An innovative foundation program integrates traditional skills with recent computer technologies; while rigorous upper division course work allows the student to specialize in one or more media. The faculty fosters the technical skills, critical thinking, and creative freedom necessary to prepare students for careers in the competitive fields of studio art, graphic design, art education, and art history. Through our programs we also provide visual arts education to the wider university population in an effort to enhance art appreciation and visual literacy.

The Gwen Frostic School of Art also acts as a regional resource, working to advance the arts and their roles in our community. We provide facilities and instruction for special programs in the public school system, K-12. Through the exhibitions in our galleries, a visiting artists and scholars program, and a campus wide sculpture tour, we provide the community access to local, national, and international artists and scholars.

As artists and scholars ourselves, we also exhibit and publish our creative work and research. Through these activities we not only advance our respective fields in the visual arts, but we are better equipped to mentor our students in a world of constantly changing methodologies, technologies, and expectations for art.

Accreditation

Western Michigan University is an accredited member of the National Association of Schools of Art and Design and subscribes to the recommendations of this organization.

Admission

Only the Office of Admissions grants admission to Western Michigan University for undergraduate students. Application forms may be obtained by writing to the Office of Admissions.

Enrollment in the Bachelor of Arts in Art curriculum is contingent upon both admission to the University and approval of the Gwen Frostic School of Art, the latter of which is achieved through the portfolio review process. The student should begin by making application to the University and requesting portfolio information from the Gwen Frostic School of Art. Both procedures should be commenced early in the senior year of high school, or early in the final year at a community college.

Approval to become an art major is based upon the student's background in art, as demonstrated in the portfolio application, that includes samples of visual and written work (art history applications include only writing samples). The Gwen Frostic School of Art's portfolio review will help many students make a more intelligent choice regarding their educational career. Information regarding the portfolio process can be found on the School of Art's website or by calling the art advisors at (269) 387-2440. The school welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

Students interested in pursuing one of our Bachelor of Fine Arts programs, please see below under Art Major-Bachelor of Art Education, Art Major-Bachelor of Fine Arts, and Graphic Design Major-Bachelor of Fine Arts.

Transfer Credit

Transfer credit may be used to fulfill no more than half the number of credit hours required for the student's Art major or minor. Art credits earned at a college accredited by the National Association of Schools of Art and Design, or a regionally recognized accrediting agency, in which a grade of "C" or better is earned, will transfer in most cases. Successful art course transfer is dependent upon the degree of positive content relationship to existing WMU courses, particularly at the foundation level.

If you receive general art credit for any course you feel would fulfill a required art course, or for any course needed to fulfill a prerequisite for a course you wish to take, you must present a portfolio for consideration. Based on the results of this portfolio review, the course in question will either receive a direct course equivalent number or remain general art credit. General art credits can be used to fulfill the art elective category or be used as electives you may need to complete the minimum number of hours required for graduation (122).

If you do not wish to show a portfolio for any courses in which you have received general "art credit," you do not have to do so. These credits will automatically be used as electives wherever needed.

For portfolio guidelines please write to: Screening Committee, Gwen Frostic School of Art, Western Michigan University, Kalamazoo, MI 49008, or call (269) 387-2440.

Advising

All art majors and minors are required to see an art advisor as soon as they are on campus and at least once each Fall and Spring semester thereafter. To make an appointment please call (269) 387-2440.

Miscellaneous

Baccalaureate-Level Writing Requirement

Students who major in Art will satisfy the Baccalaureate-Level Writing Requirement by successfully completing ART 3250: Writing About Art.

Students who major in Art History will satisfy the Baccalaureate-Level Writing Requirement by successfully completing ART 3270: Writing About Art History.

Computer Usage

The Gwen Frostic School of Art utilizes computers in virtually all aspects of the visual arts. Our computer lab is open to all Art majors and minors.

Computer usage and design play a vital role in our Graphic Design Program, and our Design Center is fully equipped for exclusive use of Graphic Design students.

Exhibition Requirement

Each Bachelor of Fine Arts candidate must present a graduating exhibition as stated in Art 4900-4970 in the B.F.A. degree requirements. The B.F.A. candidate is to arrange such an exhibition in consultation with their B.F.A. Committee Chairperson. B.F.A. candidates must submit to the School of Art a minimum of two copies of their portfolio including 20 images of their art work; a description of each piece with title, medium, size and year; an artist statement and resume on CD before receiving a grade for their graduation presentation or final class in their area of concentration.

Grading

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Studios

Advanced undergraduates occasionally are given studios. All other students may work in the regular classroom studios at night and on Saturdays. The School of Art and its instructors cannot be responsible for student work left in studios after the end of each semester or term. Studio classes are usually limited to between 15 and 20 students.

Programs

The Gwen Frostic School of Art offers the following degree programs: Bachelor of Fine Arts with a major in Art and an emphasis in either Ceramics, Metals/Jewelry, Painting, Photography, Photography and Intermedia, Printmedia, or Sculpture; Bachelor of Fine Arts with a major in Graphic Design; Bachelor of Fine Arts with a major in Product Design; Bachelor of Arts with a major in Art; Bachelor of Arts with a major in Art History; Bachelor of Arts with a major in Art Education. All programs are within the Art curriculum, which is composed of the General Education requirements of the University and the Art major requirements of the B.A. or B.F.A. degrees. The School of Art also offers two minors: Art and Art History.

Those seeking a broadly inclusive studio experience in art are advised to take ART 1300 and/or 1400. ART 1200, 1300, 1400, 1480, 2200, and 2210 are open with no prerequisites to non-art majors and can satisfy the Area I, Fine Arts, requirements of General Education. Art 2220 and 2230 are open with no prerequisites to non-art majors and can satisfy the Area IV, Other Cultures, requirements of General Education.

Bachelor of Arts

Art History Major - Bachelor of Arts (40 hours)

The Art History degree provides instruction in Art History and art criticism and is dedicated to a multi-cultural perspective. Course work is offered in Asian, African, Native American, and Western Art ranging from prehistoric to contemporary. The faculty combines expertise to ensure that students are broadly educated in a variety of art historical methods, including a traditional formalist approach, as well as more recent post-modern and post-colonial theories. The program, while housed in the Gwen Frostic School of Art, is interdisciplinary in nature and requires or encourages complementary course work in History, Anthropology, Languages, and other areas. Students receive a variety of classroom-related experiences, as well as opportunities for internships and study abroad. No minor required.

2000-Level Survey Requirement (9 hours)

Choose Three (3)

- ART 2200 - Caves to Cathedrals **Credits:** 3 hours
- ART 2210 - Modern and Postmodern **Credits:** 3 hours

- ART 2220 - Art of Africa, Oceania, and the Americas **Credits:** 3 hours
- ART 2230 - Introduction to Asian Art History **Credits:** 3 hours

Baccalaureate-Level Writing Requirement (3 hours)

3000-4000 Level Requirement (15 hours)

Choose Five (5)

- ART 3210 - Topics in Art History: Variable Topics **Credits:** 3 hours
(Repeatable for different topics)
- ART 3830 - Medieval Art **Credits:** 3 hours
- ART 3850 - Renaissance Art **Credits:** 3 hours
- ART 3900 - Twentieth-Century Art: 1945 to Present **Credits:** 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
Topic: Russian Art and Art Patronage

4000-5000-Level Requirement (7 hours)

Required Courses (4 hours)

- ART 4990 - Senior Thesis **Credits:** 1 hour
- ART 5270 - Art History Methods **Credits:** 3 hours

Choose One (1)

- ART 5210 - Topics in Art History: Variable Topics **Credits:** 3 hours
- ART 5220 - Topics in Medieval and Renaissance Art **Credits:** 3 hours
- ART 5230 - Topics in Modern Art **Credits:** 3 hours
- ART 5250 - Topics in Asian Art **Credits:** 3 hours

Electives (with faculty approval)

- ART 5200 - Independent Study in Art History **Credits:** 2 to 3 hours
- ART 5290 - Art History Internship **Credits:** 1 hour

Elective Requirement (9 hours)

Art History majors may fill the 9 hours of electives required in the major by taking course work in the following areas: Art History and Art Studio (major courses only), as well as courses numbered 3000 or above in the following departments: History; Comparative Religion; literature and creative writing courses in the Departments of English and of World Languages and Literatures; archaeology and cultural anthropology courses in the Department of Anthropology;

The following courses in the Department of Family and Consumer Sciences:

- FCS 2510 - Period Interiors I **Credits:** 3 hours
- FCS 2520 - Period Interiors II **Credits:** 3 hours
- FCS 3260 - History of Fashion **Credits:** 3 hours

The following course in the Department of Philosophy:

- PHIL 3200 - Formal Logic **Credits:** 4 hours

Cognate: World Language Requirement (8 hours)

Eight hours of one language other than English are required. French and German are recommended as research languages; however, Spanish, Italian, Chinese, Japanese, or other languages approved by the Art History faculty can also be applied to the requirement. Students may test out of this requirement by placement in the 2000-level or above on a language proficiency examination. The language requirement credits are counted under Proficiency 4g of the General Education requirements.

Grading Requirement

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Art Major - Bachelor of Arts (54 hours)

This program is designed for the liberal arts-oriented students who want to major in the visual arts. It provides maximum flexibility in terms of electives in art and non-art courses. Professionally oriented art students may start in this program and apply for admission to the B.F.A. program when eligible. No minor required for this program.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Fifty-four hours in art satisfy the major requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)

- ART 1040 - Object Drawing **Credits:** 3 hours
- ART 1050 - Drawing Studio **Credits:** 3 hours
- ART 1070 - Form and Surface **Credits:** 3 hours
- ART 1080 - Form and Space **Credits:** 3 hours

Cognate: Art History Requirement (12 hours)

Two of the four 2000-level Art History courses (6 hours)

- ART 2200 - Caves to Cathedrals **Credits:** 3 hours
- ART 2210 - Modern and Postmodern **Credits:** 3 hours
- ART 2220 - Art of Africa, Oceania, and the Americas **Credits:** 3 hours
- ART 2230 - Introduction to Asian Art History **Credits:** 3 hours

And

Two additional Art History courses at the 3000- or 4000-level, or at the 5000-level with instructor approval.

Baccalaureate-Level Writing Requirement (3 hours)

- ART 3250 - Writing About Art **Credits:** 3 hours

Studio Art Requirement (12 hours)

- One 2000-level 2D course **Credits:** 3 hours
- One 3000-4000 level 2D course **Credits:** 3 hours
- One 2000-level 3D course **Credits:** 3 hours
- One 3000-level 3D course **Credits:** 3 hours

Art Electives (15 hours)

Art major studio credits. Electives and required art courses should be determined in consultation with a faculty advisor within the studio area of emphasis. Three (3) hours of non-Western Art History may be applied to the elective requirement.

Grading Requirement

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Bachelor of Fine Arts

Art Education Major - Bachelor of Fine Arts (84 hours)

Procedures for Admission to Art Education Major

Students who wish to declare an Art Education major are required to apply before registering for any art education courses (ART 3520, ART 4520, ART 5520). Application includes a portfolio review, letter of intent, and advising checks. More complete information is available in the Art Advising Office.

Program Requirements

This program is intended to develop artists trained in various forms of civic engagement, and educational theory and methods. Students who intend to gain K-12 teacher certification must also complete the requirements of the secondary education curriculum of the College of Education and Human Development. Eighty-four credit hours in professional studies satisfy the comprehensive major/minor of this curriculum, and are distributed as follows:

Professional Program

Basic Studies Requirement (12 hours)

- ART 1040 - Object Drawing **Credits:** 3 hours
- ART 1050 - Drawing Studio **Credits:** 3 hours

- ART 1070 - Form and Surface **Credits:** 3 hours
- ART 1080 - Form and Space **Credits:** 3 hours

Baccalaureate-Level Writing Requirement (3 hours)

- ART 3250 - Writing About Art **Credits:** 3 hours

Studio Art Distribution Requirement (21 hours)

- ART 2100 - Life Drawing **Credits:** 3 hours
- ART 2160 - Black & White Photography I **Credits:** 3 hours
- ART 2300 - Ceramics **Credits:** 3 hours
- ART 2400 - Painting I **Credits:** 3 hours
- ART 2800 - Printmedia I **Credits:** 3 hours

And either:

- ART 2750 - Video Art I **Credits:** 3 hours
OR
- ART 3470 - Digital Photography I **Credits:** 3 hours

And either:

- ART 2310 - Sculpture **Credits:** 3 hours
OR
- ART 2380 - Jewelry and Metalsmithing **Credits:** 3 hours

Studio Art Concentration Requirement (9 hours)

Intermediate and advanced level coursework (3000-5000 level) in **one** of the following areas:

Studio Areas:

- Ceramics
- Metals/Jewelry
- Painting
- Photography and Intermedia
- Printmedia
- Sculpture

Art History Requirement (12 hours)

- ART 2200 - Caves to Cathedrals **Credits:** 3 hours
- ART 2210 - Modern and Postmodern **Credits:** 3 hours

And one elective in non-Western art history:

- ART 2220 - Art of Africa, Oceania, and the Americas **Credits:** 3 hours
OR
- ART 2230 - Introduction to Asian Art History **Credits:** 3 hours

And one elective in contemporary art history:

- ART 3900 - Twentieth-Century Art: 1945 to Present **Credits:** 3 hours

Or

Other art history elective that meets the Michigan Department of Education/Standards for teacher preparation requiring a course in contemporary art history, upon approval of art education area coordinator.

Professional Concentration:

See the Education Advisor, 2504 Sangren, for information concerning mandatory Michigan tests.

Art Education Requirement (18 hours)

- ART 3520 - Art, Education, and Child Development **Credits:** 3 hours
- ART 4520 - Art, Education, and Adolescent Development **Credits:** 3 hours
- ART 5520 - Art Education Practicum **Credits:** 6 hours
(ART 5520 must be repeated for a total of 12 credits.)

Teacher Education Requirement (9 hours)

- ED 2500 - Human Development: Applications in Education **Credits:** 3 hours
- ES 3950 - School and Society **Credits:** 3 hours
- LS 3050 - K-12 Content Area Literacy **Credits:** 3 hours

Teacher Certification Requirement (24 hours)

First Semester (12 hours)

- ED 4100 - Seminar in Education **Credits:** 1 to 2 hours
(2 credit hours needed)
- ED 4710 - Intern Teaching: Elementary/Middle School **Credits:** 5, 8, or 10 hours
(10 credit hours needed)

Second Semester (12 hours)

- ED 4100 - Seminar in Education **Credits:** 1 to 2 hours
(2 credit hours needed)
- ED 4750 - Intern Teaching: Middle School/Secondary **Credits:** 5 or 10 hours
(10 credit hours needed)

Grading Requirement

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Art Major - Bachelor of Fine Arts (85 hours)

This degree is designed for qualified students who intend to become professional artists or pursue graduate study in art. Art majors must make application to a departmental committee for admission to B.F.A. candidacy in a specific area of emphasis after completing 30 hours in art and one semester residency in the school.

Areas of emphasis: Ceramics, Metals/Jewelry, Painting, Photography, Photography and Intermedia, Printmedia, and Sculpture. Art Education students who are also BFA candidates must complete the requirements of one of the studio areas of emphasis in addition to the certification requirements of the College of Education and Human Development and the art education sequence in the School of Art: ART 2520, 3520, 4520, and 5520.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Eighty-five hours in art satisfy both the major and the minor requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)

- ART 1040 - Object Drawing **Credits:** 3 hours
- ART 1050 - Drawing Studio **Credits:** 3 hours
- ART 1070 - Form and Surface **Credits:** 3 hours
- ART 1080 - Form and Space **Credits:** 3 hours

Cognate: Art History Requirement (12 to 15 hours)

Two Art History courses chosen from the following (6 hours)

- ART 2200 - Caves to Cathedrals **Credits:** 3 hours
- ART 2210 - Modern and Postmodern **Credits:** 3 hours
- ART 2220 - Art of Africa, Oceania, and the Americas **Credits:** 3 hours
- ART 2230 - Introduction to Asian Art History **Credits:** 3 hours

AND

Two additional Art History courses at the 3000- or 4000 level (BFA Ceramics, Metals/Jewelry, Painting, Printmedia and Sculpture emphasis) or at the 5000-level with instructor approval. **Credits** 3 hours

OR

Three additional Art History courses at the 3000- or 4000 level (BFA Photography and Intermedia emphasis) or at the 5000-level with instructor approval. **Credits** 6 hours

Baccalaureate-Level Writing Requirement (3 hours)

- ART 3250 - Writing About Art **Credits:** 3 hours

Studio Emphasis (21 to 31 hours)

Areas include: Ceramics, Metals/Jewelry, Painting, Photography, Photography and Intermedia, Printmedia, and Sculpture.

Emphasis in Ceramics

- ART 2300 - Ceramics **Credits:** 3 hours
- ART 3300 - Ceramics **Credits:** 3 hours
- ART 5300 - Ceramics Workshop **Credits:** 1 to 6 hours
Credits: 15 hours needed

Emphasis in Metals/Jewelry

- ART 2380 - Jewelry and Metalsmithing **Credits:** 3 hours
- ART 3380 - Jewelry and Metalsmithing **Credits:** 3 hours
- ART 5380 - Jewelry and Metalsmithing Workshop **Credits:** 1 to 6 hours
Credits: 15 hours needed

Emphasis in Painting

- ART 2400 - Painting I **Credits:** 3 hours
- ART 3400 - Painting II **Credits:** 3 hours
- ART 5400 - Painting Workshop **Credits:** 1 to 6 hours
Credits: 15 hours needed

Emphasis in Printmedia

- Printmaking Elective 2000-3000 level **Credits:** 3 hours
- ART 2800 - Printmedia I **Credits:** 3 hours
- ART 3800 - Printmedia II **Credits:** 3 hours
- ART 3000 - Special Topics in Printmedia **Credits:** 3 hours
- ART 5410 - Printmedia Workshop **Credits:** 3 hours
(repeatable for credit)(9 hours required)
Credits: 21 hours needed

Emphasis in Sculpture

- ART 2310 - Sculpture **Credits:** 3 hours
- ART 3310 - Sculpture **Credits:** 3 hours
- ART 5310 - Sculpture Workshop **Credits:** 1 to 6 hours
Credits: 15 hours needed

Art Electives (21 to 34 hours)

Electives and required art courses must be determined in consultation with a faculty advisor within the studio area of emphasis. Three (3) hours of non-Western Art History may be applied to the elective requirement in certain emphases, with advisor approval.

Graduation Presentation (3 hours)

- ART 4930 - Graduation Preparation **Credits:** 3 hours

Grading Requirement

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Emphasis in Photography - Bachelor of Fine Arts (85 hours)

This option in the B.F.A. is designed for qualified students who intend to become professional photographers or pursue graduate study in art. Art majors must make qualified application to a departmental committee for admission to B.F.A. candidacy in a specific area of emphasis after completing 30 hours in art and one semester residency in the school. It is also necessary to be at or above the 3000-level in the area to which they are applying.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Eighty-five hours in art satisfy the major requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)

- ART 1040 - Object Drawing **Credits:** 3 hours
- ART 1050 - Drawing Studio **Credits:** 3 hours
- ART 1070 - Form and Surface **Credits:** 3 hours
- ART 1080 - Form and Space **Credits:** 3 hours

Baccalaureate-Level Writing Requirement (3 hours)

- ART 3250 - Writing About Art **Credits:** 3 hours

Art History Requirement (12 hours)

- ART 2200 - Caves to Cathedrals **Credits:** 3 hours
- ART 2210 - Modern and Postmodern **Credits:** 3 hours

AND two additional Art History electives (3000-5000 level)

Suggested elective:

Photography Emphasis Requirement (21 hours)

- ART 2160 - Black & White Photography I **Credits:** 3 hours

- ART 3160 - Black & White Photography II **Credits:** 3 hours
- ART 3470 - Digital Photography I **Credits:** 3 hours
- ART 4470 - Digital Photography II **Credits:** 3 hours

AND one of the following two courses:

- ART 5480 - Photography Workshop **Credits:** 1 to 4 hours
Credits: 6 to 9 hours needed.
- ART 4710 - Special Topics in Photography and Intermedia **Credits:** 3 hours

Note:

ART 5480 is repeatable for credit.

Studio Art Electives (34 hours)

Recommended to include:

- ART 2450 - Graphic Design-Non BFA in Graphic Design **Credits:** 3 hours
- ART 2750 - Video Art I **Credits:** 3 hours
- ART 2310 - Sculpture **Credits:** 3 hours

Graduation Preparation (3 hours)

- ART 4930 - Graduation Preparation **Credits:** 3 hours

Grading Requirement

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Emphasis in Photography and Intermedia - Bachelor of Fine Arts (85 hours)

This option in the BFA is designed for qualified students who intend to become professional photographers or pursue graduate study in art. Art majors must make application to a departmental committee for admission to B.F.A. candidacy in a specific area of emphasis after completing 30 hours in art and one semester residency in the school. It also is necessary to be at or above the 3000-level in the area to which they are applying.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Eighty-five hours in art satisfy the major requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)

- ART 1040 - Object Drawing **Credits:** 3 hours
- ART 1050 - Drawing Studio **Credits:** 3 hours
- ART 1070 - Form and Surface **Credits:** 3 hours

- ART 1080 - Form and Space **Credits:** 3 hours

Baccalaureate-Level Writing Requirement (3 hours)

- ART 3250 - Writing About Art **Credits:** 3 hours

Art History Requirement (15 hours)

- ART 2200 - Caves to Cathedrals **Credits:** 3 hours
- ART 2210 - Modern and Postmodern **Credits:** 3 hours

Either:

- ART 2220 - Art of Africa, Oceania, and the Americas **Credits:** 3 hours
OR
- ART 2230 - Introduction to Asian Art History **Credits:** 3 hours

AND two additional Art History electives (3000-5000 level)

Suggested:

Photography Emphasis Requirement (31 hours)

- ART 2160 - Black & White Photography I **Credits:** 3 hours
- ART 3160 - Black & White Photography II **Credits:** 3 hours
- ART 3470 - Digital Photography I **Credits:** 3 hours
- ART 4470 - Digital Photography II **Credits:** 3 hours
- ART 2750 - Video Art I **Credits:** 3 hours
- ART 3750 - Video Art II **Credits:** 3 hours
- ART 5480 - Photography Workshop **Credits:** 1 to 4 hours
Credits: 6 to 7 hours needed.
- ART 5350 - Intermedia Workshop **Credits:** 1 to 4 hours
Credits: 3 to 4 hours needed.

And one of the following three courses:

- ART 5480 - Photography Workshop **Credits:** 1 to 4 hours
OR
- ART 5350 - Intermedia Workshop **Credits:** 1 to 4 hours
OR
- ART 4710 - Special Topics in Photography and Intermedia **Credits:** 3 hours

Note:

Four hours in ART 5480 or ART 5350 must be taken during thesis semester. ART 5480 and ART 5350 are repeatable for credit.

Studio Art Electives (21 hours)

Suggested to include:

- ART 2450 - Graphic Design-Non BFA in Graphic Design **Credits:** 3 hours
- ART 2310 - Sculpture **Credits:** 3 hours

Graduation Preparation (3 hours)

- ART 4930 - Graduation Preparation **Credits:** 3 hours

Grading Requirement

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Graphic Design Major - Bachelor of Fine Arts (85 hours)

This degree is designed for qualified students who intend to become professional graphic designers or pursue graduate study in graphic design. Art majors must make specific application for B.F.A. candidacy with a major in graphic design to a departmental committee of graphic design faculty. Courses in the program are sequential beginning in the fall semester of each year and will take a minimum of three years to complete after admission.

Application requires a portfolio review, personal interview, submission of an unofficial transcript, and completion of application forms. Applications and deadlines may be obtained from the advising office. Reviews are held only in the spring semester for admission into the following fall semester. Students must have completed or be enrolled in 12 hours of the Basic Studies courses and 3 hours of Art History.

Students' portfolios are reviewed for understanding of perspective, composition, and color acquired in foundation courses. Academic abilities reflected in the grade point average and an ability to articulate the fundamentals acquired at the basic level of study are also considered as part of the interview process.

The requirements of the B.F.A. curriculum of the Gwen Frostic School of Art and the College of Fine Arts must be satisfied. No minor is required. Eighty-five hours in art satisfy the major requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)

- ART 1040 - Object Drawing **Credits:** 3 hours
- ART 1050 - Drawing Studio **Credits:** 3 hours
- ART 1070 - Form and Surface **Credits:** 3 hours
- ART 1080 - Form and Space **Credits:** 3 hours

Baccalaureate-Level Writing Requirement (3 hours)

- ART 3250 - Writing About Art **Credits:** 3 hours

Cognate: Art History Requirement (12 hours)

Two Art History courses at the 2000-level (6 hours)

- ART 2200 - Caves to Cathedrals **Credits:** 3 hours
- ART 2210 - Modern and Postmodern **Credits:** 3 hours
- ART 2220 - Art of Africa, Oceania, and the Americas **Credits:** 3 hours
- ART 2230 - Introduction to Asian Art History **Credits:** 3 hours

AND

Two additional Art History electives (6 hours)

Graphic Design Sequence (43 hours)

- ART 2500 - Color for Graphic Design **Credits:** 3 hours
- ART 2600 - Graphic Design I: Visual Aesthetics **Credits:** 3 hours
- ART 2510 - Typography I **Credits:** 3 hours
- ART 2610 - Graphic Design II: Graphic Form **Credits:** 3 hours
- ART 3500 - Typography II **Credits:** 3 hours
- ART 3600 - Graphic Design III: Visual Systems **Credits:** 3 hours
- ART 3510 - Typography III **Credits:** 3 hours
- ART 3610 - Graphic Design IV: Design Applications **Credits:** 3 hours
- ART 3710 - Special Topics **Credits:** 3 hours
Choose only one 3710 Special Topics course to complete the 43 hour requirement.
- ART 4600 - Graphic Design V: Advanced Problems **Credits:** 3 hours
- ART 5700 - Intern I **Credits:** 3 hours
- ART 4610 - Graphic Design VI: Senior Projects **Credits:** 4 hours
- ART 5710 - Intern II **Credits:** 3 to 6 hours
Credits: 3 hours needed
- ART 4920 - Graduation Presentation and Seminar-Graphic Design **Credits:** 3 hours

Photography Requirement (6 hours)

- ART 2160 - Black & White Photography I **Credits:** 3 hours
- ART 3470 - Digital Photography I **Credits:** 3 hours

Art Studio Electives (9 hours)

It is recommended that two courses be in a sequence. Three hours of Non-Western art history may be applied to the elective requirement.

Grading Requirement

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Product Design - Bachelor of Fine Arts (98 hours)

The Product Design degree is designed for qualified students who intend to become professional product designers or pursue graduate study in product design. The program is a four-year course of study with an emphasis on interdisciplinary collaboration among Design, Art, Engineering and Business programs. Application requires a portfolio review, a letter of intent, submission of an unofficial transcript, and completion of application forms. Application details may be obtained from the Art Advising Office. Courses in the Product Design program are sequential beginning in the fall semester of each year and will take a minimum of four years to complete after admission.

The requirements of a B.F.A. curriculum of the Gwen Frostic School of Art and the College of Fine Arts must be satisfied. No minor required. Eighty-three hours in art, design, and related technologies, and fifteen hours in Entrepreneurial Studies satisfy the major requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)

- ART 1040 - Object Drawing **Credits:** 3 hours
- ART 1050 - Drawing Studio **Credits:** 3 hours
- ART 1070 - Form and Surface **Credits:** 3 hours
- ART 1080 - Form and Space **Credits:** 3 hours

Baccalaureate-Level Writing Requirement (3 hours)

- ART 3250 - Writing About Art **Credits:** 3 hours

Cognate: Art History Requirement (12 hours)

- 3000-4000 level Art History Topic Course **Credits:** 3 hours
- 3000-4000 level Art History Topic Course **Credits:** 3 hours
- ART 2200 - Caves to Cathedrals **Credits:** 3 hours
OR
- ART 2210 - Modern and Postmodern **Credits:** 3 hours
- ART 2220 - Art of Africa, Oceania, and the Americas **Credits:** 3 hours
OR
- ART 2230 - Introduction to Asian Art History **Credits:** 3 hours

Product Design Sequence (37 hours)

- ART 1600 - Design Seminar **Credits:** 1 hour
(repeatable for credit, minimum of 4 hours required)
- ART 1610 - Drawing for Design **Credits:** 3 hours
- ART 1650 - Product Design I **Credits:** 3 hours
- ART 2650 - Product Design II **Credits:** 3 hours
- ART 2660 - Materials and Processes **Credits:** 3 hours
- ART 3620 - Product Design III **Credits:** 3 hours
- ART 3680 - Special Topics in Design **Credits:** 3 hours
- ART 4640 - Design Internship **Credits:** 3
- ART 4650 - Product Design IV **Credits:** 3 hours

- ART 4670 - Thesis Project **Credits:** 3 hours
- ART 4980 - Product Design V **Credits:** 3 hours
- IEE 3420 - Ergonomics and Design **Credits:** 3 hours

Art Studio Electives (12 hours)

- Art Elective course in sculpture, metals/jewelry, or ceramics **Credits:** 3 hours
- Art Elective course in sculpture, metals/jewelry, or ceramics **Credits:** 3 hours
- Art Elective course in any art discipline **Credits:** 3 hours
- Art Elective course in any art discipline **Credits:** 3 hours

Supporting Engineering Requirement (7 hours)

- EDMM 1420 - Engineering Graphics **Credits:** 3 hours
- EDMM 1500 - Introduction to Manufacturing **Credits:** 3 hours
- EDMM 1501 - Processes and Materials in Manufacturing Laboratory **Credits:** 1 hour

Cognate: Entrepreneurial Studies Requirement (15 hours)

- Entrepreneurial Elective **Credits:** 3 hours
- Entrepreneurial Elective **Credits:** 3 hours
- MGMT 2140 - Exploring Entrepreneurship **Credits:** 3 hours
- FIN 2420 - Entrepreneurial Finance **Credits:** 3 hours
- IEE 3010 - Entrepreneurial Engineering II: Product and Service Design **Credits:** 3 hours

Grading Requirement

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Minors

Art History Minor (18 hours)

This program is designed for liberal arts students interested in art history. A minor slip is required. The 18 credit hours are distributed as follows:

Required Core Courses (6 hours)

- ART 2200 - Caves to Cathedrals **Credits:** 3 hours
- ART 2210 - Modern and Postmodern **Credits:** 3 hours

Art History Electives (12 hours)

Choose one non-Western Art History elective from among the following (3 hours)

- ART 2220 - Art of Africa, Oceania, and the Americas **Credits:** 3 hours
- ART 2230 - Introduction to Asian Art History **Credits:** 3 hours
- ART 3210 - Topics in Art History: Variable Topics **Credits:** 3 hours
(with a non-Western topic)

Choose three Art History electives from among the following: (9 hours)

One Course Must Be At The 4000- Or 5000 level

- ART 3210 - Topics in Art History: Variable Topics **Credits:** 3 hours
- ART 3830 - Medieval Art **Credits:** 3 hours
- ART 3850 - Renaissance Art **Credits:** 3 hours
- ART 3900 - Twentieth-Century Art: 1945 to Present **Credits:** 3 hours
- ART 5200 - Independent Study in Art History **Credits:** 2 to 3 hours
Credits: 3 hours
- ART 5210 - Topics in Art History: Variable Topics **Credits:** 3 hours
- ART 5220 - Topics in Medieval and Renaissance Art **Credits:** 3 hours
- ART 5230 - Topics in Modern Art **Credits:** 3 hours
- ART 5250 - Topics in Asian Art **Credits:** 3 hours
- ART 5270 - Art History Methods **Credits:** 3 hours
- ART 5290 - Art History Internship **Credits:** 1 hour
Credits: 1 to 3 hours
- HIST 4495 - Topics in European History and Culture **Credits:** 3 hours
Topic: Russian Art and Art Patronage

Grading Requirement

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Art Minor (24 hours)

This program is designed to expose the student to the field of art. Art minors must register with the art advisor before completing any art courses. A minor slip is required.

Basic Studies Requirement (12 hours)

- ART 1040 - Object Drawing **Credits:** 3 hours
- ART 1050 - Drawing Studio **Credits:** 3 hours
- ART 1070 - Form and Surface **Credits:** 3 hours
- ART 1080 - Form and Space **Credits:** 3 hours

Art Electives (12 hours)

Must be art studio (will not include art history courses).

Grading Requirement

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Dance

Megan Slayter, Chair
Main Office: 3107 Dalton Center
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Jeremy Blair
David Curwen
Sharon Garber
Monique Haley
Seyong Kim
Whitney Moncrief
Kelsey Paschich
Carolyn Pavlik

Western Michigan University is an accredited institutional member of the National Association of Schools of Dance. The Department's website may be accessed at wmich.edu/dance.

Department Mission

The mission of the Department of Dance is to provide a comprehensive undergraduate education that integrates theory and practice in order to prepare students to contribute to the dance profession. We are committed to:

- The highest aesthetic standards,
- Being of service to our diverse cultural global community,
- Excellence in creative and scholarly research,
- Exemplary, experientially-based teaching.

The department goals and strategic action plan are aligned with the university and college strategic plans and focus on degree programs and co-curricular activities that are learner centered, globally engaged and discovery driven. These goals are:

- To recruit, retain, and graduate the finest students who are active contributors to the field of dance,
- To interface with the professional dance world and provide vibrant residencies; with comprehensive professional/student interactions,
- To expand our national and international recognition,
- To educate and serve our regional community,
- To secure the necessary resources to meet departmental goals,
- To advance innovation and discovery in all facets of faculty and student work.

Programs

The Department of Dance offers four programs in dance: Bachelor of Fine Arts in Dance (79 hours); Bachelor of Arts in Dance (52 hours); a Dance Minor (18 hours); and an Online Undergraduate Certificate in Dance Studio Management (18 hours). The BFA program emphasizes performance, choreographic, and aesthetic training and is designed for the student seeking employment at the professional level. The B.A. program offers an opportunity to explore the diversity of the dance profession within a strong liberal arts component, and BA students individualize their program by choosing electives that support their dance career goals. The Dance Minor is designed for students who wish to continue their dance studies as an avocation. The Online Undergraduate Certificate in Dance Studio Management is designed to provide current and prospective dance studio owners with knowledge and skills related to dance studio ownership and management. Dance courses offered include four levels of ballet, jazz, and modern dance, three levels of choreography, three dance history courses, dance science and analysis,

conditioning, pedagogy, and production. An audition is required for acceptance into all dance major programs. For additional information, please refer to specific Program Requirements.

Courses for General Students

Introductory dance courses are offered for general students. Dance technique courses open to general students without audition include: DANC 1010, 1020, 1030, 1040, 1250, and 1810.

DANC 1450, a dance survey course, may be elected by any student to satisfy Area I, Fine Arts of the University General Education Program.

Admission

Admission to the University is granted only by the Office of Admissions for undergraduate students. Application may be made via WMU's website: wmich.edu/admissions.

Enrollment in dance major degree programs at WMU is contingent upon admission to the University and acceptance to the department via an audition. Auditions for acceptance into dance major degree programs are normally held in October, November, and February. The audition consists of taking class in ballet, jazz, and modern, including sections designed to showcase quick-study and improvisation skills. Prospective dance majors must place into the technique level I in at least two dance styles to meet the minimum standard for acceptance. No audition is required for dance minors; however, prospective dance minors should contact the dance academic advisor to discuss program plans and to gain entry to dance courses which have prerequisites. There is currently a waiting list for entrance into the dance minor. Application and admission requirements for the Online Certificate in Dance Studio Management can be found at wmich.edu/apply/undergraduate/nondegree. More information about Undergraduate Certificate Programs can be found in the University Catalog at wmich.edu/registrar/catalogs.

Prospective degree-seeking students may also elect to apply for scholarships via the October or November audition dates. In addition to the three classes, scholarship candidates write an essay on-site and have an interview with a member of the faculty. Candidates must submit two letters of recommendation, one of which must be from a dance teacher. Awards average \$2,000 per academic year, some of which may be renewable. Limited scholarships may be available at the February audition; selected students will be invited to apply following the February audition if funds are available. Students enrolled in the Online Undergraduate Certificate in Dance Studio Management as non-degree seeking students are not eligible for Department of Dance scholarships.

Students interested in pursuing the Bachelor of Fine Arts program may petition for entrance after completion of: at least one semester each of ballet, jazz, and modern major technique courses; DANC 1800: Choreography I; and at least one dance major theory course. The eligibility of transfer students to apply for the B.F.A. degree will be evaluated on an individual basis.

The results of all of the above are communicated in writing to the student within three weeks following the audition or petition. Further information is available by calling the Department of Dance at (269) 387-5830 or contacting the department by email at: dance-info@wmich.edu.

Transfer Credit

Dance credit from other institutions transfers as a direct equivalent to a WMU course, as an unspecified dance credit, or as credit by department recommendation only. Transfer students should schedule an appointment with the dance academic advisor immediately after admission to the University to evaluate dance credits taken at other institutions.

Advising

2003 Gilmore Theatre Complex
(269) 387-6171

It is the responsibility of the student to make an appointment with the advisor each semester in order to prepare for the next semester's registration. Each student should meet with the advisor during their junior year to secure a Graduation Audit before registration for the final semester.

The dance academic advisor is also available to counsel students on selection of appropriate additional majors/minors, selection of General Education courses, and other University requirements. Matters which are beyond the advisor's qualifications will be referred to offices, on- and off-campus, qualified to assist.

Graduation requirements must be completed as stipulated in the Undergraduate Catalog in effect at the time the student is admitted to the University. Requirements cannot be added during the student's enrollment, but the student may take advantage of course and curriculum alterations if these changes enhance the student's education. Each student is responsible for knowing the requirements of the degree and for taking the steps necessary for completion of these requirements. All dance students are urged to take advantage of advising services in the Department of Dance for assistance in making educational choices and for interpretation of requirements stated in the Undergraduate Catalog.

Miscellaneous

Dance majors should also reference the current edition of the Department of Dance Student Handbook found on the department website under the Academics tab for current policies and procedures and other important information.

Focus of Major Technique Courses

Ballet courses emphasize technical and artistic skills based on a foundation of correct body alignment, placement and turn-out, musicality, vocabulary, strength, stamina, flexibility, and kinesthetic movement quality. Piano accompaniment is provided and a variety of international ballet styles are introduced. Students are exposed to a variety of modern dance styles such as Cunningham, Limon, Horton Release Technique, and contact improvisation as well as Bartenieff FundamentalsSM and elements of Laban Movement Analysis[®]. Courses emphasize understanding of the anatomical principles and movement theories that support these and other modern dance styles. Piano or percussion accompaniment is provided. Jazz courses emphasize alignment, movement isolation, as well as rhythmic and dynamic awareness in a variety of jazz dance styles. Recorded accompaniment is used in jazz courses.

Major Technique Course Progression

It is expected that the dance major/minor will spend at least two semesters in each level of technique. A passing grade in a technique class does not imply automatic progression to the next level. Faculty determine a student's ability to move to the next level just prior to Registration for the coming semester.

Scholarships

Scholarships are available for new and current students. Awardees are selected by the faculty on the basis of outstanding achievement in the field, overall academic excellence, and specific individual scholarship criteria. Entering students who wish to be considered for scholarships must audition, submit two letters of recommendation, and have an interview with the faculty at either the October or November New Student Audition Day. Current students apply in November for the next academic year. For specific information, contact the Department of Dance or visit the website of the Office of Student Financial Aid and Scholarships at wmich.edu/finaid. Student can email the Office at finaid-info@wmich.edu or call the Office at (269) 387-6000.

Annual Meetings

Department meetings are held during the first week of classes for the fall semester to prepare the student for the academic year. At these meetings, students will receive information regarding department events, policies and procedures. Attendance is mandatory for all dance majors and minors. Juniors and seniors enrolled in the Bachelor of Fine Arts program will be required to attend an additional meeting regarding B.F.A. required projects.

Additional Study Options

Students are encouraged to study with dance professionals whenever possible and to afford themselves the opportunity for study with artists-in-residence on Western's campus. Limited awards may be available for off-campus study. For specific information, contact the Department of Dance.

Performance and Choreographic Opportunities

Students have a variety of opportunities to perform in department concerts, informal showings, graduating presentations, special class-related performances, university musicals, and operas, and the department performing ensemble. Students must be enrolled for credit in and regularly attending at least one 1000, 2000 or 3000-level major technique course during rehearsal and performance periods and be in good academic standing in order to perform in department concerts. Students whose cumulative GPA falls below 2.0 may not audition for or perform in formal dance concerts. The department is committed to publicly presenting the dances of students who demonstrate choreographic excellence. Special opportunities in performance and choreography are available on- and off-campus and are posted as they occur.

Bachelor of Arts

Dance Major - Bachelor of Arts (DACJ) (52 hours)

During the second year of enrollment in the program, the student will be evaluated by the dance faculty regarding his/her progress in the program. This review is designed to give the student individualized feedback on their technical, artistic, creative, and intellectual development. The student is required to schedule an appointment with the assigned dance faculty member to receive the faculty feedback.

By the senior year, the student must design and propose a capstone project that will further develop the focus area. The student must submit the proposal to his/her faculty committee no later than the fourth week of the semester of enrollment in DANC 4700. The capstone proposal must be approved by the student's faculty committee no later than the fifth week of the semester of enrollment in DANC 4700.

A grade of "C" or better is mandatory in all required courses.

No minor is required.

General Education Requirement

The student enrolled in the B.A. in Dance must complete all General Education requirements as described in this catalog. DANC 1960: Conditioning for Dancers, in combination with DANC 2950 Introduction to Dance Science and Kinesiology, meets the Area VIII, Health and Well-being General Education requirement for **dance majors**.

Baccalaureate-Level Writing Requirement

Students who have chosen the Dance major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing DANC 3450 Twentieth Century American Dance.

Liberal Arts Cognate Requirements

In addition to the minimum University General Education Proficiency and Distribution requirements, the student enrolled in the B.A. in dance must take 30 credit hours of liberal arts courses. One course each must be selected from approved General Education courses in Art, Music, and Theatre. The remaining credit hours may be chosen from any course approved for General Education, may include a minor or major in a liberal arts area, or may include an additional major. Any other courses must have specific approval of the dance academic advisor in order to satisfy the Liberal Arts requirement.

Required Courses in Technique and Performance (19 hours)

Technique Course

B.A. students must enroll in at least one major technique course for regular credit each semester.

- DANC 1100 - Ballet Technique I **Credits:** 2 hours

- DANC 1200 - Jazz Technique I **Credits:** 2 hours
- DANC 1300 - Modern Technique I **Credits:** 2 hours
- DANC 2100 - Ballet Technique II **Credits:** 2 hours
- DANC 2200 - Jazz Technique II **Credits:** 2 hours
- DANC 2300 - Modern Technique II **Credits:** 2 hours
- DANC 3100 - Ballet Technique III **Credits:** 2 hours
- DANC 3200 - Jazz Technique III **Credits:** 2 hours
- DANC 3300 - Modern Technique III **Credits:** 2 hours

Electives

During his/her program, the student must elect at least one course in each of the following areas: ballet technique, jazz technique, modern technique, and performance. Performance course options include:

- DANC 4600 - Performance **Credits:** 1 to 6 hours
- DANC 4650 - Dance Ensemble **Credits:** 1 to 3 hours

The student must complete one semester of:

- DANC 1000 - First Year Performance **Credits:** 2 hours
- DANC 1210 - Roots of Jazz **Credits:** 2 hours

The student must complete one semester of one of the following:

- DANC 3100 - Ballet Technique III **Credits:** 2 hours
- DANC 3200 - Jazz Technique III **Credits:** 2 hours
- DANC 3300 - Modern Technique III **Credits:** 2 hours

The following courses may be used to complete the 19-hour Technique/Performance requirement

- DANC 1250 - Special Studies in Introductory Dance Technique **Credits:** 1 to 6 hours
- DANC 2250 - Special Studies in Intermediate Dance Technique **Credits:** 1 to 6 hours
- DANC 4100 - Supplemental Ballet Technique **Credits:** 1 hour
- DANC 4200 - Supplemental Jazz Technique **Credits:** 1 hour
- DANC 4250 - Advanced Technique **Credits:** 1 to 6 hours

Required Courses in Dance Studies (Choreography and Theory) (33 hours)

Choreography (6 hours)

- DANC 1800 - The Creative Choreographer **Credits:** 3 hours
- DANC 2800 - Choreographing for a New Millennium **Credits:** 3 hours

History (6 hours)

- DANC 2450 - Ballet History **Credits:** 3 hours

- DANC 3450 - Contemporary Dance History **Credits:** 3 hours

Music (3 hours)

- DANC 1860 - Music for Dancers **Credits:** 3 hours

Production (2 hours)

- DANC 3890 - Lighting and Staging for Dance **Credits:** 2 hours

Dance Science/Analysis (6 hours)

- DANC 1950 - Introduction to Bartenieff Fundamentals(SM) **Credits:** 1 hour
- DANC 1960 - Conditioning for Dancers **Credits:** 2 hours
- DANC 2950 - Introduction to Dance Science and Kinesiology **Credits:** 3 hours

Pedagogy (2 hours)

- DANC 4400 - Teaching Dance Technique **Credits:** 2 hours

Theory Electives (5 hours)

Select hours from:

- DANC 2960 - Introduction to Laban Movement Analysis **Credits:** 2 hours
- DANC 3250 - Special Studies in Dance Theory **Credits:** 1 to 6 hours
- DANC 3800 - The Choreographer in the Community **Credits:** 3 hours
- DANC 4000 - Practicum **Credits:** 1 to 4 hours
- DANC 4890 - Dance Management **Credits:** 2 hours

Capstone Experience (3 hours)

- DANC 4450 - Senior Seminar **Credits:** 1 hour
- DANC 4700 - Senior Capstone Project **Credits:** 2 hours

Bachelor of Fine Arts

Dance Major - Bachelor of Fine Arts (DAFJ) (79 hours)

Students may petition for entrance into the B.F.A. program after completion of:

1. At least one semester each of ballet, jazz, and modern major technique courses
2. DANC 1800: The Creative Choreographer (DANC 1860 is a prerequisite with concurrency for DANC 1800)
3. At least one dance theory course.

Eligibility of transfer students to petition will be determined on an individual basis by the dance academic advisor. Petition forms are posted in November and March.

Continuation in the B.F.A. program will be determined by the dance faculty during the second semester of the student's enrollment. In order to continue in the B.F.A. program, the student must: demonstrate potential to succeed as a professional dancer and/or choreographer; have at least B-level skills in technique and performance; and have demonstrated professional commitment in dance course work and dance-related activities. Any student discontinued from the program may reapply for the B.F.A. after a minimum of one additional semester at WMU.

By the end of the junior year, the B.F.A. student must create and perform a solo dance in a public showing which exhibits their choreographic, technical, and performance skills. At this time, the student must also submit an essay. The essay is a discussion of the development of the choreographic project and a critique of the resulting final dance in the areas of choreography, technique and performance. The essay should include a discussion of how the project reflects or expands on the student's beliefs and aspirations as delineated in the personal artistic statement. In order to enroll in DANC 4800 Graduating Presentation, the dance and essay must be acceptable to the dance faculty.

A grade of "C" or better is mandatory in all required dance courses.

No minor is required.

General Education Requirements

The student enrolled in the B.F.A. in Dance must complete all General Education Requirements as described in this catalog.

DANC 1960 Conditioning for Dance, in combination with DANC 2950 Introduction to Dance Science and Kinesiology, meets the Area VIII Health and Well-being General Education requirement for **dance majors**.

Baccalaureate-Level Writing Requirements

Students who have chosen the Dance major will satisfy the baccalaureate-level writing requirement by successfully completing DANC 3450: Twentieth Century American Dance.

Required Courses in Technique and Performance (33 hours)

The following courses **may** be used to complete the Technique/Performance requirement.

- DANC 1210 - Roots of Jazz **Credits:** 2 hours
- DANC 1250 - Special Studies in Introductory Dance Technique **Credits:** 1 to 6 hours
- DANC 2250 - Special Studies in Intermediate Dance Technique **Credits:** 1 to 6 hours
- DANC 4100 - Supplemental Ballet Technique **Credits:** 1 hour
- DANC 4200 - Supplemental Jazz Technique **Credits:** 1 hour
- DANC 4250 - Advanced Technique **Credits:** 1 to 6 hours
- DANC 4300 - Supplemental Modern Technique **Credits:** 1 hour

Technique Courses

B.F.A. students must enroll in two major technique courses (listed below) for regular credit each semester of the sophomore, and junior years. Courses must be selected to ensure the student is participating in a technique class five days per week.

- DANC 1100 - Ballet Technique I **Credits:** 2 hours
- DANC 1200 - Jazz Technique I **Credits:** 2 hours
- DANC 1300 - Modern Technique I **Credits:** 2 hours
- DANC 2100 - Ballet Technique II **Credits:** 2 hours
- DANC 2200 - Jazz Technique II **Credits:** 2 hours
- DANC 2300 - Modern Technique II **Credits:** 2 hours

- DANC 3100 - Ballet Technique III **Credits:** 2 hours
- DANC 3200 - Jazz Technique III **Credits:** 2 hours
- DANC 3300 - Modern Technique III **Credits:** 2 hours
- DANC 4100 - Supplemental Ballet Technique **Credits:** 1 hour
- DANC 4200 - Supplemental Jazz Technique **Credits:** 1 hour
- DANC 4300 - Supplemental Modern Technique **Credits:** 1 hour

Technique Courses - Senior Year

During the senior year, candidates must enroll for regular credit in major technique courses selected from the list above, and through enrollment in DANC 4000, serve as a teaching assistant in a technique course. Courses must be selected to ensure the student is participating in a technique class five days per week.

Technique Courses - Performance Course

At least four hours must be selected from performance courses.

- DANC 4600 - Performance **Credits:** 1 to 6 hours
- DANC 4650 - Dance Ensemble **Credits:** 1 to 3 hours

Technique Courses - Ballet, Jazz, and Modern

The student must complete at least two semesters each of ballet, jazz, and modern technique courses; one semester of:

- DANC 1000 - First Year Performance **Credits:** 2 hours

And at least one semester of two of the following:

- DANC 3100 - Ballet Technique III **Credits:** 2 hours
- DANC 3200 - Jazz Technique III **Credits:** 2 hours
- DANC 3300 - Modern Technique III **Credits:** 2 hours

Required Courses in Choreography (12 hours)

- DANC 1800 - The Creative Choreographer **Credits:** 3 hours
- DANC 2800 - Choreographing for a New Millennium **Credits:** 3 hours
- DANC 3800 - The Choreographer in the Community **Credits:** 3 hours
- DANC 4800 - Graduating Presentation **Credits:** 3 hours

Required Courses in Theory (25 hours)

History (6 hours)

- DANC 2450 - Ballet History **Credits:** 3 hours
- DANC 3450 - Contemporary Dance History **Credits:** 3 hours
(Dance majors use this course to meet the University Baccalaureate-level Writing Requirement)

Music (3 hours)

- DANC 1860 - Music for Dancers **Credits:** 3 hours

Production and Management (4 hours)

- DANC 3890 - Lighting and Staging for Dance **Credits:** 2 hours
- DANC 4890 - Dance Management **Credits:** 2 hours

Dance Science/Analysis (8 hours)

- DANC 1950 - Introduction to Bartenieff Fundamentals(SM) **Credits:** 1 hour
- DANC 1960 - Conditioning for Dancers **Credits:** 2 hours
- DANC 2950 - Introduction to Dance Science and Kinesiology **Credits:** 3 hours
- DANC 2960 - Introduction to Laban Movement Analysis **Credits:** 2 hours

Pedagogy (2 hours)

- DANC 4400 - Teaching Dance Technique **Credits:** 2 hours

Capstone Experience (2 hours)

- DANC 4000 - Practicum **Credits:** 1 to 4 hours
(1 hour)
- DANC 4450 - Senior Seminar **Credits:** 1 hour

Additionally:

DANC 4800 - Graduating Presentation **Credits:** 3 hours, is also considered a capstone experience in choreography, production, and management for the B.F.A. student.

Related Cognate Studies (9 hours)

The Department of Dance believes that the professionally oriented student must augment his/her education via study in the related arts and sciences which complement specific career goals. The student will consult with the dance academic advisor in selecting 9 hours from the courses listed below, some of which may also meet General Education requirements:

- ANTH 2400 - Principles of Cultural Anthropology **Credits:** 3 hours
- ART 1400 - 2D Studio Experience **Credits:** 3 hours
- ART 2200 - Caves to Cathedrals **Credits:** 3 hours
- ART 2210 - Modern and Postmodern **Credits:** 3 hours
- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- ED 2300 - The Nature of Creativity **Credits:** 3 hours
- ENGL 1050 - Foundations in Written Communication: Strategies, Behaviors, Success **Credits:** 3 hours
- ENGL 1100 - Literary Interpretation **Credits:** 4 hours

- ENGL 3050 - Professional Writing: Audience, Genre, and Workplace Cultures **Credits:** 4 hours
- FREN 1000 - Basic French I **Credits:** 4 hours
- FREN 1010 - Basic French II **Credits:** 4 hours
- HIST 3150 - Popular Art and Architecture in America **Credits:** 3 hours
- MUS 1500 - Music Appreciation: Live Music **Credits:** 4 hours
- MUS 1510 - Jazz in America **Credits:** 4 hours
- MUS 3500 - American Music **Credits:** 4 hours
- MUS 3520 - World Music in Theory and Practice **Credits:** 4 hours
- MUS 4500 - Music Appreciation: The Symphony **Credits:** 3 hours
- PHIL 2000 - Introduction to Philosophy **Credits:** 4 hours
- PHIL 3120 - Philosophy of Art **Credits:** 3 hours
- THEA 1000 - Playing with Fire: Love, Politics & Entertainment **Credits:** 3 hours
- THEA 1050 - African-Americans in Theatre and Media **Credits:** 3 hours
- THEA 1410 - Introduction to Acting **Credits:** 3 hours
- THEA 1420 - Acting I: Action and Personalization **Credits:** 3 hours

Undergraduate Certificate

Undergraduate Certificate in Dance Studio Management (18 hours)

The Online Undergraduate Certificate in Dance Studio Management is designed to provide current and prospective dance studio owners with knowledge and skills related to dance studio ownership and management.

Required Courses

- DANC 3510 - Dancer Wellness **Credits:** 3 hours
- DANC 3520 - Dance Studio Management **Credits:** 3 hours
- DANC 3530 - Employee Client Relations **Credits:** 3 hours
- DANC 3540 - Recital Preparation/Production **Credits:** 3 hours
- DANC 3550 - Training Theories for Dancers **Credits:** 3 hours
- DANC 3560 - Curriculum Development - Dance **Credits:** 3 hours

Minors

Dance Minor (18 hours)

Required Courses in Technique (6 hours)

Two credit hours in ballet selected from:

- DANC 1010 - Beginning Ballet **Credits:** 2 hours
- DANC 1100 - Ballet Technique I **Credits:** 2 hours
- DANC 1250 - Special Studies in Introductory Dance Technique **Credits:** 1 to 6 hours
- DANC 2100 - Ballet Technique II **Credits:** 2 hours

- DANC 3100 - Ballet Technique III **Credits:** 2 hours
- DANC 4250 - Advanced Technique **Credits:** 1 to 6 hours

Two credit hours in jazz selected from:

- DANC 1020 - Beginning Jazz **Credits:** 2 hours
- DANC 1200 - Jazz Technique I **Credits:** 2 hours
- DANC 2200 - Jazz Technique II **Credits:** 2 hours
- DANC 3200 - Jazz Technique III **Credits:** 2 hours

Two credit hours in modern selected from:

- DANC 1030 - Beginning Modern **Credits:** 2 hours
- DANC 1300 - Modern Technique I **Credits:** 2 hours
- DANC 2300 - Modern Technique II **Credits:** 2 hours
- DANC 3300 - Modern Technique III **Credits:** 2 hours

Required Courses In Choreography/Theory (4 total hours)

- DANC 1450 - Experiencing Dance **Credits:** 3 hours
- DANC 1810 - Dance Improvisation **Credits:** 1 hour

Choreography/Theory Electives (2 total hours)

A minimum of two hours to be elected from the following courses, in consultation with the dance academic advisor:

- DANC 1800 - The Creative Choreographer **Credits:** 3 hours
- DANC 1860 - Music for Dancers **Credits:** 3 hours
- DANC 1950 - Introduction to Bartenieff Fundamentals(SM) **Credits:** 1 hour
- DANC 1960 - Conditioning for Dancers **Credits:** 2 hours
- DANC 2450 - Ballet History **Credits:** 3 hours
- DANC 2950 - Introduction to Dance Science and Kinesiology **Credits:** 3 hours
- DANC 2960 - Introduction to Laban Movement Analysis **Credits:** 2 hours
- DANC 3250 - Special Studies in Dance Theory **Credits:** 1 to 6 hours
- DANC 3450 - Contemporary Dance History **Credits:** 3 hours
- DANC 3890 - Lighting and Staging for Dance **Credits:** 2 hours
- DANC 4890 - Dance Management **Credits:** 2 hours

Electives/Technique Level Requirement (6 total hours)

The student may select additional electives from any technique or theory courses for which the student has met the prerequisites. In order to ensure that the dance minor has experienced the rigors of intensive dance training, the student must complete one of the following courses, if one of these courses has not been elected under **Required Courses in Technique** listed above.

- DANC 1100 - Ballet Technique I **Credits:** 2 hours
- DANC 1200 - Jazz Technique I **Credits:** 2 hours
- DANC 1250 - Special Studies in Introductory Dance Technique **Credits:** 1 to 6 hours

- DANC 1300 - Modern Technique I **Credits:** 2 hours
- DANC 2100 - Ballet Technique II **Credits:** 2 hours
- DANC 2200 - Jazz Technique II **Credits:** 2 hours
- DANC 2250 - Special Studies in Intermediate Dance Technique **Credits:** 1 to 6 hours
- DANC 2300 - Modern Technique II **Credits:** 2 hours
- DANC 3100 - Ballet Technique III **Credits:** 2 hours
- DANC 3200 - Jazz Technique III **Credits:** 2 hours
- DANC 3300 - Modern Technique III **Credits:** 2 hours
- DANC 4250 - Advanced Technique **Credits:** 1 to 6 hours

Music, School of

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Lauron Kehrer
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Scott W. Thornburg
Bruce Uchimura
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Steve M. Wolfinbarger

The Western Michigan University School of Music is dedicated to the advancement of the musical arts through traditional study and performance, while promoting the development of new musical paths that prepare students for an ever-changing profession. The School of Music serves local, state, national and international communities through performance, educational and therapeutic applications, composition, research, and technological innovation.

The School of Music is a member of the National Association of Schools of Music. The requirements for entrance and for graduation are in accordance with the published regulations of NASM and the National Council for Accreditation of Teacher Education. The School's program in music therapy is sanctioned by the American Music Therapy Association (formerly the National Association for Music Therapy).

Programs

The School of Music offers courses of study that lead to the Bachelor of Music, the Bachelor of Arts, the Bachelor of Musical Arts, and the Bachelor of Science degrees. The Bachelor of Music degree offers the student an opportunity to elect a major in performance, composition, jazz studies, music education, and music therapy. The Bachelor of Arts and Bachelor of Musical Arts degrees afford the student the opportunity to major in music and minor in another academic area. The Bachelor of Science degree is offered in Multimedia Arts Technology.

Two majors carry certification upon completion of degree requirements: the Bachelor of Music with a major in music education carries certification to teach music in the public schools, grades K-12. The student with a Bachelor of Music in music therapy is eligible to sit for the national board exam administered by the Certification Board for Music Therapists in order to earn the credential of Music Therapist - Board Certified.

A music minor program is offered through the School of Music for students who have a background in music and who wish to extend their formal education in that field of study. A minor in Multimedia Arts Technology-Music (MAT) is also available to both Music majors and non-majors. Non-Music majors may combine the MAT minor with the music minor.

Those students seeking a music minor must be in contact with the advisor in the School of Music in order that the declaration of the minor be official. Official declaration of the music minor must be made prior to registration for the final eight hours of music course work which will apply to that minor.

The School of Music offers an Accelerated Graduate Degree Path (AGDP) program which combines a Bachelor of Music degree (or a Bachelor of Arts in Music) with a Master of Arts in Music. The M.A. in Music degree is a graduate research degree which culminates with a written thesis and a public presentation (lecture or lecture/recital). Possible areas of focus for the thesis include (but are not limited to) music history, music theory, ethnomusicology, historical performance practice, music technology, and interdisciplinary subjects relating music with other fields. The program is intended for students with a strong interest in scholarly research and should not be considered a substitute for a Master of Music in Performance degree. The benefits include a stronger preparation for graduate studies after Western and a more diverse portfolio for future teaching positions.

To begin the program, qualified undergraduate music students can be admitted into the accelerated degree path and take approved graduate-level coursework in music. These courses count as advanced placement towards the MA degree and can be used to substitute for Theory/History, Professional Music, and General elective requirements in the Bachelor of Music. The university limits the total number of graduate credits used in the AGDP to twelve (12) and restricts enrollment to undergraduates of senior standing (i.e., 88 total credits). School of Music policy does not restrict AGDP students to only one calendar year between initial enrollment in the AGDP and completion of the baccalaureate degree. In addition, undergraduates admitted to dual-enrollment status with the Graduate College may take graduate-level courses for graduate credit only (i.e., counting toward the MA, but not toward the Bachelor of Music). Following completion of the bachelor's degree, the AGDP student can apply for final admission into the master's program and typically complete the remaining graduate coursework in a fifth year.

Admission

Admission to Western Michigan University is granted only by the Office of Admissions for undergraduate students. Application forms and information are available at wmich.edu/admissions/apply.

Enrollment in a music curriculum is contingent upon admission to the University, which is achieved through the application process; and approval of the School of Music, which is achieved through the audition process or interview, depending on the program. The student should begin by making application to the University and requesting admission information from the School of Music. Both procedures should be commenced early in the senior year, or early in the final year at a community college.

Approval to become a music major is based upon the student's background in music, as demonstrated in the audition and/or interview, and upon academic abilities reflected in grade point average and various scholastic test scores as they are available.

A student considering a Bachelor of Music, Bachelor of Musical Arts, or Bachelor of Arts in Music should have a good background in applied music (instrumental or vocal study or performance). Preparation in piano, as a secondary instrument, is also helpful to the student, but not a requisite. Prior to entry into Basic Music 1600, which is required of all music majors (except those in the Bachelor of Science in Multimedia Arts Technology) in the first year of study, the student must demonstrate knowledge of fundamentals. A fundamentals examination will be administered on New Student Admissions Day.

Further information regarding admission to a music curriculum is available on the School of Music web page. The School welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

Transfer Credit

Music credit from another institution is normally acceptable providing course substance is equivalent to a similar course required in the student's curriculum at Western and the student has earned a grade of "C" or better in that course. No credit hours exceeding the number granted for parallel work at Western will be accepted for transfer from another institution. In order to earn a Bachelor of Music degree from Western Michigan University, a student may not transfer more than thirty-seven (37) semester credit hours in music courses taken at a community college toward music curriculum requirements. If the "Performance Electives" requirement has not been completed at the time of the transfer, at least two of the remaining hours must be completed in major ensembles. Advisors will assist transfer students in finding ways of applying credit hours, not applicable to music curriculum requirements, toward General Education electives or free electives.

Four areas—applied music, music theory, aural comprehension, and piano proficiency for non-pianists—are, by nature, skills courses which require competency at one level before the student is ready for the next level of course in a sequence. This competency can only be determined by demonstration and/or examination, which precludes the automatic transfer of credit in these areas.

Presumably, the transfer student will have completed many of the core requirements (see below) before enrolling at Western. In that case, the student must elect a major area of concentration within the music curriculum prior to enrollment. In order to maintain good standing as a major in music performance, composition, jazz studies, music history, or music theory, the student must earn a minimum grade point average of 3.25 in the first two courses that apply to the major area of concentration. The student who elects music education or music therapy as a major must maintain a grade point average of 3.0 in all courses in the major area of concentration in order to be recommended for intern teaching (music education) or music therapy internship. All transfer students (except those in the Multimedia Arts Technology) should take a Piano Placement Examination before admission in order to project the feasibility of completion of piano proficiency requirements.

For further information regarding the transfer of music credits, contact the Music advisor in the School of Music.

Advising

Advisor: Ariel Palau

Appointments: 2132 Dalton Center (269-387-4672)

The Music Student Advising Office provides one-stop advising for all students in a music curriculum. Advising on general education and major or minor requirements can be obtained by consulting the music student advisor. Only when a student pursues a minor or other major outside of the School of Music, or is an honors student, is an appointment required with an additional advisor.

Graduation requirements must be completed as stipulated in the *Undergraduate Catalog* which is in effect at the time the student is admitted. Requirements may not be added in the midst of the student's enrollment, but the student may take advantage of course and curriculum alterations that may occur while work on the degree is in progress if these changes enhance the student's education. Each student is responsible for knowing the requirements that must be completed for the degree and for taking the steps necessary for completion of requirements. All music students are urged to take advantage of the advising services in the School of Music for assistance in making educational choices and for interpretation of requirements as they are stated in the *Undergraduate Catalog*.

Miscellaneous

Students must earn a grade of "C" or better in any MUS class being counted toward a School of Music major. Some courses may have higher grade requirements.

Except for courses that are repeatable for credit, the number of times a student can enroll in an undergraduate music course in an attempt to earn a passing grade ("C" or better) is limited to two. After a second attempt to earn a passing grade ("C" or better"), students will be dismissed from their degree program. Petition for exceptions should be directed to the School of Music Dismissal Appeals Committee.

In addition to required course work, all students must satisfy additional requirements which may include recital attendance and recital performance.

The requirement for recital attendance:

All music majors are required to attend Music Convocation (MUS 1010) the number of semesters specified by the degree program. Students must attend a specified number of approved events and any absences will be recorded in the student's file. Absences must be made up by attending other pre-approved School of Music concerts and recitals in which the student is not a participant. Absences in the student's record which have not been made up will prevent graduation.

The requirement(s) for recital performance are as follows:

1. Bachelor of Music candidates with a major in music performance must present a Senior Recital which is approved by and acceptable to the faculty of the respective performance area.
2. Bachelor of Music candidates with a major in areas other than music performance (except those in Music Composition) must present at least one successful solo performance on a student recital (scheduled public recitals, convocations, or area recitals) prior to graduation. Individual students may be required to give additional performances on student recitals at the discretion of their private teachers.

Prerequisite to performance on any student recital shall be a recommendation by the student's applied teacher. Prerequisite to the presentation of Junior and/or Senior Recitals is an approved hearing of that recital by the student's area faculty. Recitals should be scheduled in the Concerts Office in the School of Music in accordance with published scheduling deadlines.

Competency Examinations

Are available to students who qualify for advanced placement or a waiver of requirements in music courses even if no formal education at the college level may have been completed. Common areas of competency are applied music, secondary instruments, music theory, and aural skills. Examinations may be scheduled in these areas to allow qualified students to demonstrate competency.

In the event that a student demonstrates competency in an area of study that is required in the curriculum, the student may elect one of two alternatives for fulfilling degree requirements: (1) request a waiver of the requirement and elect an equivalent number of hours in music courses of the student's choice or (2) receive credit for the course(s) in which competency is demonstrated by paying an examination fee according to the schedule approved by the Board of Trustees.

Scholarships and Grants in Music

Are awarded by the School of Music. Awards are made on the basis of musical talent and/or scholastic achievement. New students are eligible for consideration for these stipends at the time of their audition or interview for admission to the music curriculum. Decisions on music scholarships are made beginning in March.

The School of Music adheres to the code of ethics of the National Association of Schools of Music (NASM). The acceptance of a scholarship by an applicant is considered a declaration of intent to attend the institution; after May 1, the applicant may not consider any other offer from a NASM member institution without the written consent of the first institution. Similarly, a transfer applicant from a NASM-accredited college or university cannot be considered for a scholarship without the recommendation of the institution from which the transfer is being made.

For a listing of music grants and scholarships, contact the School of Music or visit the website of the Office of Student Financial Aid and Scholarships at wmich.edu/finaid or email the Office at finaid-info@wmich.edu or call the Office at (269) 387-6000.

Music majors may also be eligible for any number of general University scholarships as described in the Student Financial Aid and Scholarships section of this catalog.

Students who have chosen any music major (with the exception of the Bachelor of Science in Multimedia Arts Technology) will satisfy the School of Music's technology requirement by successfully completing MUS 1140: Digital Media in Music.

The School of Music does not offer a minor leading to Elementary or Secondary Teaching Certification or which allows the student to become certified in music therapy.

Baccalaureate-Level Writing Requirement

Students who have chosen any music major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing the specified section of MUS 3520: Non-Western Music.

Bachelor of Arts

Bachelor of Arts in Music (122 hours)

1. WMU Essential Studies (37 hours)

2. A major in music (48 hours)

Music Convocation (6 semesters)

- MUS 1010 - Music Convocation **Credits:** No Credit

Applied Music (4 hours)

- MUS 1000 - Applied Music **Credits:** 1 to 2 hours
- MUS 2000 - Applied Music **Credits:** 1 to 4 hours
- MUS 3620 - Applied Music Composition **Credits:** 2 to 4 hours

Basic Music (12 hours)

- MUS 1600 - Basic Music I **Credits:** 3 hours
- MUS 1610 - Basic Music II **Credits:** 3 hours
- MUS 2600 - Basic Music III **Credits:** 3 hours
- MUS 2610 - Basic Music IV **Credits:** 3 hours

Aural Skills (2 hours)

- MUS 1620 - Aural Skills I **Credits:** 1 hour
- MUS 1630 - Aural Skills II **Credits:** 1 hour

Musicology (9 hours)

- MUS 2700 - Music History I **Credits:** 3 hours
- MUS 2710 - Music History II **Credits:** 3 hours
- MUS 5885 - Global Music Cultures **Credits:** 3 hours

History or Theory Electives (2 hours)

Theory electives may be selected from the following:

- MUS 2630 - Composition II **Credits:** 2 hours
- MUS 5550 - Jazz Arranging **Credits:** 2 hours
- MUS 5580 - Jazz Improvisation I **Credits:** 2 hours
- MUS 5600 - Counterpoint **Credits:** 2 hours
- MUS 5650 - Topics in Music Theory **Credits:** 2 to 3 hours
- MUS 5670 - Orchestration **Credits:** 2 hours

History electives may be selected from the following:

- MUS 5720 - Baroque Music (1600-1750) **Credits:** 3 hours
- MUS 5730 - Classical Music (1750-1800) **Credits:** 2 hours
- MUS 5830 - Jazz History and Literature **Credits:** 3 hours
- MUS 5840 - Topics in Musicology and Ethnomusicology **Credits:** 2 to 3 hours
- MUS 5850 - Medieval Music **Credits:** 2 hours
- MUS 5870 - Contemporary Music **Credits:** 3 hours

Music Performance Electives (6 hours)

Six hours chosen from the following:

Ensemble Electives (Minimum 2 hours)

(these courses may be repeated for credit)

- MUS 1070 - University Choruses **Credits:** 1 hour
- MUS 1080 - Collegiate Singers **Credits:** 1 hour
- MUS 1090 - Marching Band **Credits:** 1 hour
- MUS 1100 - Concert Band **Credits:** 1 hour
- MUS 1110 - University Orchestra **Credits:** 1 hour
- MUS 1120 - University Chorale **Credits:** 1 hour
- MUS 1130 - Symphonic Band **Credits:** 1 hour
- MUS 1180 - Gold Company II **Credits:** 1 hour
- MUS 1190 - Gold Company **Credits:** 1 hour
- MUS 2030 - Wind Symphony **Credits:** 1 hour
- MUS 2100 - Jazz Lab Band **Credits:** 1 hour
- MUS 2120 - Jazz Orchestra **Credits:** 1 hour

- MUS 2180 - Chamber Music Without Conductor **Credits:** 1 hour
- MUS 3170 - Opera Workshop **Credits:** 1 hour
- MUS 5170 - Collegium Musicum **Credits:** 1 hour
- MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra **Credits:** 1 hour

Please note the following:

Most ensembles are by audition only.

Remaining Performance Hours

Students may elect the following non-repeatable courses for the remaining performance hours if they wish:

- MUS 1200 - Keyboard Fundamentals **Credits:** 1 hour
- MUS 1210 - Keyboard Fundamentals **Credits:** 1 hour
- MUS 1220 - Voice Class **Credits:** 1 hour
- MUS 1240 - Guitar Class I **Credits:** 2 hours
- MUS 1250 - Guitar Class II **Credits:** 2 hours
- MUS 1420 - Oboe/Bassoon Class **Credits:** 1 hour
- MUS 1430 - Trumpet/Horn Class **Credits:** 1 hour
- MUS 1440 - Trombone/Tuba Class **Credits:** 1 hour
- MUS 1460 - Clarinet/Flute/Saxophone Class **Credits:** 1 hour
- MUS 1900 - Accompanying **Credits:** 1 hour

Music Electives (10 hours)

Capstone Requirement (3 hours)

Students may select one of the following three courses:

- MUS 5840 - Topics in Musicology and Ethnomusicology **Credits:** 2 to 3 hours
- MUS 5650 - Topics in Music Theory **Credits:** 2 to 3 hours
- MUS 5970 - Projects in Music **Credits:** 1 to 4 hours

3. A Minor or Second Major in Another Department (minimum) (15 hours)

Multimedia Arts Technology is an exception and can be elected for inclusion in the BA degree.

(Note: In the event that the credit hours for the minor requirements established by the department which offers that minor are greater than 15, the students may make an appropriate adjustment in the hours allowed for free electives.)

4. Free Electives (22 hours)

Notes

To be awarded a Bachelor of Arts degree, the student, in completing requirements as outlined above, must have completed at least 67 hours of general studies/general education classes outside of music.

World language requirement: The student must complete training in a language other than English through at least the fourth semester, college-level.

Bachelor of Music

Bachelor of Music

Bachelor of Music - Core Requirements

Music Convocation (7 semesters)

- MUS 1010 - Music Convocation **Credits:** No Credit

Applied Music (14 hours)

(See Exceptions below)

- MUS 2000 - Applied Music **Credits:** 1 to 4 hours
- MUS 3000 - Applied Music **Credits:** 1 to 4 hours
These may be taken for 2 hours minimum per semester.

Basic Music (12 hours)

- MUS 1600 - Basic Music I **Credits:** 3 hours
- MUS 1610 - Basic Music II **Credits:** 3 hours
- MUS 2600 - Basic Music III **Credits:** 3 hours
- MUS 2610 - Basic Music IV **Credits:** 3 hours

Aural Skills (3 hours)

- MUS 1620 - Aural Skills I **Credits:** 1 hour
- MUS 1630 - Aural Skills II **Credits:** 1 hour
- MUS 2590 - Aural Skills III **Credits:** 1 hour

History or Theory Elective (2 hours)

(see Electives below)

Musicology (9 hours)

- MUS 2700 - Music History I **Credits:** 3 hours
- MUS 2710 - Music History II **Credits:** 3 hours
- MUS 5885 - Global Music Cultures **Credits:** 3 hours

Performance Elective (8 hours)

(see Electives below)

Keyboard Fundamentals (2 hours)

- MUS 1200 - Keyboard Fundamentals **Credits:** 1 hour
- MUS 1210 - Keyboard Fundamentals **Credits:** 1 hour

Conducting (1 hour)

- MUS 2150 - Conducting **Credits:** 1 hour

General Education Electives (37 hours)

Major Area of Concentration (13 to 41 hours)

Free Electives to make a minimum of 122 semester credit hours.

Music Clearance

(verification of completion of recital performance, sophomore hearing, and attendance requirements).

Exceptions To Core Requirements

Jazz Studies

Jazz Studies majors may fulfill two of the four semester major ensemble requirements by electing:

- MUS 1180 - Gold Company II **Credits:** 1 hour
- MUS 1190 - Gold Company **Credits:** 1 hour
- MUS 2100 - Jazz Lab Band **Credits:** 1 hour
- or
- MUS 2120 - Jazz Orchestra **Credits:** 1 hour

Music Therapy

Music Therapy majors complete only 8 hours of Applied Music 2000 (including successful completion of a Sophomore Hearing); only 4 hours of Performance Electives; and are not required to complete a theory/history elective.

Music Composition

Applied Music

In addition to their Applied Music Composition requirement, Music Composition majors must complete 12 credit hours of electives from the following courses:

- Any instrument or voice technique class (MUS 1170, MUS 1290, MUS 1300, MUS 1420, MUS 1430, MUS 1440, or MUS 1460)
- MUS 1000 - Applied Music **Credits:** 1 to 2 hours
(Instrument/Voice)(May be repeated for credit)
- MUS 1260 - Fundamentals of Guitar **Credits:** 1 hour
- MUS 1940 - Introduction to Audio Engineering **Credits:** 2 hours
- MUS 2000 - Applied Music **Credits:** 1 to 4 hours
(May be repeated for credit)(Requires a successful audition)
- MUS 2200 - Keyboard Musicianship **Credits:** 1 hour
- MUS 2640 - Jazz Composition **Credits:** 2 hours
- MUS 3000 - Applied Music **Credits:** 1 to 4 hours
(May be repeated for credit)(Requires a successful audition)
- MUS 5620 - Advanced Compositional Topics **Credits:** 2 hours
(May be repeated for credit)
- MUS 5640 - Seminar in Electronic Music Composition **Credits:** 2 to 3 hours
- MUS 5645 - Audio for Video **Credits:** 3 hours
- MUS 5655 - Special Topics in Multimedia Arts Technology **Credits:** 2 to 3 hours

Performance electives (4 hours minimum)

Composition majors must complete an additional 4 credit hours of ensemble performance electives (any of these courses may be repeated for credit, except MUS 1900):

- MUS 1070 - University Choruses **Credits:** 1 hour
- MUS 1080 - Collegiate Singers **Credits:** 1 hour
- MUS 1090 - Marching Band **Credits:** 1 hour
- MUS 1100 - Concert Band **Credits:** 1 hour
- MUS 1110 - University Orchestra **Credits:** 1 hour
- MUS 1120 - University Chorale **Credits:** 1 hour
- MUS 1130 - Symphonic Band **Credits:** 1 hour
- MUS 1180 - Gold Company II **Credits:** 1 hour
- MUS 1190 - Gold Company **Credits:** 1 hour
- MUS 1900 - Accompanying **Credits:** 1 hour
(Not repeatable for credit)
- MUS 2100 - Jazz Lab Band **Credits:** 1 hour
- MUS 2120 - Jazz Orchestra **Credits:** 1 hour
- MUS 2180 - Chamber Music Without Conductor **Credits:** 1 hour
(Topic: Instrumental Chamber Music)
- MUS 3170 - Opera Workshop **Credits:** 1 hour
- MUS 5170 - Collegium Musicum **Credits:** 1 hour
- MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra **Credits:** 1 hour
- MUS 5965 - Sound Reinforcement Practicum **Credits:** 2 hours

Keyboard

Keyboard majors are to replace Keyboard Fundamentals 1200 and 1210 with MUS 1900: Accompanying (1 credit) in freshman-sophomore years and MUS 1000: Organ (1 credit) in junior-senior years.

Music Education: Choral/General/Music

Music Education: Choral/General Music majors complete only 7 semesters of Performance Electives. Students for whom keyboard is the applied instrument must elect MUS 1900: Accompanying in the freshman-sophomore years as one of the required performance electives, and may choose to substitute one credit of MUS 1000: Organ for one credit of MUS 3000: Piano. It is recommended that all Music Education majors have at least one jazz experience/ensemble.

Music Education: Instrumental

Music Education: Instrumental majors complete only 6 semesters of Performance Electives plus 2 semesters of Marching Band. Students for whom keyboard is the applied instrument must elect MUS 1900: Accompanying in the freshman-sophomore years as one of the required performance electives, and may choose to substitute one credit of MUS 1000: Organ for one credit of MUS 3000: Piano. It is recommended that all Music Education majors have at least one jazz experience/ensemble.

All students wishing to earn a Teaching Certificate

All students wishing to earn a teaching certificate should have minimal keyboard skills upon entry to the major. Therefore, Keyboard Fundamentals (1200 and 1210) may not be applied towards any major that leads to a teaching certification.

Electives

Performance electives may be selected from the following list of courses:

1. Students are required to elect four semesters of a major ensemble (see exception below for Composition students).

The major ensembles are:

- MUS 1070 - University Choruses **Credits:** 1 hour (not Grand Chorus)
- MUS 1080 - Collegiate Singers **Credits:** 1 hour
- MUS 1100 - Concert Band **Credits:** 1 hour
- MUS 1130 - Symphonic Band **Credits:** 1 hour
- MUS 2030 - Wind Symphony **Credits:** 1 hour
- MUS 1110 - University Orchestra **Credits:** 1 hour
- MUS 1120 - University Chorale **Credits:** 1 hour

Please note the following:

- At least two of the required four semesters of major ensemble must be taken during the junior-senior years.
- The four semesters **MUST** be taken in an ensemble in the student's applied area. (Keyboard majors may elect any large ensemble, except that Keyboard/Music Education-Choral/General majors must elect a vocal ensemble and Keyboard/Music Education-Instrumental majors must elect an instrumental ensemble.)

2. The remaining four semester hours of Performance electives may be selected from the following:

- MUS 1070 - University Choruses **Credits:** 1 hour
- MUS 1080 - Collegiate Singers **Credits:** 1 hour
- MUS 1090 - Marching Band **Credits:** 1 hour
- MUS 1100 - Concert Band **Credits:** 1 hour
- MUS 1130 - Symphonic Band **Credits:** 1 hour
- MUS 2030 - Wind Symphony **Credits:** 1 hour
- MUS 1110 - University Orchestra **Credits:** 1 hour
- MUS 1120 - University Chorale **Credits:** 1 hour
- MUS 1180 - Gold Company II **Credits:** 1 hour
- MUS 1190 - Gold Company **Credits:** 1 hour
- MUS 1900 - Accompanying **Credits:** 1 hour
(not repeatable for credit)
- MUS 2100 - Jazz Lab Band **Credits:** 1 hour
- MUS 2120 - Jazz Orchestra **Credits:** 1 hour
- MUS 2180 - Chamber Music Without Conductor **Credits:** 1 hour
(Topic: Instrumental Chamber Music)
- MUS 3170 - Opera Workshop **Credits:** 1 hour
- MUS 5170 - Collegium Musicum **Credits:** 1 hour
- MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra **Credits:** 1 hour

Please note the following:

- All keyboard majors are required to elect one semester of MUS 1900: Accompanying (therapy majors excepted).
- The student is expected to complete one performance elective during each term of enrollment.

Theory Electives

Theory electives may be selected from the following:

- MUS 2630 - Composition II **Credits:** 2 hours
- MUS 5550 - Jazz Arranging **Credits:** 2 hours
- MUS 5580 - Jazz Improvisation I **Credits:** 2 hours
- MUS 5600 - Counterpoint **Credits:** 2 hours
- MUS 5650 - Topics in Music Theory **Credits:** 2 to 3 hours
- MUS 5670 - Orchestration **Credits:** 2 hours

Music History/Literature Electives

Music History/Literature electives may be selected from the following list of courses:

- MUS 5720 - Baroque Music (1600-1750) **Credits:** 3 hours
- MUS 5730 - Classical Music (1750-1800) **Credits:** 2 hours
- MUS 5790 - Operatic Literature **Credits:** 2 hours
- MUS 5800 - Solo Literature **Credits:** 2 hours
- MUS 5810 - Choral Music Literature **Credits:** 2 hours
- MUS 5830 - Jazz History and Literature **Credits:** 3 hours
- MUS 5840 - Topics in Musicology and Ethnomusicology **Credits:** 2 to 3 hours
- MUS 5850 - Medieval Music **Credits:** 2 hours
- MUS 5870 - Contemporary Music **Credits:** 3 hours

Electing a Major Area of Study

A student desiring professional programs will be accepted in the area of choice in the fourth semester of enrollment if he/she qualifies under the following guidelines:

Composition

The student must have a minimum grade point average of 3.25 in "Core" courses which are in the same area as the elected major.

Music Performance

The student must have a minimum grade point average of 3.25 in "Core" courses which are in the same area as the elected major, as well as be approved for this major by taking a performance qualifying examination which should be passed not later than the Sophomore Hearing.

Music Education

The student must have met the standards of the College of Education and Human Development; must have completed all Music Core courses, with no grade of less than a "C" and a 2.5 average in those courses; and must complete the formal admission procedure as described in the Music Student Handbook.

Music Therapy

Prior to beginning practicum (4000 level) courses in the music therapy curriculum, the student must have completed 35 hours of course work, completed the music core in theory/history/aural comprehension/conducting with a GPA of 2.5 or better, have a GPA of 3.25 or better in music therapy core courses, and have an overall GPA of 2.5 or better. See the Music Student Handbook for a complete description of admission procedures and standards.

Music Therapy and Music Education

Students must earn a minimum grade point average of 3.0 in course work in the area of the major in order to be recommended for a music therapy or music education internship.

If the student does not qualify according to the guidelines outlined above, the application will be submitted to the faculty committee in the area of the major for approval. In the event that approval is denied and the student does not qualify for any other major area of concentration, the music advisor will outline the course work in music which may be applied toward the Bachelor of Musical Arts or Bachelor of Arts degree with a major in music.

Music Composition

A student must be able to demonstrate previous music composition practice and competency before being admitted to a music composition major. Previous compositional practice will be assessed through a review of the student's creative work involving sound. The student will need to have completed two or three works. All Bachelor of Music: Music Composition candidates are required to present a Senior Recital consisting of at least 30 minutes of original compositions which are an outgrowth of the candidate's course work and which have been approved by the composition faculty member with whom the student is studying at the time of the recital. No minor is required for this major. In addition to core requirements for all Bachelor of Music majors, Music Composition majors must fulfill the following:

Music Composition Major Requirements

- MUS 2620 - Composition I **Credits:** 2 hours
- MUS 2630 - Composition II **Credits:** 2 hours

Applied Music Composition (16 hours minimum)

- MUS 2000 - Applied Music **Credits:** 1 to 4 hours
(Topic: Composition) (instructor approval required)
And/Or
- MUS 3620 - Applied Music Composition **Credits:** 2 to 4 hours
(Minimum 12 hours total)

Electronic Music Cognates (8 hours minimum)

- MUS 2240 - Electronic Music Techniques **Credits:** 2 hours
- MUS 5640 - Seminar in Electronic Music Composition **Credits:** 2 to 3 hours
(May be repeated for credit)

Compositional Topics Cognates (8 hours minimum)

- MUS 5600 - Counterpoint **Credits:** 2 hours
- MUS 5670 - Orchestration **Credits:** 2 hours

Additional credits selected from the following:

- MUS 5620 - Advanced Compositional Topics **Credits:** 2 hours
(May be repeated for credit)
- MUS 5680 - Orchestration **Credits:** 2 hours

Recommendations

It is recommended that the student also consider electing:

- ART 1200 - Introduction to Art **Credits:** 3 hours
- THEA 1000 - Playing with Fire: Love, Politics & Entertainment **Credits:** 3 hours

Music Education Major: Choral/General Emphasis

Coursework required for certification to teach music at any grade level (K-12) (44 hours)

No minor required.

Introductory Course (2 hours)

- MUS 1800 - Experiencing Music Education **Credits:** 2 hours

Required Course (1 hour)

- MUS 2350 - International Phonetic Alphabet for Singers **Credits:** 1 hour

Teaching and Learning in Music (3 hours)

- MUS 2480 - Teaching and Learning in Music **Credits:** 3 hours

General Music Methods (3 hours)

- MUS 3360 - General Music Methods **Credits:** 3 hours

Choral Techniques (2 hours)

- MUS 3390 - Choral Techniques **Credits:** 2 hours

Choral Methods (3 hours)

- MUS 3400 - Choral Methods **Credits:** 3 hours

Conducting (2 hours)

- MUS 3300 - Choral Conducting and Literature **Credits:** 2 hours

Instrument (1 hour)

- MUS 2790 - Instruments of the Band and Orchestra **Credits:** 1 hour

Senior Seminar in Music Education (1 hour)

- MUS 3850 - Senior Seminar in Music Education **Credits:** 1 hour

Second Instrument (4 hours)

Piano

Keyboard Musicianship 2200, 2210, 3200, 3210 and/or pass the exam administered by the Keyboard and Professional Education areas. Students who do not qualify for entry at the 2200 level must complete Keyboard Fundamentals (1200 and/or 1210) as a deficiency. No class is to be counted twice. Those students who test out of a course or courses in the Keyboard Musicianship sequence will select courses from the instrument or methods elective areas to complete course requirements.

- MUS 2200 - Keyboard Musicianship **Credits:** 1 hour
- MUS 2210 - Keyboard Musicianship **Credits:** 1 hour
- MUS 3200 - Advanced Keyboard Musicianship **Credits:** 1 hour

- MUS 3210 - Advanced Keyboard Musicianship II **Credits:** 1 hour

Voice

Pass exam for Keyboard Musicianship 3210, given by the Keyboard and Professional Education areas. The student should take MUS 1170: Vocal Techniques for Music Educators as part of four semesters of voice study. Four semesters of study are required, with one semester at 2000 level voice.

- MUS 1000 - Applied Music **Credits:** 1 to 2 hours
- MUS 1170 - Vocal Techniques for Music Educator **Credits:** 1 hour
- MUS 2000 - Applied Music **Credits:** 1 to 4 hours
- MUS 3210 - Advanced Keyboard Musicianship II **Credits:** 1 hour

College of Education and Human Development Courses (21 hours)

- ED 2500 - Human Development: Applications in Education **Credits:** 3 hours
- ED 4100 - Seminar in Education **Credits:** 1 to 2 hours
(2 hours)
- ED 4750 - Intern Teaching: Middle School/Secondary **Credits:** 5 or 10 hours
(10 hours)
- ES 3950 - School and Society **Credits:** 3 hours
- LS 3050 - K-12 Content Area Literacy **Credits:** 3 hours

Notes:

Before the student will be recommended for intern teaching, he/she must have a minimum WMU grade-point average of 3.0. Additionally, the student must have earned no grade lower than a "CB" in any courses specific to the music education major (this does not apply to the other Bachelor of Music requirements). The application for intern teaching assignment must be made in the Office of Professional Field Experiences one full year before the assignment is to begin.

Music Education Major: Instrumental Emphasis

Coursework required for certification to teach music at any grade level (K-12) (44 hours)

No minor is required.

Introductory Course (2 hours)

- MUS 1800 - Experiencing Music Education **Credits:** 2 hours

Teaching and Learning in Music (3 hours)

- MUS 2480 - Teaching and Learning in Music **Credits:** 3 hours

Instrumental Methods I (3 hours)

- MUS 3440 - Instrumental Methods I **Credits:** 3 hours

Methods Elective I (3 hours)

Select from the following:

- MUS 3360 - General Music Methods **Credits:** 3 hours
- MUS 3400 - Choral Methods **Credits:** 3 hours
- MUS 3470 - Instrumental Methods II **Credits:** 3 hours

Conducting (2 hours)

- MUS 3310 - Instrumental Conducting and Literature **Credits:** 2 hours

Class Instruments Cognates (6 hours)

Complete these courses (concurrent with or after taking MUS 3440 - Instrumental Methods I):

- MUS 1290 - String Class-Violin, Viola **Credits:** 1 hour
- MUS 1300 - Percussion Class **Credits:** 1 hour
- MUS 1420 - Oboe/Bassoon Class **Credits:** 1 hour
- MUS 1430 - Trumpet/Horn Class **Credits:** 1 hour
- MUS 1440 - Trombone/Tuba Class **Credits:** 1 hour
- MUS 1460 - Clarinet/Flute/Saxophone Class **Credits:** 1 hour

Vocal Techniques for Music Education (1 hour)

- MUS 1170 - Vocal Techniques for Music Educator **Credits:** 1 hour

Senior Seminar in Music Education (1 hour)

- MUS 3850 - Senior Seminar in Music Education **Credits:** 1 hour

Keyboard Musicianship (2 hours)

Those who pass the exam administered by the Keyboard area will complete this requirement by selecting courses from the class instrument or methods elective areas. Students who do not qualify for entry at the 2200 level must complete Keyboard Fundamentals (1200) and/or 1210 as a deficiency.

- MUS 2200 - Keyboard Musicianship **Credits:** 1 hour
- MUS 2210 - Keyboard Musicianship **Credits:** 1 hour

College of Education and Human Development Courses (21 hours)

- ED 2500 - Human Development: Applications in Education **Credits:** 3 hours
- ED 4100 - Seminar in Education **Credits:** 1 to 2 hours

(2 hours)

- ED 4750 - Intern Teaching: Middle School/Secondary **Credits:** 5 or 10 hours (10 hours)
- ES 3950 - School and Society **Credits:** 3 hours
- LS 3050 - K-12 Content Area Literacy **Credits:** 3 hours

Notes:

Wind/Percussion students must complete two semesters of Marching Band (1090). All other instrumental emphasis majors are also strongly urged to elect MUS 1090 (see "Exceptions To Core Requirements" in the Bachelor of Music Program).

Before the student will be recommended for intern teaching, he/she must have a minimum WMU grade-point average of 3.0. Additionally, the student must have earned no grade lower than a "CB" in any courses specific to the music education major (this does not apply to the other Bachelor of Music requirements). The application for intern teaching assignment must be made in the Office of Professional Field Experiences one full year before the assignment is to begin.

Music Performance: Instrumental Major

In order to be allowed to continue to major in music performance the student must achieve a minimum grade point average of 3.25 in MUS 2000 and pass a performance qualifying examination (see "Electing a Major Area of Study" in the Bachelor of Music program).

No minor is required.

Applied Music (4 hours)

(in addition to **Core requirements**)

- MUS 2000 - Applied Music **Credits:** 1 to 4 hours

Applied Music (10 hours)

(in addition to **Core requirements**)

- MUS 3000 - Applied Music **Credits:** 1 to 4 hours

Performance Electives (2 hours)

(in addition to **Core Requirements**; see **Electives** above)

Chamber Music (2 hours)

- MUS 2180 - Chamber Music Without Conductor **Credits:** 1 hour (Topic: Instrumental Chamber Music)

Composition (2 hours)

- MUS 2620 - Composition I **Credits:** 2 hours

Advanced History/Literature (2 hours)

(in addition to **Core Requirements**)

Counterpoint (2 hours)

- MUS 5600 - Counterpoint **Credits:** 2 hours

Music Cognate Electives (5 hours)

Senior Recital (0 hours)

(required for Music Clearance)

Music Performance: Jazz Studies

No minor is required.

Applied Music (10 hours)

(in addition to **Core Requirements**)

- MUS 3000 - Applied Music **Credits:** 1 to 4 hours

Jazz Ensembles (2 hours)

- MUS 1190 - Gold Company **Credits:** 1 hour
or
- MUS 2120 - Jazz Orchestra **Credits:** 1 hour

Jazz Combo (2 hours)

- MUS 2180 - Chamber Music Without Conductor **Credits:** 1 hour
(Topic: Instrumental Chamber Music)
Or
- MUS 5150 - Advanced Jazz Combo **Credits:** 1 hour

Jazz Composition (2 hours)

- MUS 2640 - Jazz Composition **Credits:** 2 hours

Jazz Arranging (4 hours)

- MUS 5550 - Jazz Arranging **Credits:** 2 hours
- MUS 5560 - Advanced Jazz Arranging **Credits:** 2 hours

Jazz Improvisation (4 hours)

- MUS 5580 - Jazz Improvisation I **Credits:** 2 hours
- MUS 5590 - Jazz Improvisation II **Credits:** 2 hours

Jazz History and Literature (3 hours)

- MUS 5830 - Jazz History and Literature **Credits:** 3 hours

Keyboard Musicianship (2 hours)

- MUS 2200 - Keyboard Musicianship **Credits:** 1 hour
- MUS 2210 - Keyboard Musicianship **Credits:** 1 hour

Professional Cognate Electives (2 hours)

Select from:

- MUS 1000 - Applied Music **Credits:** 1 to 2 hours
(Piano)
- MUS 2620 - Composition I **Credits:** 2 hours
- MUS 2630 - Composition II **Credits:** 2 hours
- MUS 3300 - Choral Conducting and Literature **Credits:** 2 hours
- MUS 3310 - Instrumental Conducting and Literature **Credits:** 2 hours
- MUS 3860 - Music Technology Concepts **Credits:** 2 hours
- MUS 5600 - Counterpoint **Credits:** 2 hours
- MUS 5640 - Seminar in Electronic Music Composition **Credits:** 2 to 3 hours
- MUS 5670 - Orchestration **Credits:** 2 hours
- MUS 5680 - Orchestration **Credits:** 2 hours

Senior Recital

All Bachelor of Music-Jazz Studies candidates are required to present a senior recital.

Music Performance: Keyboard Major

In order to be allowed to continue to major in music performance the student must achieve a minimum grade point average of 3.25 in MUS 2000 and pass a performance qualifying examination (see "Electing a Major Area of Study").

No minor is required.

Applied Music (4 hours)

(in addition to **Core requirements**)

- MUS 2000 - Applied Music **Credits:** 1 to 4 hours

Applied Music (10 hours)

(in addition to **Core requirements**)

- MUS 3000 - Applied Music **Credits:** 1 to 4 hours

Performance Electives (2 hours)

(in addition to **Core Requirements**; see **Electives** core in the Bachelor of Music program)

Chamber Music (2 hours)

- MUS 2180 - Chamber Music Without Conductor **Credits:** 1 hour
(Topic: Instrumental Chamber Music)

Composition (2 hours)

- MUS 2620 - Composition I **Credits:** 2 hours

Advanced History/Literature (2 hours)

(in addition to **Core Requirements**)

Counterpoint (2 hours)

- MUS 5600 - Counterpoint **Credits:** 2 hours

Keyboard Literature (2 hours)

- MUS 5800 - Solo Literature **Credits:** 2 hours
(Topic: Keyboard Literature)

Keyboard Pedagogy (2 hours)

- MUS 5900 - Studies in Pedagogy **Credits:** 1 to 4 hours

Music Electives (1 hour)

Senior Recital (0 hours)

(required for Music Clearance)

Music Performance: Vocal Major

In order to be allowed to continue to major in music performance the student must achieve a minimum grade point average of 3.25 in Applied MUS 2000 and pass a performance qualifying examination (see "Electing a Major Area of Study" in the Bachelor of Music program).

No minor is required.

Applied Music (4 hours)

(in addition to **Core Requirements**)

- MUS 2000 - Applied Music **Credits:** 1 to 4 hours

Applied Music (10 hours)

(in addition to **Core Requirements**)

- MUS 3000 - Applied Music **Credits:** 1 to 4 hours

Performance Electives (2 hours)

(in addition to **Core Requirements**; See **Electives Core** in the Bachelor of Music program)

Opera Workshop (2 hours)

- MUS 3170 - Opera Workshop **Credits:** 1 hour

Keyboard Musicianship (4 hours)

- MUS 2200 - Keyboard Musicianship **Credits:** 1 hour
- MUS 2210 - Keyboard Musicianship **Credits:** 1 hour
- MUS 3200 - Advanced Keyboard Musicianship **Credits:** 1 hour
- MUS 3210 - Advanced Keyboard Musicianship II **Credits:** 1 hour

Foreign Languages Cognate (8 hours)

Vocal Literature and Pedagogy (4 hours)

- MUS 5800 - Solo Literature **Credits:** 2 hours
(Topic: Vocal Literature)
- MUS 5900 - Studies in Pedagogy **Credits:** 1 to 4 hours
(Topic: Vocal Pedagogy)

Diction (2 hours)

- MUS 2330 - Italian/English Diction **Credits:** 1 hour
- MUS 2340 - French/German Diction **Credits:** 1 hour

Senior Recital (0 hours)

(required for Music Clearance)

Note:

In addition to the 8 hours of language study above, the music performance-vocal major must include two semesters of one additional language in completing General Education requirements. The language must be selected from the list of approved General Education Proficiency 4 courses.

Music Therapy Major

The student must achieve a 3.0 grade point average in the therapy major in order to be recommended for MUS 4810 (internship). In completing the General Education requirements the therapy major must complete OT 2000/2010 (cognates) and SPPA 2000 (cognate). The therapy major must complete at least one course in dance (cognate).

No minor is required.

Courses in Music Therapy (22 hours)

- MUS 2810 - Introduction to Music Therapy **Credits:** 1 hour
- MUS 2890 - Music Therapy Activities for Children **Credits:** 2 hours
- MUS 2900 - Music Therapy Activities for Adults **Credits:** 2 hours
- MUS 3800 - Psychology of Music **Credits:** 2 hours
- MUS 3810 - Research in the Psychology of Music **Credits:** 2 hours
- MUS 3830 - Observation and Measurement in Music Therapy **Credits:** 1 hour
- MUS 4720 - Clinical Practicum in Music Therapy I **Credits:** 2 hours
- MUS 4730 - Clinical Practicum in Music Therapy II **Credits:** 2 hours
- MUS 4790 - Influence of Music on Behavior **Credits:** 3 hours
- MUS 4800 - Music Therapy Methods and Materials **Credits:** 3 hours
- MUS 4810 - Music Therapy Internship **Credits:** 1 to 2 hours

Keyboard Musicianship (4 hours)

All music therapy majors who have passed a piano competency exam may be excused from any Keyboard Musicianship requirements except MUS 3220.

- MUS 2200 - Keyboard Musicianship **Credits:** 1 hour
- MUS 2210 - Keyboard Musicianship **Credits:** 1 hour
- MUS 3200 - Advanced Keyboard Musicianship **Credits:** 1 hour

Fundamentals of Guitar (1 hour)

- MUS 1260 - Fundamentals of Guitar **Credits:** 1 hour

Voice Class (1 hour)

- MUS 1170 - Vocal Techniques for Music Educator **Credits:** 1 hour

Additional Courses (2 hours)

- MUS 2790 - Instruments of the Band and Orchestra **Credits:** 1 hour
- MUS 2800 - Instruments of the Music Classroom **Credits:** 1 hour

Professional Electives (5 hours)

Select from:

- Performance Electives
(selected from electives listed under Core Requirements)
- MUS 1290 - String Class-Violin, Viola **Credits:** 1 hour
- MUS 1300 - Percussion Class **Credits:** 1 hour
- MUS 1420 - Oboe/Bassoon Class **Credits:** 1 hour
- MUS 1430 - Trumpet/Horn Class **Credits:** 1 hour
- MUS 1440 - Trombone/Tuba Class **Credits:** 1 hour
- MUS 3000 - Applied Music **Credits:** 1 to 4 hours
- MUS 3360 - General Music Methods **Credits:** 3 hours
- MUS 5550 - Jazz Arranging **Credits:** 2 hours
- MUS 5580 - Jazz Improvisation I **Credits:** 2 hours

Psychology Cognate (6 hours)

- PSY 1000 - General Psychology **Credits:** 3 hours
- PSY 2500 - Abnormal Psychology **Credits:** 3 hours

Special Education Cognate (3 hours)

- SPED 5300 - Introduction to Special Education **Credits:** 3 hours

Notes:

The student must achieve a 3.0 grade point average in the therapy major in order to be recommended for MUS 4810 (internship). In completing the General Education requirements the therapy major must complete OT 2000/2010 (cognates) and SPPA 2000 (cognate). The therapy major must complete at least one course in dance (cognate).

Bachelor of Musical Arts

Bachelor of Musical Arts

1. WMU Essential Studies (37 hours)

2. A major in music (57 hours)

Music Convocation (6 semesters)

- MUS 1010 - Music Convocation **Credits:** No Credit

Applied Music (8 hours)

- MUS 1000 - Applied Music **Credits:** 1 to 2 hours
Maximum 2 hours; on secondary instrument only
- MUS 2000 - Applied Music **Credits:** 1 to 4 hours
Minimum 4 hours total on primary instrument; includes juries
- MUS 3000 - Applied Music **Credits:** 1 to 4 hours
Must pass sophomore hearing for entrance; includes juries
- MUS 3620 - Applied Music Composition **Credits:** 2 to 4 hours

Note:

Additional hours of applied music may count to fulfill Music Elective.

Basic Music (9 hours)

- MUS 1600 - Basic Music I **Credits:** 3 hours
- MUS 1610 - Basic Music II **Credits:** 3 hours
- MUS 2600 - Basic Music III **Credits:** 3 hours

Aural Skills (2 hours)

- MUS 1620 - Aural Skills I **Credits:** 1 hour
- MUS 1630 - Aural Skills II **Credits:** 1 hour

Music Composition (2 hours)

- MUS 2620 - Composition I **Credits:** 2 hours

Conducting (1 hour)

- MUS 2150 - Conducting **Credits:** 1 hour

Musicology (9 hours)

- MUS 2700 - Music History I **Credits:** 3 hours
- MUS 2710 - Music History II **Credits:** 3 hours
- MUS 5885 - Global Music Cultures **Credits:** 3 hours

Multimedia Arts (2+ hours)

- MUS 1940 - Introduction to Audio Engineering **Credits:** 2 hours
- MUS 1945 - Intro to Sound Reinforcement **Credits:** 2 hours
- MUS 1950 - Digital Video Concepts **Credits:** 2 hours
- MUS 2220 - Computer Music Design **Credits:** 3 hours
- MUS 2240 - Electronic Music Techniques **Credits:** 2 hours
- MUS 5965 - Sound Reinforcement Practicum **Credits:** 2 hours

Performance Electives (8 hours)

Students must take at least four hours of the repeatable ensemble electives.

Ensemble electives (Minimum 4 hours; these courses may be repeated for credit)

- MUS 1070 - University Choruses **Credits:** 1 hour
- MUS 1080 - Collegiate Singers **Credits:** 1 hour
- MUS 1090 - Marching Band **Credits:** 1 hour
- MUS 1100 - Concert Band **Credits:** 1 hour
- MUS 1110 - University Orchestra **Credits:** 1 hour
- MUS 1120 - University Chorale **Credits:** 1 hour
- MUS 1130 - Symphonic Band **Credits:** 1 hour
- MUS 1180 - Gold Company II **Credits:** 1 hour
- MUS 1190 - Gold Company **Credits:** 1 hour
- MUS 2030 - Wind Symphony **Credits:** 1 hour
- MUS 2100 - Jazz Lab Band **Credits:** 1 hour
- MUS 2120 - Jazz Orchestra **Credits:** 1 hour
- MUS 2180 - Chamber Music Without Conductor **Credits:** 1 hour
- MUS 3170 - Opera Workshop **Credits:** 1 hour
- MUS 5170 - Collegium Musicum **Credits:** 1 hour
- MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra **Credits:** 1 hour

Please note the following:

Most ensembles are by audition only.

Remaining Performance Hours

Students may elect the following non-repeatable courses for the remaining performance hours if they wish:

- MUS 1200 - Keyboard Fundamentals **Credits:** 1 hour
- MUS 1210 - Keyboard Fundamentals **Credits:** 1 hour
- MUS 1220 - Voice Class **Credits:** 1 hour
- MUS 1240 - Guitar Class I **Credits:** 2 hours
- MUS 1250 - Guitar Class II **Credits:** 2 hours
- MUS 1420 - Oboe/Bassoon Class **Credits:** 1 hour
- MUS 1430 - Trumpet/Horn Class **Credits:** 1 hour

- MUS 1440 - Trombone/Tuba Class **Credits:** 1 hour
- MUS 1460 - Clarinet/Flute/Saxophone Class **Credits:** 1 hour
- MUS 1900 - Accompanying **Credits:** 1 hour

Music Electives (16 hours)

3. A Minor or Second Major in Another Department in University (15 hours)

(Notes: Multimedia Arts Technology is an exception and can be elected for inclusion in the BMA degree. In the event that the credit hours for the minor requirements established by the department which offers that minor are greater than 15, the student may make an appropriate adjustment in the hours allowed for free electives so that the student completes a minimum of 122 credit hours.)

4. Free Electives (13 hours)

Bachelor of Science

Multimedia Arts Technology - Music (122 hours)(MATJ)

The Bachelor of Science in Multimedia Arts Technology - Music is designed to prepare students for career opportunities in audio engineering, multimedia content creation, sound reinforcement, computer programming for multimedia projects, and technology-based performance. Students in this degree receive intensive, hands-on instruction and experience utilizing state-of-the-art electronic equipment and labs.

Admission procedures for the B.S. MAT - Music include:

1. An application to the University during the initial filing period;
2. An application to the School of Music including a letter outlining the student's background, interests, and goals.
3. Attending a School of Music New Student Admissions Day to:
 - complete an interview with Multimedia Arts Technology faculty (including submission of a portfolio and brief performance)
 - complete the theory testing for placement
 - attend informational sessions at the School of Music.

Visit wmich.edu/multimedia/apply or consult with Music's Undergraduate Advisor for additional application details.

Prospective or current WMU students may apply to the B.S. MAT major a maximum of two times. Qualified students will be admitted to the program based on the following criteria:

1. The extent to which their goals are in line with the program goals.
2. The extent to which their knowledge and background supports achieving these goals.
3. Available space in the program.

1. WMU Essential Studies (37 credit hours)

2. Major Core Music Program (16-18 credit hours)

- MUS 5885 - Global Music Cultures **Credits:** 3 hours

Music Theory (2-3 credit hours)

One course selected from the following:

- MUS 1590 - Fundamentals of Music **Credits:** 2 hours
- MUS 1600 - Basic Music I **Credits:** 3 hours
(must waive prereq of MUS 1590 by exam)

Music Appreciation (3-4 credit hours)

- MUS 1010 - Music Convocation **Credits:** No Credit
(6 semesters)

One course selected from the following:

- MUS 1500 - Music Appreciation: Live Music **Credits:** 4 hours
- MUS 1510 - Jazz in America **Credits:** 4 hours
- MUS 1520 - Rock Music: Genesis and Development **Credits:** 3 hours
- MUS 3500 - American Music **Credits:** 4 hours
- MUS 4500 - Music Appreciation: The Symphony **Credits:** 3 hours

Music Performance (8 credit hours) selected from:

All MAT students must register at least once for:

- MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra **Credits:** 1 hour
- MUS 5965 - Sound Reinforcement Practicum **Credits:** 2 hours

Applied Music and Ensembles (7 credit hours)

Applied Music (MUS 1000) and Ensembles are available to students who can qualify by audition with appropriate applied faculty and/or ensemble director. Select an additional 7 credits from the courses immediately below or the Ensemble Electives:

- MUS 1000 - Applied Music **Credits:** 1 to 2 hours
(may be repeated for credit)
- MUS 1020 - Piano Class I **Credits:** 2 hours
- MUS 1030 - Piano Class II **Credits:** 2 hours
- MUS 1200 - Keyboard Fundamentals **Credits:** 1 hour
- MUS 1220 - Voice Class **Credits:** 1 hour
- MUS 1240 - Guitar Class I **Credits:** 2 hours
- MUS 1250 - Guitar Class II **Credits:** 2 hours
- MUS 1420 - Oboe/Bassoon Class **Credits:** 1 hour
- MUS 1430 - Trumpet/Horn Class **Credits:** 1 hour
- MUS 1440 - Trombone/Tuba Class **Credits:** 1 hour
- MUS 1460 - Clarinet/Flute/Saxophone Class **Credits:** 1 hour
- MUS 5965 - Sound Reinforcement Practicum **Credits:** 2 hours

Or Ensemble Electives

These courses may be repeated for credit.

- MUS 1070 - University Choruses **Credits:** 1 hour
- MUS 1080 - Collegiate Singers **Credits:** 1 hour
- MUS 1090 - Marching Band **Credits:** 1 hour
- MUS 1100 - Concert Band **Credits:** 1 hour
- MUS 1110 - University Orchestra **Credits:** 1 hour
- MUS 1120 - University Chorale **Credits:** 1 hour
- MUS 1130 - Symphonic Band **Credits:** 1 hour
- MUS 1180 - Gold Company II **Credits:** 1 hour
- MUS 1190 - Gold Company **Credits:** 1 hour
- MUS 2030 - Wind Symphony **Credits:** 1 hour
- MUS 2100 - Jazz Lab Band **Credits:** 1 hour
- MUS 2120 - Jazz Orchestra **Credits:** 1 hour
- MUS 2170 - Chamber Music With Conductor **Credits:** 1 hour
- MUS 2180 - Chamber Music Without Conductor **Credits:** 1 hour
- MUS 3170 - Opera Workshop **Credits:** 1 hour
- MUS 5170 - Collegium Musicum **Credits:** 1 hour
- MUS 5965 - Sound Reinforcement Practicum **Credits:** 2 hours
- MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra **Credits:** 1 hour

3. Major Course Requirements in Multimedia Arts Technology (45-47 credit hours)

Required Courses (34-36 credit hours)

- MUS 1940 - Introduction to Audio Engineering **Credits:** 2 hours
- MUS 1945 - Intro to Sound Reinforcement **Credits:** 2 hours
- MUS 1950 - Digital Video Concepts **Credits:** 2 hours
- MUS 2220 - Computer Music Design **Credits:** 3 hours
- MUS 2240 - Electronic Music Techniques **Credits:** 2 hours
- MUS 2940 - Multi-track Recording **Credits:** 2 hours
- MUS 3240 - Effects Processing and Synthesis **Credits:** 2 hours
- MUS 3940 - Advanced Recording I **Credits:** 2 hours
- MUS 4240 - Audio Programming I **Credits:** 2 hours
- MUS 4940 - Advanced Recording II **Credits:** 2 hours
- MUS 5240 - Audio Programming II **Credits:** 2 hours
- MUS 5645 - Audio for Video **Credits:** 3 hours
- MUS 5655 - Special Topics in Multimedia Arts Technology **Credits:** 2 to 3 hours (minimum of 4 credits)
- MUS 5678 - MAT Capstone Project **Credits:** 2 hours (minimum of 4 credits)

A minimum 11 credit hours selected from the following:

- MUS 1610 - Basic Music II **Credits:** 3 hours
- MUS 2600 - Basic Music III **Credits:** 3 hours

- MUS 2610 - Basic Music IV **Credits:** 3 hours
- MUS 2620 - Composition I **Credits:** 2 hours
- MUS 2630 - Composition II **Credits:** 2 hours
- THEA 2900 - Theatre Practicum **Credits:** 1 to 8 hours
- ART 2750 - Video Art I **Credits:** 3 hours
- ART 3750 - Video Art II **Credits:** 3 hours
- COM 2550 - Introduction to Digital Video Production **Credits:** 3 hours
- COM 2560 - Digital Media: Planning and Operations **Credits:** 3 hours
- MUS 5640 - Seminar in Electronic Music Composition **Credits:** 2 to 3 hours
(may be repeated for credit)
- MUS 5655 - Special Topics in Multimedia Arts Technology **Credits:** 2 to 3 hours
(may be repeated for credit)
- MUS 5990 - Projects in Recording Technology **Credits:** 1 to 4 hours
(may be repeated for credit)

Course Substitutions

Subject to approval by the School of Music MAT faculty and undergraduate advisor, additional courses related to arts and technology (not already listed above) may be used to fulfill some MAT requirements on a case-by case basis.

4. A Minor in Another Department of the University (15 credit hours minimum)

1. In the event that the credit hours for the minor requirements established by the department which offers that minor are greater than 15, the students may make an appropriate adjustment in the hours allowed for free electives.

5. Free Electives (5-9 credit hours)

Undergraduate Certificate

Undergraduate Certificate: Music Therapy Equivalency (45-46 credit hours)

Western Michigan offers a music therapy equivalency program designed for the student who already has a baccalaureate degree in music (or comparable program) in another major (i.e., not music therapy) and would like to complete course work needed to become a professional music therapist. Under this program, the student only takes the courses required for certification and need not necessarily work towards another baccalaureate degree in music therapy.

Admission Requirements:

- A Bachelor of Music degree or other bachelor's degree with at least 54 semester hours in music.
- Three letters of recommendation.

Program Requirements

Below is a list of the required coursework in the Undergraduate Certificate: Music Therapy Equivalency. Although a minimum residency of two years is suggested (not including the internship), course requirements may be completed in less time depending

on the student's past college work. Upon admission to the program, each student's previous undergraduate transcript will be reviewed to determine whether there are appropriate transfer courses which can substitute for any of the required courses below.

- MUS 1170 - Vocal Techniques for Music Educator **Credits:** 1 hour
- MUS 1260 - Fundamentals of Guitar **Credits:** 1 hour
- MUS 2790 - Instruments of the Band and Orchestra **Credits:** 1 hour
- MUS 2800 - Instruments of the Music Classroom **Credits:** 1 hour
- MUS 2810 - Introduction to Music Therapy **Credits:** 1 hour
- MUS 2890 - Music Therapy Activities for Children **Credits:** 2 hours
- MUS 2900 - Music Therapy Activities for Adults **Credits:** 2 hours
- MUS 3200 - Advanced Keyboard Musicianship **Credits:** 1 hour
(Admission to Class Piano 3200 is contingent upon prior piano study and results of proficiency exam. Additional courses may be necessary if student does not meet the prerequisites for MUS 3200.)
- MUS 3210 - Advanced Keyboard Musicianship II **Credits:** 1 hour
- MUS 3800 - Psychology of Music **Credits:** 2 hours
- MUS 3810 - Research in the Psychology of Music **Credits:** 2 hours
- MUS 3830 - Observation and Measurement in Music Therapy **Credits:** 1 hour
- MUS 4720 - Clinical Practicum in Music Therapy I **Credits:** 2 hours
- MUS 4730 - Clinical Practicum in Music Therapy II **Credits:** 2 hours
- MUS 4790 - Influence of Music on Behavior **Credits:** 3 hours
- MUS 4800 - Music Therapy Methods and Materials **Credits:** 3 hours
- MUS 4810 - Music Therapy Internship **Credits:** 1 to 2 hours
(Credits needed: 2 hours)
(The six-month internship in Music Therapy begins after completion of coursework.)
- DANC 1010 - Beginning Ballet **Credits:** 2 hours
OR
- DANC 1020 - Beginning Jazz **Credits:** 2 hours
OR
- DANC 1030 - Beginning Modern **Credits:** 2 hours
OR
- DANC 1810 - Dance Improvisation **Credits:** 1 hour
- OT 2000 - Human Functional Anatomy **Credits:** 3 hours
- OT 2010 - Human Functional Anatomy Lab **Credits:** 1 hour
- PSY 1000 - General Psychology **Credits:** 3 hours
- PSY 2500 - Abnormal Psychology **Credits:** 3 hours
- SPED 5300 - Introduction to Special Education **Credits:** 3 hours
- SLHS 2000 - Communication Disorders and Sciences **Credits:** 3 hours

Please note that:

In order to satisfy the Certification Board or Music Therapists requirements, additional courses may be required and/or deficiencies removed depending on the candidate's prior credentials. To be eligible for external certification by the Certification Board for Music Therapists, the equivalency student must have successfully completed 22 semester hours in music therapy, 18 hours in behavioral/natural sciences, 54 semester hours in music, and 30 semester hours in general education electives when all transcripts are considered.

Minors

Multimedia Arts Technology - Music (15 hours)(MATN)

The Minor in Multimedia Arts Technology - Music is a concentrated course of study in audio engineering, digital media, electronic music, and other interdisciplinary applications of technology in the fine arts. The Minor in Multimedia Arts Technology - Music is open to both music majors and non-music majors.

Select from the following courses (minimum 15 hours)

- MUS 1940 - Introduction to Audio Engineering **Credits:** 2 hours
- MUS 1945 - Intro to Sound Reinforcement **Credits:** 2 hours
- MUS 1950 - Digital Video Concepts **Credits:** 2 hours
- MUS 2220 - Computer Music Design **Credits:** 3 hours
- MUS 2240 - Electronic Music Techniques **Credits:** 2 hours
- MUS 2940 - Multi-track Recording **Credits:** 2 hours
- MUS 3240 - Effects Processing and Synthesis **Credits:** 2 hours
- MUS 3940 - Advanced Recording I **Credits:** 2 hours
- MUS 4240 - Audio Programming I **Credits:** 2 hours
- MUS 4940 - Advanced Recording II **Credits:** 2 hours
- MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra **Credits:** 1 hour
(may be repeated for credit)
- MUS 5240 - Audio Programming II **Credits:** 2 hours
- MUS 5640 - Seminar in Electronic Music Composition **Credits:** 2 to 3 hours
(may be repeated for credit)
- MUS 5645 - Audio for Video **Credits:** 3 hours
- MUS 5655 - Special Topics in Multimedia Arts Technology **Credits:** 2 to 3 hours
(may be repeated for credit)
- MUS 5965 - Sound Reinforcement Practicum **Credits:** 2 hours
(may be repeated for credit)
- MUS 5990 - Projects in Recording Technology **Credits:** 1 to 4 hours
(may be repeated for credit)

Alternate elective

Subject to approval by the School of Music undergraduate advisor and by the department offering the alternative course, an alternative course (2-3 hours) related to arts and technology may be used to fulfill part of the total. This could be another music course (e.g., MUS 5995 - Special Topics in Music) or a relevant course from another department (e.g., ART 2750 - Video Art I, COM 2650 - Digital Media, etc.).

Note:

Any course which is already required as part of a student's major degree may not be used to satisfy the requirements for the Multimedia Arts Technology - Music minor.

Music Minor (15 hours)

The School of Music does not offer a minor leading to Elementary or Secondary Teaching Certification or which allows the student to become certified in music therapy.

Music Theory (2-3 hours)

Select from:

- MUS 1590 - Fundamentals of Music **Credits:** 2 hours
- MUS 1600 - Basic Music I **Credits:** 3 hours
(Must waive MUS 1590 by exam)

Music Appreciation/History (3-4 hours)

Select from:

- MUS 1500 - Music Appreciation: Live Music **Credits:** 4 hours
- MUS 1510 - Jazz in America **Credits:** 4 hours
- MUS 1520 - Rock Music: Genesis and Development **Credits:** 3 hours
- MUS 3500 - American Music **Credits:** 4 hours
- MUS 4500 - Music Appreciation: The Symphony **Credits:** 3 hours

Music Performance (minimum 2 hours total)

Select from:

- Ensemble Electives **Credits:** 1 hour
(MUS 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1180, 1190, 2100, 2120, 2180, 3170, 5170, 5220)
- MUS 1000 - Applied Music **Credits:** 1 to 2 hours
- MUS 1020 - Piano Class I **Credits:** 2 hours
- MUS 1030 - Piano Class II **Credits:** 2 hours
- MUS 1200 - Keyboard Fundamentals **Credits:** 1 hour
- MUS 1210 - Keyboard Fundamentals **Credits:** 1 hour
- MUS 1240 - Guitar Class I **Credits:** 2 hours
- MUS 1250 - Guitar Class II **Credits:** 2 hours

Note:

Applied Music (MUS 1000) and Ensembles are available to students who can qualify by audition with appropriate applied faculty and/or ensemble director.

Music Electives (6-8 hours)

Electives selected from any Music (MUS) courses, as approved by the music advisor and with appropriate prerequisites.

Theatre

Joan Herrington, Chair
Main Office: 1103 Gilmore Theatre Complex
Telephone: (269) 387-3220
Fax: (269) 387-3222

Jay Berkow
Cheryl Bruey
Lofton L. Durham, III
Daniel Guyette
Scott Irelan
Matthew A. Knewtson
Dwandra Lampkin
Mark Liermann
David Nofsinger
Elizabeth Terrel
Kathryn Thomsen
Kathryn Wagner

The Department of Theatre offers programs leading to the Bachelor of Arts and the Bachelor of Fine Arts degrees. Students should refer to degree and General Education requirements within this catalog for specifics. The Department of Theatre concentrates on undergraduate programs that stress the interdependency of academic and production experiences, the importance of a broad theatre background, and the mastery of theatre fundamentals in preparation for the more advanced theatre training offered in graduate schools, theatre internship/apprentice programs or entry into the professional theatre.

Opportunities for participation in the production program begin with the freshman year. The Department presents nine faculty-directed productions in the season, all in the Irving S. Gilmore Theatre Complex. Additional student-directed plays are presented in the Footlights Series. All regularly enrolled students in good academic standing (2.0 GPA or above) are eligible to participate in these productions.

The Department of Theatre is fully accredited by the National Association of Schools of Theatre (NAST). The requirements for entrance and for graduation are in accordance with the published guidelines of NAST.

Admission as a Major

Admission to Western Michigan University is granted only by the Office of Admissions for undergraduate students. Application forms may be obtained by writing to the Office of Admissions, 2240 Seibert Administration Building, or via the Web at wmich.edu.

Enrollment in a Theatre or Music Theatre program is contingent upon admission to the University and approval of the Department of Theatre. Department approval is obtained through the theatre audition or interview process. Information regarding auditions and interviews can be found at wmich.edu/theatre. The students are urged to commence application procedures early in the senior year of high school, or in the final year at a community college.

Approval to become a Theatre or Music Theatre major is based upon the student's capabilities, as demonstrated by the audition or interview, upon academic abilities reflected in grade point average, various scholastic test scores as they are available, a resume, and letters of recommendation.

Further information regarding admission to the Theatre or Music Theatre major may be obtained via the Web at wmich.edu/theatre. The department welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

Advising

Advisor: Debra Gambino
2003 Gilmore Theatre Complex
(269) 387-6171
debra.gambino@wmich.edu

The Theatre Academic Advisor will assist any student enrolled in the University with course selections in theatre. Appointments are made by calling (269) 387-6171. Theatre majors and minors must confer yearly with the theatre advisor who will help them plan their program.

All students are reviewed by the faculty in their respective majors during their fourth and six semesters of study within the Department of Theatre. The purpose of the review is to assess the students' progress toward completion of the major and to discuss upper level coursework, fourth-year projects and post-graduate planning. Satisfactory review is required for continuation in the program.

A grade of "C" or better is required in all courses within the major. If a student receives a grade lower than "C", the student is required to retake the class. If a second grade of lower than "C" is received, the student will be dismissed from the major.

Transfer Credit

It is department policy to accept no more than 18 hours of transferred credit toward a major and 9 hours toward a minor.

Students transferring into all Theatre programs will be assessed at the time of their audition/interview and will be placed into the program at the level of study deemed appropriate by the faculty.

Programs

The Department of Theatre offers Bachelor of Fine Arts degrees in: Acting, Music Theatre Performance, Theatre Design and Technical Production, and Stage Management; a Bachelor of Arts in Arts Administration, available for those students who require a more flexible course of study; and a liberal arts theatre minor.

Baccalaureate-Level Writing Requirement

Theatre students should take THEA 3700: Theatre History I to complete the Baccalaureate-Level Writing requirement. Students who have chosen the Music Theatre Performance degree program will satisfy the Baccalaureate-Level Writing requirement by successfully completing THEA 3720: Music Theatre History Script Analysis II.

A student must complete all the General Education requirements as outlined in this catalog including a minimum of six (6) of these general education courses by the end of the sophomore year or the student will be placed on probation that may impact casting and production assignments.

Bachelor of Arts

Arts Administration - Bachelor of Arts (57 hours)

Western Michigan University's Arts Administration program is designed for students pursuing leadership and administrative positions in theatre and other arts and cultural organizations and for those interested in connecting audiences to the arts. The core curriculum provides students with foundational courses in performing and/or visual arts, and courses specific to the management of theatres, and arts and cultural organizations that develop skills in arts programming, marketing, communication, fundraising, finance, venue management, and audience engagement. The curriculum allows flexibility for students to choose elective courses tailored to their strengths and interests in the field. Courses of study can be customized with the approval of the Director of Theatre Arts Management. Practical application is emphasized through hands-on experiences within WMU and the local arts industry.

Beyond the classroom

As an arts administration student at WMU, you will be expected to participate as an arts administrator in the theatre production program each year, which will serve as a laboratory for some of your practical application experiences. You will have many opportunities to engage in various administrative and management roles within the Department of Theatre or other arts organizations on campus and throughout the Kalamazoo community.

All students will complete 21 credits in a chosen Fine Arts discipline (Art, Dance, Music, or Theatre)

At least 15 credits must be in a single department. At least 2 different departments must be represented within the total 21 credits required. All of this course work will be selected in collaboration with and approved by the advisors in each discipline and the Director of Theatre Arts Management.

Additionally, all students will complete the following 12 credits:

- THEA 2900 - Theatre Practicum **Credits:** 1 to 8 hours
(3 semesters at 1 hour required)
- THEA 2600 - Arts Management **Credits:** 3 hours
- THEA 3820 - Job Preparation, Self Promotion and Branding **Credits:** 3 hours
- THEA 3900 - Professional Theatre Internship **Credits:** 2 to 6 hours

Practicum/internship

Practicum and professional internship placement can be in chosen arts discipline (Art, Dance, Music, or Theatre).

In addition to the 33 hours of required core courses in an arts discipline:

Arts Administration students must select 24 credit hours from recommended courses from the College of Business, the School of Public Affairs and Administration, and the School of communication. Relevant courses from other departments may be chosen but require approval.

No minor required.

Bachelor of Fine Arts

Music Theatre Performance (84 hours)

Required Cognate Courses In Dance (20 hours)

- DANC 1250 - Special Studies in Introductory Dance Technique **Credits:** 1 to 6 hours
(Tap Credits: 1 hour)
- DANC 1210 - Roots of Jazz **Credits:** 2 hours
- DANC 4950 - Music Theatre Performance Workshop II **Credits:** 3 hours
- DANC 4960 - Performance in Music Theatre **Credits:** 2 hours
(2 semesters, 2 hours each)

Ballet (2 hours)

- DANC 1010 - Beginning Ballet **Credits:** 2 hours
- DANC 1100 - Ballet Technique I **Credits:** 2 hours
- DANC 1250 - Special Studies in Introductory Dance Technique **Credits:** 1 to 6 hours
(Men's Ballet Credits: 2 hours)
- DANC 2100 - Ballet Technique II **Credits:** 2 hours
- DANC 3100 - Ballet Technique III **Credits:** 2 hours

Jazz (4 hours)

- DANC 1200 - Jazz Technique I **Credits:** 2 hours
- DANC 2200 - Jazz Technique II **Credits:** 2 hours
- DANC 3200 - Jazz Technique III **Credits:** 2 hours

Technique (4 hours)

- DANC 1020 - Beginning Jazz **Credits:** 2 hours
- DANC 1030 - Beginning Modern **Credits:** 2 hours
- DANC 1100 - Ballet Technique I **Credits:** 2 hours
- DANC 1250 - Special Studies in Introductory Dance Technique **Credits:** 1 to 6 hours
(Men's Ballet Credits: 2 hours)
- DANC 1300 - Modern Technique I **Credits:** 2 hours
- DANC 2100 - Ballet Technique II **Credits:** 2 hours
- DANC 2200 - Jazz Technique II **Credits:** 2 hours
- DANC 2250 - Special Studies in Intermediate Dance Technique **Credits:** 1 to 6 hours
(Intermediate Tap Credits: 2 hours)
(Jazz Skill Building Credits: 2 hours)
- DANC 2300 - Modern Technique II **Credits:** 2 hours
- DANC 3100 - Ballet Technique III **Credits:** 2 hours
- DANC 3200 - Jazz Technique III **Credits:** 2 hours
- DANC 3300 - Modern Technique III **Credits:** 2 hours

Required Courses In Music (27 hours)

- MUS 1595 - MTP Musicianship I **Credits:** 2 hours
- MUS 2595 - MTP Musicianship II **Credits:** 2 hours
- MUS 1995 - MTP Ensemble Vocal Technique **Credits:** 2 hours
- MUS 2000 - Applied Music **Credits:** 1 to 4 hours
(3 semesters; 3 hours each)
- MUS 2950 - Music Theatre Performance Workshop I **Credits:** 3 hours
- MUS 3000 - Applied Music **Credits:** 1 to 4 hours
(3 semesters; 3 hours each)

Required Courses In Theatre (33 hours)

- THEA 1200 - Stagecraft I **Credits:** 3 hours
- THEA 1410 - Introduction to Acting **Credits:** 3 hours
- THEA 1420 - Acting I: Action and Personalization **Credits:** 3 hours

- THEA 2410 - Voice and Movement I **Credits:** 3 hours
- THEA 2450 - Acting II: Character and Action **Credits:** 3 hours
- THEA 2460 - Acting III: Character, Action, Language **Credits:** 3 hours
- THEA 2720 - Musical Theatre History and Script Analysis I **Credits:** 3 hours
- THEA 2900 - Theatre Practicum **Credits:** 1 to 8 hours
(Two semesters at 1 hour required)
- THEA 3720 - Contemporary Musical Theatre History and Script Analysis: Oklahoma! to Hamilton **Credits:** 3 hours
- THEA 4450 - Professional Preparation for Film and Television **Credits:** 3 hours
(Prereq: Junior standing)
- THEA 4950 - Music Theatre Performance Workshop III **Credits:** 3 hours
- THEA 4990 - Music Theatre Showcase **Credits:** 1 hour

Electives (4 hours)

Four hours from courses in the Department of Dance, the School of Music, and the Department of Theatre, with the consent of the Director of Music Theatre Performance.

Note:

At the beginning of the fall semester for the MTP senior, the department advisor will conduct an audit. If it is determined that the student cannot graduate by the conclusion of the following Summer I, that student will not be eligible to remain enrolled in THEA 4990, Music Theatre Showcase.

Minor

No minor required.

Theatre Major - Bachelor of Fine Arts (84 hours)

This program is designed for the student who has chosen to prepare for graduate study in theatre, advanced specialized training, or direct entry into the profession. It offers programs combining a strong background in theatre with a concentrations in Acting, Theatre Design and Technical Production, or Stage Management.

No minor required.

Acting Required Core Courses (TACJ)

- THEA 1200 - Stagecraft I **Credits:** 3 hours
- THEA 1330 - Introduction to Theatre Design **Credits:** 3 hours
- THEA 1410 - Introduction to Acting **Credits:** 3 hours
- THEA 1700 - Script Analysis **Credits:** 3 hours
- THEA 2700 - Script Analysis for Production **Credits:** 3 hours
- THEA 2900 - Theatre Practicum **Credits:** 1 to 8 hours
Credits: 4 semesters at 1 hour (4 hours total) required.
- THEA 3510 - Directing I **Credits:** 3 hours
- THEA 3700 - Theatre History I **Credits:** 3 hours
- THEA 3710 - Theatre History II **Credits:** 3 hours

- THEA 4700 - Development of Theatre Art **Credits:** 3 hours

Required Courses

- Dance Class **Credits:** 2 hours
- THEA 1420 - Acting I: Action and Personalization **Credits:** 3 hours
- THEA 2410 - Voice and Movement I **Credits:** 3 hours
- THEA 2420 - Voice and Movement II **Credits:** 3 hours
- THEA 2450 - Acting II: Character and Action **Credits:** 3 hours
- THEA 2460 - Acting III: Character, Action, Language **Credits:** 3 hours
- THEA 3430 - Elements of Performance **Credits:** 1 hour
Credits: 3 semesters at 1 hour (3 hours total) required.
- THEA 3910 - Performance Practicum **Credits:** 2 hours
Credits: 2 semesters at 2 hours (4 hours total) required.
- THEA 3440 - Acting IV: Advanced Scene Study **Credits:** 3 hours
- THEA 3470 - Voice and Movement Lab **Credits:** 3 hours
- THEA 4410 - Professional Preparation for Stage **Credits:** 3 hours
- THEA 4450 - Professional Preparation for Film and Television **Credits:** 3 hours

Electives: Select 15 credits from the following:

- THEA 1810 - Stage Management **Credits:** 3 hours
- THEA 2600 - Arts Management **Credits:** 3 hours
- THEA 3450 - Contemporary Approaches to Acting **Credits:** 3 hours
- THEA 3470 - Voice and Movement Lab **Credits:** 3 hours
- THEA 3520 - Directing II **Credits:** 3 hours
- ENGL 3680 - Playwriting **Credits:** 3 hours
- THEA 3820 - Job Preparation, Self Promotion and Branding **Credits:** 3 hours
- THEA 4430 - Acting for the Camera **Credits:** 3 hours
- THEA 4440 - New Play Project **Credits:** 3 hours
- THEA 4000 - Special Topics in Theatre **Credits:** 1 to 3 hours

Stage Management Required Core Courses (TSMJ)

- THEA 1200 - Stagecraft I **Credits:** 3 hours
- THEA 1410 - Introduction to Acting **Credits:** 3 hours
- THEA 1420 - Acting I: Action and Personalization **Credits:** 3 hours
- THEA 1700 - Script Analysis **Credits:** 3 hours
- THEA 2320 - Scenic Design **Credits:** 3 hours
- THEA 2330 - Costume Design **Credits:** 3 hours
- THEA 2700 - Script Analysis for Production **Credits:** 3 hours
- THEA 2900 - Theatre Practicum **Credits:** 1 to 8 hours
Credits: 6 semesters at 1 hour (6 hours total) required.
- THEA 3320 - Lighting and Sound Design **Credits:** 3 hours
- THEA 3510 - Directing I **Credits:** 3 hours
- THEA 3700 - Theatre History I **Credits:** 3 hours
- THEA 3710 - Theatre History II **Credits:** 3 hours

- THEA 4700 - Development of Theatre Art **Credits:** 3 hours

Required Courses

- THEA 1810 - Stage Management **Credits:** 3 hours
- THEA 2200 - Stagecraft II **Credits:** 3 hours
- THEA 2301 - Computer-Aided Theatre Design **Credits:** 3 hours
- THEA 2600 - Arts Management **Credits:** 3 hours
- THEA 3520 - Directing II **Credits:** 3 hours
- THEA 3810 - Stage Management Production - Mainstage **Credits:** 3 hours
- THEA 3820 - Job Preparation, Self Promotion and Branding **Credits:** 3 hours

Electives (18 credit hours)

Electives to be approved by area advisor.

- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- ACTY 2110 - Principles of Accounting II **Credits:** 3 hours
- COM 2800 - Introduction to Organizational Communication **Credits:** 3 hours
- COM 3320 - Teamwork and Communication **Credits:** 3 hours
- COM 3350 - Leadership Communication **Credits:** 3 hours
- COM 3540 - Web Design and Digital Communication **Credits:** 3 hours
- HPHE 1810 - First Aid **Credits:** 2 hours
- INTL 3300 - Education Abroad - WMU Programs **Credits:** 1 to 19 hours
Credits: 1 to 4 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- MGMT 3010 - Experiential Leadership and Strategy I **Credits:** 6 hours
- MUS 1020 - Piano Class I **Credits:** 2 hours
- MUS 1590 - Fundamentals of Music **Credits:** 2 hours
- THEA 1900 - Summer Theatre **Credits:** 1 to 3 hours
- THEA 2410 - Voice and Movement I **Credits:** 3 hours
- THEA 2420 - Voice and Movement II **Credits:** 3 hours
- THEA 3720 - Contemporary Musical Theatre History and Script Analysis: Oklahoma! to Hamilton **Credits:** 3 hours
- THEA 3900 - Professional Theatre Internship **Credits:** 2 to 6 hours
- THEA 4900 - Individualized Study in Theatre **Credits:** 1 to 6 hours
Credits: 3 hours

Theatre Design and Technical Production Required Core Courses (TDTJ)

- THEA 1200 - Stagecraft I **Credits:** 3 hours
- THEA 1330 - Introduction to Theatre Design **Credits:** 3 hours
- THEA 1410 - Introduction to Acting **Credits:** 3 hours
- THEA 1700 - Script Analysis **Credits:** 3 hours
- THEA 2320 - Scenic Design **Credits:** 3 hours
- THEA 2330 - Costume Design **Credits:** 3 hours
- THEA 2700 - Script Analysis for Production **Credits:** 3 hours
- THEA 2900 - Theatre Practicum **Credits:** 1 to 8 hours

Credits: 6 semesters at 1 hour (6 hours total) required.

- THEA 3320 - Lighting and Sound Design **Credits:** 3 hours
- THEA 3510 - Directing I **Credits:** 3 hours
- THEA 3700 - Theatre History I **Credits:** 3 hours
- THEA 3710 - Theatre History II **Credits:** 3 hours
- THEA 4700 - Development of Theatre Art **Credits:** 3 hours

Required Courses

- THEA 1300 - Period Styles of Design **Credits:** 3 hours
- THEA 1310 - Theatrical Drafting **Credits:** 3 hours
- THEA 2200 - Stagecraft II **Credits:** 3 hours
- THEA 2301 - Computer-Aided Theatre Design **Credits:** 3 hours
- THEA 2311 - Theatrical Rendering **Credits:** 3 hours
- THEA 3200 - Stagecraft III **Credits:** 3 hours
- THEA 3330 - Advanced Design **Credits:** 3 hours
- THEA 4330 - Portfolio Preparation **Credits:** 3 hours
- THEA 4900 - Individualized Study in Theatre **Credits:** 1 to 6 hours
Credits: 6 hours required

AND

Students are required to complete two art history courses from this list:

- ART 2200 - Caves to Cathedrals **Credits:** 3 hours
- ART 2210 - Modern and Postmodern **Credits:** 3 hours
- ART 2220 - Art of Africa, Oceania, and the Americas **Credits:** 3 hours
- ART 2230 - Introduction to Asian Art History **Credits:** 3 hours

Electives

Students must elect 6 credit hours in a field related to their emphasis, selected in consultation with their faculty/staff mentor.

Minors

Theatre Minor (18 hours)

A grade of "C" or better is required in all courses. If a student received a grade lower than "C", the student will be required to retake the course. If a second grade lower than "C" is received, the student will be dismissed from the minor.

Required Courses

- THEA 1000 - Playing with Fire: Love, Politics & Entertainment **Credits:** 3 hours
- THEA 1050 - African-Americans in Theatre and Media **Credits:** 3 hours
- THEA 1450 - Beginning Acting **Credits:** 3 hours
- THEA 1700 - Script Analysis **Credits:** 3 hours

- THEA 2900 - Theatre Practicum **Credits:** 1 to 8 hours
(Credits: 3 hours required)

And one additional theatre course approved by the Academic Advisor.

College of Health and Human Services

College of Health and Human Services

Ron Cisler
Dean

Ann Tyler
Associate Dean

Nancy Cretsinger
Director of Academic and Student Services

The College of Health and Human Services provides education, research, and community assistance through its programs. Students receive training and education in direct service roles as well as in policy development, planning, and administration.

Students may earn the degrees of Bachelor of Science in Health Informatics and Information Management; Bachelor of Science in Healthcare Services and Services; Bachelor of Science in Nursing; Bachelor of Science in Public Health, Bachelor of Arts or Science in Speech, Language, and Hearing Sciences ; Bachelor of Social Work; Master of Science in Medicine; Master of Science in Nursing; Master of Public Health, Master of Arts in Rehabilitation Teaching; Master of Arts in Orientation and Mobility; Master of Arts in Speech, Language, and Hearing Sciences; Master of Science in Occupational Therapy; and Master of Social Work through their studies. Also, a dual master's programs is offered: Rehabilitation Counseling/Teaching (administered jointly by the Department of Blindness and Low Vision Studies and the Department of Counselor Education and Counseling Psychology). Additionally, the following doctorate programs are offered: Doctor of Audiology; Doctor of Philosophy in Interdisciplinary Health Sciences; the Doctor of Philosophy in Evaluation and the Doctor of Physical Therapy (beginning Summer II 2019).

The College also provides programs in Gerontology, Integrative Holistic Health and Wellness, and Addiction Studies at the undergraduate and graduate levels, and a graduate certificate program in Low Vision Rehabilitation for the Occupational Therapist.

Mission

Consistent with the University's mission of a student-centered research institution, the College of Health and Human Services is committed to educating professionals to provide exemplary health care, rehabilitation, and social services, to promote innovation and discovery and to build mutually enriching local and global partnerships.

The vision of the college is to lead transformative education, practice and research in health and human services.

In achieving its vision and mission, the College of Health and Human Services values service that improves quality of life; compassion and cooperation as integral to professional competence; interdisciplinary, holistic, and collaborative education, research, and service; multidimensional scholarship and lifelong learning; environments that are healthful, intellectually stimulating, supportive, and respectful of differences; and partnerships with the community.

Academic Units:

Blindness and Low Vision Studies
Bronson School of Nursing
Interdisciplinary Health Programs, School of
Occupational Therapy
Physical Therapy
Physician Assistant
Social Work, School of
Speech, Language, and Hearing Sciences

Advising

Students admitted to Western Michigan University must also be admitted formally to the college's programs through the individual departments, schools, or units. Interested candidates should contact the college advising office for further information.

Financial Aid

Scholarships and other forms of financial assistance are available through most programs in the college. Please refer to the section on Financial Aid and Scholarships.

Interdisciplinary Programs - College of Health and Human Services

Bachelor of Science

Health Informatics and Information Management (HIHJ)

Admission to this program is suspended.

Health Informatics and Information Management (HiiM) major is a cross-disciplinary academic program that integrates courses from multiple colleges at Western Michigan University (WMU). It is a major that is developed to prepare students from multiple colleges to meet the rising need in health information management and technology professions. This major is to be administered at the university level and it can be hosted by any college at WMU. At present, HiiM major is offered by two colleges (i.e., College of Health and Human Services and Haworth College of Business). The HiiM major curriculum will be continuously improved and governed by faculty representatives from all hosting colleges. The HiiM major curriculum is composed of three components: 1) The pre-HiiM required courses, 2) The HiiM major core courses, and 3) The elected specialty courses from the hosting college at which the HiiM major receives his/her baccalaureate degree. Altogether, a HiiM major will be required to complete a minimum of 51 or a maximum of 55 credit hours of coursework, depending on the actual courses taken by the student.

To ensure that students are able to complete the baccalaureate degree with sufficient knowledge and skill timely (i.e., within four years for a student admitted to WMU as a freshman), each HiiM major will follow the advice to take courses based on each college proposed four-year curriculum model. With no unforeseen delay or exceptional causes, each HiiM major shall complete his/her baccalaureate degree by taking no more than 122 credit hours at WMU.

A HiiM major will receive his/her baccalaureate degree from the hosting college in which he/she is admitted as a WMU student. Students who complete HiiM major from the Haworth College of Business (HIBJ) will receive a Bachelor of Business Administration (B.B.A.) degree, whereas HiiM majors graduating from the College of Health and Human Services (HIHJ) will receive a Bachelor of Science (B.S.) degree.

Admission Requirements

Only the Office of Admissions and Orientation grants admission to Western Michigan University for undergraduate students. Application forms may be obtained from that office or the University's website at wmich.edu.

The Health Informatics and Information Management (HiiM) major is meant to be a niche undergraduate program that provides quality education and high career placement when students complete their degree at WMU. Because the resources required for this major are integrated across colleges and are limited, there is an application process for students seeking admission to the HiiM program. Admission criteria will be determined by a committee that is composed of HiiM faculty advisors from each hosting college.

Applicants will be evaluated for admission at least twice (i.e., fall and spring semesters) based on each applicant's academic performance. Acceptance will only be confirmed when the student completes the application process and is accepted into the HiiM program. Students who either do not complete the application process or who are not accepted into the program will be removed from any classes that are restricted to HiiM majors. Students accepted into the HiiM program will be designated at a HiiM major (i.e., HIBJ at Haworth College of Business and HIHJ at College of Health and Human Services) to facilitate registration for courses.

To seek admission to the HiiM program in fall semester, student applications must be completed by May 1 and students will be notified of their status no later than June 1. For spring semester admission, students must complete the application process by September 1 and will be notified of their status no later than October 1, Students must begin the application process in the Office

of Student Advising and Admissions housed within each hosting college. Any HiiM major applicant must be an eligible WMU student who has been admitted to the hosting college and has completed all pre-HiiM course requirements, and has a minimum GPA of 2.75.

Due to limited program capacity, all applicants are evaluated on a competitive basis in terms of academic performance. In addition, the following materials and criteria may be reviewed and applied:

- Resume
- Statement of Purpose
- HiiM Advisor Interview
- Overall GPA

Acceptance standards are dynamically adjusted based on the available program capacity. Applicants that miss the application deadline will be considered in the next application cycle.

Baccalaureate Writing

Select the Baccalaureate Writing requirement for the College of Health and Human Services or the College of Business:

College of Health and Human Services

Students completing the HiiM degree through the College of Health and Human Services will meet the baccalaureate writing (proficiency 2) by taking one of the following courses:

- BCM 3700 - Integrated Communication in Business **Credits:** 3 hours
- HSV 4780 - U.S. Health Policy **Credits:** 3 hours

Haworth College of Business

Students completing the HiiM degree through the Haworth College of Business will meet the baccalaureate writing (proficiency 2) through the following course:

- BCM 3700 - Integrated Communication in Business **Credits:** 3 hours

Program Requirements:

Pre-HiiM Core Courses (12 courses - 32-36 Credits)

The following courses or their equivalents must be completed by each applicant for a HiiM major at the College of Health and Human Services. Each course shall be completed with a grade of "C" or above.

- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours
- Or
- CIS 1100 - Business Computing **Credits:** 1 hour
- MDSC 2010 - Medical Terminology **Credits:** 1 hour
- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- ACTY 2100 - Principles of Accounting I **Credits:** 3 hours
- BUS 1750 - Business Enterprise **Credits:** 3 hours
- ECON 2010 - Principles of Microeconomics **Credits:** 3 hours

- ECON 2020 - Principles of Macroeconomics **Credits:** 3 hours
- MGMT 2500 - Organizational Behavior **Credits:** 3 hours
- HSV 1040 - Introduction to the Health Disciplines and Inter-professional Practice **Credits:** 2 hours

Human Anatomy

Select one of the following:

- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- OT 2000 - Human Functional Anatomy **Credits:** 3 hours

Statistics

Select one of the following:

- STAT 2160 - Business Statistics **Credits:** 3 hours
- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

HiiM Core Courses (8 courses - 24 or 25 credits)

All of the following courses must be completed by an admitted HiiM major at Western Michigan University with a grade of "C" or above.

Health Info Systems and Management

Select one of the following cross-listed courses:

- NUR 2350 - Special Topics in Nursing **Credits:** 1 to 4 hours
(**Credits:** 3 hours needed)
- HSV 2350 - Special Topics in Interdisciplinary Health Services **Credits:** 1 to 4 hours
(**Credits:** 3 hours needed)
- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
(customized content)

Health Care Ethics

Select one of the following:

- NUR 3220 - Health Care Ethics **Credits:** 3 hours
- PHIL 2010 - Contemporary Problems in Ethics **Credits:** 4 hours
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours

And

- NUR 3330 - Health Informatics **Credits:** 3 hours
- CIS 3600 - Systems Analysis and Design **Credits:** 3 hours
- CIS 3660 - Information Assurance and Compliance **Credits:** 3 hours
- CIS 4600 - Business Database Applications **Credits:** 3 hours

- HSV 4800 - Healthcare Management **Credits:** 3 hours

HiiM Capstone Project

Select one of the following cross-listed courses:

- NUR 4300 - Special Topics in Nursing **Credits:** 1 to 6 hours
(**Credits:** 3 hours needed)
- HSV 4350 - Special Topics in Health and Human Services **Credits:** 1 to 4 hours
(**Credits:** 3 hours needed)
- CIS 4990 - Enterprise Project **Credits:** 3 hours

College Elective Specialty Courses (a minimum of 9 credits)

Each course in the specialty track must be completed with a grade of "C" or above.

Haworth College of Business

Each HiiM major from Haworth College of Business must elect one of the following specialty tracks to complete his/her HiiM major, and take a minimum of nine (9) hours of coursework from the elected specialty track.

A. Data Analysis (DAN)

Elect three courses from the following list:

- CIS 2640 - Applied Analytics Foundations **Credits:** 3 hours
- CIS 3620 - Practical Project Management **Credits:** 3 hours
- CIS 3640 - Visual Analytics **Credits:** 3 hours
- CIS 4640 - Business Data Mining **Credits:** 3 hours

B. Health Information Networking (HIN)

Elect three courses from the following list:

- CIS 2660 - Networking and Data Communications **Credits:** 3 hours
- CIS 5550 - Topics in Computer Information Systems **Credits:** 3 hours
Topics for CIS 5550:
- Advanced Networking **Credits:** 3 hours
- Network Security **Credits:** 3 hours
- Health Information Networking **Credits:** 3 hours

C. Management (MGMT)

Take all three courses from the following list:

- MGMT 2520 - Human Resource Management **Credits:** 3 hours
- MGMT 3010 - Experiential Leadership and Strategy I **Credits:** 6 hours
- MGMT 3580 - Labor and Employee Relations **Credits:** 3 hours

College of Health and Human Services

Each HiiM major from College of Health and Human Services must take a minimum of nine (9) hours of coursework from the specialty track.

A. Health Services (HSV)

Elect three courses from the following list:

- HSV 4150 - Administrative Functions in the Health Care Setting **Credits:** 3 hours
- HSV 4860 - Health Literacy Practices **Credits:** 3 hours
- HSV 4890 - Health and Human Services Independent Research **Credits:** 3 hours

Minors

Health Informatics and Information Management Minor

Health Informatics and Information Management (HiiM) minor is designed for all WMU undergraduate students who have been accepted by any college at Western Michigan University with any academic major other than the HiiM major. To ensure the academic success, each applicant for a HiiM minor must have completed two necessary and basic pre-HiiM courses with a minimum individual grade of "C" with an average grade performance of 2.75 at WMU. In addition, each accepted HiiM minor must take two required HiiM core courses and two elective HiiM courses. Altogether, a HiiM minor is required to take 16 credit hours of coursework.

Due to enrollment capacity limited by existing faculty resources a controlled access policy will be applied to all HiiM core courses. That is, for any HiiM core course, if offered, seats will first be reserved for students with a HiiM major. If extra seats remain after a defined enrollment deadline for the HiiM major, then those seats will be made available to students with a HiiM minor, then to any other legitimate students.

Admission Requirements

The Health Informatics and Information Management (HiiM) minor is designed for any WMU student to complement his/her academic major(s) at Western Michigan University. Due to the enrollment capacity constraints and the assurance of academic success for HiiM minors to complete the required coursework in HiiM curriculum, students who are interested in pursuing a HiiM minor must apply for acceptance after they have completed the pre-HiiM requirements with acceptable performance. To seek acceptance to the HiiM minor in fall semester, students must complete the application process by May 1 and students will be notified of their status no later than June 1. For spring semester admission, students must complete the application process by September 1 and will be notified of their status no later than October 1.

Students must submit the application to the HiiM program director with a verified document from his/her college that indicated 1) the applicant has completed at least 48 credit hours or equivalent coursework, including the two pre-HiiM courses, at Western Michigan University, and 2) each pre-HiiM course has a minimum of "C" grade. Any HiiM minor applicant must be an eligible WMU student who has been admitted to a college at WMU with a minimum GPA of 2.75. Applicants who missed the application deadline will be considered in the next application cycle.

Program Requirements:

Pre-HiiM Core Courses

Each HiiM minor applicant must complete the following two courses before applying for acceptance to the HiiM program as a HiiM minor. Each course shall be completed with a grade of "C" or above.

- MDSC 2010 - Medical Terminology **Credits:** 1 hour
- OT 2000 - Human Functional Anatomy **Credits:** 3 hours

Required HiiM courses

Each HiiM minor must take the following:

Health Info Systems and Management

Select one of the following cross-listed courses:

- NUR 2350 - Special Topics in Nursing **Credits:** 1 to 4 hours
(**Credits:** 3 hours needed)
- HSV 2350 - Special Topics in Interdisciplinary Health Services **Credits:** 1 to 4 hours
(**Credits:** 3 hours needed)
- CIS 2700 - Business-Driven Information Technology **Credits:** 3 hours
(customized content)

And

- NUR 3330 - Health Informatics **Credits:** 3 hours

Elective HiiM Core Courses

Each HiiM minor must elect two (2) courses from the following:

- NUR 3220 - Health Care Ethics **Credits:** 3 hours
OR
- PHIL 2010 - Contemporary Problems in Ethics **Credits:** 4 hours
OR
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours
- CIS 3600 - Systems Analysis and Design **Credits:** 3 hours
- CIS 3660 - Information Assurance and Compliance **Credits:** 3 hours
- CIS 4600 - Business Database Applications **Credits:** 3 hours
- HSV 4800 - Healthcare Management **Credits:** 3 hours

Blindness and Low Vision Studies

Robert Wall Emerson, Departmental Coordinator
Main Office: 4477 CHHS (Oakland Campus)
Telephone: (269) 387-3455
Fax: (269) 387-3567

Dawn Anderson
Elyse Connors
Dae Kim
Helen Lee
Robert Wall Emerson
Jennifer Wiebold

The Department of Blindness and Low Vision Studies offers graduate-level, professional education programs in orientation and mobility for adults, rehabilitation teaching, rehabilitation counseling/teaching (administered jointly with the Department of Counselor Education and Counseling Psychology), teaching children who are visually impaired, and orientation and mobility for children. The department offers the opportunity that allows for an Accelerated Master's degree. Details of the degree can be found on the department website: wmich.edu/visionstudies/academics/accelerated.

Bachelor of Arts

Travel Instruction (122 hours)

Admission to this major is temporarily suspended

Admission Requirements:

The program will admit ten qualified students each year based on the following selection criteria:

- Admission to WMU
- Appropriate volunteer experience with persons who have disabilities
- A minimum grade point average of 3.0 (on a 4.0 scale)
- Completed program application supported by letters of recommendation
- Personal or telephone interview

Program Requirements

This curriculum, leading to a Bachelor of Arts degree, will be 122 credit hours in length. Built into the Travel Instruction major will be the competencies necessary to prepare direct service instructors to assist persons with disabilities in meeting their travel needs. In addition to the major, students will be required to complete a 19-hour interdisciplinary minor.

The program consists of didactic courses, a 60-hour practicum, and a 600-hour internship.

Students apply to begin the professional program in the junior year.

Courses must be taken with approval of the advisor. All courses in the Travel Instruction major and interdisciplinary minor must be completed with a grade of "C" or better.

Travel Instruction (31 hours)

- BLS 5770 - Services to Individuals with Blindness or Other Disabilities **Credits:** 1 to 2 hours
Credits: 2 hours
- BLS 5860 - Job Development and Placement **Credits:** 3 hours
- BLS 5880 - Psychosocial Aspects of Disability **Credits:** 2 hours
- BLS 5890 - Medical and Functional Aspects of Disability **Credits:** 2 hours
- CECP 5200 - Foundations of Rehabilitation Counseling **Credits:** 3 hours

Interdisciplinary Minor (19 credit hours)

- BLS 3050 - Introduction to Adults with Disabilities **Credits:** 3 hours
- SPED 3300 - Foundations of Special Education **Credits:** 3 hours
- SLHS 2000 - Communication Disorders and Sciences **Credits:** 3 hours

Interdisciplinary Health Programs, School of

R. Mark Kelley, Director

Amos Aduroja
Paula Andradi
Robert Bensley
Susan Caulfield
Ron Cisler
John Coons
Betty Dennis
Lori Gray
Amy Jessop
Tiffany Lee
Kathryn Lewis Ginebaugh
Cassie Lopez-Jeng
Michele McGrady
Shannon McMorrow
Doris Ravotas
Jill Rowe
Dennis Simpson
Mark St. Martin
Vivian Valdmanis
Sandra Vamos
Delores Walcott

Bachelor of Science

Healthcare Services and Sciences (BS-HSS)

wmich.edu/healthservices

The Bachelor of Science in Healthcare Services and Sciences (BS-HSS) at Western Michigan University prepares students understand the healthcare world and how to work successfully in it. Through required courses and a capstone experience, students gain knowledge and experience to take their place as interdisciplinary team members in today's health services systems. A student in BS-HSS can focus their studies in a number of ways. These include:

- a. The general program: This option must be paired with a minor to focus the program more clearly on student goals.
- b. The Clinical Practice in Health Concentration: This option is specifically designed for those who have an associate's degree in a clinical area and are licensed or certified in that discipline following a discipline approved licensing exam.
- c. The Physician Assistant Preparation (PAPrep) Concentration: A preparatory program that prepares students to apply to Physician Assistant graduate programs including, but not limited to, WMU's PA program by including required prerequisites.
- d. The Audiology Preparation (AudPrep) Concentration*: A preparatory program that prepares students to apply to Audiology doctoral programs including, but not limited to, WMU's Audiology doctoral program by including required prerequisites.
- e. The Blindness and Low Vision Studies Preparation (BLVSPrep) Concentration*: A preparatory program that prepares students to apply to two of WMU's Blindness and Low Vision Studies programs, Orientation and Mobility for Adults or Vision Rehabilitation, by including required prerequisites (these prerequisites are similar to other programs but not identical).

f. The Occupational Therapy Preparation (OTPrep) Concentration: A preparatory program that prepares students to apply to Occupational Therapy graduate programs including, but not limited to, WMU's OT program by including required prerequisites.

*The Pre-Audiology Preparation Concentration and the Blindness and Low Vision Preparation Concentration can lead a student to accelerated graduate programs in those areas. These programs are collaborations between the School of Interdisciplinary Health Programs and the respective graduate department. Within these programs, some courses are utilized for both a BS-HSS degree and a graduate degree. Students must be accepted into the accelerated degree (for Audiology and Blindness and Low Vision Studies programs) through the respective program before taking the courses that apply to both degrees.

For more information about the graduate level concentrations see the links under "Admission" below. Acceptance into these advanced programs is not automatic and if students are not accepted into the graduate program as undergraduates they must meet with their advisor to pursue a minor in their junior year.

BS-HSS Mission Statement

The Healthcare Services and Sciences program mission is to help students to understand the healthcare world and how to work successfully in it.

The BS-HSS has three parts: (wmich.edu/healthservices/academics)

- The **HSS Core** is comprised of the two elements: the HSS Core Major requirements and the HSS Core Cognate requirements. These elements provide an introduction of core competencies that are needed across health services disciplines including delivering patient and family centered care, working in interdisciplinary teams, evidence-based practice, health literacy practices, quality improvement, informatics, and ethical decision making. In addition the HSS Core provides a more in-depth study of the organization and delivery of health services, safety practices, health disparities, diversity in delivering services, and health policy.
- **Specialized knowledge** obtained through a Concentration, Track, or Minor.
- A **capstone experience** that pulls together skills obtained throughout the program and applies them to an internship placement, a professional project, or a research project. (Students who are accepted into the Audiology accelerated degree program take courses that serve as a capstone in those programs. Clinical Practice in Health students may transfer in an equivalent coursework as well.) Please see more information at "Capstone Experience".

Capstone Experience:

To graduate, students must complete a capstone experience (or transfer in an equivalent): either an **internship, capstone project** or **individual research**. A capstone experience is one that integrates special studies with the HSS major and extends, critiques, and applies knowledge gained throughout the program. Students typically complete the capstone experience in the final semester before graduation.

- Most students will complete an **internship** as their capstone experience.
- Students who have at least one year of paid experience in healthcare or in a health-related organization may opt to complete a **capstone project** instead of an internship.
- Occasionally a student with extensive healthcare experience may decide that their future goals are best supported by completing an **individual research** project.
- For students who are accepted into the Audiology accelerated degree program the clinical placements in that program serves as their capstone experience.
- For students who are accepted into the Clinical practice in health track, they may be able to transfer clinical placement experience to serve as their capstone experience. However, if they are unable to transfer in a clinical placement with comparable requirements they will have to complete a capstone experience.

Internship in Healthcare Services (HSV 4900) - Appropriate for most students
wmich.edu/healthservices/academics/internships

Students completing an HSS internship integrate and apply their knowledge and abilities, as well as hone skills in preparation for employment or graduate study in a healthcare or health-related organization.

In the semester prior to the internship, students meet with the internship coordinator to establish an appropriate, supervised placement that will further their education and professional objectives. A minimum of 200 clock hours is required for internships (some internships require more). A classroom seminar accompanies the internship placement (HSV 4900).

When students first enter the program they should read the guidelines in the HSS Student Handbook found on the program webpage wmich.edu/healthservices/academics. This will help them consider what type of internship would be the most helpful to them in their future careers and to familiarize themselves with related background check information.

The requirements of the internship are:

- Completion of all prerequisites prior to enrollment in any of the capstone courses.
- Application to the internship program. Application includes the application form, the student's resume and unofficial transcripts. All applications must be submitted via the Intern Placement Tracking (IPT) system found on the program website at wmich.edu/healthservices/academics/internships. Application must be made by the deadline for the semester in which a student wishes to begin the internship. See below for deadlines.

Capstone Experience HSV 4890, HSV 4895 or HSV 4900	Application Deadline
Summer	December 1 (the previous year)
Fall	March 1 (of the same year)
Spring	June 1 (the previous year)

- Students should review the listing of internship sites on the BS-HSS website wmich.edu/healthservices/academics/internships/descriptions and mention any placements that they are interested in on their application.
- After the application is received, the student will meet with the internship coordinator to establish an appropriate, supervised placement that will further their education and professional objectives.
- Students must enroll in HSV 4900 and attend the internship seminar.
- Students engaged in an internship must give evidence of having health insurance at the time of course enrollment.
- Liability insurance coverage will be provided by the University through a fee assessed at the time of enrollment in HSV 4900.
- Students must have the minimum of a 2.5 GPA to enroll in HSV 4900 and to complete an internship. If a student misses the minimum GPA the student will be given one semester to achieve the 2.5 before taking the course. If a student is unable to achieve the 2.5 GPA in one semester the student will be dismissed from the program barring hardship circumstances. If hardship circumstances are present the Internship Coordinator, the Program Coordinator and the Director of the School of Interdisciplinary Health Programs will review the case.

Students who are registered, certified, or licensed healthcare professionals may pursue a clinical experience providing it exposes the student to the development of new skills, or is in a situation outside their usual employment.

Capstone Project (HSV 4895)

The capstone project provides students an opportunity to design and complete a project in health services. Only students who have completed at least one year of employment at a healthcare or health-related organization and have successfully applied for this option may select it. Students must complete a capstone experience application following the date guidelines for all capstone experiences. Students complete the project over one semester, typically the student's final semester of his/her undergraduate career.

The capstone project requires students to conceive, plan, and implement a special project in an area within the scope of healthcare services and sciences. This is generally at their place of employment, but not always. Capstone projects may take many different

forms. Some examples are: patient satisfaction surveys in an applied setting, a written health literacy project, analysis of a health informatics system, clinical review of a therapeutic intervention, implementation of a quality improvement project, development of a patient manual or an educational program.

Students will work under the supervision of an HSS onsite capstone project instructor. Enrollment in the capstone project course requires departmental approval from the HSS internship coordinator. If you have at least one year of healthcare experience and desire to take the capstone project course, contact the HSS internship coordinator for more information.

Students must have the minimum of a 2.5 GPA to enroll in HSV 4895 to complete a capstone project. If a student misses the minimum GPA the student will be given one semester to achieve the 2.5 GPA before taking the course. If the student is unable to achieve the 2.5 GPA in one semester the student will be dismissed from the program barring hardship circumstances. If hardship circumstances are present, the Program Coordinator and the Director of the School of Interdisciplinary Health Programs will review the case.

Health and Human Services Independent Research (HSV 4890)

Restricted to certified, licensed, or registered health providers, this course requires the completion of a student created research project related to a current issue in health and human services.

If a healthcare provider chooses HSV 4890: Independent Research (3 hours), the project must conform to the following standards:

The student must select a research committee consisting of a faculty mentor knowledgeable in the field of inquiry and a reader who will also act as a resource person (the resource person may work outside of the University).

- The Program Coordinator must approve the research project at the beginning of the senior year.
- Students must document their research project in a paper written in the professional or academic style appropriate to the discipline and presented in a public forum approved by the Program Coordinator.
- Students must have the minimum of a 2.5 GPA to enroll in HSV 4890 and conduct independent research. If a student misses the minimum GPA the student will be given one semester to achieve the 2.5 GPA before taking the course. If the student is unable to achieve the 2.5 GPA in one semester the student will be dismissed from the program barring hardship circumstances. If hardship circumstances are present the Program Coordinator and the Director of the School of Interdisciplinary Health Programs will review the case.

Admission

Admission to the General, Clinical Practice, or any of the Preparatory programs occurs when students, who have previously been admitted to WMU, select Healthcare Services and Sciences as their major as long as the student has a 2.0 GPA and is not on academic probation. However, all students must raise their GPAs to 2.5 before taking a capstone course.

Continuance and Graduation Policy

Student must obtain at least a "C" in all HSS required core courses with the Health Services (HSV) designation. Students may repeat courses to obtain the required grade of "C". Only two repeated courses will count toward degree requirements. These two repeated courses may be the same course repeated twice or two separate courses repeated once each.

Students must have a 2.5 cumulative GPA when applying for the capstone course. Those who do not have a 2.5 cumulative GPA in the semester before their capstone course may take one additional semester to raise their cumulative GPA to a 2.5 or better. If after this additional semester they do not meet the 2.5 cumulative GPA requirement they will be dismissed from the program.

Audiology and Orientation & Mobility and Vision Rehabilitation Accelerated Degree Admission:

Admittance to any BS-HSS accelerated degree program requires acceptance into that graduate program. This usually occurs during the junior year. All of the accelerated degree programs have some courses that count toward both the undergraduate degree and the graduate degree. Students must consult information from the graduate departments for more information. Please see the links below.

Graduate Accelerated Degree Programs (all of the programs below require a separate application and are competitive)

Audiology: wmich.edu/speech-audiology/academics/grad/accelerated

Orientation and Mobility (Blindness and Low Vision Studies): wmich.edu/visionstudies/academics/accelerated

Visual Rehabilitation (Blindness and Low Vision Studies): wmich.edu/visionstudies/academics/accelerated

Academic Advising

The College of Health and Human Services provides advising to all students who wish to enroll in and who are admitted to the Bachelor of Science in Healthcare Services and Sciences program. Students should contact an advisor as early as possible.

Advisors will assist students in program planning, and in the selection of a particular program track, concentration, or academic minor. Failure to meet with an advisor on a regular basis may result in difficulty in completing the program in a timely manner.

Specific program requirements to follow.

BS-Healthcare Services and Sciences Major

Students must successfully complete the WMU Essential Studies requirements.

HSS Core Major Courses

Students must complete all the HSS Core Major Courses.

- HSV 2250 - Lifespan Development **Credits:** 3 hours
- HSV 2650 - Information Literacy in the Health Sciences **Credits:** 3 hours
(or pass a Proficiency examination wmich.edu/healthservices/academics/proficiency-exam)
- HSV 3000 - Research in Health Services **Credits:** 3 hours
- HSV 3700 - The Health System and Its Environment **Credits:** 3 hours
- HSV 3900 - Core Competencies and Contemporary Issues in Healthcare **Credits:** 3 hours
- HSV 4100 - Legal Issues in Healthcare Services **Credits:** 3 hours
- HSV 4400 - Diversity and Inclusion in Health and Human Services **Credits:** 3 hours
- HSV 4780 - U.S. Health Policy **Credits:** 3 hours
- HSV 4800 - Healthcare Management **Credits:** 3 hours
- HSV 4860 - Health Literacy Practices **Credits:** 3 hours
- HSV 4880 - Psychosocial Aspects of Health and Healthcare **Credits:** 3 hours

HSS Core Cognate Courses

Students must complete all the HSS Core Cognate Courses.

- BIOS 2110 - Human Anatomy **Credits:** 4 hours
(required for audiology, occupational therapy and physician assistant concentrations)
OR
- BIOS 1980 - Human Form and Function **Credits:** 4 hours
- MDSC 2010 - Medical Terminology **Credits:** 1 hour
- PHIL 2010 - Contemporary Problems in Ethics **Credits:** 4 hours
OR
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours
OR

- NUR 3220 - Health Care Ethics **Credits:** 3 hours
- HOL 4700 - Relationship-Centered Skills **Credits:** 3 hours

Healthcare Services and Sciences Concentrations/Minors

Students choosing a Healthcare Services and Sciences major will also need to select a concentration or minor. Each concentration will consist of courses, also known as a cognate, that guide the student toward a specific health career. The following concentrations are offered in the Healthcare Services and Sciences degree:

- Clinical Practice in Health (CPH) Concentration;
- Audiology Preparation (AudPrep) Concentration;
- Blindness and Low Vision Studies Preparation (BLVSPrep) Concentration;
- Occupational Therapy Preparation (OTPrep) Concentration;
- Physician Assistant Preparation (PAPrep) Concentration

Academic Minors

A variety of minors are available to students, here are some examples. Please choose carefully based on your plans for the future. Healthcare Services and Sciences faculty suggest students consider the following minors, depending on their career interests.

- Addiction Studies (leads to a national certification)
- Biology
- Chemistry
- Communications
- Gerontology
- Health Informatics and Information Management (HIIM)
- Integrative Holistic Health and Wellness
- Management
- Non Profit Leadership (leads to a national certification)
- Peace Corps Health Prep Minor
- Psychology
- Spanish
- Speech and Hearing Processes

Audiology Preparation (AudPrep) Concentration

Students pursuing the BS-HSS who are interested in applying to the Doctorate of Audiology (AuD) may take a set of courses through the Department of Speech, Language, and Hearing Sciences in preparation for that program. Once they have completed the BS-HSS Core courses in their junior year they can apply for the accelerated degree program. If accepted into the graduate program through the Department of Speech, Language, and Hearing Sciences, their final 12 credits of the BS-HSS will also be applied to the Doctorate of Audiology (AuD) graduate degree. If not accepted students must meet with their advisor to plan for completion of the BS-HSS degree including a capstone experience.

Admission to the undergraduate degree concentration does not guarantee admission to the doctorate program either as an accelerated degree student or as a regular graduate student. Other audiology graduate programs have similar but not necessarily identical prerequisites, students should check with the graduate program of their choice while pursuing their undergraduate degree.

Audiology Preparation Concentration Cognate Courses

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- SIGN 1010 - American Sign Language I **Credits:** 3 hours
- ENGL 1050 - Foundations in Written Communication: Strategies, Behaviors, Success **Credits:** 3 hours
- LANG 2500 - The Nature of Language **Credits:** 3 hours
- PHYS 1070 - Elementary Physics **Credits:** 4 hours
- PHYS 1080 - Elementary Physics Laboratory **Credits:** 1 hour
- PSY 1000 - General Psychology **Credits:** 3 hours
- STAT 1600 - Discovery with Data **Credits:** 3 hours
- SLHS 2000 - Communication Disorders and Sciences **Credits:** 3 hours
- SLHS 2030 - Normal Language Acquisition **Credits:** 3 hours
- SLHS 2060 - Hearing Science **Credits:** 3 hours
- SLHS 2080 - Introduction to Audiology **Credits:** 3 hours
- SLHS 4000 - Practicum in Speech Pathology and Audiology I **Credits:** 2 hours
- SLHS 4010 - Practicum in Speech Pathology and Audiology II **Credits:** 2 hours
- SLHS 4560 - Rehabilitative Audiology **Credits:** 3 hours
- SLHS 5800 - Psychoacoustics **Credits:** 3 hours

Accelerated Degree - Doctorate of Audiology (AuD)

A student who has been admitted into the Accelerated Degree - Doctorate of Audiology (AuD) will take the following 12 credits during their senior year and apply the credits to both their undergraduate and graduate programs.

- SLHS 5801 - Pediatric Audiology **Credits:** 3 hours
- SPPA 6030 - Anatomy of Audition and Balance **Credits:** 2 hours
- SPPA 6210 - Diagnostic Audiology I **Credits:** 4 hours
- SPPA 6220 - Hearing Aids **Credits:** 3 hours

Blindness and Low Vision Studies Preparation (BLVSPrep) Concentration

Students pursuing the BS-HSS who are interested in applying to the Master of Arts in Orientation and Mobility for Adults or Master of Arts in Vision Rehabilitation Therapy may take a set of courses in preparation for those programs. Once they have completed the BS-HSS Core courses in their junior year, they can apply for the accelerated degree program of their choice. If accepted into the graduate program through the Department of Blindness and Low Vision Studies their final 12 credits of the BS-HSS will also be applied to the respective program, otherwise students will take an additional 12 credit hours toward a minor or advisor approved concentration.

Although the classes below are the same, the Master of Arts in Orientation and Mobility Services and the Master of Arts in Vision Rehabilitation Therapy are two different master's degrees. Please refer to the individual programs for specific information.

Blindness and Low Vision Studies Preparation Concentration Cognate Courses

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- BLS 3050 - Introduction to Adults with Disabilities **Credits:** 3 hours

Accelerated Degree - Blindness and Low Vision Studies

Undergraduate students admitted to the blindness and low vision accelerated degree program, with senior standing, may count up to 12, but no fewer than six credit hours of 5000-level courses for graduate credit. These designated courses may be used in completion of both the bachelor's and the master's degrees in blindness and low vision studies within 24 months after completion of the Bachelor of Science in Healthcare Services and Sciences degree. Possible courses include

- BLS 5770 - Services to Individuals with Blindness or Other Disabilities **Credits:** 1 to 2 hours
- BLS 5880 - Psychosocial Aspects of Disability **Credits:** 2 hours
- BLS 5890 - Medical and Functional Aspects of Disability **Credits:** 2 hours
- BLS 5900 - Physiology and Function of the Eye **Credits:** 2 hours
- BLS 5970 - Principles of Low Vision **Credits:** 2 hours
- BLS 6020 - Gerontology in Orientation and Mobility and Rehabilitation Teaching **Credits:** 2 hours

Clinical Practice in Health (CPH) Concentration

The specialized knowledge of the Clinical Practice in Health Concentration optimizes the clinical training that students who are licensed, certified, or registered in an allied health profession have previously received. Graduates of an accredited allied health associate's degree program who hold a current professional license, certification, or registration (after having successfully passed a state and/or nationally recognized examination) are eligible for the BS-HSS Clinical Practice in Health Concentration. Students choosing this option will be awarded transfer credit in accordance with the University policies for prior general education, sciences, and electives. Clinical Practice in Health Concentration students may be able to transfer clinical placement experience to serve as their capstone experience. However, if they are unable to transfer in a clinical placement with comparable requirements they will have to complete a capstone experience. In addition, a prior learning assessment will determine the student's eligibility to receive up to 30 hours of upper division credit for the following two courses:

- HSV 3100 - Professional and Interpersonal Skills for Patient Centered Care **Credits:** 15 hours
- HSV 3200 - Clinical Practice in U.S. Healthcare Delivery **Credits:** 15 hours

Clinical Practice in Health Specialized Cognates

- HSV 3100 - Professional and Interpersonal Skills for Patient Centered Care **Credits:** 15 hours
- HSV 3200 - Clinical Practice in U.S. Healthcare Delivery **Credits:** 15 hours

Occupational Therapy Preparation (OTPrep) Concentration

Students pursuing the BS-HSS who are interested in applying to the graduate program in Occupational Therapy may take a set of courses in preparation for that program. This plan must include a capstone experience. Other occupational therapy graduate programs have similar but not necessarily identical prerequisites, students should check the requirements of their preferred graduate program while pursuing their undergraduate degree.

Occupational Therapy Preparation Concentration Cognate Courses

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- PSY 1000 - General Psychology **Credits:** 3 hours
- PSY 2500 - Abnormal Psychology **Credits:** 3 hours
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours
- OR
- STAT 1600 - Discovery with Data **Credits:** 3 hours

Physician Assistant Preparation (PA Prep) Concentration

The Western Michigan University Department of Physician Assistant recommends the following courses in the Bachelor of Science in Healthcare Services and Sciences to prepare students to apply to the Physician Assistant program. However, completion of this concentration does not guarantee admission to the Physician Assistant Graduate program. Other physician assistant graduate programs have similar but not necessarily identical prerequisites, students should check the requirements of their preferred graduate program while pursuing their undergraduate degree.

Physician Assistant Preparation Concentration Cognate Courses

- BIOS 1600 - Biological Form and Function **Credits:** 3 hours
- BIOS 1610 - Molecular and Cellular Biology **Credits:** 4 hours
- BIOS 1620 - Ecology and Evolution **Credits:** 4 hours
- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
- OR
- BIOS 3120 - Microbiology **Credits:** 5 hours
- BIOS 2500 - Genetics **Credits:** 4 hours
- BIOS 3500 - Human Physiology for Majors **Credits:** 5 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
- CHEM 1120 - General Chemistry II **Credits:** 3 hours
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
- CHEM 3550 - Introductory Biochemistry **Credits:** 3 hours
- CHEM 3560 - Introductory Biochemistry Laboratory **Credits:** 1 hour
- CHEM 3700 - Introduction to Organic Chemistry **Credits:** 3 hours
- CHEM 3710 - Introduction to Organic Chemistry Lab **Credits:** 1 hour
- MDSC 4390 - Pharmacology for Health Professionals **Credits:** 3 hours
- MDSC 4450 - Pathophysiology for the Health Professional **Credits:** 3 hours
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Capstone Experience

Students must complete one of the following courses:

Note: For students who are accepted into the Audiology accelerated degree program the clinical placements in that program serves as an internship and they do not need to officially take the internship class or an additional capstone.

- HSV 4890 - Health and Human Services Independent Research **Credits:** 3 hours
(restricted to certified or licensed health professionals)
- HSV 4895 - Capstone Project **Credits:** 3 hours
(restricted to students working in health care)
- HSV 4900 - Internship in Healthcare Services **Credits:** 4 hours
(appropriate for most students)
(A patient contact paid internship is recommended for any student pursuing the PA Prep concentration who has not acquired at least 1000 hours of patient care that is needed for application to the PA program).

Public Health

The Public Health program is a practical-based curriculum focused on primary prevention of negative public health issues within community settings and is based on responsibilities and competencies associated with becoming a Certified Health Education

Specialist. Coursework focuses on public and global health needs and issues; psychosocial science and epidemiology; skills associated with planning, implementing, administering, and evaluating community and public health programs; modifying health behaviors; grant writing; advocating for health policies; and professional preparation in the field of public health and community health education.

The Public Health program integrates classroom study with hands-on practical experiences in order to provide the student with a comprehensive level of academic preparation. Many courses include practical experiences and all majors complete both a capstone experience and semester-long internship in order to gain experience in their chosen career path. The program prepares students for careers in government-based public health agencies, nonprofit organizations, managed care organizations, medical and hospital centered education settings, and corporate health promotion settings. In addition, the program is appropriate for students interested in pursuing master's degrees in public health (MPH), community health (MS), and health promotion (MS).

Pre-Public Health

Students accepted into WMU who have not yet applied to the public health program can be enrolled as a pre-public health major. Public health program courses that can be completed as a pre-public health major include those listed as required cognates; emphasis; or required courses PH 2310, PH 2320 and PH 2340.

Admission Requirements

General information necessary for admission includes:

12. Completion of the Public Health Undergraduate Application
13. Submission of all academic transcripts
14. Supplemental (personal) Statement

All applications are submitted to the Public Health Coordinator in the School of Interdisciplinary Health Programs. Deadlines for submitting applications are January 15, May 15, and October 1 of each year. Selection of students to be admitted to the program occurs after review of all applications by the Admissions and Student Services Committee composed of public health faculty. This is a competitive admissions process with a specific number of students admitted each year. Specific criteria for selection candidates are:

- Competitive overall grade point average
- Participation in community services, leadership activities, and volunteer experience
- Written communication skills, personal qualifications, and knowledge of the profession as evidenced in the supplemental statement

Required Cognates (12 hours)

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
- PSY 1000 - General Psychology **Credits:** 3 hours
- SOC 2000 - Principles of Sociology **Credits:** 3 hours
- SOC 2100 - Modern Social Problems **Credits:** 3 hours
- OR
- SOC 3200 - Introduction to Social Psychology **Credits:** 3 hours

Required Courses (51 hours)

- HSV 2650 - Information Literacy in the Health Sciences **Credits:** 3 hours
- HSV 3700 - The Health System and Its Environment **Credits:** 3 hours
- HSV 4780 - U.S. Health Policy **Credits:** 3 hours
- PH 2310 - Public Health Needs and Issues **Credits:** 3 hours

- PH 2320 - Global and Environmental Health Issues **Credits:** 3 hours
- PH 2340 - Introduction to Biostatistics in Public Health **Credits:** 3 hours
- PH 3310 - Planning Public Health Programs **Credits:** 3 hours
- PH 3320 - Applying Behavior Foundations in Public Health **Credits:** 3 hours
- PH 3340 - Epidemiology **Credits:** 3 hours
- PH 4310 - Implementing and Administering Public Health Programs **Credits:** 3 hours
- PH 4320 - Public Health Intervention Strategies **Credits:** 3 hours
- PH 4330 - Advocating for Health Policies **Credits:** 3 hours
- PH 4410 - Evaluating Public Health Programs **Credits:** 3 hours
- PH 4420 - Grant Writing in Public Health **Credits:** 3 hours
- PH 4910 - Public Health Capstone Proposal **Credits:** 1 hour
- PH 4920 - Public Health Capstone Project **Credits:** 2 hours
- PH 4930 - Public Health Seminar **Credits:** 3 hours
- PH 4940 - Public Health Internship **Credits:** 3 hours

Emphasis (Minimum 18 hours)

Students must earn a minimum of 18 credit hours by selecting a minor from:

- Addiction Studies **Credits:** 21 hours
- Communication **Credits:** 18 hours
- Event Management **Credits:** 18 hours
- Gerontology **Credits:** 18 hours
- Integrative Holistic Health and Wellness **Credits:** 18 hours
- Nonprofit Leadership **Credits:** 18 hours
- Additional minors with consent of PH faculty.

OR

At least 18 hours from the following list of public health science based courses:

- ANTH 3470 - Ethnicity/Multiculturalism **Credits:** 3 hours
- BIOS 1050 - Environmental Biology **Credits:** 3 hours
- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems **Credits:** 4 hours
- GRN 1000 - Introduction to Aging Studies **Credits:** 3 hours
- GRN 4000 - Public Policy and Aging **Credits:** 3 hours
- HSV 4400 - Diversity and Inclusion in Health and Human Services **Credits:** 3 hours
- HSV 4860 - Health Literacy Practices **Credits:** 3 hours
- HSV 4880 - Psychosocial Aspects of Health and Healthcare **Credits:** 3 hours
- PH 3300 - Special topics in Public Health **Credits:** 1 to 3 hours
- PH 4300 - Independent Study in Public Health **Credits:** 1 to 4 hours
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours
- PSY 3456 - Behavioral Approaches to Sustainability **Credits:** 3 hours
- STAT 1600 - Discovery with Data **Credits:** 3 hours
- STAT 2600 - Data Analysis Using R **Credits:** 4 hours
- Additional courses with consent of PH faculty

OR

At least 18 hours from the following list of public health education based courses:

- ADA 2250 - Drug Use: Personal and Social Impact **Credits:** 3 hours
- ADA 3300 - Addiction and the Addiction Process **Credits:** 3 hours
- ADA 3370 - Substance Abuse Treatment Strategies **Credits:** 3 hours
- ADA 5200 - Family and Addiction **Credits:** 3 hours
- COM 2000 - Human Communication Theory **Credits:** 3 hours
- FCS 2100 - Human Sexuality **Credits:** 3 hours
- FCS 2660 - Personal Nutrition **Credits:** 3 hours
- FCS 3170 - Crises and Resiliency in Families **Credits:** 3 hours
- FCS 5100 - Teaching Sexuality Education **Credits:** 3 hours
- GRN 1000 - Introduction to Aging Studies **Credits:** 3 hours
- GRN 4000 - Public Policy and Aging **Credits:** 3 hours
- HOL 4700 - Relationship-Centered Skills **Credits:** 3 hours
- HOL 5350 - Holistic Approaches to Stress **Credits:** 3 hours
- HOL 5530 - Holistic Strategies for Illness and End of Life **Credits:** 3 hours
- HOL 5550 - Successful Aging-Holistic Perspectives **Credits:** 3 hours
- HSV 2250 - Lifespan Development **Credits:** 3 hours
- HSV 3550 - Perspectives in Women's Health **Credits:** 3 hours
- HSV 4400 - Diversity and Inclusion in Health and Human Services **Credits:** 3 hours
- HSV 4450 - Service-Learning in Community Health Care Settings **Credits:** 3 hours
- HSV 4860 - Health Literacy Practices **Credits:** 3 hours
- PH 3300 - Special topics in Public Health **Credits:** 1 to 3 hours
- PH 4300 - Independent Study in Public Health **Credits:** 1 to 4 hours
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours
- PSY 1400 - Introduction to Behavior Analysis **Credits:** 4 hours
- PSY 1600 - Child Psychology **Credits:** 3 hours
- PSY 2500 - Abnormal Psychology **Credits:** 3 hours
- PSY 4240 - The Psychology of Human Sexuality **Credits:** 3 hours
- PSY 4630 - Health Psychology **Credits:** 3 hours
- SOC 2100 - Modern Social Problems **Credits:** 3 hours
- SOC 3200 - Introduction to Social Psychology **Credits:** 3 hours
- Additional courses with consent of PH faculty

Minors

Addiction Studies Minor (21 hours)

Alcohol and Drug Abuse

Advising Office: Room 2125, College of Health and Human Services

Telephone: (269) 387-2656

Western Michigan University's Addiction Studies provides professional education for all those who are interested in the addictions field. Multidisciplinary in nature, Addiction Studies provides a balanced orientation to theory and practice, considers a breadth of contemporary issues, and emphasizes a variety of methods for dealing with the problems of addictions.

The Minor in Addiction Studies is meant to supplement formal training in other fields such as education, psychology, sociology, social work, occupational therapy, and others. The minor is offered on-campus and it can also be completed entirely online.

Program Requirements

The seven courses which comprise the 21-hour minor are:

- ADA 2250 - Drug Use: Personal and Social Impact **Credits:** 3 hours
OR
- ADA 3300 - Addiction and the Addiction Process **Credits:** 3 hours
- ADA 3360 - Clinical Approaches to Substance Use Disorders **Credits:** 3 hours
- ADA 3370 - Substance Abuse Treatment Strategies **Credits:** 3 hours
- ADA 3380 - Addiction Assessment, Recovery, and Illness Management **Credits:** 3 hours
- ADA 3410 - Diversity and Substance Abuse **Credits:** 3 hours
- SWRK 4230 - Ethics in Substance Abuse Treatment **Credits:** 3 hours
- ADA 5200 - Family and Addiction **Credits:** 3 hours

Gerontology minor

Advising Office: Room 2125, College of Health and Human Services

Telephone: (269) 387-2656

The Gerontology minor consists of an 18-credit hour course of study plus one 3-credit hour prerequisite. The minor is designed to enhance the knowledge and skills of individuals working with older adults or studying aging processes. The minor can be completed entirely online with most of the required courses offered online only.

Prerequisite:

- GRN 1000 - Introduction to Aging Studies **Credits:** 3 hours

Required Courses:

- GRN 2000 - Health and Aging **Credits:** 3 hours
- GRN 3000 - Aging in all Environments **Credits:** 3 hours
- GRN 3500 - Issues in Aging: Service Learning in Gerontology **Credits:** 3 hours
- GRN 4000 - Public Policy and Aging **Credits:** 3 hours

Elective courses (6 credits required):

The list of approved elective courses will be available through the Center for Gerontology but will include:

- BIOS 2400 - Human Physiology **Credits:** 4 hours
- BIOS 5310 - Biology of Aging **Credits:** 3 hours
- BLS 3050 - Introduction to Adults with Disabilities **Credits:** 3 hours
- FCS 2170 - Diverse Children, Families, and Communities **Credits:** 3 hours
- FCS 3170 - Crises and Resiliency in Families **Credits:** 3 hours
- FCS 4130 - Later Life Family Relationships **Credits:** 3 hours
- FIN 3720 - Estate Planning **Credits:** 3 hours
- GWS 2000 - Introduction to Gender and Women's Studies **Credits:** 4 hours
- HOL 1000 - Choices in Living **Credits:** 3 hours
- HOL 4700 - Relationship-Centered Skills **Credits:** 3 hours

- HOL 5300 - Special Topics in Holistic Health **Credits:** 1 to 4 hours
Topic: Understanding Grief and Loss
- HOL 5530 - Holistic Strategies for Illness and End of Life **Credits:** 3 hours
- HOL 5550 - Successful Aging-Holistic Perspectives **Credits:** 3 hours
- HPHE 4720 - Recreation for the Aging **Credits:** 3 hours
- HSV 3700 - The Health System and Its Environment **Credits:** 3 hours
- HSV 4100 - Legal Issues in Healthcare Services **Credits:** 3 hours
- HSV 4880 - Psychosocial Aspects of Health and Healthcare **Credits:** 3 hours
- OT 4540 - Special Topics in Occupational Therapy **Credits:** 1 to 4 hours
- OT 4700 - Functioning of the Older Adult **Credits:** 3 hours
- PHIL 3340 - Biomedical Ethics **Credits:** 4 hours
- PSY 4280 - Psychology of Aging **Credits:** 3 hours
- REL 3180 - Death, Dying, and Beyond **Credits:** 4 hours
- SLHS 2000 - Communication Disorders and Sciences **Credits:** 3 hours

Integrative Holistic Health and Wellness Minor (18 hours)

Advising Office: Room 2125, College of Health and Human Services
Telephone: (269) 387-2656

Sheena Bolton, Advisor

Integrative Holistic Health and Wellness is based on the philosophy of working with the whole person and recognizing the contextual factors that influence health. It is a system of principles and multidisciplinary approaches that promote well-being by considering the inter-connectedness among a person's physical, psychological, social, spiritual, environmental and physical levels of functioning.

The Integrative Holistic Health and Wellness program at Western Michigan University was established in 1982, and is one of the first academic programs of its kind in the United States. Along with offering graduate certificates in holistic health, we offer an undergraduate minor.

The minor in Integrative Holistic Health and Wellness (IHHW) consists of an 18 credit hour course of study designed to meet the needs of students interested in learning about the theory and practice of integrative holistic health and wellness. Through a required sequence of courses students explore holistic concepts related to their individual health, including the interconnectedness of the body, mind and spirit. Concurrent with the study of how integrative holistic health and wellness practices impact the individual is the focus on how expression of these principles in our lives affect the broader community.

Program of Study

Prerequisite (3 credit hours)

- HOL 1000 - Choices in Living **Credits:** 3 hours
OR
- HOL 2801 - Health and Well Being **Credits:** 3 hours
(Honors only)

Required Courses (9 credit hours)

- HOL 2000 - Choices in Global Living **Credits:** 3 hours
- HOL 4700 - Relationship-Centered Skills **Credits:** 3 hours

- HOL 4850 - Capstone in Holistic Health **Credits:** 3 hours

Elective Courses (9 credit hours)

Choose from courses listed below to total 9 credit hours.

- HOL 2701 - Resiliency Training for Life **Credits:** 3 hours
- HOL 3000 - Exploring Practices in Integrative Health Care **Credits:** 3 hours
- HOL 3300 - Holism and Nature **Credits:** 3 hours
- HOL 3301 - Introduction to Meditation **Credits:** 1 hour
- HOL 3303 - Introduction to Tai Chi **Credits:** 1 hour
- HOL 3305 - Intro to Mindfulness Skills **Credits:** 3 hours
- HOL 3350 - Introduction to Stress Management **Credits:** 3 hours
- HOL 3500 - Holistic Approaches to Food **Credits:** 3 hours
- HOL 3900 - Special Topics in Holistic Health **Credits:** 1 to 4 hours
- HOL 3910 - Introduction to Spirituality **Credits:** 3 hours
- HOL 3960 - Learning, Work, and Lifestyles: Holistic Perspectives **Credits:** 3 hours
- HOL 5300 - Special Topics in Holistic Health **Credits:** 1 to 4 hours
Topic: Qi Gong **Credits:** 1 hour
Topic: Healing through Writing & Story **Credits:** 3 hour
- HOL 5301 - Meditation to Enhance Living **Credits:** 1 hour
- HOL 5302 - Advanced Meditation to Enhance Living **Credits:** 2 hour
- HOL 5303 - Tai Chi to Enhance Living **Credits:** 1 hour
- HOL 5304 - Yoga to Enhance Living **Credits:** 1 hour
- HOL 5320 - Holistic Approaches to Personal Relationships **Credits:** 3 hours
- HOL 5321 - Holistic Health Coaching **Credits:** 3 hours
- HOL 5340 - Holistic Health and Spirituality **Credits:** 3 hours
- HOL 5350 - Holistic Approaches to Stress **Credits:** 3 hours
- HOL 5360 - Wellness Skills for Health Professionals **Credits:** 3 hours
- HOL 5370 - Health and Humor **Credits:** 3 hours
- HOL 5380 - Eastern Thought and Practice **Credits:** 3 hours
- HOL 5500 - Introduction to Holism and Expressive Arts **Credits:** 3 hours
- HOL 5510 - Holistic Approaches to Healing Through Visual Art **Credits:** 3 hours
- HOL 5520 - Healing through Movement **Credits:** 3 hours
- HOL 5530 - Holistic Strategies for Illness and End of Life **Credits:** 3 hours
- HOL 5540 - Love and Forgiveness **Credits:** 3 hours
- HOL 5550 - Successful Aging-Holistic Perspectives **Credits:** 3 hours
- HOL 5560 - Understanding Grief and Loss **Credits:** 3 hours
- HOL 5600 - Advanced Spirituality and Health **Credits:** 3 hours

Independent Study and Readings

Permission of Program Coordinator

- HOL 4970 - Independent Study in Holistic Health **Credits:** 1 to 4 hours
- HOL 5980 - Readings in Holistic Health **Credits:** 1 to 4 hours

Peace Corps Health Preparatory Minor

The Peace Corps Health Preparatory Minor (PCHP) focuses on two elements, specifically:

1. Training and Experience in the Health Work Sector

Required Courses

- PH 2320 - Global and Environmental Health Issues **Credits:** 3 hours
- HSV 3550 - Perspectives in Women's Health **Credits:** 3 hours
- HSV 4450 - Service-Learning in Community Health Care Settings **Credits:** 3 hours

Hands-On Experience in Health Education (must total 50 hours)

This component will be satisfied through completion of HSV 4450. It will consist of a hands-on/service learning opportunity in health education, supervised by the course instructor. Possible opportunities include:

- Community AIDS Resource and Education Services (CARES) volunteer educator
- Sindecuse Sexual Health Peer Education Volunteer
- Communities in Schools K-12 Health Education Volunteer Program
- Van Buren ISD Migrant Worker Health Education Volunteer Program
- Senior Center Health Education volunteer
- Kalamazoo Literacy Center Health Education Volunteer

2. Intercultural Competence

Core Course

- HSV 4400 - Diversity and Inclusion in Health and Human Services **Credits:** 3 hours

Two Approved Electives

Electives should be planned by reviewing the requirements in the country you want to go to.

Possible Electives

In addition to HSV 4400 please select two courses from the following list to continue to build your cultural agility. Select a course that is relevant to your planned Peace Corps service (country, culture, religion, economic circumstances, etc.) Students should consult with their advisors regarding the prerequisites required for some of the courses listed below:

- ANTH 1200 - Peoples of the World **Credits:** 3 hours
- ANTH 1500 - Race, Biology, and Culture **Credits:** 3 hours
- ANTH 2400 - Principles of Cultural Anthropology **Credits:** 3 hours
- ANTH 2600 - Sex, Gender, Culture **Credits:** 3 hours
- ANTH 2800 - Language in a Global World **Credits:** 4 hours
- ANTH 3390 - Cultures of Latin America **Credits:** 3 hours
- ANTH 3400 - World Cultures **Credits:** 3 hours
- ANTH 3410 - Global Africa Past and Present **Credits:** 3 hours

- ANTH 3470 - Ethnicity/Multiculturalism **Credits:** 3 hours
- ANTH 3580 - The African Diaspora: Across the Americas **Credits:** 3 hours
- ARAB 2750 - Life and Culture of the Arabs **Credits:** 3 hours
- BUS 2200 - Introduction to Global Business **Credits:** 3 hours
- CHIN 2750 - Chinese Life and Culture **Credits:** 3 hours
- ENGR 3400 - Engineering Global Practices in Non-Western Countries **Credits:** 3 hours
(Study abroad)
- ENGR 3700 - Engineering Global Practices in Western Countries **Credits:** 3 hours
(Study abroad)
- ENGL 2110 - Folklore and Mythology **Credits:** 4 hours
- ENGL 3130 - Asian Literature **Credits:** 3 hours
- ENGL 3140 - African Literature **Credits:** 3 hours
- ENGL 3160 - Storytellers **Credits:** 3 hours
- FCS 3150 - Global Ecology of the Family **Credits:** 3 hours
- FREN 2750 - Francophone Culture **Credits:** 3 hours
- GEOG 1000 - World Ecological Problems and Man **Credits:** 4 hours
- GEOG 1020 - World Geography through Media and Maps **Credits:** 3 hours
- GEOG 2050 - Human Geography **Credits:** 3 hours
- GEOG 2440 - Economic Geography **Credits:** 3 hours
- GEOG 3810 - South America **Credits:** 3 hours
- GEOG 3820 - Mexico and the Caribbean **Credits:** 3 hours
- GEOG 3860 - Geography of Africa **Credits:** 3 hours
- GEOG 3890 - Monsoon Asia **Credits:** 3 hours
- GEOG 3900 - China, Japan, and Korea: Lands and Cultures **Credits:** 3 hours
- GRN 1000 - Introduction to Aging Studies **Credits:** 3 hours
- GWS 3200 - Women, Globalization and Social Change **Credits:** 3 hours
- GWS 3400 - Race, Gender and Science **Credits:** 3 hours
- HIST 2020 - World History to 1500 **Credits:** 3 hours
- HIST 2030 - World History since 1500 **Credits:** 3 hours
- HIST 3330 - The World since 1945 **Credits:** 3 hours
- HIST 3760 - Modern East Asia **Credits:** 3 hours
- HIST 3850 - Modern Middle East **Credits:** 3 hours
- HIST 3880 - Introduction to African Civilization **Credits:** 3 hours
- HOL 2000 - Choices in Global Living **Credits:** 3 hours
- GIST 2000 - Introduction to Global and International Studies **Credits:** 3 hours
- IPE 3050 - Study Abroad and Global Learning in Health and Human Services **Credits:** 1 to 6 hours
Or alternate study abroad programs (variable credit)
- MUS 3120 - Explorations in World Music **Credits:** 3 hours
- PHIL 3150 - Race and Gender Issues **Credits:** 3 hours
- PSCI 2400 - Comparative Politics **Credits:** 3 hours
- PSCI 2500 - International Relations **Credits:** 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa **Credits:** 4 hours
- PSCI 3440 - Russian and Central Asian Politics **Credits:** 4 hours
- PSCI 3450 - Latin American Politics **Credits:** 4 hours
- PSCI 3460 - Women in Developing Countries **Credits:** 4 hours
- PSCI 3500 - American Foreign Policy **Credits:** 4 hours
- REL 2100 - Religions of the World **Credits:** 3 hours
- REL 2010 - Buddhism **Credits:** 4 hours

- REL 2020 - Religion in China **Credits:** 4 hours
- REL 2040 - Religion in India **Credits:** 4 hours
- REL 2050 - Christianity **Credits:** 3 hours
- REL 3325 - Muslim Cultures and Societies **Credits:** 4 hours
- REL 2070 - Judaism **Credits:** 4 hours
- REL 2786 - The Qur'an **Credits:** 4 hours
- REL 3165 - Religion and Globalization **Credits:** 3 hours
- REL 3170 - Religion and Gender **Credits:** 4 hours
- REL 3180 - Death, Dying, and Beyond **Credits:** 4 hours
- REL 3190 - Religion and Health **Credits:** 4 hours
- REL 3320 - Religion and Social Ethics **Credits:** 4 hours
- SOC 3040 - Nonwestern World **Credits:** 4 hours
- SOC 3340 - East Asia and the World **Credits:** 3 hours
- SOC 3350 - Sociology of Contemporary Latin American **Credits:** 3 hours
- SWRK 3500 - Human Behavior and the Social Environment **Credits:** 3 hours
- SWRK 3510 - Social Work Concepts in Group, Community and Organizational Behavior **Credits:** 3 hours
- SWRK 4600 - Social Work with Communities **Credits:** 3 hours

Nursing, Bronson School of

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The Western Michigan University Bronson School of Nursing (WMU BSN) opened in 1994, the result of several years of planning and collaboration by University and community leaders. The school was founded based on the need for baccalaureate prepared nursing professionals as articulated by local and national nursing leaders.

The WMU Bronson School of Nursing offers a Bachelor of Science in Nursing (B.S.N.). The prelicensure track provides the nursing degree for individuals who are entering the nursing profession, while the RN-BSN program offers an avenue to the degree for the registered nurse who graduated from a diploma or associate degree program in nursing. The RN-BSN program curriculum is offered as an online sequence of courses.

The WMU Bronson School of Nursing curriculum is designed to prepare nurse generalists who comprehend the discipline and the profession of nursing and who are competent to provide, coordinate, and evaluate patient care in the multiple social contexts in which health care is delivered. The graduate of the program will deliver nursing care to individuals, groups, and communities.

The WMU Bronson School of Nursing seeks to prepare thoughtful, professional nurses who possess the knowledge, skills, and attitudes necessary to deliver quality health care in this century. The faculty believe that the long-standing social contract between nursing and society conveys an understanding that communities need direct nursing services, that nurses develop partnerships with clients and other health care providers to promote holistic health care, and that caring is intrinsic to nursing. The curriculum integrates knowledge from liberal arts, sciences, and the discipline of nursing. The program emphasizes the development of knowledge, skills, and attitudes essential for the scope of clinical judgment that distinguishes the practice of a professional nurse. Concepts of patterning, holism, caring, service to vulnerable groups, and partnership are emphasized.

Accreditation

The Michigan Board of Nursing is the regulatory body that grants provisional and full approval of nursing education programs in the State of Michigan. Full approval of the WMU Bronson School of Nursing undergraduate program was granted in July 2002.

The Western Michigan University Bronson School of Nursing undergraduate program is accredited through 2027 by the Commission on Collegiate Nursing Education (CCNE), One DuPont Circle, NW, Suite 530, Washington, D.C. 20036-1120, phone: (202) 887-6791. The CCNE is an autonomous accrediting agency. As a "specialized professional accrediting agency, CCNE ensures the quality and integrity of baccalaureate and graduate nursing programs" (CCNE document).

Graduates of the Bachelor of Science in Nursing (B.S.N.) are eligible to take the National Council Licensure Examination for Registered Nurses (NCLEX-RN®) administered by the National Council of State Boards of Nursing, Inc. (NCSBN®).

The Bronson School of Nursing undergraduate program has also received endorsement from the American Holistic Nurses Certification Corporation, which is the credentialing body for holistic nursing. This endorsement enables graduates of the program to be exempt from prerequisites should they choose to sit for the National Certification Examination in Holistic Nursing.

The Undergraduate Pre-Licensure Professional Nursing Program

This program, with two curriculum tracks, leads to the completion of a Bachelor of Science in Nursing (BSN).

- The Prelicensure track is offered for individuals who do not hold a Registered Nurse license. Admission to this track occurs through:
 - Direct admission to professional nursing curriculum, or
 - Applying to the degree program through the use of our holistic admission process, which includes completing an application in Nursing CAS and completing program prerequisites. High school students admitted to WMU who indicate nursing as their intended major will be advised to begin the required "pre-nursing" curriculum in the fall semester of their freshman year. Current WMU students, transfer students, and second-degree students who change their intended major to nursing should make an appointment with an advisor in CHHS prior to beginning the "pre-nursing" curriculum.
- The RN-BSN Program has been specifically designed for ADN or Diploma-prepared Registered Nurses who wish to earn a BSN degree. Admission to this track occurs through:
 - Declaring "pre-nursing" as intended major on WMU application and then applying to the RN-BSN program once admitted to the university.
 - ADN or Diploma-prepared Registered Nurses who are interested in earning a BSN should make an advising appointment with the RN-BSN advisor prior to applying to the university.
 - Individuals will be admitted as long as they have achieved a cumulative grade point average of at least 3.0 (on a four-point scale) in the nursing associate degree or nursing diploma program from which they graduated, hold or receive a current registered nurse license no later than three months after beginning the program, and have completed the program pre-requisites outlined later in this document.

Bachelor of Science in Nursing

Nursing - Prelicensure Track

Direct Admission to the Professional Nursing Program (BSN)

Students who have recently graduated from high school demonstrating excellent academic performance in their high school curriculum, particularly in the sciences, in addition to high SAT or ACT (or equivalent) scores will be considered for direct admission to the professional nursing program. Direct admission to the professional nursing program is a very selective and highly competitive process.

All high school graduates interested in the BSN must apply to WMU and declare nursing as their intended major.

Candidates for direct admission will be selected from this pool and notified by the Bronson School of Nursing.

BSON uses a holistic admission process to admit students who have academic achievements, attributes, and experiences that predict success and contribute to a diverse and inclusive learning environment.

In addition to the holistic admission process:

Selection criteria for direct admission to the professional nursing program requires at least ALL of the following:

- High school GPA of at least 3.6 or higher.
- Minimum SAT Composite score of 1240 or ACT Composite score of 26.
- One year of high school chemistry (grades will be evaluated).
- Two years of high school biology (grades will be evaluated).

Students will be required to maintain a minimum of 3.25 university cumulative GPA, earn a "B" (3.0) or better in each of the prerequisite sciences courses (CHEM 1100 and CHEM 1110 OR CHEM 1510 and CHEM 1520; CHEM 1530 and CHEM 1540; and BIOS 1910 OR BIOS 2110; and BIOS 2400) and earn no less than a "C" (2.0) in all other courses to maintain their place as direct admits to the professional nursing program. All prerequisite courses must be satisfactorily completed before beginning the professional nursing program. Failure to maintain these standards will result in the student being placed into pre-nursing. The student will need to reapply for the professional nursing program.

Pre-Nursing Admission

Students who declare nursing as their intended major and are accepted to WMU must complete the following pre-requisite courses in preparation for application to the professional pre-licensure nursing program.

- BIOS 1910 - Introduction to Human Anatomy and Biology **Credits:** 4 hours
OR
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
with
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
OR
- CHEM 1510 - Chemistry for Health Professionals I **Credits:** 3 hours
with
- CHEM 1520 - Chemistry for Health Professionals I Lab **Credits:** 1 hour
- CHEM 1530 - Chemistry for Health Professionals II **Credits:** 3 hours
- CHEM 1540 - Chemistry for Health Professionals II Lab **Credits:** 1 hour
- ENGL 1050 - Foundations in Written Communication: Strategies, Behaviors, Success **Credits:** 3 hours
- HSV 2250 - Lifespan Development **Credits:** 3 hours
- PSY 1000 - General Psychology **Credits:** 3 hours
- SOC 2000 - Principles of Sociology **Credits:** 3 hours

Computer Literacy Requirement

- FCS 2250 - Computer Applications **Credits:** 3 hours
OR
- CIS 1020 - Introduction to Business Computing and Data Analysis **Credits:** 3 hours

Professional Nursing Admission

Pre-nursing students who have completed the pre-requisite courses must complete the formal application process to be considered for admission to the professional nursing program. Admission to the professional nursing program is highly competitive. Availability of space in nursing courses, including clinical settings, will limit the number of admissions possible each semester.

The Bronson School of Nursing (BSON) is committed to building and sustaining a diverse academic community of faculty, staff, and students. BSON uses a holistic admission process to admit students who have academic achievements, attributes, and experiences that predict success and contribute to a diverse and inclusive learning environment.

In addition to the holistic admission process, students must also:

Complete all of the courses in the pre-nursing program curriculum (or equivalencies) with a minimum cumulative GPA of 3.0 (B), have an overall GPA of at least 3.0 (B), and individual course grades with a minimum grade of 2.0 (C) or above.

Earn an average grade of 3.0 (B) or above in the four science prerequisites courses (or equivalencies); each prerequisite course may only be repeated once. Only the second course grade will be considered in the admission decision.

Applications for the fall semester are due by March 1; applications for the spring semester are due by October 1.

Professional Curriculum Requirements (122 credit hours)

The sequencing of the Professional Nursing curriculum is critical. Students must complete designated course requirements for each level in the nursing program before progressing to the next level. To remain in good standing within the Professional Nursing curriculum, students must achieve a grade of "C" or better in all nursing courses and maintain a cumulative grade point average of 2.0 or above. No nursing courses may be repeated without review and approval by the Bronson School of Nursing Student Affairs Committee. Further, students may only re-enroll in one nursing course during their program.

No minor required.

Supporting Cognate Courses (53 hours): Prerequisites and WMU Essential Studies Requirements

- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category **Credits:** 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category **Credits:** 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category **Credits:** 3 hours
- Electives **Credits:** 7 hours
- BIOS 1910 - Introduction to Human Anatomy and Biology **Credits:** 4 hours
OR
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
- BIOS 2320 - Microbiology and Infectious Diseases **Credits:** 4 hours
- BIOS 2400 - Human Physiology **Credits:** 4 hours
- CHEM 1100 - General Chemistry I **Credits:** 3 hours
with
- CHEM 1110 - General Chemistry Laboratory I **Credits:** 1 hour
OR
- CHEM 1510 - Chemistry for Health Professionals I **Credits:** 3 hours
with
- CHEM 1520 - Chemistry for Health Professionals I Lab **Credits:** 1 hour
- CHEM 1530 - Chemistry for Health Professionals II **Credits:** 3 hours
- CHEM 1540 - Chemistry for Health Professionals II Lab **Credits:** 1 hour

- ENGL 1050 - Foundations in Written Communication: Strategies, Behaviors, Success **Credits:** 3 hours
- HSV 2250 - Lifespan Development **Credits:** 3 hours
- PSY 1000 - General Psychology **Credits:** 3 hours
- SOC 2000 - Principles of Sociology **Credits:** 3 hours
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Nursing (69 hours)

- NUR 2200 - Foundations of Nursing and Critical Thinking **Credits:** 3 hours
- NUR 2210 - Nursing Therapeutics I **Credits:** 5 hours
- NUR 2220 - Health Assessment Throughout the Lifespan **Credits:** 3 hours
- NUR 2300 - Concepts of Health and Wellness in Nursing Practice **Credits:** 4 hours
- NUR 2310 - Nursing Care of the Older Adult **Credits:** 4 hours
- NUR 3200 - Nursing Care of the Childbearing Family **Credits:** 5 hours
- NUR 3210 - Nursing Care of Children and Families **Credits:** 5 hours
- NUR 3220 - Health Care Ethics **Credits:** 3 hours
- NUR 3300 - Nursing Therapeutics II **Credits:** 2 hours
- NUR 3310 - Care of Adults with Alterations in Health Status **Credits:** 6 hours
- NUR 3320 - Nursing Research **Credits:** 3 hours
- NUR 3350 - Pharmacotherapeutics in Nursing **Credits:** 3 hours
- NUR 4200 - Psychiatric-Mental Health Nursing **Credits:** 5 hours
- NUR 4210 - Nursing Care of Patients with Complex Conditions **Credits:** 6 hours
- NUR 4310 - Community Based Nursing **Credits:** 6 hours
- NUR 4320 - Nursing Leadership & Management **Credits:** 6 hours

Nursing RN-BSN Track

Eligible Registered Nurse applicants must review their prior coursework and credits with the nursing advisor before admission to the RN-BSN program. In addition to the nursing sequence of courses, students must complete the following WMU Essential Studies/support course work prior to graduation from WMU:

- WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category Credits: 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category Credits: 3 hours
- WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category Credits: 3 hours
- WMU Essential Studies Level 3: Connections – Global Perspectives Category Credits: 3 hours
- Approved computer usage course Credits: 3 hours - may be waived based on student computer literacy
- College-level writing Credits: 3 to 4 hours
- Mathematics Credits: 3 hours or equivalency as needed to enroll in an approved statistics course
- No minor required

Curriculum requirements for Associate Degree Graduates and Diploma Graduates

Academic Credit Transferred from Associate Degree or Diploma Program

Graduates of community college associate degree and diploma programs will be awarded transfer credit on a course-by-course basis in accordance with University policies for prior general education, science, and electives. An additional block of credits

may be awarded for prior nursing study and successful NCLEX completion. Credits will be held in escrow until NUR 3400 has been completed with a grade of "C" or better.

Supporting Cognate Courses (19 hours)

Can be taken at WMU or elsewhere as specified by the Michigan Transfer Agreement (MTA):

- Approved computer usage course **Credits:** 3 hours
- WES courses as required: review with RN-BSN Advisor
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Nursing (30 hours)

- HOL 3000 - Exploring Practices in Integrative Health Care **Credits:** 3 hours
- NUR 3420 - Health Assessment Throughout the Lifespan-RN **Credits:** 3 hours
- NUR 3220 - Health Care Ethics **Credits:** 3 hours
- NUR 3430 - Nursing Research-RN **Credits:** 3 hours
- NUR 3330 - Health Informatics **Credits:** 3 hours
- NUR 3400 - Transition to Professional Nursing **Credits:** 3 hours
- NUR 4330 - Population Based Nursing-RN **Credits:** 6 hours
- NUR 4340 - Nursing Leadership and Management-RN **Credits:** 6 hours

Credit for prior learning and passing NCLEX exam (30 hours)

- NUR 3060 - Nurses' Role in Facilitating Health and Self-Care I **Credits:** 15 hours
This course credit is given in recognition of prior learning and successful completion of the NCLEX exam.
- NUR 3070 - Nurses' Role in Facilitating Health and Self-Care II **Credits:** 15 hours
This course credit is given in recognition of prior learning and successful completion of the NCLEX exam.

Occupational Therapy

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The Department of Physician Assistant offers a Master of Science in Medicine. Please see the Graduate Catalog for more information about the graduate programs and courses offered by the department.

While most of the department's courses are open to graduate students only, some courses are open to qualified undergraduates; contact the College of Health and Human Services college advisors at (269) 387-2656.

Social Work, School of

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The School of Social Work offers both undergraduate and graduate professional programs leading to a B.S.W. and M.S.W. respectively. Both programs are accredited by the Council on Social Work Education. Further information about the graduate program, designed to educate students for interpersonal practice and policy, planning, and administration positions in the field of social welfare, may be found in the Graduate Catalog.

Bachelor of Social Work

Social Work Major (122 hours)

The Undergraduate Professional Program

Bachelor of Social Work

Minimum Hours Required for Graduation: 122 hours

The undergraduate professional program is designed to prepare students for beginning generalist social work practice and to provide preparation for graduate training in social work and related professions. Emphasis is placed on a conceptual framework of systems theory, the ecological model, and a strengths-based approach to problem solving. Generalist social workers are taught to address a range of social issues, to work in a variety of practice settings, and to facilitate positive change that will enhance the social functioning of individuals, groups, families, organizations, and communities.

The BSW program utilizes the development of knowledge and skills in the areas of human behavior in the social environment, social work practice, research, social policy, diversity, ethics, and values. A personalized instructional approach is used to engage students in a learning process that promotes critical thinking and self-reflection. Commitment to educating students to work

towards the creation of a more just and humane society by advocating for services and resources for oppressed, vulnerable, and other at-risk populations is a main emphasis of the program. All students must demonstrate mastery of a set of competencies and practice behaviors, as required by our accrediting body, the Council on Social Work Education.

Students enrolled in the undergraduate social work curriculum are required to complete a major consisting of 38 hours, 23 hours of support courses, and 6 hours of research, totaling 67 hours. As part of the program, students complete a 400-hour field placement in a social work practice setting. No minor is required.

Social Work majors can obtain specialty certificates offered by the College of Health and Human Services in conjunction with their social work degree. Students with other majors can obtain a 15-hour minor in social work. For further information about certificate programs and the social work minor, please consult with the College of Health and Human Services academic advisor.

The BSW program is offered at the Kalamazoo main campus, as well as at the Southwest Regional Site in Benton Harbor as a BSW degree completion program.

Admission Requirements

Students interested in the social work major will be admitted into the pre-social work curriculum at the time of admission to the University. This does not guarantee admission to the social work major. Students who have completed or are currently enrolled in SWRK 2100: Social Work Services and Professional Roles, and completed a minimum of 30 credit hours with a minimum overall GPA of 2.5 may apply to the Undergraduate Social Work Major. General information necessary for admission includes:

- Completion of the Social Work Undergraduate Application
- Submission of all academic transcripts
- Supplemental (personal) Statement

All applications are submitted to Office Admissions and Student Services of the School of Social Work. Deadlines for submitting applications are, April 1 and October 1 of each year. Selection of students to be admitted to the major occurs after review of all applications by the Admissions Committee composed of social work faculty. Admissions for students currently enrolled in SWRK 2100 will be conditional based on their successful completion of that course. This is a competitive admissions process with a specific number of students admitted each year. Specific criteria for selection of candidates are based upon:

- Competitive overall grade point average
- Work and life experiences in the field of social work
- Participation in community services, leadership activities, and volunteer experience
- Written communication skills, personal qualifications, and basic knowledge of the profession as evidenced in the supplemental statement

Field Education

The field practicum provides students with opportunities to learn and apply generalist knowledge and beginning level skills in working with individuals, families, groups, organizations, and communities. Students in the social work major complete two consecutive semesters of field education (SWRK 4100/4110) in a human service agency. Field education and the courses taken concurrently, SWRK 4010, 4020, and 4600 are open only to students formally admitted to the B.S.W. program.

Placement is made through the School of Social Work, following the application and interview process established and conducted by the Director of Field Education. The timing of each student's field education internship is determined upon admission to the major during the program planning process. Students complete a field placement application at least one semester prior to the scheduled start of field education. The application is due according to the time frame established for each field cohort by the Director of Field Education. Failure to complete the application process according to the established deadline may result in delaying the start of field education.

Field education consists of required components in field work and classroom study: on-campus field seminars and associated assignments, and 400 hours of work at the agency where the student is placed. Each student works with a field instructor at the agency and a faculty liaison at the University. During the field hours at the agency, students work with a professional, their field

instructor, to develop social work skills and gain hands-on experiences. The Council on Social Work Education guidelines require a minimum of 200 hours per semester at the agency. Field education is graded on the standard University grading system.

Social Work Curriculum Requirements

General Education Requirements (37 hours)

Requirements for the Social Work Major (38 hours)

- SWRK 2100 - Introduction to Social Work: Advocates for Social Justice **Credits: 3 hours**
- SWRK 3000 - Social Welfare as a Social Institution **Credits: 3 hours**
- SWRK 3200 - Social Work Interviewing and Assessment **Credits: 3 hours**
- SWRK 3330 - Introduction to Culture, Ethnicity, and Institutionalized Inequality in Social Work Practice **Credits: 3 hours**
- SWRK 3500 - Human Behavior and the Social Environment **Credits: 3 hours**
- SWRK 3510 - Social Work Concepts in Group, Community and Organizational Behavior **Credits: 3 hours**
- SWRK 4000 - Social Work Practice with Individuals and Families **Credits: 3 hours**
- SWRK 4010 - The Problem Solving Process with Task Groups and Organizations **Credits: 3 hours**
- SWRK 4020 - Social Work Policy **Credits: 3 hours**
- SWRK 4100 - BSW Field Education I **Credits: 4 hours**
- SWRK 4110 - BSW Field Education II **Credits: 4 hours**
- SWRK 4600 - Social Work with Communities **Credits: 3 hours**

Required Research Component (6 hours)

- Any undergraduate STAT course **Credits: 3 hours**
- SWRK 3650 - Social Work Research Methods **Credits: 3 hours**

Required Support Cognate Courses (24 hours)

Includes:

- COM 1040 - Public Speaking **Credits: 3 hours**
- ECON 2010 - Principles of Microeconomics **Credits: 3 hours**
- OT 2000 - Human Functional Anatomy **Credits: 3 hours**
- PSCI 2000 - National Government **Credits: 3 hours**
- PSY 1000 - General Psychology **Credits: 3 hours**
- SOC 2000 - Principles of Sociology **Credits: 3 hours**
- HSV 4780 - U.S. Health Policy **Credits: 3 hours**
- HSV 2650 - Information Literacy in the Health Sciences **Credits: 3 hours**

Electives (20 to 26 hours)

Students are encouraged to elect additional courses in any area of their specific interest. Particularly recommended in preparation for social work practice are: anthropology, communications, economics, history, philosophy, political science, psychology, sociology, Spanish, or gender and women's studies. The following social work courses are also available as electives for undergraduate students.

- SWRK 4130 - Social Policy and Service Delivery in Selected Problem Areas **Credits:** 3 hours
- SWRK 4650 - Special Studies in Social Welfare Practice **Credits:** 3 hours
- SWRK 5970 - Teaching Apprenticeship in Selected Social Work Curriculum Areas **Credits:** 1 to 4 hours
- SWRK 5980 - Readings in Social Work **Credits:** 1 to 4 hours

Grade Requirements

Any student who fails to meet the following criteria will be notified in writing by the School of Social Work undergraduate advisor that he/she is in jeopardy of being terminated from the social work major:

- A student must receive a "C" or higher in each required social work course to remain in the major. A student may repeat one required social work course to raise his/her grade.
- The student must maintain an overall average of 2.0 in the required support courses. Transfer students should be aware that courses transferring into the minor are accepted with no grade (so an "A" at a two-year college can't be used to balance a lower grade in a course at WMU).

The school may refuse to permit a student to continue in the curriculum if at any time it is deemed that the student is exhibiting a pattern of professionally incompetent or inappropriate behavior as determined by the standards of the National Association of Social Work Code of Ethics. Further details on this policy and procedure may be obtained from the School of Social Work's Manager of Recruitment and Outreach.

Accelerated Program in Social Work

Once a BSW student has obtained 60 credits with a minimum overall grade point average of 3.0 (either at WMU in the social work major or have obtained 60 credits from an institution that has a shared articulation agreement with the School of Social Work), students may apply to the accelerated MSW program. This program allows students to take 12 credits of graduate-level foundation social work classes (SWRK 6100, SWRK 6310, SWRK 6330, and SWRK 6400) in place of the traditional undergraduate social work courses. These 12 credits will count both as credits towards their undergraduate degree and as graduate credits.

General information necessary for admission includes:

- Completion of the Accelerated Master of Social Work program application
- Submission of all academic transcripts
- Supplemental (personal) statement
- Resume
- Three professional references. One academic reference recommended
- WMU Graduate College Application

All applications are submitted to Office Admissions and Student Services of the School of Social Work. The deadline for submitting applications to the Accelerated Program is April 1 of each year. Selection of students to be admitted to the Accelerated Program occurs after review by the Admissions Committee composed of social work faculty.

If a student is accepted into this program and maintains all standards, an offer of admissions to the graduate program at WMU School of Social Work will be automatic. If a student achieves a 3.25 GPA and receives no more than one grade below a "B" in a social work required course, then they will be offered admissions to the Advanced Standing MSW program (see graduate catalog). If the student maintains a 3.0 but does not meet the 3.25 requirements, they will continue into the Accelerated MSW program, which will require 48 graduate credit hours (12 fewer credits than a standard MSW). This allows students to secure a path to graduate school early in their undergraduate education and provides an opportunity to complete both degrees in a shortened period of time and at a lower cost.

SCHEDULE AND CAMPUS LOCATION: While undergraduate students both from the Southwest Campus and the Kalamazoo campus are eligible to apply, campus locations of the courses will vary based on the size of the cohort in any given year.

Minors

Social Work Minor (15 hours)

Requirements

- SWRK 2100 - Introduction to Social Work: Advocates for Social Justice **Credits:** 3 hours
- SWRK 3000 - Social Welfare as a Social Institution **Credits:** 3 hours

Plus three of the following social work courses:

- Any 5000-level social work course.
- SWRK 3200 - Social Work Interviewing and Assessment **Credits:** 3 hours
- SWRK 3330 - Introduction to Culture, Ethnicity, and Institutionalized Inequality in Social Work Practice **Credits:** 3 hours
- SWRK 3500 - Human Behavior and the Social Environment **Credits:** 3 hours

Speech, Language and Hearing Sciences

Laura DeThorne, Chair
Main Office: 4476 CHHS (Oakland Campus)
Telephone: (269) 387-8045
Fax: (269) 387-8044

Judith Seymour, Administrative Assistant II
4476 CHHS (Oakland Campus)

Jan Bedrosian
Cary Cekola
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Suma Devanga
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Alyssa Eminhizer
Hope Gerlach
Yvette Hyter
Bharti Katbamma
Jing Shen
Stephen Tasko
Ann Tyler

Speech, Language and Hearing Sciences Undergraduate Pre-Professional Program

Communication is the most complex aspect of human behavior. Impairments in the processes of communication - speech, language, and hearing - can significantly affect the lives of children and adults across the age span. Speech-language pathology and audiology are the areas of professional specialization that have developed out of concern for individuals with disorders of communication.

The mission of the Department of Speech, Language, and Hearing Sciences is to educate speech, language, and hearing professionals for a diverse and changing population, to advance knowledge through research, to deliver quality clinical services, and to serve as a resource for the community and professions. It is the vision of the department to continue recognition as a national leader for advancing knowledge in human hearing and communication processes and disorders through education, research, and service.

The undergraduate major in Speech, Language and Hearing Sciences is a pre-professional curriculum designed to prepare students for graduate professional education in speech-language pathology, audiology, or related disciplines. Students must earn a graduate degree to be employed as an audiologist (AuD) or speech-language pathologist (MA or MS). Students entering the professions of speech-language pathology or audiology must adhere to a code of conduct and professional standards.

National data suggest that admission to a graduate program typically requires a grade point average higher than the minimum for the undergraduate major, as well as a similar grade point average in the cumulative undergraduate GPA. Information about the professions and current admission statistics can be obtained from the American Speech-Language-Hearing Association: www.asha.org or www.asha.org/edfind, and the Academy of Audiology: www.audiology.org.

Admission

Students who wish to major in speech pathology and audiology will declare the pre-speech (PRSA) major at the time of admission to the University. Declaring the pre-speech major does not guarantee admission to the Speech, Language and Hearing Sciences major, as admission is competitive and the strongest applicants are admitted to the major. Information necessary for admission includes the following documents:

- Speech, Language and Hearing Sciences Undergraduate Application
- All academic transcripts

All applications are submitted to the undergraduate advisor of the Department of Speech, Language, and Hearing Sciences. The deadline for submitting applications is February 1 of each year. Selection of students to be admitted to the major occurs after review of all applications by the Department Admissions Committee. This admission process is competitive, and students with the strongest academic record are admitted each year. Selection of candidates is based on the following criteria:

- Minimum cumulative grade point average of 3.0 for all coursework after high school
- Grade in an introductory course in communication disorders, and grades in required non-departmental coursework (college-level writing course, college-level biology/anatomy course, college-level general physics course, required math course, college-level statistics course)
- Participation in observation and volunteer experiences

Students must be advised by the College of Health and Human Services undergraduate department advisor prior to application. For an advising appointment call (269) 387-2656.

Transfer Students

It is recommended that transfer students enroll at Western at the beginning of the first semester of the sophomore year. Those applicants who enroll at a later stage may find that an additional period of study will be required to complete the undergraduate curriculum.

Bachelor of Science

Speech, Language and Hearing Sciences

A major in Speech, Language and Hearing Sciences consists of a minimum of 39 hours in Speech, Language and Hearing Sciences (SLHS) courses, a minimum of 27 credits of required non-departmental courses and an academic minor.

Cognate: Required Non-Departmental Courses

The minimum requirements below specify college-level coursework (i.e., not AP or CLEP credit)

Social/Behavioral Sciences minimum requirement

- PSY 1000 - General Psychology **Credits:** 3 hours
- **and** at least one additional course in social/behavioral sciences: psychology, sociology, anthropology or public health (**Credits:** 3 hours minimum)

Biological Sciences minimum requirement

- BIOS 1120 - Principles of Biology **Credits:** 3 hours
OR
- BIOS 1600 - Biological Form and Function **Credits:** 3 hours
- BIOS 2110 - Human Anatomy **Credits:** 4 hours
(is strongly recommended)

Physical Sciences minimum requirement

- PHYS 1070 - Elementary Physics **Credits:** 4 hours
and
- PHYS 1080 - Elementary Physics Laboratory **Credits:** 1 hour
OR
- PHYS 1130 - General Physics I **Credits:** 4 hours
and
- PHYS 1140 - General Physics I Laboratory **Credits:** 1 hour

Math minimum requirement

- MATH 1160 - Finite Mathematics with Applications **Credits:** 3 hours

Statistics minimum requirement

- STAT 1600 - Discovery with Data **Credits:** 3 hours
OR
- STAT 3660 - Data Analysis for Biosciences **Credits:** 4 hours

Language minimum requirement

- LANG 2500 - The Nature of Language **Credits:** 3 hours

Education/Special Education/Literacy Studies minimum requirement

- at least one course in education, special education and/or literacy **Credits:** 3 hours

Required Departmental Courses (minimum 39 hours)

- SLHS 2000 - Communication Disorders and Sciences **Credits:** 3 hours
- SLHS 2030 - Normal Language Acquisition **Credits:** 3 hours
- SLHS 2040 - Phonetics **Credits:** 3 hours
- SLHS 2041 - Phonetics Laboratory **Credits:** 1 hour
- SLHS 2050 - Speech Anatomy and Physiology **Credits:** 3 hours
- SLHS 2051 - Speech Anatomy and Physiology Lab **Credits:** 1 hour
- SLHS 2060 - Hearing Science **Credits:** 3 hours
- SLHS 2070 - Clinical Laboratory **Credits:** 3 hours
- SLHS 2071 - Clinic Observation **Credits:** 2 hours
- SLHS 2080 - Introduction to Audiology **Credits:** 3 hours
- SLHS 3510 - Phonemic Disorders **Credits:** 2 hours
- SLHS 3540 - Language Disorders in Children **Credits:** 3 hours
- SLHS 4560 - Rehabilitative Audiology **Credits:** 3 hours
- SLHS 4590 - Neuroscience for Communication Sciences and Disorders **Credits:** 3 hours
- SLHS 5010 - Principles of Speech Science **Credits:** 3 hours

Elective options

- SLHS 4500 - Clinical Apprenticeship **Credits:** 2 hours
- SLHS 5530 - Stuttering and Other Fluency Disorders **Credits:** 2 hours
- SLHS 5801 - Pediatric Audiology **Credits:** 3 hours
- IPE 3050 - Study Abroad and Global Learning in Health and Human Services **Credits:** 1 to 6 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the Speech, Language and Hearing Sciences major will satisfy the Baccalaureate-Level Writing requirement by successfully completing:

- SLHS 4590 - Neuroscience for Communication Sciences and Disorders **Credits:** 3 hours

Examples of Academic Minors

American Sign Language Studies
Anthropology
Biological Sciences
Communications
Gerontology
Global and International Studies
Integrative Holistic Health and Wellness
Psychology
Spanish

Continuance Policies for the undergraduate major in Speech, Language and Hearing Sciences

- A student must maintain a cumulative grade point average of 2.8 in the University to remain in the Speech, Language and Hearing Sciences undergraduate program. If a student's cumulative GPA falls below 2.8, the student will be placed on Departmental Probation and will have one semester to raise the cumulative GPA to at least 2.8. If after a semester of Departmental Probation, a student restores the cumulative GPA to at least 2.8, the student will continue to progress in the undergraduate major. If, after a semester of Departmental Probation, a student fails to achieve at least a 2.8 cumulative GPA, the student will be dismissed from the undergraduate program.
- Students in the major must receive a grade of "C" or higher in each required Speech, Language and Hearing Sciences course. Students in the major may repeat one required Speech, Language and Hearing Sciences course one time to raise a grade. No more than two registrations for the same SLHS course will be permitted. If a grade lower than "C" is earned upon repeating the course, the student will be dismissed from the undergraduate program in Speech, Language and Hearing Sciences.
- Transfer courses must be reviewed and approved for transfer by a department advisor. A grade of "C" or better must be earned for a course to transfer.
- A student must maintain professional behavior as determined by the Code of Ethics of the American Speech-Language Hearing Association (www.asha.org/Code-of-Ethics) and the WMU Student Conduct Code (wmich.edu/conduct/code). Violations of these standards shall be cause for sanctions including dismissal from the program.
- A student who fails to meet any of the above criteria will be notified of this in writing by the Speech, Language and Hearing Sciences undergraduate program coordinator.

Honors in Speech, Language and Hearing Sciences

Students admitted to the undergraduate major who are members of the Lee Honors College and/or who meet the academic requirements listed below are eligible to join the Departmental Honors Program for undergraduate majors in the Department of Speech, Language, and Hearing Sciences. The academic requirements include 1) completion of a minimum of 40 semester hours, and 2) a minimum university GPA of 3.5. Further information and specific requirements of the departmental honors program are available through the departmental undergraduate advisor.

Licensure and Certification

Completion of the curricular requirements, together with the completion of a master's degree program in speech pathology or doctoral program in audiology, typically satisfies all academic and practicum requirements of the American Speech-Language-Hearing Association for a Certificate of Clinical Competence in the emphasis area (speech-language pathology or audiology). In addition, as individuals, states regulate the practice of speech-language pathology and audiology, and students must consult with the state's regulatory boards and department of education for licensure requirements.

Minors

American Sign Language Studies Minor

The Department of Speech, Language and Hearing Sciences offers an academic minor in "American Sign Language Studies" which may be of particular interest to students majoring in areas such as communication arts and sciences, business, education, linguistics, music therapy, vocal music, occupational therapy, interdisciplinary health services, nursing, psychology, social work, and others. Pre-professional studies in such curricula as pre-dentistry and pre-medicine can also be augmented meaningfully through inclusion of studies in American Sign Language.

The minor in American Sign Language Studies requires a minimum of 18 hours. Students will learn communication competency in a visual language and gain a better understanding of the Deaf and Hard of Hearing culture. This minor builds a solid foundation of American Sign Language (ASL) language and skills but does not lead to interpreter or Deaf Education certification.

Students are required to take the following courses: SIGN 1010, 1020, 2010, 2020 and 2030. In addition, students must select a 3-hour elective from the listed options to complement the student's educational and vocational goals. Credit for and SIGN course may be transferred if the course is approved for equivalency by Western Michigan University and a grade of "C" or higher is received. Students should check with the ASL program coordinator if they have questions about transfer equivalents for SIGN 1010 or 1020. All remaining course work must be completed at Western Michigan University with a grade of "C" or better.

Required Courses

- SIGN 1010 - American Sign Language I **Credits:** 3 hours
- SIGN 1020 - American Sign Language II **Credits:** 3 hours
- SIGN 2010 - American Sign Language III **Credits:** 3 hours
- SIGN 2020 - American Sign Language IV **Credits:** 3 hours
- SIGN 2030 - Deaf Culture and History **Credits:** 3 hours

Electives

- SLHS 2000 - Communication Disorders and Sciences **Credits:** 3 hours

- BLS 3050 - Introduction to Adults with Disabilities **Credits:** 3 hours
- HSV 4860 - Health Literacy Practices **Credits:** 3 hours
- HSV 4400 - Diversity and Inclusion in Health and Human Services **Credits:** 3 hours

Additional Information

For additional information about a minor in American Sign Language Studies or for an advising appointment, contact an advisor in the College of Health and Human Services.

Speech-Language-Hearing Processes Minor

The Department of Speech, Language and Hearing Sciences offers an academic minor (minimum of 15 credit hours) in speech, language and hearing processes which may be of particular interest to students majoring in areas such as biology, chemistry, communication arts and sciences, engineering, linguistics, music therapy, vocal music, occupational therapy, nursing, psychology, social work, and others. Pre-professional studies in such curricula as pre-dentistry and pre-medicine also can be augmented meaningfully through inclusion of studies in human communication science and disorders, with particular reference to the study of anatomic, physiologic, neurologic, psycho-social and physical bases of speech, language and hearing.

Listed below are courses from which students can create a Speech-Language-Hearing Processes minor in consultation with a departmental advisor. Students may design minor options which emphasize speech-language-hearing science, communication disorders, or other individually-tailored areas complementary to the student's educational and vocational goals.

Speech-Language-Hearing Processes

- SLHS 2030 - Normal Language Acquisition **Credits:** 3 hours
- SLHS 2040 - Phonetics **Credits:** 3 hours
- SLHS 2041 - Phonetics Laboratory **Credits:** 1 hour
- SLHS 2050 - Speech Anatomy and Physiology **Credits:** 3 hours
- SLHS 2051 - Speech Anatomy and Physiology Lab **Credits:** 1 hour
- SLHS 2060 - Hearing Science **Credits:** 3 hours
- SLHS 2070 - Clinical Laboratory **Credits:** 3 hours
- SLHS 2080 - Introduction to Audiology **Credits:** 3 hours
- SLHS 3510 - Phonemic Disorders **Credits:** 2 hours
- SLHS 3540 - Language Disorders in Children **Credits:** 3 hours
- SLHS 4560 - Rehabilitative Audiology **Credits:** 3 hours
- SLHS 4590 - Neuroscience for Communication Sciences and Disorders **Credits:** 3 hours
- SLHS 5010 - Principles of Speech Science **Credits:** 3 hours

Additional Information

For additional information about a minor in Speech-Language-Hearing Processes, or for an advising appointment, contact an advisor in the College of Health and Human Services. Because most departmental offerings are sequential and offered once per year, advising is critical for students interested in pursuing this minor Speech-Language-Hearing Processes.

Lee Honors College

The Carl and Winifred Lee Honors College

Dean, Irma Lopez

Interim Associate Dean, Anthony Helms

The mission of the Carl and Winifred Lee Honors College is to offer an exceptional undergraduate experience for high achieving students, to inspire in our graduates a thirst for the lifelong pursuit of creative inquiry and discovery, to provide our students with the skill and passion to address critical challenges, and to foster personal responsibility informed by a global perspective.

Lee Honors College students pursue majors and minors in all seven of WMU's academic colleges, and engage in honors courses, internships, research and creative endeavors, community work and social activities. The Lee Honors College promotes critical thinking and active learning through smaller classes with more individualized coursework taught by expert faculty.

Honors students are encouraged to engage in study abroad, independent study, internships or field experiences, as well as original research and creative activities. The Study in the States program allows honors students to travel with their peers and exceptional instructors to complete honors study outside of Michigan while earning academic credit. Competitive scholarships, available only to honors students, provide financial assistance to pursue study abroad, research and creative activities, and travel to present scholarly work at national or international venues.

Honors students are encouraged to participate in honors-college sponsored lectures, events and trips. These include the weekly TED Talk Tuesdays and Mix It Up - an evening series of professional workshops and social events. Honors students may also choose to live in one of our honors living learning communities.

The Lee Honors College actively supports students through the Peer Student Success Team, a group of upper-level honors students who serve as academic and social mentors for incoming first year honors students. The honors college serves as the campus office for the WMU chapter of the national honor society for first-year success Alpha Lambda Delta. This organization sponsors academic, social and volunteer opportunities throughout the year, both across campus and in the larger Kalamazoo community. The Lee Honors College is a member of the National Collegiate Honors Council, Honors Education at Research Universities and the Mid-East Honors Association.

Admission to the Lee Honors College

The Carl and Winifred Lee Honors College admits students as incoming first year students, institutional transfer students and current WMU students. Incoming first year students are invited to join the college based on high school grade point averages and American College Test (ACT) or Scholastic Aptitude Test (SAT) scores. Transfer students and current WMU students are invited to the college based on college or university grade point averages. Students may also apply for admission to the honors college. Detailed admission information is available on the Lee Honors College website: wmich.edu/honors/admission.

Requirements for Graduation from the Lee Honors College

To successfully graduate from the Lee Honors College, each student must meet the requirements listed below. More detailed information is available on the honors college website: wmich.edu/honors/lhcadmission.

- Maintain a minimum cumulative G.P.A. of 3.50.
- Successfully complete a prescribed number of honors approved semester credit hours as detailed in the letter of acceptance to the honors college.
- Complete one credit of HNRS 4980 and one credit of HNRS 4990 or approved equivalent courses or experiences.

- Earn a minimum grade of "C" in courses counted toward the honors credit requirement.
- Complete and defend a faculty-mentored and evaluated honors thesis or approved equivalent.
- Complete a minimum of twenty hours of approved community service per year.
- Attend a minimum of four honors college sponsored events during the first year and two during the second year. Transfer students must attend two honors college sponsored events during their first year in the honors college.
- Complete specific requirements for graduation outlined in the honors college student handbook in effect at the time of initial admission to the honors college as well as in the letter of acceptance to the honors college.

The Academic Program of Study

The Lee Honors College partners with each of the academic colleges to provide a well-rounded curriculum. Honors students choose one or more major(s) and minor(s); honors classes and programs serve to complement and enrich the undergraduate experience. Students joining the honors college in their first year are required to complete a minimum of 18 credit hours of honors-approved coursework. Students joining the college after their first year have their honors credit hour requirement prorated, the minimum credits required for honors college graduation is nine (9), based on total hours already earned at the time they join the college. A wide variety of honors courses and seminars are offered each semester, many of which may be used to fulfill WMU Essential Studies or other curriculum requirements. Honors students may also be eligible to receive honors credit for approved independent study, study abroad and field experiences, study of a foreign language, varsity sports or specified courses in fine arts. Available honors courses change each semester, and are described in the Lee Honors College course catalog, which is available online. Honors courses are typically taught in small seminar formats to foster discussion and dialogue among professors and fellow students. These courses are intended to encourage dynamic interchanges of viewpoints and ideas and emphasize experiential learning, teamwork and communication skills, rather than rote memorization of facts. For the current honors course catalog please see: wmich.edu/honors/advising/courses.

Students must complete 1 credit hour of HNRS 4980: How and Why to Write an Undergraduate Thesis or an approved equivalent course or experience at least one semester prior to registering for HNRS 4990. The culmination or capstone of the honors experience is HNRS 4990: Honors Thesis. Students must complete one credit hour of HNRS 4990 or an approved equivalent course during the semester they complete their thesis project. The honors thesis is an original work of scholarship or a creative activity appropriate to a student's field of study and career interests. The thesis should reflect the academic standards of the field of study, and must be guided and approved by a full-time WMU faculty member who serves as the honors thesis committee chair, and at least one additional committee member with significant expertise in the area of study or a closely related discipline. Examples of honors theses include senior engineering design projects, creative works of fiction, original documentaries, novel educational curricula, original performances or works of art and traditional research papers. The thesis project is expected to serve as a valuable component of a student's portfolio for employment or admission to graduate and professional schools.

Honors courses are indicated as such on student transcripts. Graduation from the Lee Honors College is also noted on WMU transcripts and diplomas, as well as in the University Commencement Program.

For further information on specific aspects of the Lee Honors College, please visit the honors college website at: wmich.edu/honors or contact the college via phone: (269) 387-3230.

WMUx

WMUx

Dr. Edwin Martini
Associate Provost

Mr. Andrew J. Holmes
Executive Director of Technology

Main Office: Third floor Ellsworth Hall
Telephone: (269) 387-4200
Fax: (269) 387-4204
URL: wmich.edu/x

WMUx Overview

In February of 2020, WMU provost and vice president for academic affairs, Dr. Jennifer Bott, announced the evolution of the Extended University Programs (EUP) unit, which has been transformed into WMUx.

On the surface, the "x" in WMUx maintains a connection to the unit's origin in "extended" programming, but on a deeper level, the name represents a redefined role and purpose for the unit. WMUx is a catalyst for re-imagining teaching and learning across all platforms and modalities, a foundation for growth and evolution through a focus on what's "next," and a multiplier of the creative capacity of different units and stakeholders across campus. At its core, WMUx exists to collaboratively imagine, design, and realize ideas that transform and enhance the learning experience.

WMUx serves as the home for several critical functions and services, including instructional design, online education, E-learning support, regional location operations, non-credit and professional development offerings, the Osher Lifelong Learning Institute, Collegiate Pathways dual enrollment programs, and market research. WMUx is also enhancing its role in supporting innovation at the university by building a new type of unit driven by design-thinking, collaboration, and experimentation in the development of new ideas designed to move the University forward in reaching new markets and diversifying revenue streams.

Regional Locations

Each WMU regional location provides students and communities with educational opportunities in a location and format that provides flexibility and convenience. Courses are scheduled weekdays, evenings, and weekends, and students are provided with connections to WMU offices including financial aid, advising, University libraries, and other University services. Regional locations are equipped with comfortable seating, computer labs, wireless internet access, and on-site staff members are present to serve as a resource to assist students working toward their professional and educational goals.

Battle Creek, Michigan

Kendall Center
50 W Jackson St
Battle Creek, MI 49017-3505
(269) 965-5380

The 24,000 square foot facility houses 12 furnished classrooms, two computer labs, advising offices, an executive conference room and a state-of-the-art interactive video conference room. The Kendall Center is a wireless facility, allowing web access from anywhere in the building. Free three-hour parking is available in a parking deck on the east side of the building.

Metro-Detroit, Clinton Township, Michigan

Macomb Community College University Center
44575 Garfield Rd
Building UC1, Room 225

Clinton Township, MI 48038
(586) 226-4838

WMU-Metro Detroit is proud to be a part of the Macomb Community College (MCC) University Center located on the center campus of MCC. As a partner with the University Center, WMU-Metro Detroit not only builds a bridge for MCC students but also offers Macomb county and the surrounding area residents the convenience and flexibility to earn a WMU degree close to home. The MCC University Center offers students access to a computer lab, quiet and large study lounge spaces as well as convenient hours of operation (until 10 p.m. most evenings and some weekends). Students also have access to the MCC library and other MCC resources if needed. Parking is free and plentiful at the MCC University Center and MCC has their own college police department to keep the campus safe.

Grand Rapids Beltline, Michigan

2333 E Beltline, SE
Grand Rapids, MI 49546
(616) 771-9470

The WMU-Grand Rapids, Beltline location is a beautiful regional location that offers a multitude of services for both the contemporary student and conference planner, in a comfortable and professional conferencing environment. The facility features numerous classrooms and computer labs, satellite downlink connections, and a state-of-the-art interactive, compressed video conference room. There are more than 550 spaces available in the free parking lot at the WMU-Grand Rapids, Beltline location.

Grand Rapids, Michigan, Downtown

200 Ionia Avenue, SW
Grand Rapids, MI 49503
(616) 771-4100

The WMU-Grand Rapids, Downtown location is in the Heartside district, two blocks south of the Van Andel Arena. This exceptional facility features a cybercafé, classrooms, a computer lab, a compressed video/distance education classroom, and offices for faculty, advisors, and administrative staff. The Center for Counseling and Psychological Services, a community based counseling clinic, and the AMP Lab @WMU, an Advanced Manufacturing Partnership Laboratory, are also at the Downtown location. Paid parking is available in the Cherry/Commerce parking ramp, located across from WMU-Grand Rapids, Downtown on Cherry Street in addition to on-street metered parking. A City-owned surface lot on Ionia Avenue between Oakes and Cherry Streets Area 5 Lot is available for parking after 6 p.m.

Southwest (Benton Harbor), Michigan

Lake Michigan College Benton Harbor Campus
2785 E Napier Avenue
Benton Harbor, MI 49022
(269) 934-1500

WMU-Southwest is located on the campus of Lake Michigan College's Benton Harbor campus. Students have access to computer services, and online University library services in addition to use of the LMC library and other key resources. Students can also utilize the child care services offered at Lake Michigan College on a fee-for-services basis.

Traverse City, Michigan

Northwestern Michigan College University Center
2200 Dendrinos Dr
Suite 201
Traverse City, MI 49684
(231) 995-1846

WMU-Traverse City is located in the Northwestern Michigan College University Center, a leading-edge facility with interactive classrooms and computer labs, and open wireless access is available throughout the center. Student lounges, snack areas, and a student café provide an environment conducive to studying, research, and collaboration. The University Center is open Monday through Friday from 9 a.m. to 8 p.m. and Saturday from 8 a.m. to 4 p.m.

Online Education

Online Education offers a variety of courses, degrees, and certificate programs entirely online that utilize contemporary, online learning technologies and methodologies. In addition to providing students with the latest learning technologies, EUP offers services including instructional design and course development support for instructors, technical support for students, and on-campus proctored testing.

University Studies Degree

The university studies bachelor's degree integrates a student's prior coursework into a personalized degree, providing students with an opportunity to complete a bachelor's degree from WMU in a manageable and straightforward fashion without the constraints of specialized curriculum. Either a Bachelor of Science or a Bachelor of Arts degree is awarded based on the topical areas applied.

Collegiate Pathways

The Collegiate Pathways program is a dual enrollment opportunity providing eligible high school students with access to university courses and academic support services. The program delivers customizable educational opportunities in cooperation with high school and early middle college partners. Dual enrollment allows students to earn college credits that may be applied toward high school graduation requirements as well as a college or university curriculum.

Osher Lifelong Learning Institute

The Osher Lifelong Learning Institute at WMU offers educational opportunities for mature adults over the age of fifty who have a passion for learning. This volunteer driven organization works with WMU emeriti, faculty and staff to offer courses and trips year-round. Aiming to enrich the quality of life for participants, the Institute provides intellectual and cultural stimulation, opportunities for personal growth, and the ability to engage socially in an informal, lively, learning-focused atmosphere.

Professional Development

Professional Development is dedicated to providing increased selection and availability of noncredit learning experiences designed with a client-centric approach for personal enrichment and career elevation. This unit offers training, preparatory programs and certificates for professionals seeking continuing education credentialing. Additionally, it provides and coordinates the approval of Western Michigan University Continuing Education Units and State Continuing Education Clock Hours for the State of Michigan.

University Studies (WMUx)

The University Studies program (formerly General University Studies) was established in 1973 to serve non-traditional students at Western Michigan University (WMU). The program is housed in WMUx and consists of two bachelor degree options. Both options result in either a B.A. or B.S. depending on the concentration of selected courses.

Bachelor of Arts or Bachelor of Science

University Studies

The university studies degree is designed primarily for students with 56 or more credit hours who want to finish their bachelor's degree. Students design their own curriculum and work closely with an academic advisor to integrate prior coursework and map out a specific plan to degree completion according to WMU requirements. The program is offered face-to-face or online and is composed of academic emphasis areas, 15 credit hours of core competencies focused on leadership communication, global citizenship, health and science, and a capstone course. Either a Bachelor of Science or a Bachelor of Arts is awarded, based on the topical areas applied.

University studies is a degree-completion program. As such, students will not be able to declare university studies as a second major. Likewise, students who have completed an undergraduate degree will not be able to enroll in university studies as a second bachelor's degree.

WMU University Studies Program - Accelerated Degree Program with WMU Thomas Cooley Law School

Students with a declared major in University Studies who are accepted into the WMU Thomas Cooley Law School may enroll in an accelerated degree program, allowing them to count credits earned from their first-year law school courses toward both their law degree and their bachelor's degree.

Application for this program is required. Students should apply through their university studies academic advisor. Minimum requirements include acceptance into the WMU Thomas Cooley Law School, junior or senior standing, and a cumulative undergraduate GPA of 3.0 or better. In collaboration with a parallel program in the College of Arts and Sciences, applications will be reviewed by a joint admissions committee consisting of CAS and university studies advising staff, CAS faculty, associate deans from CAS and WMUx, and representatives from Cooley Law School.

Students accepted into this program will enroll in 18 credits of A-S 5100 at WMU: Topics in Legal Studies, which will be scheduled in partnership with the following first-year courses at the Cooley Law School:

CIVP 105 LECT - Civil Procedure I **Credits:** 3 hours
CONL 404 LECT - Constitutional Law I **Credits:** 3 hours
CONL 503 LECT - Constitutional Law II **Credits:** 3 hours
CONT 108 LECT - Contracts I **Credits:** 3 hours
CONT 213 LECT - Contracts II **Credits:** 3 hours
CRLP 107 LECT - Criminal Law **Credits:** 3 hours
PRSE 109 LECT - Property Law I **Credits:** 3 hours
PRSE 207 LECT - Property Law II **Credits:** 3 hours
TOEQ 106 LECT - Torts I **Credits:** 3 hours
TOEQ 304 LECT - Torts II **Credits:** 3 hours

Students in this program will receive WMU credit for 18 of the 24 credits successfully completed (with a grade of "C" or better) during their first year at Cooley. Successful completion (with a grade of "C" or better) of 18 credits of A-S 5100 will also constitute the successful completion of a university studies concentration in legal studies. Students should be aware that these credits are applicable to university studies and arts and sciences, but may not be accepted by other WMU programs.

Students in this program still need to complete all of their university studies requirements, and their WMU Essential Studies requirements, and still need a minimum of 122 credits to receive their bachelor's degree. Students interested in pursuing this option should contact their university studies academic advisor to learn more.

Graduate College

Graduate College

Christine Byrd-Jacobs
Dean

Chris Coryn
Director, Interdisciplinary Ph.D. in Evaluation

Michael Harnar
Assistant Professor, Interdisciplinary Ph.D. in Evaluation

As Western Michigan University's primary advocate for graduate study, the Graduate College promotes academic excellence by shaping graduate policy and assisting departments who offer a wide variety of programs leading to the master's, specialist, and doctoral degrees.

An Accelerated Graduate Degree Program (AGDP) allows eligible WMU students the opportunity to complete both an undergraduate degree and a master's degree in less time because the student may begin taking graduate courses while still an undergraduate. During their senior year of their undergraduate careers, students in the accelerated program may substitute up to 12 credit hours of graduate course work for undergraduate course work. Once they enter graduate school, they're able to quickly move through their master's degree (or Au.D.) requirements because they've already taken several graduate classes. Accelerated degrees are offered for the following master's programs: Aerospace Engineering; Applied Economics; Biological Sciences (MA); Biological Sciences (MS); ; Chemical Engineering; Chemistry; Civil Engineering; Communication; Computer Engineering; Computer Science; Earth Science;; Electrical Engineering; English; Family and Consumer Sciences; Hispanic Studies; History; History: Public History; Industrial Engineering; Mathematics; Mechanical Engineering; Medieval Studies; Music; Orientation and Mobility; Paper and Printing Science; Political Science; Sociology; Statistics; Teaching English to Speakers of Other Languages; Vision Rehabilitation Therapy; Workforce Education and Development; Youth and Community Development. The Au.D. in Audiology is also offered as an accelerated program.

The Master of Arts is awarded in the following programs: Anthropology; Applied Economics; Applied Economics: Economic Development; Applied Economics: Statistics and Econometrics; Art Education; Biological Sciences; Chemistry; Communication; Comparative Religion; Counseling Psychology; Counselor Education: Clinical Mental Health Counseling; Counselor Education: College Counseling; Counselor Education: Marriage, Couple and Family Counseling; Counselor Education: Rehabilitation Counseling; Counselor Education: Rehabilitation Teaching; Counselor Education: School Counseling; Educational and Instructional Technology; Educational Leadership: Educational and Global Leadership; Educational Leadership: Higher Education and Student Affairs; Educational Leadership: K-12 Principal and Interscholastic Athletic Administration; Educational Leadership: K-12 School Principal; English; English: Professional Writing; English: Teaching; Evaluation, Measurement, and Research; Family and Consumer Sciences; Hispanic Studies; History; History: Public History; Literacy Studies; Mathematics; Mathematics Education; Medieval Studies; Music; Organizational Change Leadership; Orientation and Mobility; Orientation and Mobility for Children; Philosophy; Physical Education: Adapted Physical Education; Physical Education: Coaching Sport Performance; Physical Education: Pedagogy; Physics; Political Science; Psychology: Behavior Analysis; Psychology: Industrial/Organizational Behavior Management; Science Education; Sociology; Special Education: Administration; Special Education: Clinical Teacher; Special Education: Master Teacher; Spirituality, Culture and Health; Sport Management; Teaching Children With Visual Impairment; Teaching Children with Visual Impairment/Orientation and Mobility (dual MA); Teaching Chinese as a Second Language; Teaching English to Speakers of Other Languages; Teaching, Learning, and Educational Studies; Teaching, Learning, and Educational Studies: Curriculum and Instruction; Teaching, Learning, and Educational Studies: Early Childhood Education; Teaching, Learning, and Educational Studies: Early Elementary Teaching; Teaching, Learning, and Educational Studies: Educational Foundation; Teaching, Learning, and Educational Studies: Teacher Leader; Teaching: Secondary Education; Teaching: Secondary Mathematics Teacher Education; Teaching: Secondary Science Teacher Education; Vision Rehabilitation Therapy; Workforce Education, Development, and Leadership; Workforce Education, Development, and Leadership: Post-Baccalaureate Certification; and Youth and Community Development.

The University also offers the Master of Science in the following areas: Aerospace Engineering; Applied and Computational Mathematics; Athletic Training; Biological Sciences; Chemistry; Computer Science; Data Science; Earth Science; Engineering Management; Exercise Science; Geography; Geosciences; Information Security: Computer Information Systems; Information Security: Computer Science; Manufacturing Engineering; Paper and Printing Science; Speech-Language Pathology; Statistics; and Supply Chain Management.

Other master's degrees include Accountancy (MSA); Social Work (MSW); International Development Administration (MIDA); Public Administration (MPA); Business Administration (MBA); Music Composition (MM); Music Conducting (MM); Music Education (MM); Music Performance (MM); Music Therapy (MM); Creative Writing (MFA); Public Health (MPH); Chemical Engineering (MSE); Civil Engineering (MSE); Computer Engineering (MSE); Electrical Engineering (MSE); Industrial Engineering (MSE); Mechanical Engineering (MSE); Nursing (MSN); Physician Assistant (MSM)

In addition:

The Specialist in Education is offered in Educational Leadership.

The Doctor of Education is offered in Special Education.

The Doctor of Audiology is offered in Audiology.

The Doctor of Occupational Therapy is offered in Occupational Therapy.

The Doctor of Physical Therapy is offered in Physical Therapy.

Joint Juris Doctor and Master of Public Administration degrees are offered in partnership with the WMU Thomas M. Cooley Law School.

The WMU Homer Stryker M.D. School of Medicine offers an M.D. Degree.

The Doctor of Philosophy is offered in Applied Economics; Biological Sciences; Chemistry; Civil Engineering; Computer Science; Counseling Psychology; Counselor Education; Education and Human Development; Educational Leadership: Higher Education; Educational Leadership: K-12 Leadership; Educational Leadership: Organizational Analysis; Educational Leadership: Workforce Education and Development; Electrical and Computer Engineering; Engineering and Applied Sciences: Applied Science; Engineering and Applied Sciences: Engineering; English; English: Creative Writing; Evaluation (Interdisciplinary); Evaluation, Measurement, and Research; Geosciences; History; Industrial Engineering; Interdisciplinary Health Sciences; Interdisciplinary Studies; Mathematics; Mathematics Education; Mechanical Engineering; Paper and Printing Science; Physics; Political Science; Psychology: Behavior Analysis; Psychology: Clinical Psychology; Psychology: Industrial/Organizational Behavior Management; Public Administration; Science Education; Science Education: Biological Science; Science Education: Chemistry; Science Education: Geosciences; Science Education: Physical Geography; Science Education: Physics; Sociology; Spanish; and Statistics.

Graduate certificate programs are offered in the following areas: Aging Studies; Alcohol and Drug Abuse; Applied Statistics-Interdisciplinary, Assistive Technology for Individuals with Blindness or Visual Impairment; Biostatistics; College Science Teaching; Cultural and Environmental Heritage Management; Early Childhood Special Education; Educational and Instructional Technology; Educational Leadership-School Administrator Certificate: Central Office Endorsement; English as a Second Language Teaching Certificate; Geographic Information Science; Geospatial Applications of Unmanned Aerial Vehicles; Higher Education and Student Affairs; History; History of Monastic Movements; Holistic Approaches to Enhance Living; Holistic Approaches to Mindfulness; Holistic Approaches to Spirituality and Healing; Holistic Approaches to Stress Management; Hydrogeology; Information Security: Computer Information Systems; Information Security: Computer Science; Integrative Holistic Health and Wellness; Kinship Care Families; Learning for Sustainability; Low Vision Rehabilitation for the Occupational Therapist; Music Performance; Positive Behavior Interventions and Support (PBIS); Professional Workforce Educator; School Improvement; Spirituality, Culture and Health; Supply Chain Management; UAVs Applications in Geological and Environmental Sciences; and Youth and Community Development.

Please refer to other sections of the Graduate Catalog for further information on these programs, as well as on admission and graduation requirements. Or visit the Graduate College website: wmich.edu/grad.

Guide to Course Prefixes

A-S	College of Arts and Sciences
AAAS	African American and African Studies
ACTY	Accountancy
ADA	Alcohol and Drug Abuse
AE	Aerospace Engineering
ANTH	Anthropology
APSC	Applied Sciences
ARAB	Arabic
ART	Art
AVS	Aviation Sciences
BCM	Business Communication
BIOS	Biological Sciences
BLS	Blindness and Low Vision Studies
BME	Biomedical Engineering
BUS	Business
CCE	Civil and Construction Engineering
CECP	Counselor Education and Counseling Psychology
CEHD	College of Education and Human Development
CFA	College of Fine Arts
CHEG	Chemical Engineering
CHEM	Chemistry
CHIN	Chinese
CHP	Chemical Engineering
CIS	Computer Information Systems
CLAS	Classics
COM	Communication

CORP	Community and Regional Planning
CS	Computer Science
CYCS	Cybersecurity: CS
CYIS	Cybersecurity: CIS
DANC	Dance
ECE	Electrical and Computer Engineering
ECON	Economics
ED	Teaching, Learning and Educational Studies
EDLD	Educational Leadership
EDMM	Engineering Design, Manufacturing, and Management Systems
EDT	Educational Technology
EM	Engineering Management
EMR	Evaluation, Measurement and Research
ENGL	English
ENGR	Engineering and Applied Sciences
ENVS	Environmental and Sustainability Studies
ES	Educational Studies
EVAL	Evaluation Center
FCL	Finance and Commercial Law
FCS	Family and Consumer Sciences
FIN	Finance and Commercial Law - Finance
FREN	French
FYE	First Year Experience
GEOG	Geography
GEOS	Geosciences
GER	German
GIST	Global and International Studies
GPS	Graphic and Printing Science
GRAD	Graduate College

GREK	Greek
GRN	Gerontology
GWS	Gender and Women's Studies
HISP	Hispanic Studies
HIST	History
HNRS	Honors College
HOL	Holistic Health Care
HPHE	Human Performance and Health Education
HSV	Health Services
IEE	Industrial and Entrepreneurial Engineering
IHS	Interdisciplinary Health Sciences
INTL	International and Global Studies
IPE	Interprofessional Education
ITAL	Italian
JPNS	Japanese
JRN	Journalism
LANG	World Languages and Literatures
LAT	Latin
LAW	Finance and Commercial Law - Law
LS	Literacy Studies
LWIR	Lewis Walker Institute for Race and Ethnic Relations
MATH	Mathematics
MDSC	Medical Science
MDVL	Medieval Institute
ME	Mechanical Engineering
MFE	Manufacturing Engineering
MGMT	Management
MKTG	Marketing
MPH	Master of Public Health

MSL	Military Science and Leadership
MUS	Music
NUR	Nursing
OCL	Organizational Change and Leadership
OLP	Organizational Learning and Performance
OT	Occupational Therapy
PADM	Public Affairs and Administration
PAPR	Paper Engineering
PEGN	Health, Physical Education and Recreation
PH	Public Health
PHIL	Philosophy
PHYS	Physics
PSCI	Political Science
PSY	Psychology
PT	Physical Therapy
REL	Comparative Religion
RUSS	Russian
SCI	Science Education
SIGN	American Sign Language
SLHS	Speech, Language and Hearing Sciences
SOC	Sociology
SPAN	Spanish
SPED	Special Education
SPSY	School Psychology
STAT	Statistics
SWRK	Social Work
TEL	Teaching English Learners
THEA	Theatre
UNIV	University Curriculum

Course Descriptions

Accountancy

ACTY 1010 - Entrepreneurial Foundations in Accounting

A study of the role of accounting information in the planning and decision-making of entrepreneurial organizations. The course focuses on quantitative analysis, financial reporting, managing costs, and strategically planning for profitability. The course includes analysis of transactions, the accounting cycle, financial statements, quantitative models, and budgeting. The course will also include the concept of intrapreneurship and how it related to entrepreneurship. This course satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category.

Credits: 3 hours

ACTY 2000 - Careers in Accounting

This course is designed to help student explore and manage the professional expectations and career potential of the accounting major. Students will be introduced to the various opportunities in public accounting, private accounting and government accounting. Students will participate in resume building activities, pre-interview research, practice interviews, and career management strategies. Students will learn about Broncojobs and internship opportunities as ways to prepare for successful transitions from Western Michigan University to their professional career. Students will meet with faculty member for accounting major and career advising.

Credits: 1 hour

When Offered: Fall and Spring

ACTY 2100 - Principles of Accounting I

This is an introductory course in accounting, which includes an examination of the recording and reporting of business transactions, and the measurement of business income, assets, liabilities and equities. Emphasis is placed on financial reporting for decision-makers outside the organization. This course satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category.

Credits: 3 hours

ACTY 2110 - Principles of Accounting II

A study of the role of accounting information in the planning and decision-making of business organizations. The course focuses on financial analysis, manufacturing cost flows, budgeting, and planning for short-term operating decisions and long-term financing and investing activities.

Prerequisites & Corequisites: Prerequisite: ACTY 2100 with a grade of "C" or better.

Credits: 3 hours

ACTY 3100 - Financial Accounting I

This course examines the underlying concepts of financial accounting. It reviews the accounting cycle, related accounting records, and the financial statements. Accounting principles and reporting requirements for current assets, plant and equipment, intangibles, and other assets are also studied.

Prerequisites & Corequisites: Prerequisite: ACTY 2100 with a grade of "C" or better and Completion of Bridge assignment.

Credits: 3 hours

Restrictions: This course is restricted to the following: minors in Accountancy; or majors in Accountancy, General Business, or Integrated Supply Management.

ACTY 3110 - Financial Accounting II

This course is a continuation of Accounting 3100. Accounting principles and reporting requirements for liabilities, long-term investments, and stockholders' equity are studied. Other topics included are accounting for pensions, income taxes, leases, accounting changes, and the Statement of Cash Flows.

Prerequisites & Corequisites: Prerequisite: ACTY 3100 with a grade of "C" or better.

Credits: 3 hours

Restrictions: This course is restricted to the following: minors in Accountancy; or majors in Accountancy or General Business.

ACTY 3130 - Accounting Information Systems and Controls

This course introduces accounting information systems, internal controls and risk assessment, transaction processing cycles, database systems and the use and effects of computers and other relevant technology. The course includes the use of common business software such as spreadsheets, flowcharting, general ledger, and database management systems.

Prerequisites & Corequisites: Prerequisite: ACTY 2100 and ACTY 2110, with a grade of "C" or better.

Credits: 3 hours

Restrictions: This course is restricted to the following: minors, majors or masters in Accountancy; or departmental approval.

ACTY 3220 - Cost and Managerial Accounting

A study of the accounting methodology and concepts that have been developed to serve managers in decision-making for planning and control. This course covers budgeting, standard cost variance analysis, incremental analysis, cost and profit analysis, relevant costing, and product costing concepts and practices.

Prerequisites & Corequisites: Prerequisite: ACTY 2100 and ACTY 2110 with a grade of 2.5 ("CB") or better.

Credits: 3 hours

Restrictions: This course is restricted to the following: minors in Accountancy; or majors in Accountancy, General Business, Management, Integrated Supply Management, Leadership and Business Strategy. or Public Administration: Business.

ACTY 3240 - Introductory Tax Accounting

A study of the federal tax laws that apply to business entities. The course focuses on concepts of income, deductions, and credits that apply to all reporting entities and emphasizes tax planning as well as tax compliance.

Prerequisites & Corequisites: Prerequisites: ACTY 2100 and ACTY 2110 with a grade of 2.5 ("CB") or better.

Credits: 3 hours

Restrictions: This course is restricted to the following: minors in Accountancy; or majors in Accountancy, Personal Finance Planning or Public Administration: Business.

ACTY 3910 - Global Sustainability Accounting and Reporting

This course provides students with an understanding of how accounting information and reporting is essential for planetary sustainable operations. Accounting information forms the basis for evaluating the ability of an organization to address current business needs, successfully develop a long-term strategy and manage risk for all products, systems, supply chains, and processes to preserve resources for future generations. Topics covered may include: importance of accounting for decision making; financial statements understanding and analysis; short-term budgeting and control for economic sustainability; evaluation of sustainable projects using capital budgeting techniques, considering potential tax credits, externality costs, sensitivity analysis and simulations; short-term sustainable decision making during the entire product life cycle; mandatory accounting and reporting of environmental contingencies in the United States and internationally; activity based and life cycle costing of sustainable operations. Conventional cost and management accounting concepts are discussed, with a focus on sustainability issues. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Prerequisites & Corequisites: Prerequisite: MATH 1160 or ACTY 1010, or equivalent. A grade of "C" or better is needed in any prerequisite.

Credits: 3 hours

ACTY 3990 - Sustainability Accounting

This course provides students with an understanding of how accounting information and reporting is essential for sustainable operations. Accounting information forms the basis for evaluating the ability of an organization to address current business needs, successfully develop a long-term strategy and manage risk for all products, systems, supply chains, and processes to preserve resources for future

generations. Topics covered may include: financial statements understanding and analysis; short-term budgeting and control for economic sustainability; evaluation of sustainable projects using capital budgeting techniques, considering potential tax credits and externality costs; short-term sustainable decision making; mandatory accounting and reporting of environmental contingencies; activity based and life cycle costing of sustainable operations. Conventional cost and managerial accounting concepts are discussed, with a focus on sustainability issues.

Prerequisites & Corequisites: Prerequisites: Junior standing or instructor approval; MATH 1100 and STAT 3660 with a minimum grade of "C" or better in any prerequisite.

Credits: 3 hours

Notes: Not for accounting credit.

ACTY 4100 - Internship in Accounting

Under the direction of a faculty coordinator, students obtain full-time, accounting-related employment. Participation is limited to available internships and competitive selection by the faculty coordinator and prospective employers. Students are required to write a final report. Each employer will provide an evaluation of the student. A student must be enrolled in ACTY 4100 while meeting the requirements of the course. This course must be taken on a credit/no credit basis and does not count toward the accounting major.

Prerequisites & Corequisites: Prerequisite: Written approval of the faculty coordinator.

Credits: 1 to 4 hours

ACTY 4110 - Advanced Accounting

The study of entities and special transactions not covered in Financial Accounting I and II. Particular emphasis is given to partnership equity accounting, governmental accounting, business combinations, reporting by parent-subsidiary consolidated entities (including foreign subsidiaries), and accounting for foreign currency transactions.

Prerequisites & Corequisites: Prerequisite: ACTY 3110 with a grade of "C" or better.

Credits: 3 hours

Restrictions: This course is restricted to minors or majors in Accountancy.

ACTY 4130 - Accounting Systems: Analytics and Technology

This course introduces data analytical techniques used by accounting and finance professionals to examine financial performance, answer accounting questions, build data models and visualize data necessary to provide useful information to decision makers. Particular emphasis is given to financial, managerial, and governmental accounting topics. Students will gain hands-on experience using spreadsheets and other select tools to develop skills used in analyzing financial information.

Prerequisites & Corequisites: Prerequisite: ACTY 2100 and ACTY 2110, with a grade of "C" or better.

Credits: 3 hours

Restrictions: This course is restricted to the following: minors, majors or masters in Accountancy; or departmental approval.

ACTY 4140 - Governmental and Nonprofit Accounting

A comprehensive study of the recording of transactions by governmental units and the financial statements required by generally accepted accounting principles for governmental units. Governmental units are the basic unit of study; however, colleges and universities, healthcare entities, and other not-for-profit organizations are given brief coverage to illustrate accounting and financial reporting for all not-for-profit entities.

Prerequisites & Corequisites: Prerequisite: ACTY 2110 with a grade of "C" or better.

Credits: 3 hours

Restrictions: This course is restricted to the following: minors in Accountancy; or majors in Accountancy or Public Administration: Business.

ACTY 4160 - Auditing

A study of auditing of business and non-business organizations. Topics include audit risk, audit procedures during the planning and performance phase of an audit, internal control concepts, ethics and the legal environment,

statistical audit tools, types of audit reports, auditing standards, and the relationship of internal auditing to financial statement auditing.

Prerequisites & Corequisites: Prerequisites: ACTY 3110 and 3130 with a grade of "C" or better in both.

Credits: 3 hours

Restrictions: This course is restricted to minors or majors in Accountancy.

ACTY 4220 - Cost Management and Analytics

This course examines the information needs of managers in performing the planning, decision-making, and performance evaluation functions required for managing costs inside of an organization. Specific topics addressed in the course might include costing of products and services, cost allocations, activity-based costing, relevant costs, costs of quality, budgeting, absorption and variable costing, transfer pricing, and performance measurement. The emphasis will be on the appropriate use of costing information for optimal decision-making. How specific analytic tools can be used to aid in this decision-making process will also be examined. A key attribute of the course is its interdisciplinary nature. Concepts from financial accounting, economics, management science, operations research, statistics, finance, and organizational behavior are integrated throughout the course.

Prerequisites & Corequisites: Prerequisite: ACTY 3220 with a grade of "C" or better.

Credits: 3 hours

Restrictions: This course is restricted to minors or majors in Accountancy.

ACTY 4240 - Advanced Tax Accounting

A study of the federal tax laws that govern the transactions during a corporation's life cycle. The tax effects of organizing, operating, making distributions, reorganizing, and liquidating corporations are analyzed. The differences in the taxation of corporations, partnerships, and limited liability companies also are addressed.

Prerequisites & Corequisites: Prerequisite: ACTY 3240 with a grade of "C" or better.

Credits: 3 hours

Restrictions: This course is restricted to minors or majors in Accountancy.

ACTY 4310 - Special Topics in Accountancy

The study of special topics within the discipline of accountancy.

Prerequisites & Corequisites: ACTY 3100 with a grade of "C" or better, or Department Chair approval.

Credits: 1 to 3 hours

Restrictions: This course is restricted to minors or majors in Accountancy.

Notes: Repeatable for credit under different topics.

ACTY 5980 - Readings in Accounting

Directed study/research on specialized accounting topics.

Prerequisites & Corequisites: Prerequisite: Written approval of MSA advisor.

Credits: 1 to 4 hours

Restrictions: This course is restricted to majors in Accountancy.

Notes: Repeatable for credit, with departmental approval. Open to upper level and graduate students.

Aerospace Engineering

AE 2200 - Private Pilot Ground School Training

Credit can be granted based on a passing score on the FAA Private Pilot Exam. Aircraft Single-Engine Land (ASEL). This exam is typically taken as part of the ground school course that covers basic knowledge required for a private pilot license. Students requesting this credit must bring their FAA exam paperwork to the cognizant Aerospace Engineering faculty member for approval. A passing exam score will translate to a grade of 'Pass' for this course.

Credits: 1 hour

Restrictions: Restricted to majors in Aerospace Engineering.

AE 2610 - Introduction to Aerospace Engineering

An overview of aerospace engineering disciplines; the history of aerospace, fundamental elements of aerodynamics and astrodynamics experiments, airfoils and wings, performance, stability and control, propulsion, and structures leading toward the aerospace vehicle conceptual design. Oral and digital communications are emphasized as methods of conveying technical information to diverse audiences. This course satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communications Category.

Prerequisites & Corequisites: Prerequisite: Phys 2050 with a grade of "C" or better (may be taken concurrently).

Credits: 3 hours

Restrictions: This course restricted to pre-aerospace engineering students.

Lecture Hours - Laboratory Hours: (2 -1)

When Offered: Spring

AE 3200 - Private Pilot Flight Training

Credits can be granted to students who obtain the FAA-issued license for private pilot, Aircraft Single-Engine Land (ASEL) or helicopter. More advanced FAA-issued ratings such as instrument, instructor, instrument instructor, and multi-engine are acceptable, but cannot be used to obtain additional credit. To obtain the credits, students must bring their pilot's log book(s) and their pilot's license to the cognizant Aerospace Engineering faculty member for approval. Credit for a pilot's license is offered to enhance the traditional Aerospace Engineering curricula with practical study. Therefore, credit for this course will only be granted to students who have declared an undergraduate major in Aerospace Engineering. Students eligible for this credit must either obtain their license or advanced rating while a WMU undergraduate student, or maintain legal currency by completing a documented annual or biennial proficiency check while enrolled with a declared major in Aerospace Engineering. The cognizant faculty member for pilot training activities is currently Professor Peter A. Gustafson. Inquiries should be directed to him.

Credits: 3 hours

Restrictions: Restricted to majors in Aerospace Engineering.

AE 3610 - Aerodynamics I

A study of incompressible aerodynamics of flight vehicles with emphasis on the combined application of the basic theory and experiments for solving practical aerodynamic problems in the design of flight vehicles. Flow similarity, governing equations, potential flows, thin airfoil theory, lifting line theory, and basic aerodynamic measurement techniques.

Prerequisites & Corequisites: Prerequisites: MATH 2720, (AE 2610 or ME 3560), PHYS 2050; PHYS 2060; with a grade of "C" or better in all prerequisites.

Credits: 4 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

Lecture Hours - Laboratory Hours: (3 - 1)

When Offered: Fall

AE 3710 - Aerodynamics II

An introduction to compressible aerodynamics and boundary layer theory, including subsonic and supersonic flows over wings and bodies and viscous flows. Emphasis is placed on application of the basic theory for solving practical aerodynamic problems in the design of flight vehicles.

Prerequisites & Corequisites: Prerequisites: AE 3610; MATH 3740; ME 2580; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering.

When Offered: Spring

AE 3800 - Flight Vehicle Performance

A study of flight vehicle performance with an emphasis on the effect of aerodynamics on vehicle design. Computer applications to the solution of the problems of flight vehicle performance.

Prerequisites & Corequisites: Prerequisite: AE 3710, may be taken concurrently.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering.

When Offered: Fall

AE 4590 - Flight Test Engineering and Design

Analysis and design of in-flight experiments, excluding expansion of the aircraft's flight envelope. Includes microprocessor based data acquisition system and electronic sensor interfacing. Laboratory projects emphasize the pre-test, flight and post-flight phases of flight testing with an emphasis on safety of flight issues.

Prerequisites & Corequisites: Prerequisites: AE 4600

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering.

Lecture Hours - Laboratory Hours: (1 - 6)

When Offered: Spring

AE 4600 - Aircraft Stability and Control

A study of fixed wing aircraft stability and control; estimation of fixed wing stability and control derivatives, longitudinal and lateral/directional static stability and control analysis and synthesis. Introduction to dynamic stability and control characteristics including stability and mode shapes, responses to control input, and handling/flying qualities.

Prerequisites & Corequisites: Prerequisite: AE 3710 and ME 3600.

Credits: 3 hours

Restrictions: This course restricted to majors in aerospace engineering.

When Offered: Fall

AE 4630 - Aerospace Structural Design

Structural design of aircraft and spacecraft emphasizing structural integrity under imposed static and dynamic loads. Design considerations include weight, cost, and mission constraints.

Prerequisites & Corequisites: Prerequisite: ME 2570 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

When Offered: Spring

AE 4660 - Aerospace Propulsion I

Thermodynamics and fluid dynamics of aeronautical rotating turbomachines, including axial turbines, compressors, mixed flow, and centrifugal machines. Analytical and computational methods will be used to design and determine performance of aircraft propulsion systems.

Prerequisites & Corequisites: Prerequisites: ME 2320 and either (ME 3560 or AE 3610), with a grade of "C" or better required in all prerequisites.

Credits: 3 hours

Restrictions: This course restricted to majors in aerospace engineering.

When Offered: Fall

AE 4690 - Aircraft Design

Conceptual and preliminary design of aircraft emphasizing performance, stability and control, and total vehicle efficiency.

Prerequisites & Corequisites: Prerequisites: AE 3800 and AE 4600, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

Notes: This course acts as the capstone design course for the BS Aerospace Engineering program.

When Offered: Spring

AE 4700 - Orbital Mechanics

Introduction to astrodynamics, including the two-body problem and restricted three-body problem, orbital trajectories, transfers and targeting, and orbit determination. Computer modeling and simulation of orbital trajectories.

Prerequisites & Corequisites: Prerequisite: ME 2580, with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering.

When Offered: Fall

AE 4760 - Aerospace Propulsion II

Analysis of liquid and solid propellant rocket engines, propellant thermochemistry and storage, system considerations such as heat transfer and material properties, multi-stage rockets, and trajectories in powered flight. Introduction of electric propulsion and advanced propulsion concepts.

Prerequisites & Corequisites: Prerequisite: AE 3710 and AE 4660, with a grade of "C" or better required in all prerequisites.

Credits: 3 hours

Restrictions: This course restricted to majors in aerospace engineering or mechanical engineering.

AE 4790 - Aerospace Engineering Project Planning

An introduction to the design process, including problem definition, decision making and project planning. Goal of the course is to develop a project proposal and work plan for a major design project.

Prerequisites & Corequisites: Prerequisites: Senior standing, ME 3350, ME 3600, AE 3710, and AE 3800; with a grade of "C" or better in all prerequisites. Corequisite: AE 4600

Credits: 1 hour

Restrictions: Restricted to majors in aerospace engineering.

AE 4800 - Aerospace Engineering Project

An engineering experience in completing an open-ended design project including synthesis, analysis, evaluation, and presentation. Classroom discussion subjects include legal, ethical and professional aspects of engineering practice. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: Senior standing and AE 4790 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Aerospace Engineering.

Lecture Hours - Laboratory Hours: (1 - 6)

AE 4990 - Independent Study

An independent study assignment available only by special arrangement with an instructor and approved by the department curriculum committee. A written report will be required and filed with the department on completion.

Prerequisites & Corequisites: Prerequisite: Departmental approval.

Credits: 1 to 6 hours

Restrictions: This course restricted to majors in aerospace engineering.

Notes: May be repeated for up to a total of six hours.

When Offered: Fall, Spring, Summer I, Summer II

AE 5100 - Foundations of Structural Mechanics

Fundamental analysis techniques for aerospace structures. Analysis of stress and strain including linear elastic anisotropic materials. Multi-axial yield. Boundary value problems and an introduction to variational calculus. Energy methods for structural analysis including minimum potential. Castigliano's theorems and other approximate methods.

Prerequisites & Corequisites: Prerequisite: AE 4630 with a grade of "B" or better, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

AE 5200 - Advanced Aerodynamics

Fundamental mathematical skills in vector analysis and perturbation methods. Theoretical studies of thin airfoils, finite wings, wing-body and vorticities. Low and high Reynolds aerodynamics. Boundary layer and viscous flow control. High lift aerodynamics. V/STOL and UAV Aerodynamics.

Prerequisites & Corequisites: Prerequisite: AE 3710 with a grade of "B" or better, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

AE 5400 - Aerospace Vehicle Dynamics

Three-dimensional kinematics and dynamics with a focus on aerospace vehicles. Newton/Euler and Lagrangian and Kane's formulations for systems of particles and rigid bodies. Translating and rotating reference frames. Aircraft 6-DOF equations of motion, orbital mechanics for the two-body problem.

Prerequisites & Corequisites: Prerequisites: ME 2580 and ME 3600, with a grade of "B" or better in all prerequisites.

Credits: 3 hours

Notes: Open to upper level and graduate students.

AE 5760 - Advanced and Electric Propulsion Systems

Introduction to electric propulsion with an overview of electricity and magnetism, atomic physics, non-equilibrium flows and electrothermal, electromagnetic, and electrostatic electric propulsion systems. Brief introduction to other types of advanced propulsion methods.

Prerequisites & Corequisites: Prerequisite: AT 4760 with a grade of "B" or better, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

AE 5950 - Topics in Aerospace Engineering

A specialized course dealing with some particular area of aerospace engineering not included in other course offerings.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

African American and African Studies

AAAS 2000 - Introduction to African American and African Studies

This course provides an overview of the culture, history and lived experiences of people of African ancestry, particularly in the U.S. and the Caribbean. This includes the philosophical underpinnings and the evolution of the discipline of African American Studies, methods of research and exploration, and its theoretical and practical applications. Historically oriented, this course involves both interpretation and chronology as it addresses African civilizations in the Western hemisphere, including the U.S. Moreover, this course explores topics such as folklore, mythology, languages, customs and traditions of people of African descent, as well as the rise and role of Black Nationalism and Black consciousness and their contemporary manifestations. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

AAAS 2100 - Comparative Approaches to Forms of Black Consciousness

This course focuses on the history of Black consciousness in the African Diaspora from the seventeenth to twenty-first century. It is concerned with forms of Black expression and social action as they are manifested in specific historical, cultural, and political contexts using comparative approaches. Some of the themes include

Africa in African American thought and culture, naming and identity, feminism and gender, movement and migration, and the rhetoric of freedom in Black ideology. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

AAAS 2800 - Topics and Themes in African American and African Studies

An intensive study of selected topics and themes in African American and African studies. Topics will vary and be announced each semester. This course is repeatable under a different topic. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

AAAS 3000 - African and African American History, Culture and Experience to 1865

This course will examine the myriad patterns of adaptation and adjustment of enslaved Africans and free people of African ancestry in the context of the history of oppression in the U.S. prior to 1865. Slave narratives and abolitionists tracts written by freed people, and other documents and historical and contemporary evidence, will be explored to consider their interpretation of African American culture and experience in a new world and a world Africans and African Americans made anew. Issues include culture, race, gender, social/economic status, and political economy among other factors within the context of institutional and non-institutional life in the U.S. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

AAAS 3010 - African American History, Culture and Experience from 1866 to the Present

The culture, history and experience of African Americans from 1866 are the central focus of this course. As the second sequence in a two-part course, this course explores the history and evolution of life after reconstruction to the present. It includes an examination of the dynamics of culture, race, gender, social/economic status and political

economy in the context of industrialization, post-industrialization, the concomitant systematic oppression of people of African descent, and the response of African Americans to these circumstances. Contemporary components of Black/African American popular culture as expressed in music, literature, film, art and the like will also be addressed. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

AAAS 3100 - The Black Woman: Historical Perspective and Contemporary Status

This course is an examination of the historical perspective and contemporary status of the Black woman and her story, paying critical attention to her image as reflected in her role in the American society. The course emphasizes the problems, issues, and concerns of the Black woman. Students will participate in securing visiting Black female speakers and documenting their story as Black women. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

AAAS 3140 - The Black Community: Historical and Contemporary Perspectives

An investigation of the cultural, social, economic and political forms and structures that interface to influence the experiences, conditions, and perspectives of members of the Black or African American community. The course addresses sociological, political, economic, psychological, and physical aspects of community building by members within the Black or African American community, inclusive of internal and external forces. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

AAAS 3600 - Black Male/Black Female Relationships

This course is a study of the dynamics of the Black male/Black female relationships in a variety of contemporary settings. Students are expected to assist in the conduct and documentation of the proceedings of the annual Black Male-Female Panel Discussion of social

issues of special interest to the Black community, including family dynamics, male-female relationships and strategies for the improvement of those relationships.

Credits: 3 hours

AAAS 3800 - Special Topics in African American and African Literature and Culture

This seminar is designed both to examine critical issues central to the African diaspora and to produce quality research through investigating African, African American, and diaspora literature, history, philosophy, and culture from perspectives that engage critical thinking and theorizing regarding African Americans, Africans, and peoples of African ancestry in the African diaspora.

Prerequisites & Corequisites: Prerequisite: AAAS 2000 or AAAS 3000 or AAAS 3010.

Credits: 3 - 4 hours

Notes: This course may be repeated once under different topics with approval of the advisor. This course is approved as a writing intensive course. When the class is offered with 4 credit hours, instead of 3 credit hours, additional reading and writing assignments will be added. Given that this course is writing intensive, grading percentage in writing assignments will remain at least 60% of the total grade whether the course is 3 or 4 credit hours.

AAAS 3900 - Women Writers in Contemporary Black Literature from the 19th Century to the Present

This course focuses attention on the creative and critical writings by major Black women writers from Africa and the African Diaspora (Europe, the U.S., and the Caribbean) and the question of African feminist literary theory and criticism. Through textual, inter-textual, and contextual analysis of selected works by Black women, the course will engage in a number of critical endeavors which can be grouped as follows: 1) establishing the canon of African women writers; 2) critically exploring the stereotypical controlling images of women in African literature written by both men and women; 3) Examining African women writers and the development of an African female aesthetics; 4) Analyzing women in oral literature. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

AAAS 4650 - Internship in African American and African Studies

Students will participate in an internship/practicum where they will apply their knowledge of African American and African Studies to conditions, circumstances, and programming in a particular institutional or organization setting. Students will be guided through this experience in a concurrent seminar led by an approved faculty member from AAAS and, where appropriate, a person from the student's disciplinary major department.

Prerequisites & Corequisites: Prerequisite: Completion of a minimum of 15 credit hours in the AAAS major. Call number obtained from AAAS administrative assistant.

Credits: 3 to 6 hours

Notes: May be repeated for credit.

AAAS 4980 - Directed Independent Studies

A program of independent study, directed by an approved African American and African Studies faculty member/advisor, that allows the student to pursue readings relating to the African American and African Experience not dealt with in other courses. The initiative for describing the project, planning the method(s) of investigation, determining the appropriate outcomes, and securing the participation of a faculty member to advise the work is the responsibility of the student. Applications are available in the AAAS office and must be approved by the director.

Credits: 1 to 6 hours

AAAS 5100 - Foundational Theories in Diversity Leadership

The course focuses on developing an understanding of diversity and difference, power and privilege, and oppression. Emphasis will be given on understanding of one's self within these systems as an essential foundation for culturally competent practices in any environment. Students will learn: (i) systems that maintain differential access to power and privilege at the expense of marginalized others, (ii) skills for understanding and interrogating their own multiple social identities (i.e., social locations), (iii) knowledge and skills for appropriate training practices in bias, (iv) strategies for interrupting

systems of oppression and other ways to work for the core value of social justice. Students may enroll in their junior or senior year or as part of a graduate program. There are no prerequisites, however, students are encouraged to contact their advisor or the instructor of record before enrolling to make sure this is a good fit.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Alcohol and Drug Abuse

ADA 2250 - Drug Use: Personal and Social Impact

This course is designed to increase understanding of substance abuse and addiction through the public health disease model with an emphasis on psychological, physiological and social consequences of use. An overview of prevention and treatment strategies are provided. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Credits: 3 hours

ADA 3300 - Addiction and the Addiction Process

This foundational course will focus on the various models and theories of addiction as well as the behavioral, psychological, physical, and social effects of substance abuse. In addition, students will be provided an overview of the various medical and mental health conditions that may mimic or coexist with addiction.

Credits: 3 hours

ADA 3360 - Clinical Approaches to Substance Use Disorders

This course examines the various aspects of substance use disorder treatment processes and interventions. Students will learn about the development of an individualized treatment plan through the screening and intake process that addresses an identified substance use disorder, as well as other issues related to treatment progress. The importance of referral and service coordination with civic groups, agencies, and other professional or governmental entities to help address the individual's needs is also

addressed. Students will gain an understanding and an appreciation of the contributions of various addiction counseling models as they apply to modalities of care for individuals, groups, families, couples, and significant others.

Credits: 3 hours

ADA 3370 - Substance Abuse Treatment Strategies

This course will introduce students to a variety of helping strategies to use with substance abuse clients. The course will focus on treatment services, medical and pharmacological resources, and crisis management.

Credits: 3 hours

ADA 3380 - Addiction Assessment, Recovery, and Illness Management

This course will introduce students to different philosophies, procedures, policies, and outcomes most generally accepted for the treatment, recovery, relapse prevention and continuing care of addiction. There will also be a strong focus on how to include all resources within an individual's life system to help them with their addictions.

Credits: 3 hours

ADA 3410 - Diversity and Substance Abuse

Helps students understand diverse cultures and incorporate the relevant needs of culturally diverse groups into clinical practice. Also examines ethical topics directly related to diverse populations, such as different strategies of coping and how various cultures view addiction and recovery. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

ADA 5200 - Family and Addiction

This course provides students with knowledge on the effects of substance abuse on the family. Included is theory and practice regarding dysfunctional relationships, children of substance abusers, and resulting disorders.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ADA 5700 - Field Education: Substance Abuse

A clinical, prevention, research, or administrative field experience meeting practice requirements in certification of substance abuse services. The field experience involves direct supervision by faculty and clinical supervisors.

Prerequisites & Corequisites: Prerequisite: Admission to certificate program and permission of instructor.

Credits: 1 to 6 hours

Notes: Open to upper level and graduate students. Graded on a Credit/No Credit basis. Students should enroll in ADA 5700 only if they are also concurrently enrolled in an internship with another WMU master's degree program. The site must be approved by the SPADA field coordinator.

ADA 5980 - Readings in Substance Abuse Services

Individualized, independent study and readings under guidance of a faculty member. Initiative for planning topic for investigation and seeking the faculty member comes from the student with consultation of the advisor.

Prerequisites & Corequisites: Prerequisite: Instructor and program advisor approval.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students.

American Sign Language

SIGN 1010 - American Sign Language I

In this course students will develop and demonstrate knowledge of fingerspelling, basic vocabulary, basic grammar, phonological structure, history of American Sign Language, and features of the American Deaf community, including Deaf culture values and behaviors.

Credits: 3 hours

SIGN 1020 - American Sign Language II

In this course students will develop and demonstrate advanced knowledge and fluency in fingerspelling, vocabulary, grammar, phonological structure of American Sign Language, in addition to advanced knowledge of the history of American Sign Language, and features of the American Deaf community, including Deaf culture values and behaviors. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Prerequisites & Corequisites: Prerequisite: SIGN 1010 with a grade of "C" or better.

Credits: 3 hours

SIGN 2010 - American Sign Language III

Students will continue to develop more advanced knowledge of and increased fluency in American Sign Language vocabulary, American Sign Language grammatical structures, fingerspelling and features of the American Deaf community, including Deaf cultural values and behaviors. Emphasis will be on improving expressive and receptive conversational skills and exploring topics of interest to the Deaf community in more depth.

Prerequisites & Corequisites: Prerequisite: SIGN 1020 with a grade of "C" or better.

Credits: 3 hours

SIGN 2020 - American Sign Language IV

Students will continue to develop more advanced knowledge of and increased fluency in ASL vocabulary, ASL grammatical structures, fingerspelling, and features of the American Deaf community, including Deaf cultural values and behaviors. Emphasis will be on improving expressive and receptive conversation skills and exploring topics of interest to the Deaf community in more depth.

Prerequisites & Corequisites: Prerequisite: SIGN 2010 with a grade of "C" or better.

Credits: 3 hours

SIGN 2030 - Deaf Culture and History

This course will present an in-depth consideration of Deaf history and the cultural, political, educational, and social aspects of the community as a cohesive American co-culture. Students will examine the history of Deaf people in

the Western World, with emphasis on American Deaf culture and the unique perspectives, norms and values within such communities. Students will explore the nature of American Sign Language and its varieties, the education of Deaf people, the historical treatment of Deafness, and the sociological and cultural make up of Deaf individuals. The nature of Deaf art in various forms, ASL Literature and poetry will also be discussed. This course is taught in American Sign Language.

Prerequisites & Corequisites: Prerequisites: SIGN 2010 and SIGN 2020 (SIGN 2020 may be taken concurrently), or approval of instructor. A minimum grade of "C" is required in all prerequisites.

Credits: 3 hours

Anthropology

ANTH 1100 - Lost Worlds and Archaeology

An introduction to the archaeological record relating to the development of culture from its stone age origins through the development of village agriculture and the beginnings of complex societies. This course satisfies the student learning outcomes in the WMU Essential Studies Level 1: Foundations - Inquiry and Engagement: Critical Thinking in the Arts and Humanities Course Category.

Credits: 3 hours

ANTH 1200 - Peoples of the World

A survey of the rich variety and range of non-Western peoples throughout the world, with emphasis on the role of culture in shaping human thought and behavior. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

ANTH 1500 - Race, Biology, and Culture

This course is a broad survey of the anthropological study of human biological variation in modern populations. We will examine from a biocultural perspective how human populations have evolved and adapted to life in diverse environments (e.g., tropics, high altitude, arctic). We will explore the biological and social meanings of human racial variation, as well as the historical development of race in modern societies. This course

satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

ANTH 2100 - Introduction to Archaeology

The science of archaeology is explored in terms of the methods and concepts used to discover and interpret past human behavior. Select portions of the Old and New World archaeological records provide the frame of reference. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

ANTH 2400 - Principles of Cultural Anthropology

An introduction to the basic concepts, theoretical approaches, and methodological strategies employed in the study of traditional and contemporary sociocultural systems throughout the world. Attention given to research techniques and the insights derived from detailed case studies and cross-cultural comparisons. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

ANTH 2500 - Introduction to Biological Anthropology

An anthropological course in human biological variation, including the study of concepts of evolutionary theory, hominin and primate evolution, human genetics, human osteology, population variation, and our living primate cousins. Lab sessions provide practical experience and applied techniques in scientific method and analysis. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Credits: 4 hours

ANTH 2510 - Forensic Anthropology

This course focuses the fundamentals of forensic anthropology, an applied field of anthropology involved in the recovery, identification, and assessment of human

skeletal/dental remains in a medico-legal context. We survey the basics of identifying bones of the human skeleton, forensic science methodology and ethics, and the forensic recovery of human remains. Lab sessions provide practical experience in applying multiple techniques employed in scientific method and analysis. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Credits: 3 hours

ANTH 2600 - Sex, Gender, Culture

Sexual differences around the world are culturally elaborated into gender-specific behaviors, normed relations between gender-coded people and objects, and various ideologies supporting the differences. In this course, biological and cross-cultural data will be used to explore the foundation of this process and the social, cultural, and psychological consequences of gender coding on men and women in different cultural settings.

Credits: 3 hours

ANTH 2800 - Language in a Global World

This introductory course in linguistic anthropology presents languages and speech practices around the world as cultural phenomena. The lecture component covers a sampling of topics and approaches to studying language as cultural practice, including cases from U.S. society and from diverse language communities around the world and considering contemporary issues including language rights, language shift, bilingual education, and language revitalization. The lab component allows students to develop an understanding of basic linguistic principles and apply linguistic and discourse analyses to diverse cross-cultural examples.

Credits: 4 hours

ANTH 3010 - Anthropology through Film

Anthropology through Film is designed to introduce students to the concepts, methods, and practices of cultural anthropology through the viewing and analysis of ethnographic films and the reading of select ethnographic writings. A principal course objective is to learn how to analyze what the filmmaker has done well and what is lacking in the ethnographer's portrayal of other cultures. Consequently, more general issues of representing other cultures will be considered in relation to the themes of

power, the legacy of colonialism, and the world economic system. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

ANTH 3030 - Historical Archaeology

Investigates the role of the material world in the colonial encounter and the development of capitalism. The course will integrate theoretical, methodological and substantive issues with an emphasis, though not exclusive focus, on North America. Prerequisite: ANTH 2100 or instructor approval.

Credits: 3 hours

ANTH 3060 - Archaeology of Civilization

The course discusses the forces leading to the rise of the state and the emergence of centers of civilization. It investigates state emergence cross-culturally, examining shared characteristics and innovative pathways, social accomplishments and social costs, New World and Old World, far-flung and more recent past.

Prerequisites & Corequisites: Prerequisite: ANTH 2100 or instructor approval.

Credits: 3 hours

ANTH 3090 - Archaeology of Inequality and Resistance

The course examines the dynamics of historical and archaeologically known forms of control and domination based upon status, class, gender, and ethnicity. The course focuses on the social relation of oppressor and oppressed, the ideologies of control and the forms of social resistance.

Prerequisites & Corequisites: Prerequisite: ANTH 2100 or instructor approval.

Credits: 3 hours

ANTH 3390 - Cultures of Latin America

This course offers an introduction to contemporary life in Latin America from an ethnographic perspective. Readings and class discussions will highlight the intersections of colonialism, nationalism and globalization among selected

groups in different areas in the region. By locating contemporary societies within broader contexts this class aims to replace cultural stereotypes with anthropological analysis.

Credits: 3 hours

ANTH 3400 - World Cultures

This course will provide an introduction to contemporary cultures and societies of any one of the following: Africa, Asia, or Latin America. Emphasis will be placed on topics such as education, family, workplaces, gender, popular culture, and identity. An additional component will include the investigation of current developments in sustainability, as related to the selected study region. By locating contemporary institutions and idioms within a historical context, this class aims to replace cultural stereotypes with anthropological analysis. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

ANTH 3410 - Global Africa Past and Present

This course offers an introduction to the study of contemporary life in sub-Saharan Africa. Students will engage with issues relating to colonialism, post-colonialism, and globalization as they explore several regions and ethnic groups in depth. A special emphasis will be placed on recognizing and dispelling long-held myths and negative stereotypes about Africa.

Credits: 3 hours

ANTH 3440 - Indigenous North America

Examines indigenous or native cultures of North America from the initial peopling of the continent by immigrants from Asia during the Terminal Pleistocene (Ice Ages) into the period of ongoing European exploration and colonization. Selected topics illustrating the ingenuity and diversity of human responses to both changing landscapes and social circumstances over time and in space will be presented. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

ANTH 3450 - Topics in Anthropology

An intensive study of selected topics or emerging fields in anthropology. Topics will vary and be announced each semester. May be repeated for credit with different topics.

Credits: 3 hours

ANTH 3470 - Ethnicity/Multiculturalism

A study of the diverse perspectives of the many different ethnic groups in the United States. In the course we will analyze the social tensions, group dynamics, and consequences resulting from the cultural and ethnic diversity existing here. Some of the discussion will focus on the medical, legal, social, and political institutions that exist in a multicultural environment. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

ANTH 3510 - Human Osteology

A study of the human skeleton. Emphasis will be on morphological and metrical variation, odontology, palaeopathology, and reconstruction of the individual and the population.

Prerequisites & Corequisites: Prerequisite: ANTH 2500 or instructor approval.

Credits: 4 hours

ANTH 3530 - Bioarchaeology

This course introduces students to the biocultural, interdisciplinary and integrative study of human remains recovered from archaeological contexts. Students will examine the reconstruction of skeletal populations for patterns of subsistence, stress, disease, paleodemography, biological relatedness, occupational indicators, trauma, and warfare. Students will learn how to recognize the manifestations of these patterns on human remains, and will be able to describe and critique the methods used by bioarchaeologists to gather and interpret information from human skeletal data.

Prerequisites & Corequisites: Prerequisites: ANTH 2100 or ANTH 2500, or instructor approval.

Credits: 3 hours

Notes: This course is approved as a writing-intensive course.

ANTH 3560 - Food and Culture

Are we what we eat or how we eat? How do we determine what is food and is not food? This course will examine food cross-culturally and explore the different ways in which human beings produce, distribute, consume and think about food. Special consideration will be given to issues such as the origins of food surpluses and famines, the emergence of global food commodity chains, and the rise of the organic industry.

Credits: 3 hours

ANTH 3580 - The African Diaspora: Across the Americas

The African Diaspora across the Americas produced by the transatlantic slave trade, has impacted every society in North America, the Caribbean, and Central and South America, and has produced a diverse array of distinctive Black communities and African diasporic cultural practices. These practices include robust forms of cultural resistance to racism and influential critical theories. Studying the African Diaspora across the Americas raises many issues at the cutting edge of anthropological thinking about the nature of identity, belonging, consciousness and tradition, and the co-construction of race and nation. Much of this recent work reconceptualizes an Atlantic World or "Black Atlantic" that is rich with contemporary interconnections and movements of people between points in the Americas, Europe, and Africa that complicate earlier notions of unidirectional influences from Africa to the New World. We will map a dialogue between anthropological work showing connections between different sites of African diasporic culture and the political and social concerns and consciousness of African diasporic people themselves (not just U.S. African-American, but all of the Americas). This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

ANTH 4040 - Early Technologies

This course deals with the analysis and interpretation of early technologies and technological organization and their relationship to social, political, and economic dimensions of cultural systems.

Prerequisites & Corequisites: Prerequisite: ANTH 2100 or instructor approval.

Credits: 3 hours

ANTH 4400 - Ethnography

Examines various methods, problems, and issues in ethnographic research and writing, as well as the interaction between ethnographic practice and the development of anthropological theory. This course is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisite: ANTH 2400 or instructor approval.

Credits: 3 hours

ANTH 4500 - Primate Behavior and Ecology

An advanced survey of the primates. Topics include: primate characteristics; taxonomy, constraints of body size on locomotion and diet; and primate social behavior in an ecological context. The behavioral ecology of individual species will be explored through readings, films, and when possible, direct behavior observation at a zoo.

Prerequisites & Corequisites: Prerequisite: ANTH 2500 or instructor approval.

Credits: 3 hours

ANTH 4510 - Paleopathology

This course examines disease processes in past human populations using an evolutionary and multidisciplinary perspective. Through studies of archaeological skeletal remains, we explore local and global patterns of disease and response to environmental stresses in ancient times, which are also relevant to today's health concerns.

Prerequisites & Corequisites: Prerequisite: ANTH 2500 (may be taken concurrently), or instructor approval. ANTH 3510 is also recommended.

Credits: 3 hours

ANTH 4750 - Language and Identity

This course explores the links between identity and language. Students will examine how different types of identity get mobilized by different ways of speaking and by

judgments about the social value of different speech styles. A semester-long research project comprised of short field research assignments will allow students to apply linguistic anthropology methods to examine the speech differences that surround us.

Credits: 3 hours

Notes: This course is approved as a writing-intensive course.

ANTH 4900 - Archaeological Field School

Archaeological investigation of specific problems relating to the prehistory or history of a particular area (e.g. southwest Michigan, Lower Mississippi Valley). Participants will receive instruction in collecting and evaluating background information, creating a research design and implementing archaeological field-work (i.e., logistics, site location survey, mapping, recovering objects from archaeological contexts), and processing and curating data for analysis and interpretation in the laboratory. May be repeated with permission of instructor, but does not count toward the anthropology major or minor twice.

Prerequisites & Corequisites: Prerequisite: ANTH 2100 or instructor approval.

Credits: 6 hours

ANTH 4950 - Topics in Anthropology

The advanced study of selected topics or emerging fields in anthropology. Topics will vary and be announced each semester.

Prerequisites & Corequisites: Prerequisite: Junior standing and 12 hours of anthropology, or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit with different topics.

ANTH 4970 - Directed Experiential Learning

Students may contact a faculty member to supervise an individually-designed experiential learning project through field research, laboratory research, an internship, or applied anthropology service in the community. The purpose of the course is to allow students to explore real-world applications of anthropology.

Prerequisites & Corequisites: Prerequisite: Junior standing and instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors in Anthropology.

Notes: May be repeated for credit.

ANTH 4980 - Independent Readings in Anthropology

Students may contact a faculty member to undertake independent readings on a specific topic of interest. The student should have some familiarity with the topic in advance. The purpose of the course is to allow the student to gain a greater depth of knowledge in a topic not offered in a formal course.

Prerequisites & Corequisites: Prerequisite: Junior or senior standing.

Credits: 1 to 3 hours

Restrictions: Restricted to majors or minors in Anthropology.

ANTH 4990 - Independent Research in Anthropology

Students may contact a faculty member to conduct research under the guidance of the faculty member. Before the initiation of the research a literature search and a written proposal must be prepared. At the conclusion of the research project, a written report will be submitted to the guiding faculty member.

Prerequisites & Corequisites: Prerequisites: Junior or senior standing.

Credits: 1 to 3 hours

Restrictions: Restricted to majors or minors in Anthropology

ANTH 5000 - Topics in Archaeology

A consideration of the prehistory of a particular geographic area (e.g. the southwestern United States, the Circumpolar) or of selected theoretical problems (e.g. artifact typology, prehistoric ecology). The topic to be studied will be

announced each semester.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 hours of course work in anthropology, including either (ANTH 1100 or ANTH 2100) or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit under different topics. Open to upper level and graduate students.

ANTH 5030 - Anthropology in the Community

Students in the course apply anthropological methods and understandings to a community based research and/or service project. The focus of the class rotates among different sites and topics depending upon the semester it is offered. The experiential learning component of this course facilitates student understandings about the relevance of anthropology to problems and projects outside of the university setting and strengthens community connections with the university.

Credits: 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ANTH 5040 - Archaeological Research Methods

An in-depth exploration of archaeological research methods, emphasizing how archaeologists analyze and interpret the material record. Students learn the complexity of archaeological methods through a practice oriented approach to topics such as research design, sampling, typology, classification, database management, lithic, ceramic, faunal and floral analytical techniques, archaeological illustrations, writing, curation, and collections management.

Prerequisites & Corequisites: Prerequisite: ANTH 2100

Credits: 3 hours

Notes: Open to upper level and graduate students.

ANTH 5060 - The Archaeology of Gender

Gender constructs, a critical organizing principle for human interaction, are becoming an important focus for archaeological investigation. This course will explore the multiple ways archaeologists have attempted to use gender relations as a means to gain insights into individual societies. We will follow gender as an archaeological concept historically and conceptually. Participants will explore the attempts and successes of a gendered understanding of the archaeological record.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 hours of course work in anthropology, including ANTH 2100.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ANTH 5220 - Poverty, Power, and Privilege

This course critically explores anthropological approaches to understanding poverty as well as racial, class, and sexual inequalities. The course emphasizes inequalities within the contemporary United States, but situates those dynamics within an analysis of global processes and conditions. Particular emphasis is placed on analyzing ways that everyday practices, neoliberal social policies, economic restructuring, resistance efforts, and institutional practices play in producing, challenging, and maintaining structural violence. Feminist, post-structuralist, Marxist, cultural studies, and hegemony studies approaches are covered. Both ethnographic case studies and theoretical analysis are explored to inform collaborative required applied community based anthropological research on power, race, and class relations within the Kalamazoo region.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 hours of course work in anthropology, including either (ANTH 1200 or ANTH 2400).

Credits: 3 hours

Notes: Open to upper level and graduate students.

ANTH 5250 - Spirits and Medicine

This course explores how healing is linked to belief and in turn how beliefs about well-being, illness, and treatment are culturally prefigured. Students will examine healing practices in the United States and cross-culturally as they related to belief and consciousness, including western medicine and alternatives, spirit possession and trance, and methods of divination.

Prerequisites & Corequisites: Prerequisites: Junior status and 12 hours of course work in anthropology, including ANTH 2400.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ANTH 5300 - Research Methods

An in depth consideration of the research methods and tools of the modern anthropologist. An emphasis on methods and techniques of data collection, statistical analysis, and graphic presentation of a wide variety of anthropological data.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 hours of course work in anthropology.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ANTH 5330 - Museums and Material Culture

This course comprises: a critical consideration of museum practices, including processes of collection, archives, and exhibition; and critical approaches to material culture more broadly. It is also meant to be an exploratory course, dependent on full engagement between participants -- instructor as well as students. We will be actively engaged in a process of discovery in terms of how to understand objects in cultural and historical context, how to critically interrogate a variety of anthropological approaches to objects over time, and how to understand anthropology's responsibility to the public through museum practices.

Prerequisites & Corequisites: Prerequisite: ANTH 2100

Credits: 3 hours

Notes: Open to upper level and graduate students.

ANTH 5400 - Ethnographic Research Methods

An exploration of the complexity of ethnographic research methods through a practice oriented approach to training in ethnographic approaches. Students learn a range of qualitative research methods as well as the political, ethical, methodological, and theoretical dilemmas of

anthropological fieldwork and writing through supervised fieldwork projects as well as classroom assignments.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 hours of course work in anthropology, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ANTH 5450 - Topics in Sociocultural Anthropology

An intensive study of the cultures of an area of the world or selected problems. Topics will be announced each semester.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 hours of course work in anthropology, including ANTH 2400 or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ANTH 5500 - Human Evolution

This course is designed to provide students with an intensive examination of the human fossil record from the initial divergence of the hominid lineage to the origin of modern homo sapiens. Emphasized in this course will be paleontological theory, issues relating to species definition and recognition, functional anatomical complexes, adaptive processes, and human morphological variation.

Prerequisites & Corequisites: Prerequisite: Junior standing and 12 hours of course work in anthropology, including ANTH 2500.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ANTH 5550 - Topics in Biological Anthropology

A consideration of the biological relationships of specific population groups or general problems in human biology (e.g. human genetics, human growth and constitution, palaeopathology, dental anthropology). Topic will be

announced each semester.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 hours of course work in anthropology, including ANTH 2500 or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ANTH 5900 - Anthropology as a Profession

The course provides a survival guide for the world of professional anthropology. Students will develop the core skills needed to work in academia or applied fields. These skills include creating and maintaining a CV and resume; grant-writing; developing research designs; literature reviews; thesis research; writing proposals; oral and written presentations of research; publication of books; articles and reports; negotiating with ethics boards and other bureaucracies; teaching pedagogy; and course development. The goal of this course is to prepare students to use their anthropological training in whatever career trajectory they hope to pursue; university settings or applied fields such as museums, Cultural Resource Management firms, forensics laboratories, non-profit organizations, etc.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 hours of coursework in Anthropology or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Arabic

ARAB 1000 - Basic Arabic I

Fundamentals of modern Arabic with emphasis on listening and speaking skills.

Credits: 4 hours

ARAB 1010 - Basic Arabic II

Continuation of ARAB 1000. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Prerequisites & Corequisites: Prerequisite: ARAB 1000.

Credits: 4 hours

ARAB 2000 - Intermediate Arabic I

The development of written and spoken expression in modern Arabic with an emphasis on grammar review.

Prerequisites & Corequisites: Prerequisite: ARAB 1010.

Credits: 4 hours

ARAB 2010 - Intermediate Arabic II

Continuation of ARAB 2000.

Prerequisites & Corequisites: Prerequisite: ARAB 2000.

Credits: 4 hours

ARAB 2750 - Life and Culture of the Arabs

This course introduces specific elements of life and culture in the Arab World, past and present. Those elements include history, religions, geography, languages, arts, politics, and literatures. The course will be offered in English with no prerequisites and will be open for the general student body. The course seeks to create a link between the Arabic language and the culture that provides its natural context. The aim is to provide students with an informed and balanced view of some of the pressing aspects of Arab life and culture, and to do so in such a way as to demonstrate the uniqueness and yet diversity of Arabic sub-cultures on the one hand, and the universality of the Arab culture(s) on the other. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

ARAB 3000 - Advanced Standard Arabic I

Emphasis on increasing the student's command of Modern Standard Arabic with focus on media and expository writing.

Prerequisites & Corequisites: Prerequisite: ARAB 2010 or instructor approval.

Credits: 4 hours

When Offered: Fall

ARAB 3010 - Advanced Standard Arabic II

Continuation of Arabic 3000 with achievement of advanced-level communicative competence in Modern Standard Arabic with focus on literature and research writing.

Prerequisites & Corequisites: Prerequisite: ARAB 3000 or instructor approval.

Credits: 4 hours

When Offered: Spring

ARAB 4760 - Foreign Study - non WMU

Student participation in pre-approved program of study abroad that is not through Western Michigan University.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor or chairperson.

Credits: 1 - 16 hours

Notes: Repeatable for credit up to 32 credit hours.

ARAB 4770 - Arabic Foreign Study

Student participation in a departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor and chairperson.

Credits: 1 to 16 hours

When Offered: Fall, Spring, Summer

ARAB 5020 - Arabic for Graduate Study

Arabic instruction for graduate students enrolled in a degree program who need knowledge of Arabic for their field of study. Students will sit in appropriate level course for their learning.

Prerequisites & Corequisites: Prerequisites: Approval of department of student's graduate program and approval of the Department of World Languages and Literatures.

Credits: 3 to 4 hours

Notes: May be repeated for credit. May not be taken by undergraduate students in any field.

ARAB 5030 - Arabic - English Translation Practicum

This is a practical course to teach the skills for translating texts from Arabic into English. The objective of this course is to develop further language proficiency and to introduce students to the nuts and bolts of translation. Students will produce English translations from different sorts of Arabic texts, such as news, essays, documents, poetry, and short fiction.

Prerequisites & Corequisites: Prerequisite: ARAB 2010 or instructor approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ARAB 5200 - Topics in Arabic Linguistics and Language Science

The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures.

Credits: 3 hours

Notes: May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPNS/LAT/RUSS 5200. May be repeated for credit. Open to upper level and graduate students.

ARAB 5500 - Independent Study in Arabic

Directed individual study of a specific topic in Arabic literature or linguistics.

Prerequisites & Corequisites: Prerequisite: ARAB 1010 and department approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Art

ART 1040 - Object Drawing

This course focuses on drawing as a vehicle for thinking, seeing and communicating. Work includes drawing from direct observation. Students learn to analyze drawings and improve compositional skills, drawing techniques and methods. The properties of line, value, texture, shape and space are dealt with as elemental to the drawing process. An ability to render and draw expressively, in a variety of materials, is stressed.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design.

ART 1050 - Drawing Studio

This course focuses on the drawing experience as a vehicle for art-making, as a process and to convey ideas. Different types of image-making processes are studied, along with their potentials for meaning. Students learn to invent from observation and imagination, and to assemble disparate information in various types of space. There is also an introduction to historical and contemporary drawing practice from many traditions.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design.

ART 1070 - Form and Surface

This course places emphasis on the development of creative thinking as a vehicle to achieve both communication of content and visual expression. A focus is placed on two-dimensional problem solving, conceptualization and implementation through exposure to a variety of materials, processes, and methodologies.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design.

ART 1080 - Form and Space

This course places emphasis on the development of creative thinking as a vehicle to achieve both communication of content and visual expression. A focus is placed on three-dimensional problem solving, conceptualization and implementation through exposure to a variety of materials, processes and methodologies.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Interior Design.

ART 1200 - Introduction to Art

A topical introduction to the visual arts: painting, architecture, sculpture, photography, and the crafts. Discussions and slide presentations on such themes as the meaning of modern art, art as cultural and sociological expression, as symbol, as play and as form. This course will enable the non-art student to develop an art vocabulary and gain insights into our human quest for creative expression. This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement Category.

Credits: 3 hours

ART 1300 - 3D Studio Experience

A course designed for the general university student as an enriching experience in a variety of three-dimensional media. This course may not be elected by majors or minors in art or art education. This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement Category.

Credits: 3 hours

ART 1400 - 2D Studio Experience

A course designed for the general university student as an enriching experience in two-dimensional media. This course may not be elected by majors or minors in art or art education. This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement Category.

Credits: 3 hours

ART 1480 - Direct Encounter with the Arts

An interdisciplinary, thematic course that uses a direct approach to introduce students to art and culture, guiding

them through first-hand experiences as engaged audience members in the visual arts, theatre, music, dance and more. Classroom discussions are held following student participation in events including theatrical, music, dance performances, and exhibitions. Hybrid coursework places emphasis on creative and critical thinking. This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement Category.

Credits: 4 hours

ART 1600 - Design Seminar

This course provides an overview of the product development process. It focuses on the design process (which includes, but is not limited to: process definition, research, analysis, ideation, articulation, development, feedback, iteration, testing, and production). Lectures will explore current trends and issues in the field. Students will learn about the history of product design, design concepts, and methodology through discussions. In addition, the course will investigate the movements in the history of product design and the development of materials, production, technologies, consumption and other social and cultural concerns that impact the field. Historical and contemporary case studies will be examined and analyzed.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1080, and either (ART 2200 or ART 2210 or ART 2220 or ART 2230.) A grade of "C" or better is required in all prerequisites.

Credits: 1 hour

Restrictions: Restricted to majors in Product Design.

Notes: Repeatable for credit, minimum of 4 hours required.

When Offered: Spring

ART 1610 - Drawing for Design

Drawing for Design provides the transitional training from general drawing skills taught in foundation studio art courses to industry-specific methods of visual communication relevant to a career in product design. Students will develop specialized skills for design-based drawing that will help them communicate appearance, function, material and style.

Prerequisites & Corequisites: Prerequisites: ART 1040 and ART 1050, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Product Design.

When Offered: Fall

ART 1650 - Product Design I

This course provides an overview of the innovative product development process and focuses on problem definition, articulation, and resolution. The course will investigate the movements in the history of product design and the development of materials, production, technologies, consumption and other social and cultural concerns that impact the field. Students will learn about design concepts and methodology through lectures, discussions, and problem-solving assignments. Historical and contemporary case studies will be examined and analyzed.

Prerequisites & Corequisites: Prerequisites: ART 1040, and ART 1080, and either (ART 2200 or ART 2210 or ART 2220 or ART 2230). A grade of "C" or better is required in all prerequisites.

Corequisite: ART 1600

Credits: 3 hours

Restrictions: Restricted to majors in Product Design.

When Offered: Spring

ART 2100 - Life Drawing

The study of the essential aspects of life drawing (such as gesture, contour, proportions, anatomy, structure, and articulation) and their synthesis into a coherent drawing attitude.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design.

ART 2160 - Black & White Photography I

An introductory course that explores considerations of equipment and materials related to the black & white darkroom such as the function of the camera, lenses, black & white films, printing and/or studio lighting. Emphasis is

placed on conceptual development and technical proficiency towards the creation of a portfolio.

Prerequisites & Corequisites: Prerequisites: Art 1040, ART 1050, ART 1070 and ART 1080 with a grade of "C" or better in all prerequisites.

Credits: 3 hours

ART 2200 - Caves to Cathedrals

A survey of art produced in ancient Egypt, the ancient Near East, the medieval Islamic world, and Europe from the prehistoric era to 1400 C.E. Objects, images, sites, and structures are examined within their cultural, political, religious, economic, and aesthetic contexts. A variety of visual and theoretical methods of analysis are explored to consider how past ideas might still shape today's visual environment. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

ART 2210 - Modern and Postmodern

A survey of Western art examining artistic theory and practice from the 15th to the 21st century. Object, images, sites, and structures are explored within their cultural, political, religious, economic, and aesthetic contexts. A variety of visual and theoretical methods of analysis are explored to consider how past ideas might still shape today's visual environment. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

ART 2220 - Art of Africa, Oceania, and the Americas

A survey of the diversity of media forms and context within which Africans and Pacific Islanders make and use art, including contemporary expressions. Select comparisons are made with indigenous traditions in the Americas. Art will be discussed in relation to wider cultural contexts, including historical, social, and political topics, global contacts, as well as and aesthetic approaches. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

ART 2230 - Introduction to Asian Art History

This course will investigate art from the prehistoric to the contemporary within South, Southeast, and East Asia. Art will be discussed in relation to religious and political patronage as well as regional and global contacts. Asian aesthetic approaches will be studied within these cultural contexts that often differ from Western ideas. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

ART 2300 - Ceramics

A course devoted to a survey of pottery processes, including handbuilding, technical information and a limited experience with the potter's wheel.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1050, ART 1070 and ART 1080.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art, or majors in Art Education, Graphic Design, or Industrial Design.

ART 2310 - Sculpture

A fundamental course in sculpture exploring the theories and concepts of three-dimensional art forms in space. Mechanical, structural and compositional principles will be studied. An overview of historical sculptural forms will be presented.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Industrial Design.

ART 2380 - Jewelry and Metalsmithing

A survey of jewelry projects with instruction in design and metal craft. Copper, brass, and sterling are the principal materials. Basic stone setting and casting procedures are usually included. Students generally fashion several jewelry pieces in this class.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design.

ART 2400 - Painting I

A fundamental course in oil painting to assist the student in realizing visual observations, compositional sensitivities, and personal expression through basic painting techniques. Seeing color, mixing color, and making specific color decisions are the vehicles for studying basic painting methods and space. An overview of historical painting styles will be presented.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design.

ART 2450 - Graphic Design-Non BFA in Graphic Design

An introduction to problem-solving for visual communication through typographic images. The fundamentals of calligraphy, typography, and typographic design are investigated in experimental and practical projects. Incorporates research in the communicative potential of color and structure.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080.

Credits: 3 hours

Restrictions: Restricted to majors in Art, Art Education, or Graphic Design.

ART 2500 - Color for Graphic Design

Studies in color theory emphasizing issues and problem solving related to graphic design. This includes investigations in additive and subtractive color theories as applied to reflective and transmitted media, as well as color systems used in graphic reproduction.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1050, ART 1070, ART 1080, and either (ART 2200 or ART 2210).

Credits: 3 hours

Restrictions: Restricted to majors in Graphic Design.

Notes: Acceptance into B.F.A. in Graphic Design is by portfolio review.

When Offered: Fall

ART 2510 - Typography I

Studies in the design of letterforms and typographic structure. Emphasis is on developing an understanding of typographic form through drawing and compositional exercises and discussion of perceptual, historical, and technological influences. Computer technology will be investigated.

Prerequisites & Corequisites: Prerequisites: ART 2500 and ART 2600.

Credits: 3 hours

Restrictions: Restricted to majors in Graphic Design.

When Offered: Spring

ART 2600 - Graphic Design I: Visual Aesthetics

Theoretical visual studies in graphic design involving point, line and shape, dealing with formal values and composition. Emphasis on problem solving, skill development, perceptual acuity and an understanding of visual aesthetics.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1050, ART 1070, ART 1080, and either (ART 2200 or 2210).

Credits: 3 hours

Restrictions: Restricted to majors in Graphic Design.

Notes: Acceptance into B.F.A. in Graphic Design by portfolio review.

When Offered: Fall

ART 2610 - Graphic Design II: Graphic Form

A continuation of Graphic Design I. Studies in space, form and composition involving an integration and application of formal values and problem solving. Visual systems of pictorial and symbolic form are explored through organic and geometric drawing exercises. Computer technology will be investigated.

Prerequisites & Corequisites: Prerequisites: ART 2500 and ART 2600.

Credits: 3 hours

Restrictions: Restricted to majors in Graphic Design.

When Offered: Spring

ART 2650 - Product Design II

This course focuses on developing a better understanding of design processes through making and learning specific fabrication materials and methods. Students gain experience in giving form to objects and products. Prototyping techniques and digital design tools will be explored. In addition, the course will investigate the movements in the history of product design and the development of materials, production, technologies, consumption and other social and cultural concerns that impact the field.

Prerequisites & Corequisites: Prerequisites: ART 1610 and ART 1650; with a grade of "C" or better in all prerequisites.

Corequisite: ART 1600

Credits: 3 hours

Restrictions: Restricted to majors in Product Design.

When Offered: Spring

ART 2660 - Materials and Processes

Materials and Processes introduces students to a broad sampling of materials and methods available for industrial manufacturing. Through an understanding of both

fundamental and innovative materials, students will develop a rich palette from which to develop industry-leading products. Through a combination of studio coursework in state of the art labs and trips to the region's many top manufacturing companies, students will develop a comprehensive understanding of the progression from final prototype to the production of market-ready goods, systems and services. Additionally, through a series of product simulations, historical case studies, and critiques from working professionals, students will be trained to consider relevant concerns that may affect the manufacturing process, such as sustainability, ethical sourcing, and best practices for developing robust systems that can succeed in a global business environment.

Prerequisites & Corequisites: Prerequisites: ART 1040 and ART 1050 and ART 1070 and ART 1080 and ART 1650; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Product Design.

When Offered: Spring

ART 2700 - Monoprint I

This course will investigate a variety of monoprinting processes and current image-making methods utilizing printmedia, drawing, collage and painting techniques. There is no printmedia experience required.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1050, ART 1070 and ART 1080.

Credits: 3 hours

ART 2750 - Video Art I

An introductory course that explores considerations of equipment and materials related to the moving image such as digital video camera, sound recorders, data workflow, editing software and/or emerging lens-based technologies. Emphasis is placed on conceptual development and technical proficiency towards the creation of a portfolio.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1050, ART 1070 and ART 1080 with a grade of "C" or better in all prerequisites.

Credits: 3 hours

ART 2800 - Printmedia I

This beginning studio course introduces students to a variety of basic printmedia processes and equipment with equal emphasis on conceptual and technical development. Students are introduced to a variety of printmedia methods, such as screenprint, relief, intaglio and lithography.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1050, ART 1070 and ART 1080.

Credits: 3 hours

ART 2900 - The Skilled Observer in Art, Science, and Engineering

This course bridges the gap between science, technology and engineering - and the arts. Connecting research practice and education in a wide spectrum of the sciences and engineering with the methodologies and engagement found in arts learning. This course enables students to understand the interdisciplinary worlds transforming their chosen fields of study, and to successfully pursue their subsequent academic work using tools they will find essential in their professions. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

ART 3000 - Special Topics in Printmedia

This intermediate studio course focuses on traditional and contemporary materials and methods in printmedia. Course topic varies from semester to semester.

Prerequisites & Corequisites: Prerequisites: ART 2410, ART 2430, ART 2460, ART 2700, or ART 2800; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Notes: May be repeated for credit.

ART 3100 - Intermediate Drawing

Drawing as the study of form and as a conclusive aesthetic statement. Model available during approximately one-half of the class meetings.

Prerequisites & Corequisites: Prerequisite: ART 2100.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education or Graphic Design

ART 3160 - Black & White Photography II

An intermediate course that expands upon the working knowledge and considerations of equipment, materials and activities related to the black & white darkroom such as media format camera, hand held light meters, advanced printing and archival processing. Emphasis is placed on the implementation of research, conceptual development and technical proficiency towards the creation of a portfolio.

Prerequisites & Corequisites: Prerequisite: ART 2160 with a grade of "C" or better.

Credits: 3 hours

ART 3210 - Topics in Art History: Variable Topics

Investigation of changing topics in art history in class or seminar sessions at an undergraduate level. Course topics are variable.

Credits: 3 hours

Notes: Repeatable for credit under a different topic.

ART 3250 - Writing About Art

Development of the ability to think, verbalize, and write about art and design. Instruction will address technical issues of writing (syntax, compositional structure, editing format, etc.) and critical evaluation of artistic issues (analysis of the visual experience, research and development of a thesis). Each student will write a series of essays which will form the basis for class discussions. This course is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisite: Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors in Art or Graphic Design.

ART 3300 - Ceramics

Continuation of ART 2300 with opportunity for concentration in the medium. Some experimentation in

glazing.

Prerequisites & Corequisites: Prerequisite: ART 2300.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, Graphic Design or Industrial Design.

ART 3310 - Sculpture

Development of individual sculptural direction in all media. Advanced welding, molding and casting techniques are among the media explored.

Prerequisites & Corequisites: Prerequisite: ART 2310 or instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, Graphic Design or Industrial Design.

ART 3380 - Jewelry and Metalsmithing

Intermediate level metalsmithing work. Continued skill development in jewelry design, stone setting, and solder fabrication. Basic lapidary work usually included.

Prerequisites & Corequisites: Prerequisite: ART 2380.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, Graphic Design or Industrial Design.

ART 3400 - Painting II

Continuation of ART 2400.

Prerequisites & Corequisites: Prerequisite: ART 2400.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, Graphic Design or Industrial Design.

ART 3470 - Digital Photography I

An introductory course that explores considerations of equipment and materials related to the digital darkroom such as color theory, the digital camera, printing, studio lighting, data workflow, related software and/or output of still imagery. Emphasis is placed on conceptual development and technical proficiency towards the creation of a portfolio.

Prerequisites & Corequisites: Prerequisites: ART 1040, ART 1050, ART 1070 and ART 1080 with a minimum grade of "C" or better.

Credits: 3 hours

ART 3500 - Typography II

Exploring compositional relationships involving the single word, line, column, page arrangement and structural systems. Semantic and syntactic issues will be investigated in projects and exercises. Computer technology will be investigated.

Prerequisites & Corequisites: Prerequisites: ART 2610 and ART 2510.

Credits: 3 hours

Restrictions: Restricted to majors in Graphic Design.

When Offered: Fall

ART 3510 - Typography III

Dealing with systems, sequence and series as complex typographic problems. Application of theoretical, pragmatic and technical issues to problems common in publication and institutional communication. Computer technology will be investigated.

Prerequisites & Corequisites: Prerequisites: ART 3500 and ART 3600.

Credits: 3 hours

Restrictions: Restricted to majors in Graphic Design.

When Offered: Spring

ART 3520 - Art, Education, and Child Development

Theories, philosophies, research and practice in art and education at the childhood level. Methods and procedures of developmentally appropriate are education for children.

Prerequisites & Corequisites: Prerequisite: ART 1040, ART 1050, ART 1070, and ART 1080.

Credits: 3 hours

Restrictions: Restricted to majors in the Frostic School of Art.

ART 3600 - Graphic Design III: Visual Systems

The study of grids and other systems in graphic design and their application to communication problems. Functions as a transitional phase from theoretical issues to applied problems. Computer technology will be investigated.

Prerequisites & Corequisites: Prerequisites: ART 2510 and ART 2610.

Credits: 3 hours

Restrictions: Restricted to majors in Graphic Design.

When Offered: Fall

ART 3610 - Graphic Design IV: Design Applications

Continuation of Graphic Design III as a transitional phase from the theoretical to the applied design problem. The evolution of design process is explored and developed. Involves the visual study of grids and systems and their applications. Computer technology will be investigated.

Prerequisites & Corequisites: Prerequisites: ART 3500 and ART 3600.

Credits: 3 hours

Restrictions: Restricted to majors in Graphic Design.

When Offered: Spring

ART 3620 - Product Design III

This course prepares students to apply and connect previously acquired skills and research methods in response to design problems, production constraints, and techniques.

The course will also focus on an understanding of how design relates to people and the growing importance of social and environmental responsibilities within the field of product design. In addition, the course will also investigate the movements in the history of product design and the development of materials, production, technologies, consumption and other social and cultural concerns that impact the field.

Prerequisites & Corequisites: Prerequisites: ART 2650 with a grade of "C" or better.
Corequisite: ART 1600

Credits: 3 hours

Restrictions: Restricted to majors in Product Design.

When Offered: Spring

ART 3680 - Special Topics in Design

Any of the following topics could be offered: furniture design, medical equipment design, transportation design, experience design, interaction design, graphic design, and the design of consumer appliances, tools, computer devices, or any additional topic of interest.

Prerequisites & Corequisites: Prerequisites: ART 2650 and ART 2660, with a minimum grade of "C" or better in all prerequisites; or faculty approval for non-majors.

Credits: 3 hours

Restrictions: Restricted to majors in Product Design.

Notes: May be repeated for credit.

When Offered: Fall

ART 3700 - Monoprint II

This course is a continued investigation of the monotype and monoprint techniques developed in Monoprint I. Students will learn current techniques while continuing to develop and expand their conceptual and formal approaches to the medium with an emphasis on interdisciplinary practices.

Prerequisites & Corequisites: Prerequisite: ART 2700

Credits: 3 hours

ART 3710 - Special Topics

Topics offered could be any of the following: package design, exhibit design, sign/symbol design, interactive electronic media, photographics, type as image, applied color, visual translation, and any additional topic of interest.

Prerequisites & Corequisites: Prerequisites: ART 3500 and ART 3600.

Credits: 3 hours

Restrictions: Restricted to majors in Graphic Design.

Notes: Repeatable for credit under different topics.

ART 3750 - Video Art II

An intermediate course that expands upon the working knowledge and considerations of equipment, materials and activities related to the moving image such as non-linear editing techniques, studio lighting, advanced software application and/or emerging lens based technologies. Emphasis is placed on the implementation of research, conceptual development and technical proficiency towards the creation of a portfolio.

Prerequisites & Corequisites: Prerequisite: ART 2750 with a minimum grade of "C" or better.

Credits: 3 hours

ART 3800 - Printmedia II

This intermediate studio course builds on basic printmedia processes and techniques including multiple color printing, digital and photomechanical processes, and interdisciplinary practices. Emphasis will be placed on the development of a personal visual language through the use of research and technical exploration. Students will be introduced to critical theory relevant to the discipline.

Prerequisites & Corequisites: Prerequisite: ART 2800 with a grade of "C" or better.

Credits: 3 hours

ART 3830 - Medieval Art

Presentation of art and architecture from the decline of the Roman Empire through the Gothic Period. Special attention will be paid to the intersection between Medieval religious traditions and the visual arts.

Prerequisites & Corequisites: Prerequisite: ART 2200.

Credits: 3 hours

ART 3850 - Renaissance Art

Presentation of Renaissance art from the thirteenth through the sixteenth centuries, including the pre-Renaissance, Renaissance, and Mannerist styles. Special attention will be paid to the intersection between contemporary religious and political traditions and the visual arts. The class will focus on the Italian tradition, but will include examples from the Northern Renaissance.

Prerequisites & Corequisites: Prerequisite: ART 2200.

Credits: 3 hours

ART 3900 - Twentieth-Century Art: 1945 to Present

Major trends in art since World War II are discussed. Emphasis is placed upon contemporary methods of art theory and criticism.

Prerequisites & Corequisites: Prerequisite: ART 2210.

Credits: 3 hours

ART 4210 - Medieval Lives/Foreign Encounters

This course examines the interactions between diverse groups of people during the Middle Ages who were brought together, often for the first time, by pioneering globetrotters who journeyed vast distances across Europe, Asia, and North Africa. These foreign encounters will be explored by reading the traveler's correspondence, journals, guidebooks, and published narratives, as well as by analyzing the visual culture of the places they visited. Because religion played such a prominent role in shaping attitudes to "outsiders," the course will survey the major faiths of the medieval world, particularly Judaism, Christianity, and Islam (the monotheistic faiths of the Abrahamic tradition), as well as polytheism and Buddhism. Lastly, we will consider the lasting influence of medieval perceptions of "the other" on the events, institutions, and attitudes of our time. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category. Not open to Freshmen.

Credits: 3 hours

ART 4470 - Digital Photography II

An intermediate course that expands upon the working knowledge and considerations of equipment, materials and activities related to the digital darkroom such as acquisition, digital manipulation and/or output of still imagery. Emphasis is placed on the implementation of research, conceptual development and technical proficiency towards the creation of a portfolio.

Prerequisites & Corequisites: Prerequisites: ART 2160 and ART 3470 with a minimum grade of "C" or better in all prerequisites.

Credits: 3 hours

ART 4520 - Art, Education, and Adolescent Development

Theories, philosophies, research and practice in art and education at the adolescent level. Methods and procedures of developmentally appropriate art education for adolescents.

Prerequisites & Corequisites: Prerequisites: ART 3520

Credits: 3 hours

Restrictions: Restricted to majors in Art Education.

ART 4600 - Graphic Design V: Advanced Problems

Applied design problems of an advanced complex nature emphasizing design methodology and research. Input from the community and outside sources will be a focus for the problem solving process. The problems will deal with a series of related parts and involve conventional and new media. The emphasis will be on analysis as it applies to the theoretical and applied project. This will include the experiences of design teams. Computer technology will be utilized. May be taken in conjunction with ART 5700 Intern I.

Prerequisites & Corequisites: Prerequisites: ART 3510 and ART 3610.

Credits: 3 hours

Restrictions: Restricted to majors in Graphic Design.

When Offered: Fall

ART 4610 - Graphic Design VI: Senior Projects

Individual Senior Thesis projects. Involves topic research and design solutions to complex problems as a culmination of studies in graphic design. Emphasis will be on research, design process, methodology and innovation. Computer technology will be utilized.

Prerequisites & Corequisites: Prerequisite: ART 4600.

Credits: 4 hours

Restrictions: Restricted to majors in Graphic Design.

When Offered: Spring

ART 4640 - Design Internship

Design internship provides students with work experience and exposure to professional practice through an internship in a professional setting. The Internship can be taken in the summer between the second and third and/or the third and fourth years of the Product Design program.

Prerequisites & Corequisites: Prerequisites: ART 1600, ART 1610, ART 1650, ART 2650 and ART 2660; with a grade of "C" or better in all prerequisites.

Credits: 3

Restrictions: Restricted to majors in Product Design.

Notes: May be repeated for credit.

When Offered: Spring, Fall, and/or Summer.

ART 4650 - Product Design IV

This course focuses on design thinking and interdisciplinary product design development. A research and systems-based approach will be utilized to develop design concepts and ideas. Students will explore various design methodologies and investigate how human factors, aesthetics, and product semantics affect a product's success. Human centered design approach will be explored. In addition, the course will investigate the movements in the history of product design and the development of materials, production, technologies, consumption and other social and

cultural concerns that impact the field.

Prerequisites & Corequisites: Prerequisite: ART 3620 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Product Design.

When Offered: Fall

ART 4670 - Thesis Project

This is a capstone course for the student's education in Product Design. Students will be required to present a suite of visualizations, prototypes and research that comprehensively describe an original product or system for use. The students' thesis projects include descriptions and documentation of their trajectory from the identification of a problem or market opportunity, to the unveiling and early testing/use of their projects.

Prerequisites & Corequisites: Prerequisite: ART 4650 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Product Design.

When Offered: Spring

ART 4710 - Special Topics in Photography and Intermedia

A studio or seminar that investigates changing topics in Photography and Intermedia. Course topics vary from term to term.

Prerequisites & Corequisites: Prerequisite: Junior status or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit.

ART 4920 - Graduation Presentation and Seminar-Graphic Design

Investigation and evaluation of contemporary topics and trends in graphic design. Students will be exposed to how graphic designers express their ideas through visiting artist programs, exhibitions, workshops and seminars

encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in graphic design to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee.

Prerequisites & Corequisites: Prerequisites: Senior standing.

Credits: 3 hours

Restrictions: Restricted to majors in the Graphic Design B.F.A. program.

ART 4930 - Graduation Preparation

This course covers topics useful to the student as they make the transition from art school to their own practice as a professional artist. Coursework will provide resources on all aspects of the emerging artist's career-studio practice, including developing ties in the art world, documenting work, exhibiting art, writing about art, taking on curatorial responsibilities, addressing financial and legal concerns, and applying to graduate school. Students are encouraged to take this course the semester prior to the semester in which they graduate.

Prerequisites & Corequisites: Prerequisite: Senior standing.

Credits: 3 hours

ART 4980 - Product Design V

This course is designed for senior Product Design students who will be entering the profession upon graduation. Students will have the opportunity to engage in a variety of design activities including conceptual development, research, material/technical exploration, and visual experimentation. The course will investigate the movements in the history of product design and the development of materials, production, technologies, consumption and other social and cultural concerns that impact the field. In addition, students will collaboratively work together to explore spatial environment as a medium to create and install a graduation exhibition. Attention will also be given to the development of a design portfolio and a variety of self-promotional materials in anticipation of a job search.

Prerequisites & Corequisites: Prerequisite: ART 4650, with a grade of "C" or better.
Corequisite: ART 1600

Credits: 3 hours

Restrictions: Restricted to majors in Product Design.

When Offered: Spring

ART 4990 - Senior Thesis

Capstone course required for Art History majors in which the student revises a research paper written in an upper division course in order to produce a paper of publication quality.

Prerequisites & Corequisites: Prerequisite: Registration requires approval by supervising faculty member.

Credits: 1 hour

Restrictions: Restricted to majors in Art History.

ART 5000 - Independent Studies

An opportunity for qualified undergraduates to elect an area of special interest and pursue it in depth.

Prerequisites & Corequisites: Prerequisites: ART 3100 and department approval.

Credits: 1 to 6 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ART 5100 - Drawing Workshop

Continuation of ART 3100.

Prerequisites & Corequisites: Prerequisite: ART 3100

Credits: 1 to 6 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ART 5200 - Independent Study in Art History

Problems in Art History from ancient times to the present, selected by the individual student in consultation with the instructor.

Prerequisites & Corequisites: Prerequisites: Department approval.

Credits: 2 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ART 5210 - Topics in Art History: Variable Topics

Investigation of changing topics in art history in class or seminar sessions by advanced students. Course title varies from term to term.

Prerequisites & Corequisites: Prerequisites: Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art History; MFA candidates and other undergraduate and graduate students with department approval.

Notes: Repeatable for credit under a different title. Open to upper level and graduate students.

ART 5220 - Topics in Medieval and Renaissance Art

Investigation of changing topics in Medieval and Renaissance art history in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics.

Prerequisites & Corequisites: Prerequisites: Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art History; MFA candidates and other undergraduate and graduate students with department approval.

Notes: May be repeated for credit under different topics. Open to upper level and graduate students.

ART 5230 - Topics in Modern Art

Investigation of changing topics in modern art in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics.

Prerequisites & Corequisites: Prerequisite: Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art History; MFA candidates and other undergraduate and graduate students with department approval.

Notes: May be repeated for credit under different topics. Open to upper level and graduate students.

ART 5250 - Topics in Asian Art

Investigation of changing topics in Asian art in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics.

Prerequisites & Corequisites: Prerequisites: Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art History; MFA candidates and other undergraduate and graduate students with department approval.

Notes: May be repeated for credit under different topics. Open to upper level and graduate students.

ART 5270 - Art History Methods

Intensive study of the methods, literature, and research techniques used in art historical inquiry and writing.

Prerequisites & Corequisites: Prerequisite: Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art History; MFA candidates and other upper level and graduate students with department approval.

Notes: Open to upper level and graduate students.

ART 5290 - Art History Internship

Designed to provide Art History majors with professional knowledge and skills in the following areas: gallery, museum, archival, visual resources library work, arts

advocacy, and arts administration. Students are supervised by an Art History faculty member and a supervisor in the organization where the student is placed.

Prerequisites & Corequisites: Prerequisite: Registration requires approval by supervising faculty member.

Credits: 1 hour

Restrictions: Restricted to majors and minors in Art History.

Notes: May be repeated for credit. Open to upper level and graduate students.

ART 5300 - Ceramics Workshop

Advanced work in ceramics on an independent basis.

Prerequisites & Corequisites: Prerequisite: ART 3300.

Credits: 1 to 6 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Industrial Design.

Notes: May be repeated for credit. Open to upper level and graduate students.

ART 5310 - Sculpture Workshop

Continuation of ART 331. The advanced student explores the expressive possibilities of his or her own individual sculptural direction, with bronze and aluminum casting related techniques.

Prerequisites & Corequisites: Prerequisite: ART 3310.

Credits: 1 to 6 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Industrial Design.

Notes: May be repeated for credit. Open to upper level and graduate students.

ART 5350 - Intermedia Workshop

An advanced interdisciplinary course that examines unconventional art forms such as collaboration, kinetic,

performance and/or installation art. The student is expected to have a solid background in one conventional art form to allow for technical and conceptual explorations in Intermedia art. Course topic varies from semester to semester.

Prerequisites & Corequisites: Prerequisite: Junior status or instructor approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ART 5380 - Jewelry and Metalsmithing Workshop

Advanced work in jewelry design and metalsmithing. Students collaborate with the instructor to plan a suitable and particular direction for study.

Prerequisites & Corequisites: Prerequisite: ART 3380.

Credits: 1 to 6 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Industrial Design.

Notes: May be repeated for credit. Open to upper level and graduate students.

ART 5400 - Painting Workshop

Continuation of ART 3400.

Prerequisites & Corequisites: Prerequisite: ART 3400.

Credits: 1 to 6 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Industrial Design.

Notes: May be repeated for credit. Open to upper level and graduate students.

ART 5410 - Printmedia Workshop

This advanced studio course investigates contemporary trends in printmedia including such topics as 'the multiple' and three-dimensional and installation methods. Students

are encouraged to explore all printmedia and interdisciplinary approaches. An in-depth analysis of critical print media theory will provide the basis for the continuing development of the student's own personal language and its contextualization within contemporary art.

Prerequisites & Corequisites: Prerequisite: ART 2800 and ART 3800.

Credits: 3 hours

Restrictions: Restricted to majors or minors in Art; or majors in Art Education or Graphic Design.

Notes: May be repeated for credit. Open to upper level and graduate students.

ART 5480 - Photography Workshop

An advanced course that masters the technical and conceptual applications of still image equipment and materials with focus on portfolio development and advanced individual research. Critical readings are partnered with studio projects. Course topics vary from semester to semester.

Prerequisites & Corequisites: Prerequisites: ART 3160 or ART 4470, with a minimum grade of "C" in all prerequisites.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ART 5520 - Art Education Practicum

A teaching laboratory course. Application of theories and skills in art education. Practice in methods and procedures of art education.

Prerequisites & Corequisites: Prerequisites: ART 3520 and ART 4520.

Credits: 6 hours

Restrictions: Restricted to majors in Art Education.

Notes: Must be repeated for total of 12 credits. Open to upper level and graduate students.

ART 5530 - Independent Studies in Art Education

An arranged elective course in which the student investigates and researches a problem, a project, or trends in art education. (Not to be taken in place of required art education courses.)

Prerequisites & Corequisites: Prerequisites: Department approval.

Credits: 1 to 6 hours

Restrictions: Restricted to majors (or masters) in Art Education.

Notes: May be repeated for credit. Open to upper level and graduate students.

ART 5700 - Intern I

Design practicum in Design Center. Involves an introduction to problem-solving for clients from the community and university. Focus is on the design process from concept to completion and involves client contact, budget preparation, electronic pre-press production and interface with printers and the printing industry.

Prerequisites & Corequisites: Prerequisites: ART 3510, ART 3610.

Credits: 3 hours

Restrictions: Restricted to majors in Graphic Design.

Notes: Open to upper level and graduate students.

When Offered: Fall, Spring

ART 5710 - Intern II

Design practicum in Design Center. Involves problem solving for clients from the community and university. Focus is on the design process from concept to completion and involves design team experience, client contact, budget preparation, electronic pre-press production and interface with printers and printing industry. Credits are variable due to the fact that larger, more intense projects are sometimes given and the credits are determined by the depth of the project.

Prerequisites & Corequisites: Prerequisites: ART 4600, ART 5700.

Credits: 3 to 6 hours

Restrictions: Restricted to majors in Graphic Design.

Notes: Open to upper level and graduate students.

When Offered: Spring

Arts and Sciences

A-S 1850 - Introduction to the Pre-Health Professions

The goal of this seminar course is to introduce new Pre-Health Professions students to both the academic aspects of college (via Study Skills Seminars, etc) as well as the pathways towards fields in Healthcare (via panel discussions and a research project). This course prepares students to undertake and successfully manage the challenges and responsibilities of a Pre-Health Professions student. It is intended to (1) enhance students' academic skills while focusing on engagement and a successful transition to the university setting; (2) focus on enhancing skills that pertain to college life; (3) focus on personal exploration; (4) help students begin to make decisions about their majors and careers, which can be intimidating choices for a first-year student. While it is intended for freshman, all new students are welcome to enroll in the class.

Credits: 2 hours

When Offered: Fall

A-S 3200 - Interinstitutional Study

Students may take classes at Davenport College, Kalamazoo College, and Kalamazoo Valley Community College through a cooperative program using this course number for credit toward a WMU degree. Information and enrollment forms may be obtained from the Registrar's Office. Where credit toward the major or minor is desired, prior approval must be obtained from the student's major and/or minor department.

Credits: 1 to 12 hours

Notes: May be repeated for credit.

A-S 3600 - Achieving in Academic English: Emphasis on Reading

This course is for undergraduates and graduates who are non-native speakers of English and who have sufficient language proficiency to be admitted to the University, but who need to improve their reading and writing skills in order to perform successfully in their academic world. The course promotes further development in the ability to read academic prose and to write in the genres needed for academic success, including the research paper. Attention will be paid to critical reading and editing for grammatical correctness in writing.

Prerequisites & Corequisites: Prerequisite: Minimum of 500 on TOEFL or an equivalent on an alternative English language proficiency test accepted by Western Michigan University.

Credits: 5 hours

When Offered: Fall, Spring and Summer I.

A-S 3610 - Developing Proficiency in English: Emphasis on Speaking and Listening

For international students whose interpersonal speaking and listening skills are satisfactory, this course promotes further development of oral language abilities needed for academic success, including group interaction skills. Attention will be paid to developing critical listening and oral presentation skills.

Prerequisites & Corequisites: Prerequisite: Prerequisite: Minimum of 500 on TOEFL or an equivalent on an alternative English language proficiency test accepted by Western Michigan University.

Credits: 5 hours

When Offered: Fall, Spring and Summer I.

A-S 3900 - Arts and Sciences Seminar

A variable topics course in interdisciplinary studies or other subjects that fall outside the traditional disciplines. May be taken as an elective or for credit in an Arts and Sciences major or minor by special arrangement with the department. Topics will be announced in the Schedule of Classes. May be repeated once when topic differs.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 4 hours

A-S 3990 - Field Experience (Community Participation)

A program of independent study combining academic work with social, environmental, civic or political field work.

Prerequisites & Corequisites: Prerequisites: A written outline of the student's project; and Arts and Sciences Advising approval required.

Credits: 2 to 8 hours

Notes: May be used as elective credit only. May be repeated for credit.

A-S 4100 - Climate Change Studies Capstone

This capstone course is designed to help students reflect, synthesize, and integrate knowledge and experiences within the climate change minor program of study. Students are required to provide evidence (previous work and new essays) in the form of a portfolio that illustrates their achievement in meeting the program learning objectives.

Prerequisites & Corequisites: Prerequisites: Junior or senior standing or permission of the instructor.

Credits: 1 hour

A-S 4960 - Writing-Intensive Mentored Portfolio

A student portfolio will be developed in conjunction with a faculty mentor. The faculty mentor will aid the student in the development of the portfolio and will evaluate its contents. The portfolio may be based upon information about their "life experience," professional experience, credits from professional job training seminars and/or significant classroom projects. The course will include at least four significant writing experiences. Mentored Portfolio credit can be used for all or part of the Professional Studies capstone experience. Students are required to seek advising prior to taking their first capstone experience. The course may be repeated for a total of six credit hours. Application forms are available from the College of Arts and Sciences advising office, the advising office at the WMU Regional Locations and on the advising page of the College website at wmich.edu/cas/advising. This course is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisites: Department approval.

Credits: 3 to 6 hours

A-S 4970 - Mentored Portfolio

A student portfolio will be developed in conjunction with a faculty mentor. The faculty mentor will aid the student in the development of the portfolio and will evaluate its contents. The portfolio may be based upon information about their "life experience," professional experience, credits from professional job training seminars and/or significant classroom projects. Mentored Portfolio credit can be used for all or part of the Professional Studies capstone experience. Students are required to seek advising prior to taking their first capstone experience. The course may be repeated for a total of six credit hours. Application forms are available from the College of Arts and Sciences advising office, the advising office at the WMU Regional Locations and on the advising page of the College website at wmich.edu/cas/advising.

Prerequisites & Corequisites: Prerequisites: Department approval.

Credits: 2 to 6 hours

A-S 4980 - Directed Independent Study

A program of independent study (reading or research) that allows the student to pursue a subject that falls outside of the traditional disciplines. The initiative for describing the project, planning the method(s) of investigation, determining appropriate product or results, and securing the cooperation of a faculty member to supervise the work must come from the student. Application forms may be picked up in the College of Arts and Sciences Advising Office and must be approved by the Dean of the College. Approval is contingent on the merit of the proposal. Repeatable up to the maximum of 6 credit hours.

Prerequisites & Corequisites: Prerequisites: Department approval.

Credits: 1 to 6 hours

A-S 4990 - Cooperative Education and Practical Training

Cooperative education, internship or practical training experience during a semester involves full-time planned and supervised work related to the student's major or minor and is performed outside the department, unit or university.

This work is to be summarized in a written report. Students enrolled in this course will be classified as having full-time student status for the purpose of loan deferments and insurance eligibility. Students may take up to a maximum of 6 credit hours in A-S 4990.

Prerequisites & Corequisites: Prerequisite: Departmental approval.

Credits: 1 - 6 hours

Notes: May be repeated for credit.

A-S 5100 - Topics in Legal Studies

This course is part of the accelerated law program run collaboratively with the College of Arts and Sciences and the WMU Thomas Cooley Law School, allowing students to take courses through the Law School that are also included in the accelerated program. Consult a program advisor for additional details.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 18 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Aviation Sciences

AVS 1110 - Heritage and Values of the United States Air Force I

Heritage and Values of the United States Air Force is a survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 hour

AVS 1120 - Heritage and Values of the United States Air Force II

Heritage and Values of the United States Air Force is a survey course designed to introduce students to the United States Air Force and provides an overview of the basic

characteristics, missions, and organization of the Air Force.

Prerequisites & Corequisites: Prerequisite: Departmental approval.

Credits: 1 hour

AVS 1130 - Foundation of the United States Air Force Lab

Practical projects focus on the knowledge and application of Air Force procedures, processes, and customs. Communication and group leadership techniques are practiced. A physical education component is also included.

Prerequisites & Corequisites: Corequisite: AVS 1110

Credits: 1 hour

AVS 1140 - Foundation of the United States Air Force II Lab

Practical projects focus on the knowledge and application of Air Force officer environment and chain of command. The cadet mentor program is defined and application of its principles practiced. Air Force ceremonies, customs, and award activities are defined and practiced. A physical education component is also included.

Prerequisites & Corequisites: Corequisite: AVS 1120

Credits: 1 hour

AVS 1200 - Introduction to Aviation

This course surveys the major topics in the aviation industry. Components of the course include history, regulations, air space, fundamentals of flight, propulsion, and navigation. Basic crew concepts are introduced and various career paths are investigated. Corporate, airline and airport operations are discussed. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

AVS 1210 - Aerodynamics and Performance

Theory of flight, aircraft structure and control, propulsion, performance, and weight and balance.

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; Aviation Maintenance Technology; or Aviation Technical Operations.

AVS 1220 - Introduction to Airframes and Systems

This course introduces students to light aircraft construction styles, materials and systems. Students become familiar with system function, operation, cockpit controls and indications. Safety around aircraft is emphasized.

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; Aviation Maintenance Technology; or Aviation Technical Operations.

AVS 1225 - Introduction to Aircraft Powerplants

This course introduces students to typical aircraft engines including reciprocating and gas turbine engines. Operating cycles, power generation, operating parameters and engine specifics are studied. Typical systems found on these powerplants are studied with an emphasis on nomenclature, function, operation and safety.

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; Aviation Maintenance Technology; or Aviation Technical Operations.

AVS 1230 - Aircraft Systems Laboratory

This is a laboratory which relates to the topics covered in AVS 1220. It provides hands on familiarization and training with the construction, operation, and control of light aircraft systems.

Prerequisites & Corequisites: Prerequisites: AVS 1220 with a grade of "C" or better (may be taken concurrently).

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Flight Science or Aviation Management and Operations.

AVS 1235 - Aircraft Powerplants Laboratory

This is a laboratory which relates to the topics covered in AVS 1225. It provides hands on familiarization and training with the construction, operation, and control of light aircraft engines and engine sub-systems.

Prerequisites & Corequisites: Prerequisite: AVS 1225 with a grade of "C" or better (may be taken concurrently).

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Flight Science or Aviation Management and Operations.

AVS 1500 - Aeronautical Radiotelephony Communications

Air transportation industry specific education and training in English language aviation radiotelephony and phraseology.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation flight Science.

AVS 1510 - Professional Flight I Theory

Ground instruction leading to the successful completion of the Private Pilot Knowledge Exam. Restricted to students meeting a minimum cumulative grade point average of 2.75 overall GPA and a 3.0 College of Aviation GPA earned at Western Michigan University. Entering freshmen without a WMU grade point average will be considered if they have earned a high school GPA of 3.0 and an SAT score of 1070 or 21 on the ACT. Transfer students without a WMU GPA will be considered if they have earned a GPA of 3.0 or better from their prior institution) and to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

Prerequisites & Corequisites: Prerequisites: Chief flight instructor approval (approved application required) and FAA 2nd class medical certificate; MATH 1100 or SAT minimum MATH score of 510 or ACT minimum MATH score of 19, or MATH 1100 on the Math placement test. Corequisite: AVS 1520.

Credits: 3 hours

AVS 1520 - Professional Flight I Lab A

Initial flight and simulator instruction in aeronautical skills and knowledge necessary for basic attitude flight, solo flight, and selected Flight Management Skills. Restricted to students meeting a minimum cumulative grade point average of 2.75 overall GPA and a 3.0 College of Aviation GPA earned at Western Michigan University. Entering freshmen without a WMU grade point average will be considered if they have earned a high school GPA of 3.0 and an SAT score of 1070 or 21 on the ACT. Transfer students without a WMU GPA will be considered if they have earned a GPA of 3.0 or better from their prior institution) and to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

Prerequisites & Corequisites: Prerequisites: Chief flight instructor approval (application required) and FAA 2nd class medical certificate; MATH 1100 or SAT minimum MATH score of 510 or ACT minimum MATH score of 19, or MATH 1100 on the Math placement test. Corequisite: AVS 1510

Credits: 1 hour

AVS 1525 - Professional Flight I Lab B

Initial flight and simulator instruction in aeronautical skills and knowledge necessary for safety, private pilot certification, and selected additional navigation skills. Restricted to students maintaining a minimum GPA of 2.75 overall and a 3.0 College of Aviation GPA and to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

Prerequisites & Corequisites: Prerequisites: AVS 1520, Chief flight instructor approval (application required), and FAA 2nd class medical certificate.

Credits: 1 hour

AVS 2050 - Aviation Safety

Physiological and psychological factors relating to flight safety emphasizing cause and effect of airplane accidents and related problem-solving processes. Includes a systems approach to safety program development and management.

Prerequisites & Corequisites: Prerequisite: AVS 1200

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; Aviation Maintenance Technology; or Aviation Technical Operations.

AVS 2060 - Flight Physiology

Effects of high altitude flight on the human body, flying and health, first aid and survival. Attention will also be given to information processing and perception in flight.

Prerequisites & Corequisites: Prerequisite: AVS 2050

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science or Aviation Management and Operations.

AVS 2070 - Crew Resource Management

Social and task requirements of effective group performance. Topics include communications, leadership, roles, decision making, resources and team building.

Prerequisites & Corequisites: Prerequisites: AVS 1200 and PSY 1000 (PSY 1000 may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 2100 - Introduction to Airports

This course introduces airports and the airport system. It looks at historical elements of development, ownership and governance and tracks these to modern times. The airport infrastructure for landside, terminal and airside will be introduced. Systems and components within each will be evaluated, such as signs, lights, and markings, movement areas, servicing, parking areas, and traffic flow. Students will have a choice of any real world airport to study in parallel with topics covered in class. Writing, speaking, and teamwork will be integral with the course.

Prerequisites & Corequisites: Prerequisite: AVS 1200 with a grade of "C" or better (may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Management and Operations.

AVS 2110 - Team and Leadership Fundamentals I

Team and Leadership Fundamentals focuses on laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The courses will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer candidate.

Prerequisites & Corequisites: Prerequisite: Departmental approval.

Credits: 1 hour

AVS 2120 - Aviation Meteorology

Application of meteorology principles to flight operations. Topics include aviation forecasts, weather maps, NOTAMs, international weather patterns and information formats, weather radar, TCAS, and the role and responsibilities of ATC in weather observation and reporting.

Prerequisites & Corequisites: Prerequisite: GEOG 2250.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 2130 - Team and Leadership Fundamentals II

Team and Leadership Fundamentals focuses on laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The courses will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC

officer candidate.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 hour

AVS 2140 - The Evolution of USAF Air and Space Power Lab

Principles of advanced individual and flight drill movements are practiced. Mental, physical, and administrative requirements of field training are defined and practiced. Practical skills needed to be an effective flight commander are emphasized.

Prerequisites & Corequisites: Corequisite: AVS 2110

Credits: 1 hour

AVS 2150 - The Evolution of USAF Air and Space Power II Lab

Proper open rank inspection procedures and field training decorum are explored and practiced. Correct guide procedures during drill and ceremonies are defined and practiced. Key personnel parade procedures are defined.

Prerequisites & Corequisites: Corequisite: AVS 2130

Credits: 1 hour

AVS 2400 - Principles of Aviation Supply Chain Management

Fundamental principles, processes, and activities occurring in the aviation/aerospace industry supply chains are discussed. Different supply chain strategies and their related issues and challenges are reviewed. Cross-functional integration of key business processes within the firms and across networks are presented and analyzed.

Prerequisites & Corequisites: Prerequisite: Sophomore standing.

Credits: 3 hours

AVS 2510 - Professional Flight II Theory

Ground instruction pursuant to instrument rating certification with particular emphasis on use of air traffic facilities and airways in visual as well as instrument environments. Instruction leads to the successful completion of the Instrument Pilot Knowledge Exam.

Prerequisites & Corequisites: Prerequisites: Chief flight instructor approval (application required); and FAA 2nd class medical certificate.

Co-requisite: AVS 2520

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 2520 - Professional Flight II Lab

Continuing aeronautical skill, knowledge, and experience necessary for professional pilot application through flight and simulator instruction. Training of instrument flight procedures, advance avionics, and use of air traffic facilities required for instrument rating certification. Restricted to students maintaining a minimum GPA of 2.75 overall and a 3.0 College of Aviation GPA and to majors in Aviation Flight Science.

Prerequisites & Corequisites: Prerequisites: AVS 2510 and AVS 2120 (both may be taken concurrently) with a grade of "C" or better in all prerequisites; and chief flight instructor approval (application required); and FAA 2nd class medical certificate.

Credits: 3 hours

AVS 2600 - Aircraft Maintenance Practices

This course introduces students to basic aircraft construction and standard maintenance practices and equipment. Materials and construction techniques are introduced and inspection processes and requirements are examined. Introduction to and proper use of standard maintenance equipment and techniques is covered. Aircraft conformity and airworthiness standards are defined and methods of determining these are studied. Safe practices and conditions are emphasized. Human factors in maintenance are introduced and professional ethics are explored.

Prerequisites & Corequisites: Corequisite: AVS 2605

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 2605 - Aircraft Maintenance Practices Lab

This lab introduces students to basic aircraft construction and standard maintenance practices and equipment in conjunction with AVS 2600. Materials and construction techniques are introduced and inspection processes and requirements are examined. Introduction to and proper use of standard maintenance equipment and techniques is covered. Aircraft conformity and airworthiness standards are defined and methods of determining these are studied. Safe practices and conditions are emphasized. Human factors in maintenance are introduced and professional ethics are explored.

Prerequisites & Corequisites: Corequisite: AVS 2600

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 2610 - Maintenance Regulations

Regulatory structure and legal environment impacting aviation maintenance operations and practices. Including discussion of the Federal Aviation Regulations rule making process, legal documentation, and maintenance publications required for repair station and airworthiness.

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 2620 - Aircraft Structures I

This course provides an introduction to basic aircraft structures. Course includes materials, assembly methods, inspection and repair. Primary and secondary flight control operations and rigging, finishing and corrosion control, and aircraft drawings are also covered.

Prerequisites & Corequisites: Prerequisites: AVS 1220 and AVS 2600, with a grade of "C" or better in all prerequisites.
Corequisite: AVS 2625

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 2625 - Aircraft Structures I Lab

This lab, in conjunction with AVS 2620, covers basic aircraft structures including materials, assembly methods, inspection and repair. Primary and secondary flight control operations and rigging, finishing and corrosion control, and aircraft drawings are also covered.

Prerequisites & Corequisites: Prerequisites: PHYS 1070, PHYS 1080, AVS 1220 (with a grade of "C" or better) and AVS 2600 (with a grade of "C" or better).
Corequisite: AVS 2620

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 2630 - Basic Aircraft Engines

Introduction of basic power plants concepts and principles, including Otto, Diesel, and Brayton cycles of operation.

Prerequisites & Corequisites: Prerequisites: AVS 1200, AVS 1225 and AVS 2600. (A minimum grade of "C" is required for all AVS prerequisites.)
Corequisite: AVS 2635

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 2635 - Basic Aircraft Engines Lab

This lab, in conjunction with AVS 2630, covers the introduction of basic power plants concepts and principles, including Otto, Diesel, and Brayton cycles of operation. Laboratory work includes engine disassembly.

Prerequisites & Corequisites: Prerequisites: AVS 1200, AVS 1225 (may be taken concurrently) and AVS 2600 (may be taken concurrently), with a minimum grade of "C" in all prerequisites.
Corequisite: AVS 2630

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 2640 - Aircraft Electrical I

This class covers the study of basic DC and AC electricity including electron theory, Ohm's law, Kirchhoff's laws, and electrical power. Also covered are series, parallel, and combination circuits, inductance, capacitance and digital concepts.

Prerequisites & Corequisites: Prerequisite: MATH 2000 (may be taken concurrently).
Corequisite: AVS 2645

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 2645 - Aircraft Electrical I Lab

This lab, in conjunction with AVS 2640, covers the study of basic DC and AC electricity including electron theory, Ohm's law, Kirchhoff's laws, and electrical power. Also covered are series, parallel, and combination circuits, inductance, capacitance and digital concepts.

Prerequisites & Corequisites: Prerequisites: MATH 2000, PHYS 1070, and PHYS 1080.
Corequisite: AVS 2640

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 2650 - Aircraft Propellers

Theory of aircraft propellers and propeller systems. Includes constant speed propellers, turboprop propellers, propeller control systems, auxiliary systems, airworthiness inspection, maintenance, and repair practices.

Prerequisites & Corequisites: Corequisite: AVS 2655

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 2655 - Aircraft Propellers Lab

This lab, in conjunction with AVS 2650, covers the theory of aircraft propellers and propeller systems.

Includes constant speed propellers, turboprop propellers, propeller control systems, auxiliary systems, airworthiness inspection, maintenance, and repair practices.

Prerequisites & Corequisites: Prerequisite: PHYS 1070/1080
Corequisite: AVS 2650

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 2800 - Transportation Technology: Policy, Perils, and Promise

Introduction to transportation technologies. Survey the development of transportation policy and the key players in policy decision-making. Case studies will be used to explore issues in the practical application of transportation and how these technologies impact society, including demographics, work, and the environment.

Credits: 3 hours

AVS 2810 - Introduction to Air Traffic Control

Overview of the FAA Air Traffic Control System discussing the roles, responsibilities, and interactions it has within the National Airspace System. This includes a survey of the structure, tools, procedures and services of the air traffic control system emphasizing the role and responsibilities of air traffic controllers within the system.

Prerequisites & Corequisites: Prerequisite: Sophomore standing; AVS 1200 and AVS 1210 with grades of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Management and Operations or Aviation Flight Science.

AVS 3040 - Airport Safety and Security

This course will examine safety and security at airports from domestic and international perspectives.

Understanding the history and corresponding regulations are key to understanding the current safety and security equipment, systems and processes. Students will analyze the evolution of airport safety and security, examine the trending issues and propose ideas to address future needs.

Prerequisites & Corequisites: Prerequisite: AVS 2100 with a grade of "C" or better (may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Management and Operations.

AVS 3060 - Advanced Aerodynamics and Performance

Advanced aerodynamics and flight principles related to airplane operations and performance. Design concepts for high performance, supersonic and special use airplanes are studied to enable pilots to understand and predict airplane performance and limitations in a wide range of flight applications with special regard for speed and configuration.

Prerequisites & Corequisites: Prerequisite: PHYS 1070/1080, AVS 1210, AVS 1220, AVS 1230.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 3070 - Advanced Aircraft Systems

A study of the design, operation, monitoring, and control of transport category aircraft systems. The architecture and interaction among systems is discussed and various aircraft configurations are investigated.

Prerequisites & Corequisites: Prerequisite: AVS 1220, AVS 1225, AVS 1230 and AVS 1235. Recommend taking AVS 3080 concurrently.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 3080 - Advanced Aircraft Systems Laboratory

This is a laboratory which relates to the topics covered in AVS 3070. It provides hands-on familiarization and training with the construction, operation, and control of transport category aircraft systems.

Prerequisites & Corequisites: Prerequisite: AVS 3070 (recommend taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 3125 - Advance Aviation Meteorology

Application of meteorology principles to flight operations. Topics include application of aviation observations and forecasts to safe flight operations, wide area weather maps and products, high altitude weather maps applied to flight operations, international weather patterns, application of hazardous inflight weather knowledge to sound decision making.

Prerequisites & Corequisites: Prerequisites: AVS 2120 and AVS 2510, with a grade of "C" or better in all prerequisites. (AVS 2510 may be taken concurrently.)

Credits: 3 hours

Notes: Restricted to majors in Aviation Flight Science.

AVS 3140 - Airport Operations

This course will analyze the day to day operations of a typical large to medium size airport. Students will study Federal Airport Certification regulations (FAR part 139) and the AAAE Learning module 3 as classroom work. They will also participate in field work. They will be assigned to work directly with operations personnel at local airports and gain hands-on experience in an operating airport.

Prerequisites & Corequisites: Prerequisite: AVS 3040 with a grade of "C" or better (may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Management and Operations.

AVS 3190 - Aviation Law

Legal principles governing the aviation industry. Historical precedents, regulatory statutes, standards, contracts, liability and insurance, current developments and court decisions.

Prerequisites & Corequisites: Prerequisites: AVS 1200 and Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; Aviation Maintenance Technology; or Aviation Technical Operations.

AVS 3210 - Leading People and Effective Communication I

Leading People and Effective Communication teaches cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Cadets have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors.

Credits: 3 hours

AVS 3220 - Global Navigation and International Flight Planning

Advanced navigation systems and equipment including RNAV, pictorial displays, flight directors, airborne radar, INS, IRS, OMEGA, GLONASS, SATCOM, and GPS. Principles of worldwide navigation including time zones, spherical distance and course, and electronic calculations for decision-making. Long range planning including air transport performance.

Prerequisites & Corequisites: Prerequisite: AVS 1525 or AVS 4970, with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 3230 - Leading People and Effective Communication II

Leading People and Effective Communication teaches cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Cadets have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors.

Credits: 3 hours

AVS 3240 - Air Force Leadership Studies I Lab

Apply leadership and management skills in supervising the cadet corps and through leadership experiences. Learn and apply proper feedback and performance evaluation skills.

Prerequisites & Corequisites: Corequisite: AVS 3210

Credits: 1 hour

AVS 3260 - Air Force Leadership Studies II Lab

Utilize leadership and management skills in supervising the cadet corps and through advanced leadership experiences. Advanced feedback and performance evaluation skills defined and practiced.

Prerequisites & Corequisites: Corequisite: AVS 3230

Credits: 1 hour

AVS 3300 - Aerobatic Flight

Ground and flight instruction in aerobatic flight maneuvers. This course will improve aircraft handling capabilities, critical attitude recovery, understanding of aerodynamics, and self-confidence.

Prerequisites & Corequisites: Prerequisite: Department and chief flight instructor approval (application required for approval by chief flight instructor).

Credits: 1 hour

AVS 3320 - Single Engine Seaplane

Ground and flight instruction which would add a seaplane class rating to private or commercial pilot certificate holders.

Prerequisites & Corequisites: Prerequisite: Department and chief flight instructor approval (application required for approval by chief flight instructor); and Private Pilot Certificate.

Credits: 1 hour

AVS 3400 - Sourcing and Procurement in Aviation

Concepts, tools and techniques related to purchasing and sourcing in the Global Aviation/Aerospace industry are defined and evaluated. The strategic nature of sourcing and the impact purchasing has on the success and profitability of an organization is presented. Students will develop skills that enhance quantitative and analytical thinking in the areas of sourcing and negotiation for goods and services.

Prerequisites & Corequisites: Prerequisite: Junior standing.

Credits: 3 hours

AVS 3530 - Professional Flight III Theory

Ground instruction emphasizing select professional pilot operations required for commercial pilot certification. Course includes crew concepts, Federal Aviation Regulations, and aeronautical decision making.

Prerequisites & Corequisites: Prerequisites: AVS 2050, AVS 2060, AVS 2070 (all three may be taken concurrently), and AVS 2520, with a grade of "C" or better in all prerequisites; and chief flight instructor approval (application required); and FAA 2nd class medical certificate.

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Flight Science.

AVS 3540 - Professional Flight III Lab

Continuing development of aeronautical skill, knowledge, and experience necessary for professional pilot application through flight and simulator instruction. Review of advance instrument, cross-country procedures, and introduction to

complex aircraft. Restricted to students maintaining a minimum GPA of 2.75 overall and a 3.0 College of Aviation GPA and to majors in Aviation Flight Science.

Prerequisites & Corequisites: Prerequisites: AVS 3530 (may be taken concurrently), department and chief flight instructor approval required (application required), and FAA 2nd class medical certificate.

Credits: 2 hours

AVS 3550 - Professional Flight IV Theory

Completion of ground instruction requirements for commercial pilot and multi-engine pilot certification. Focus on commercial maneuvers, complex aircraft systems, application of advance navigation systems, and multi-engine principles of flight.

Prerequisites & Corequisites: Prerequisites: AVS 3530 and AVS 3540, department and chief flight instructor approval (application required), and FAA 2nd class medical certificate required.

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Flight Science.

AVS 3560 - Professional Flight IV Lab

Completion of flight and simulator instruction in aeronautical skills, knowledge, complex aircraft and experience requirements for commercial, instrument and multi-engine pilot certification. Includes experience in crew concepts, upset training, instrument, single and multi-engine operations. Restricted to students maintaining a minimum GPA of 2.75 overall and a 3.0 College of Aviation GPA and to majors in Aviation Flight Science.

Prerequisites & Corequisites: Prerequisites: AVS 3540 and AVS 3550 (AVS 3550 may be taken concurrently), department and chief flight instructor approval required (application required), and FAA 2nd class medical certificate required.

Credits: 2 hours

AVS 3600 - Reciprocating Engine Overhaul

This class covers the study involving the inspection, repair, overhaul, and operation of reciprocating powerplants, in

accordance with the FAA and manufacturer technical data. Proper logbook entries and overhaul documentation is included.

Prerequisites & Corequisites: Prerequisite: AVS 2630 with a grade of "C" or better.
Corequisite: AVS 3605

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3605 - Reciprocating Engine Overhaul Lab

This lab, in conjunction with AVS 3600, covers comprehensive laboratory work involving the inspection, repair, overhaul, and operation of reciprocating power plants, in accordance with the FAA and manufacturer technical data. Proper logbook entries and overhaul documentation is included.

Prerequisites & Corequisites: Prerequisite: AVS 2630 with a grade of "C" or better.
Corequisite: AVS 3600

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3620 - Aircraft Structures II

This class covers the advanced study of aircraft structures, building upon the knowledge gained in Structures I. Includes inspection, test and repair of welded, fiberglass, composite, plastic, honeycomb, and laminated primary and secondary structures.

Prerequisites & Corequisites: Prerequisite: AVS 2620 with a grade of "C" or better.
Corequisite: AVS 3625

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3625 - Aircraft Structures II Lab

This lab, in conjunction with AVS 3620, covers the advanced study of aircraft structures building upon the knowledge gained in Aircraft Structures I. Substantial laboratory work including inspection, test and repair of welded, fiberglass, composite, plastic, honeycomb, and laminated primary and secondary structures.

Prerequisites & Corequisites: Prerequisite: AVS 2620 with a grade of "C" or better.
Corequisite: AVS 3620

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3630 - Reciprocating Engine Systems

This class covers the principles of operation of reciprocating engine fuel metering, induction, exhaust, and ignition systems.

Prerequisites & Corequisites: Prerequisite: AVS 2630 with a grade of "C" or better.
Corequisite: AVS 3635

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3635 - Reciprocating Engines Systems Lab

This lab, in conjunction with AVS 3630, covers the principles of operation of reciprocating engine fuel metering, induction, exhaust, and ignition systems.

Prerequisites & Corequisites: Prerequisite: AVS 2630 with a grade of "C" or better.
Corequisite: AVS 3630

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3640 - Aircraft Electrical II

Classroom and laboratory study of aircraft electrical diagrams, components (batteries, starters, generators, alternators, regulators, switches, circuit breakers, and

wiring), and systems including care, preventive maintenance, and repair.

Prerequisites & Corequisites: Prerequisite: AVS 2640 with a grade of "C" or better.
Corequisite: AVS 3645

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3645 - Aircraft Electrical II Lab

Classroom and laboratory study of aircraft electrical diagrams, components (batteries, starters, generators, alternators, regulators, switches, circuit breakers, and wiring), and systems including care, preventative maintenance, and repair.

Prerequisites & Corequisites: Prerequisite: AVS 2640 with a grade of "C" or better.
Corequisite: AVS 3640

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3650 - Non-Destructive Testing

This class covers the theory and application of non-destructive testing methods; liquid penetrant, magnetic particle, radiographic, eddy current, ultrasonic, and enhanced visual. Other methods are also discussed.

Prerequisites & Corequisites: Prerequisites: AVS 3620, AVS 3640 and (IEE 1020 or ENGL 1050); with a grade of "C" or better in all prerequisites.
Corequisite: AVS 3655

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3655 - Non-Destructive Testing Lab

This lab, in conjunction with AVS 3650, covers the theory and application of non-destructive testing methods; liquid penetrant, magnetic particle, radiographic, eddy current, ultrasonic, and enhanced visual. Other methods are also

discussed.

Prerequisites & Corequisites: Prerequisites: AVS 3620, AVS 3640, and (IEE 1020 or ENGL 1050), with a grade of "C" in all prerequisites.
Corequisite: AVS 3650

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3660 - Avionics

This class covers theory, operation, installation, inspection, maintenance, and repair of aircraft avionics and associated equipment. Included will be study of flight instruments, communication, navigation, flight management, auto flight, and weather avoidance systems.

Prerequisites & Corequisites: Prerequisites: AVS 3620 and AVS 3640, with a grade of "C" or better in all prerequisites.
Corequisite: AVS 3665

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3665 - Avionics Lab

Theory, operation, installation, maintenance, and repair of aircraft avionics and associated equipment. Included will be study of flight instruments, communication, navigation, flight management, auto flight, and weather avoidance systems.

Prerequisites & Corequisites: Prerequisite: AVS 3620 and AVS 3640, with a grade of "C" or better in all prerequisites.
Corequisite: AVS 3660

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3670 - Airframe Systems

This class covers the study of hydraulic, pneumatic, air conditioning, pressurization, fire detection, fire

extinguishing, and other components and systems.

Prerequisites & Corequisites: Prerequisites: AVS 3620 and AVS 3640, with a grade of "C" or better in all prerequisites.

Corequisite: AVS 3675

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3675 - Airframe Systems Lab

This lab, in conjunction with AVS 3670, covers the study of aircraft hydraulic, pneumatic, air conditioning, pressurization, fire detection, fire extinguishing, and other components and systems.

Prerequisites & Corequisites: Prerequisite: AVS 3620 and AVS 3640, with a grade of "C" or better in all prerequisites.

Corequisite: AVS 3670

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3690 - Testing Evaluation and Instrumentation

This class covers aircraft engine and systems performance testing, operations, and evaluation including applications of indicating and warning systems, signal processing, digital and analog data acquisition. Engine diagnosis includes the use of dynamometers, test cell thrust beds and computer based analyses.

Prerequisites & Corequisites: Prerequisites: AVS 3630 and AVS 3640, a minimum grade of "C" is required for all AVS prerequisites.

Corequisites: AVS 3660 and AVS 3695.

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3695 - Testing Evaluation and Instrumentation Lab

This lab, in conjunction with AVS 3690, covers aircraft engine and systems performance testing, operations, and evaluation including applications of indicating and warning systems, signal processing, digital and analog data acquisition. Engine diagnosis includes the use of dynamometers, test cell thrust beds, and computer based analyses.

Prerequisites & Corequisites: Prerequisites: AVS 3630 and AVS 3640, with a grade of "C" or better in all prerequisites.

Corequisites: AVS 3660 and AVS 3690.

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 3990 - Field Experience

A program of practical experience and independent study to supplement and enrich classroom learning. Written reports are required. May be repeated to a maximum of eight semester credit hours.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 3 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

Notes: Credit/No Credit only.

AVS 4020 - Multi-Engine Flight

Principles of flight in multi-engine airplanes. Provides transition from complex single-engine airplane to procedures and techniques peculiar to multi-engine operation.

Prerequisites & Corequisites: Prerequisite: AVS 3550, department and chief flight instructor approval (application required).

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 4030 - Flight Instructor Fundamentals

An introduction to techniques and responsibilities of flight instruction. Includes classroom preparation in fundamentals of learning and teaching theory. Features instruction in proper supervision of instructional scenarios in flight situations.

Prerequisites & Corequisites: Prerequisites: AVS 3560, department and chief flight instructor approval (application required).

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 4040 - Instrument Flight Instructing

Techniques of flight instruction applied to instrument flying. Designed to upgrade an airplane flight instructor to an instrument instructor. Instructional techniques of attitude instrument flying, flight simulator utilization, instrument enroute procedures, radio navigation, critical situations, and performance analysis. After certification, supervised teaching experience is required.

Prerequisites & Corequisites: Prerequisites: AVS 4060, department and chief flight instructor approval (application required).

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 4060 - Flight Instructor Certification

A study and application of airplane performance skills, flight maneuvers, and pilot operations pursuant to qualification as flight instructor. Involves flight and ground instruction, lesson planning and execution, and analysis of common student errors.

Prerequisites & Corequisites: Prerequisites: AVS 4030 (may be taken concurrently), department and chief flight instructor approval (application required).

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Flight

Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 4090 - Multi-Engine Flight Instructor

Instructional techniques necessary to qualify for an airplane multi-engine flight instructor rating. Topics include multi-engine aerodynamics and performance, analysis of multi-engine procedures and maneuvers, multi-instructor responsibilities, common student errors, and flight safety considerations.

Prerequisites & Corequisites: Prerequisites: AVS 3560, AVS 4060, department and chief flight instructor approval (application required).

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 4110 - Airline Flight Operations

Systems, performance, and regulation of transport aircraft and operations. Role of the dispatcher in flight operations.

Prerequisites & Corequisites: Prerequisites: AVS 3060, AVS 3070, AVS 3080, and AVS 3220.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science.

AVS 4120 - Line Oriented Flight Crew Simulation

This capstone course and its associated laboratory allows utilization of aircraft performance, systems, and resources (both human and information) to enhance flight operations and human performance.

Prerequisites & Corequisites: Prerequisites: AVS 3560 and AVS 4110, with a grade of "C" or better in all prerequisites (both prerequisites may be taken concurrently).

Credits: 4 hours

Restrictions: Restricted to majors in Aviation Flight Science.

AVS 4130 - Airport Planning

This course introduces the student to the process of planning for airport infrastructure and each airport's role in the national aviation system. Topics related to master planning, airport layout plans, public involvement, and environmental review will be covered. Additionally, topics related to airport compatible land use, FAR Part 77 Surfaces, and land acquisition will also be discussed. Specialty studies such as feasibility studies, site selection studies, and system planning will also be covered in this class.

Prerequisites & Corequisites: Prerequisite: AVS 2100 with a grade of "C" or better and Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Management and Operations.

AVS 4140 - Airport Management

Airport Management is the culmination of the three prior airport classes. The class will be engaged with current airport issues and problem solving, including, but not limited to: environment, funding, regulations, global harmonization, safety and security, and capacity and delay. Real world case studies developed with this class by having direct contact with airport administrators. Also, the AAAE learning modules will be completed by the end of this class in order to prepare students to take the AAAE Certified Manager (C.M.) Exam. This class completes the airport management emphasis so that students will be in good standing for and entry level job in airport operations and management.

Prerequisites & Corequisites: Prerequisites: AVS 3040 and AVS 3140, with a grade of "C" or better in all prerequisites (both prerequisites may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Management and Operations.

AVS 4210 - National Security Affairs/Preparation for Active Duty I

National Security Affairs/Preparation for Active Duty is designed for college seniors and gives them the foundation

to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the cadets for Active Duty.

Credits: 3 hours

AVS 4220 - National Security Affairs/Preparation for Active Duty II

National Security Affairs/Preparation for Active Duty is designed for college seniors and gives them the foundation to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the cadets for Active Duty.

Credits: 3 hours

AVS 4230 - National Security Affairs I Lab

Define and practice topics important to cadets entering active duty. Apply fundamentals of War gaming.

Prerequisites & Corequisites: Corequisite: AVS 4210

Credits: 1 hour

AVS 4240 - Corporate Aviation Management

Management of aviation flight departments of business corporations. Topics include human resource management, aircraft selection and planning, management and organization of flight and maintenance operations, and requirements of international operations. Current and future issues such as globalization of business operations.

Prerequisites & Corequisites: Prerequisite: Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science or Aviation Management and Operations.

AVS 4250 - National Security Affairs II Lab

Define and practice fundamental principles of the Holm Center Training Manual. Apply advanced knowledge and understanding of War gaming.

Prerequisites & Corequisites: Corequisite: AVS 4220

Credits: 1 hour

AVS 4270 - Airline Administration

Economic characteristics of the airline industry and air carrier ownership and organization. Revenues, costs, and productivity. Route structure and scheduling. International competition and regulation. This course is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisites: AVS 1200 and (IEE 1020 or ENGL 1050) and Junior standing.

Credits: 4 hours

Restrictions: Restricted to majors in Aviation Flight Science or Aviation Management and Operations.

AVS 4280 - International Aviation

A focus on the common issues surrounding the globalization of aviation. Topics include human resource management, employee recruitment and selection, labor/management relations, international requirements and opportunities. International standards and agreements and international flight operations.

Prerequisites & Corequisites: Prerequisites: AVS 3190 and Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Flight Science or Aviation Management and Operations.

AVS 4300 - Jet Equivalent Training

This course provides transport category aircraft flight simulation. The student receives cockpit operation and flight training using a state of the art transport category FTD. Hours arranged.

Prerequisites & Corequisites: Prerequisites: AVS 3560, AVS 4110, AVS 4120 (AVS 4120 may be taken concurrently), and department approval.

Credits: 5 hours

Restrictions: Restricted to majors in Aviation Flight Science.

AVS 4400 - Air Cargo and Logistics Management

Supply Chain characteristics of the global air freight markets are defined and reviewed. Economic and strategic importance of the air cargo industry within the field of logistics is discussed. Emphasis is on the economics of air transportation and the analysis of distribution costs. Models for planning and scheduling of efficient air cargo operations to create customer satisfaction are presented.

Prerequisites & Corequisites: Prerequisite: Senior standing.

Credits: 3 hours

AVS 4490 - Aviation Service Operations Management

Differences between services and manufacturing operations in the aviation/aerospace industry are discussed. Focus is on designing a service system and managing variability and uncertainty to meet customer expectations. Students will gain knowledge and learn quantitative tools and qualitative frameworks that will assist them in managing complex aviation environments to achieve timely, high-quality, profitable services.

Prerequisites & Corequisites: Prerequisite: Senior standing.

Credits: 3 hours

AVS 4600 - Aircraft Inspection and Airworthiness Certification

This course provides detailed procedures for performing aircraft inspections in accordance with aircraft manufacturer's and FAA regulatory requirements to determine aircraft airworthiness. Required documentation, data searches, record keeping, and part control and accountability are emphasized.

Prerequisites & Corequisites: Prerequisites: AVS 4640, AVS 4730 and (IEE 1020 or ENGL 1050); with a grade of "C" or better in all prerequisites.

Corequisite: AVS 4605

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 4605 - Aircraft Inspection and Airworthiness Certification Lab

This lab, in conjunction with AVS 4600, is a practicum course in which aircraft inspections are performed in accordance with manufacturer's and FAA regulatory requirements in order to determine aircraft worthiness. Required documentation, data searches, record keeping, and part control and accountability are emphasized.

Prerequisites & Corequisites: Prerequisites: AVS 4640, AVS 4720, AVS 4730, and (IEE 1020 or ENGL 1050); with a grade of "C" or better is all prerequisites.
Corequisite: AVS 4600

Credits: 5 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 4620 - Reliability, Maintainability and Supportability

Aircraft reliability, maintainability and supportability (RMS) are examined. Methods of incorporating reliability and maintainability into aircraft design are discussed. Support requirements and the economic impact of maintenance on life cycle costs are covered.

Prerequisites & Corequisites: Prerequisite: AVS 3670.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 4630 - Professional Maintenance Operations

Operations of commercial aviation maintenance will be examined. Topics include corporate structure, maintenance philosophy, authority and responsibilities of the maintenance organization, designing and implementing maintenance programs, cost control, economic impact, quality assurance and safety management within

maintenance operations. Support organizations, the impact of Federal regulations, and the development and management of technical teams will also be covered. This course will contain significant writing and communication assignments.

Prerequisites & Corequisites: Prerequisites: AVS 4600 and (IEE 1020 or ENGL 1050), with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

Notes: This course satisfies Baccalaureate Level Writing.

AVS 4640 - Aircraft Turbine Engines and Systems

Advanced study of aircraft turbine engine construction and turbine engine systems. Emphasis is placed on inspection, servicing, troubleshooting, and repairing aircraft engines in the repair station and commercial air carrier environments.

Prerequisites & Corequisites: Prerequisite: AVS 3690 with a grade of "C" or better.
Corequisite: AVS 4645

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 4645 - Aircraft Turbine Engines and Systems Lab

This lab, in conjunction with AVS 4640, provides advanced instruction in aircraft turbine engine construction and turbine engine systems. Emphasis is placed on inspection, servicing, troubleshooting, and repairing aircraft engines in the repair station and commercial air carrier environments.

Prerequisites & Corequisites: Prerequisite: AVS 3690 with a grade of "C" or better.
Corequisite: AVS 4640

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 4720 - Advanced Structures and Materials

Advanced study of airframe structures and materials. Included will be study of materials and manufacturing processes used in current, state of the art aircraft structures. New generation materials will be addressed, with emphasis being placed on non-metallic composite structures.

Prerequisites & Corequisites: Prerequisite: AVS 3620 with a grade of "C" or better.
Corequisite: AVS 4725

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 4725 - Advanced Structures and Materials Lab

This lab, in conjunction with AVS 4720, covers advanced topics regarding airframe structures and materials. Included will be study of materials and manufacturing processes used in current, state of the art aircraft structures. New generation materials will be addressed, with emphasis being placed on non-metallic composite structures.

Prerequisites & Corequisites: Prerequisite: AVS 3620 with a grade of "C" or better.
Corequisite: AVS 4720

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 4730 - Advanced Airframe Systems

This class covers the study of the integration and interdependency of systems used on transport category aircraft. Systems included in the study will be hydraulics, pneumatics, air conditioning, pressurization, fire detection and extinguishing, flight controls, flight management systems (FMS), and engine indications and crew alerting systems (EICAS).

Prerequisites & Corequisites: Prerequisite: AVS 3670 with a grade of "C" or better.

Corequisite: AVS 4735

Credits: 2 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 4735 - Advanced Airframe Systems Lab

This lab, in conjunction with AVS 4730, covers the study of the integration and interdependency of systems used on transport category aircraft. Systems included in the study will be hydraulics, pneumatics, air conditioning, pressurization, fire detection and extinguishing, flight controls, flight management systems (FMS), and engine indications and crew alerting systems (EICAS).

Prerequisites & Corequisites: Prerequisite: AVS 3670 with a grade of "C" or better.
Corequisite: AVS 4730

Credits: 1 hour

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 4950 - AFROTC Independent Study

Investigation of a particular aspect of aerospace studies.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit.

AVS 4960 - AMT Certification Preparation

This course will prepare students who have completed the AMT program to take the Federal Aviation Administration examinations for AMT licensure. It will refresh students on the topic areas and depth of material and familiarize students with the FAA testing process and style through the use of mock oral, practical and written examinations.

Prerequisites & Corequisites: Prerequisite: AVS 4600 (with a grade of "C" or better).

Credits: 1 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 4965 - Advanced Maintenance Practices and Troubleshooting

In this class, the student will apply previous knowledge to troubleshoot, analyze, and determine methods to address problems with aircraft structure, equipment and systems. Complex maintenance operations will be performed. Emphasis is placed on airworthiness, professional practices, and complying with documentation and legal aircraft maintenance requirements.

Prerequisites & Corequisites: Prerequisite: AVS 4600 with a grade of "C" or better.
Corequisite: AVS 4966

Credits: 1 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 4966 - Advanced Maintenance Practices and Troubleshooting Lab

In this lab, in conjunction with AVS 4965, the student will apply previous knowledge to troubleshoot, analyze, and determine methods to address problems with aircraft structure, equipment, and systems. Complex maintenance operations will be performed. Emphasis is placed on airworthiness, professional practices, and complying with documentation and legal aircraft maintenance requirements.

Prerequisites & Corequisites: Prerequisite: AVS 4600 with a grade of "C" or better.
Corequisite: AVS 4965

Credits: 4 hours

Restrictions: Restricted to majors in Aviation Maintenance Technology or Aviation Technical Operations.

AVS 4970 - Special Flight Instruction

Instruction tailored to the individual needs of students pursuing the professional pilot course sequence. Develop skills to progress efficiently in normal course sequence. May be repeated for credit. Graded on a Credit/No Credit basis only. Restricted to students meeting a minimum cumulative grade point average of 2.75 overall GPA and a 3.0 College of Aviation GPA earned at Western Michigan

University. Entering freshmen without a WMU grade point average will be considered if they have earned a high school GPA of 3.0 and an SAT score of 1070 or 21 on the ACT. Transfer students without a WMU GPA will be considered if they have earned a GPA of 3.0 or better from their prior institution) and to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

Prerequisites & Corequisites: Prerequisite: Chief flight instructor approval (application required) and FAA 2nd class medical certificate; MATH 1100 or SAT minimum MATH score of 510 or ACT minimum MATH score of 19, or MATH 1100 on the Math placement test.

Credits: 1 to 3 hours

AVS 4980 - Administration Senior Project

This is the capstone course for aviation administration students. The course provides students the opportunity to apply the knowledge acquired in their administration degree program to real-world aviation business situations. Students will draw on their academic education to solve problems in marketing, finance, economics, strategic management, and operations.

Prerequisites & Corequisites: Prerequisite: AVS 4270 with a grade of "C" or better and senior status.

Credits: 3 hours

Restrictions: Restricted to majors in Aviation Management and Operations.

AVS 4990 - Studies in Aviation Sciences

An individual study program to supplement regular course work, arranged in consultation with a study supervisor. One to three hours credit per semester. May be repeated not to exceed six credit hours.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 8 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.

AVS 5100 - Safety Management Systems in Aviation

Concepts and methods of measuring and managing human safety performance in a high risk environment are defined and explored. Students will gain knowledge and learn practical applications to identify hazards and manage risk in complex flight and maintenance operating environments. Topics include history of aviation safety, quality assessment and management, process-systems analysis, principles of behavior-based safety, quantitative analysis methods, and implementation of a safety management system.

Prerequisites & Corequisites: Prerequisites: PSY 1000, STAT 2160 and Senior standing.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

AVS 5300 - Unmanned Aerial Systems I

Introduction to unmanned aerial systems including history, development, legal considerations, operations, Federal Aviation Administration regulations, fundamentals of flight and weather, flight operations and preparation for the FAA UAS knowledge examination.

Credits: 3 hours

Notes: Open to upper level and graduate students.

AVS 5310 - Unmanned Aerial Systems II

Theory of operation and aeronautical knowledge required for successful unmanned aerial systems (UAS) flight. Discussion topics include UAS theory of flight, structures, controls, flight planning, and payloads/sensors. Students will perform safe flight operations using various UAV platforms.

Prerequisites & Corequisites: Prerequisite: AVS 5300 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

AVS 5320 - Construction and Maintenance of Small Unmanned Aerial Systems (sUAS)

This course will provide students with knowledge of basic UAS construction and repair. UAS fabrication, inspection, and general maintenance procedures are emphasized.

Prerequisites & Corequisites: Prerequisite: AVS 5300 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

AVS 5990 - Aviation Independent Study

An individual study program to supplement regular course work, arranged in consultation with a study supervisor. One to three hours credit per semester. May be repeated not to exceed six credit hours.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 6 hours

Restrictions: Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology; Aviation Technical Operations; Geography MS and Geosciences MS.

Notes: May be repeated for credit. Graded on a Credit/No Credit basis. Open to upper level and graduate students.

Biological Sciences

BIOS 1050 - Environmental Biology

An ecology course that examines the relationships among living organisms, including humans, and their environment. Emphasis will be placed on how an understanding of basic ecological and evolutionary principles is useful in understanding the basis of and potential solutions to major global environmental problems. Credit not acceptable for Biological Sciences majors but applies toward a minor in biology. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Credits: 3 hours

When Offered: Fall, Spring

BIOS 1100 - Biological Sciences Laboratory

Biological Sciences Laboratory provides hands-on experiences in environmental and general biology. Experiments will involve the use of scientific methodology and instrumentation to collect, analyze, interpret data, and draw conclusions about life processes, basic biological principles, as well as the interaction of people and their environment.

Credits: 1 hour

Notes: Credit not acceptable for Biological Sciences majors but applies toward a minor in biology.

When Offered: Fall, Spring

BIOS 1120 - Principles of Biology

A course designed to provide a natural science foundation for BIOS minors, Allied Health majors, and to fulfill liberal/WMU Essential Studies requirements. Foundation concepts in cell biology, human anatomy and physiology, botany, human genetics, microbiology, and ecology are presented for students who do not have strong biology and chemistry backgrounds. Credit does not apply for Biology or Biomedical Sciences majors. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category is taken with BIOS 1100.

Credits: 3 hours

When Offered: Fall, Spring

BIOS 1600 - Biological Form and Function

This is the first in a three-semester introductory biology sequence for majors and minors in the Biological Sciences Department. The course covers basic concepts of anatomy and physiology of plants and animals.

Credits: 3 hours

When Offered: Fall, Spring

BIOS 1610 - Molecular and Cellular Biology

This course covers basic concepts of molecular and cellular biology by focusing on components of organisms from atoms to cells and the roles they play within the organism. This course can be taken as the second or third course in the required three-semester introductory biology sequence for majors and minors in the Biological Sciences Department.

Prerequisites & Corequisites: Prerequisites: BIOS 1600 or CHEG 2960 (CHEG 2960 may be taken concurrently); with a grade of "C" or better in all prerequisites.

Credits: 4 hours

When Offered: Fall, Spring

BIOS 1620 - Ecology and Evolution

This course covers basic concepts of evolution and ecology, and addresses how the tremendous range of biological diversity on Earth arose, how different life forms interact with each other and with the physical environment, and the issues that threaten their future. This course can be taken as the second or third course in the required three-semester introductory biology sequence for majors and minors in the Biological Sciences Department.

Prerequisites & Corequisites: Prerequisites: BIOS 1600 or CHEG 2960; with a grade of "C" or better in all prerequisites.

Credits: 4 hours

When Offered: Fall, Spring

BIOS 1700 - Life Science for Non-Majors

This is a laboratory-lecture-based content course for non-majors that provides a comprehensive overview of the life sciences (taxonomy, anatomy and physiology, ecology and evolution). The course is taught by inquiry using a series of open-ended problem solving environments, many of which have been developed with reference to the history of biology, to encourage critical thinking and insight into the nature of science as an intellectual activity.

Credits: 3 hours

BIOS 1910 - Introduction to Human Anatomy and Biology

This is a lecture and laboratory course providing an overview of human anatomy and some basic scientific principles, including a brief introduction to cell biology and genetics. Credit does not apply to Biological Sciences Majors. Credit cannot be counted for both BIOS 1910 and BIOS 2110.

Prerequisites & Corequisites: Prerequisite: Department

approval.

Credits: 4 hours

Restrictions: Restricted to Pre-Nursing.

When Offered: Fall

BIOS 1980 - Human Form and Function

This is an online lecture and laboratory course that provides students an overview of scientific process, cell biology and human anatomy and physiology. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category. Credit does not apply to biological sciences majors or minors.

Credits: 4 hours

When Offered: Fall, Spring, Summer

BIOS 2020 - General Botany

An introduction to the anatomy, morphology, physiology and diversity of plants. In the first part of the course, chemical and cellular composition of tissues and organs will be related to function. The second part of the semester will explore plant diversity within an evolutionary and ecological framework. Lab exercises will emphasize the scientific method and will be integrated with current lecture material.

Prerequisites & Corequisites: Prerequisites: BIOS 1620 or BIOS 1510, with a grade of "C" or better.

Credits: 4 hours

When Offered: Fall

BIOS 2030 - General Zoology

An introduction to the diversity of vertebrate and invertebrate animals, their evolutionary relationships, and biology, including morphology, physiology, development, behavior, and ecology. Students will gain knowledge valuable to a wide range of more advanced studies in biology, biomedical sciences and veterinary science.

Prerequisites & Corequisites: Prerequisites: BIOS 1620 or BIOS 1510, with a grade of "C" or better.

Credits: 4 hours

BIOS 2110 - Human Anatomy

A lecture and laboratory course in which all major structures of the human body are examined. A systemic approach emphasizing both gross-level and microscopic anatomy is used to show how all the body's systems interact to form the functioning whole. As students learn about the organs and organ systems of the body, they will see how their unique forms allow them to carry out their functions.

Prerequisites & Corequisites: Prerequisites: BIOS 1600 or BIOS 1610 or BIOS 1120; with a grade of "C" or better in all prerequisites.

Credits: 4 hours

When Offered: Fall, Spring

BIOS 2300 - Cell Biology

This is a comprehensive course covering the fundamental principles of cell biology, with an emphasis on structure, composition and function and cells, organelles, and membranes. The experimental basis of these discoveries will be stressed. It is intended for all Biomedical Sciences, Biology and Secondary Education majors and others who have a basic understanding of chemistry and biology.

Prerequisites & Corequisites: Prerequisites: CHEM 1120 and (BIOS 1610 or BIOS 1510); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

When Offered: Fall, Spring, Summer I (optional)

BIOS 2320 - Microbiology and Infectious Diseases

An introductory microbiology course emphasizing characteristics and modes of transmission of the microorganisms that cause human disease. Credit applies toward a minor in Biomedical Sciences and a major in secondary education.

Credits: 4 hours

When Offered: Fall, Spring

BIOS 2400 - Human Physiology

This course is designed to provide an understanding of the basic functioning of the organ systems of the human body, as well as their regulation and control. The molecular and cellular mechanisms involved are emphasized. Applications to exercise physiology are made. Clinical applications are introduced where they provide additional insight into basic function and regulatory mechanisms. This course is not suitable for the non-teaching biology major or the biomedical sciences major.

Prerequisites & Corequisites: Prerequisite: BIOS 1910 or BIOS 2110; with a grade of "C" or better in all prerequisites.

Credits: 4 hours

When Offered: Fall, Spring

BIOS 2500 - Genetics

A problem based study of the mechanisms of heredity at the level of cells, individuals, families and populations. Recitation exercises will emphasize problem solving and will be integrated with current lecture material.

Prerequisites & Corequisites: Prerequisites: CHEM 1120, (BIOS 1610 or BIOS 1500), and (BIOS 1620 or BIOS 1510); with a grade of "C" or better in all prerequisites. (BIOS 1620 may be taken concurrently).

Credits: 4 hours

When Offered: Fall, Spring

BIOS 2600 - Introduction to Developmental Biology

How do fly eggs become flies and human eggs become people? A study of pattern formation and emergence of the basic body plan, emphasizing the common elements of development conserved throughout the metazoan groups. Surveys developmental model systems and includes reviews of basic cell biology, gene regulation and signaling pathways.

Prerequisites & Corequisites: Prerequisites: BIOS 1610 or BIOS 1500, with a grade of "C" or better.

Credits: 3 hours

BIOS 2700 - Everyday Biology: Cells

This is an introductory level laboratory and discussion course for future teachers and non-majors. Students develop an understanding of key biological concepts (including cells and cell reproduction, genetic inheritance, and molecular processes). Students develop an understanding of the nature of science and scientific inquiry through investigations and reflective discussions. Through experiences in this course, students are expected to become reflective and knowledgeable about "what is science" and "what scientists do". Connections of course concepts to everyday life are made through a study of current socioscientific issues involving biotechnology, by looking at the historical development of ideas and by assessing the implications of technology on society. Typical topics include DNA analysis, cloning, and gene therapy.

Credits: 3 hours

BIOS 3000 - Evolution

This course in evolutionary biology covers the mechanisms of the evolutionary process, speciation, evolutionary genetics, the history of life on earth, and adaptation.

Prerequisites & Corequisites: Prerequisite: BIOS 2500 with a grade of "C" or better.

Credits: 3 hours

When Offered: Spring

BIOS 3010 - Ecology

We introduce students to the dynamics of ecological interactions at different spatial and temporal scales and at different levels of organization from individuals, through populations and communities, to ecosystems, landscapes and biomes. Our emphasis is on population-level processes and dynamics, and examples dwell on both pure and applied aspects of ecology.

Prerequisites & Corequisites: Prerequisite: BIOS 1620 or BIOS 1510, with a grade of "C" or better.

Credits: 5 hours

When Offered: Fall

BIOS 3120 - Microbiology

This course is an introduction to basic microbiology with an emphasis on the diversity, physiology, genetics, and

pathogenicity of microorganisms. Also included are fundamental concepts of virology and the host immune response to infection. The laboratory component provides hands-on instruction in basic techniques used in bacteriology.

Prerequisites & Corequisites: Prerequisites: BIOS 2500 and either (CHEM 3750 and CHEM 3760) or (CHEM 3700 and CHEM 3710); with a grade of "C" or better in all prerequisites.

Credits: 5 hours

When Offered: Fall, Spring, Summer II

BIOS 3190 - Plant Physiology

An examination of plant functions and metabolism. The chemical elements essential for plant growth are studied, along with processes, such as photosynthesis, through which these elements combine to form the components of cells and tissues. The lab uses up-to-date techniques and equipment to investigate processes such as enzyme action and the movement of substances through membranes. This course is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisites: BIOS 2020, CHEM 1120 and CHEM 1130; with grades of "C" or better in all prerequisites.

Credits: 4 hours

When Offered: Spring

BIOS 3200 - Climate Change Biology

This course will address the causes of past, current, and future climate change and the likely consequences of future climate change for ecosystems and human health. The course will conclude with discussion of potential strategies to minimize adverse impacts of climate change.

Prerequisites & Corequisites: Prerequisite: BIOS 1620 or BIOS 1510, with a grade of "C" or better.

Credits: 3 hours

When Offered: Spring

BIOS 3500 - Human Physiology for Majors

An examination of the functions and interrelationships of human body organ systems and their role in homeostasis. Some physiological malfunctions will be discussed. The laboratory provides experience with some types of clinical measurements, laboratory instrumentation and data collection.

Prerequisites & Corequisites: Prerequisites: BIOS 2500 and either ([CHEM 3750 and CHEM 3760] or [CHEM 3700 and CHEM 3710]); junior or senior standing required; BIOS 2110 is recommended.

Credits: 5 hours

When Offered: Fall, Spring

BIOS 4270 - Systematic Botany

This course is intended to serve as an introduction to the major seed plant families as well as some of the conceptual topics encompassed within systematic botany. We will learn the flora of Michigan through the use of keys on fresh, pickled and herbarium material. The bulk of the course is designed to survey plants of local occurrence as well as those commonly cultivated and will be tied to central themes discussed throughout the semester including evolutionary and ecological phenomena like hybridization, speciation, pollination, and biogeography. Upon completion of the course, students will be able to identify a diversity of plant species encountered in the local area through the use of taxonomic keys. In addition, the student will be expected to recognize many plant species and families on sight from an accumulated knowledge of their diagnostic characters.

Prerequisites & Corequisites: Prerequisite: BIOS 2020 is recommended.

Credits: 4 hours

When Offered: Fall (Alternate Years)

BIOS 4390 - Animal Behavior

This course provides an introduction to the study of animal behavior. Emphasis is placed on the integrative nature of animal behavior research, by exploring the genetic, neural and physiological mechanisms underlying behavior, the development of behavior, and the current function and evolution of behavior.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology, including BIOS

1620 or BIOS 1510, with a grade of "C" or better.

Credits: 3 hours

When Offered: Fall (alternate years)

BIOS 4420 - Entomology

This course is a general study of insects, their structure, classification, physiology, life histories, ecological relationships, and economic importance. Students will learn to identify common families of insects and make individual collections.

Prerequisites & Corequisites: Prerequisite: At least 12 credits in biology, including BIOS 1620 or BIOS 1510, with a grade of "C" or better.

Credits: 3 hours

When Offered: Fall (alternate years)

BIOS 4430 - Conservation Biology

Conservation biology is the science of preserving biodiversity and sustaining the earth. It is a synthetic discipline which draws upon the fields of ecology, evolution, genetics, philosophy, economics, sociology, and political science. This course provides an introduction to conservation biology, and will focus on the earth's biological diversity, threats to its biological diversity, how threats influence populations and species, and solutions to dealing with those threats.

Prerequisites & Corequisites: Prerequisite: At least 12 credits in biology, including BIOS 1620 or BIOS 1510, with a grade of "C" or better.

Credits: 3 hours

When Offered: Spring, Alternate Years

BIOS 4560 - Tropical Biology

A travel study course providing an introduction to the world's two most diverse ecosystems: tropical rainforests and coral reefs. The course consists of a mixture of lectures, field explorations, and individual projects. It will introduce students to basic biological features of these ecosystems and fundamental ecological principles, while demonstrating how the scientific method is implemented in the field. Human ecology, agriculture, and environmental

issues will also be explored. The course will be presented on one of the islands of the Caribbean and/or in Central America.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 3 hours

When Offered: Summer I or II

BIOS 4970 - Senior Seminar

This capstone course integrates a variety of biological concepts within a selected broad topic. The student makes a technical presentation and submits a paper on a selected subject. The student's record will indicate the nature of the seminar in which he/she has participated. Not repeatable for credit.

Prerequisites & Corequisites: Prerequisite: Departmental approval required prior to registration.

Credits: 3 hours

When Offered: Fall, Spring

BIOS 4980 - Readings in Biological Sciences

Departmental approval required prior to registration.

Credits: 1 to 3 hours

When Offered: Fall, Spring

BIOS 5180 - Endocrinology

An overview of the hormonal regulation of various aspects of animal physiology. Major themes include the control of hormone synthesis/secretion, mechanisms of hormone action and target organ effects.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 3500; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

BIOS 5235 - Fermentation

This is an introductory course to the discipline of fermentation. Using a combined lecture and assignment strategy, students will be exposed to basic concepts and methods in fermentation. The emphasis will be on a comprehensive overview of brewing, both modern and traditional. Considerable time will be given to understanding the complexities of the biochemistry and genetics of yeasts and what this imparts to the brewing process. The course will culminate with students undertaking a novel research project using learned techniques and processes.

Prerequisites & Corequisites: Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 3120 with grades of "C" or better in all prerequisites, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

BIOS 5240 - Microbial Genetics

A lecture/seminar course emphasizing modern microbial genetics, as well as historic keystone experiments. This course focuses on work carried out with bacteria and bacteriophages. Concepts include mutation and selection, recombination and repair, DNA cloning and mutagenesis procedures, regulation of gene expression, differential gene expression in response to environmental stimuli, and genome organizations. Lecture/seminar format.

Prerequisites & Corequisites: Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 3120 and BIOS 2500, or instructor approval

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Spring (alternate years)

BIOS 5250 - Microbial Ecology

The objective of this course is to understand the importance of the role and diversity of microorganisms for life on our planet. Students will integrate concepts from various disciplines, including microbiology, ecology, chemistry, geosciences, evolution, genetics, and health sciences. Lecture/seminar format.

Prerequisites & Corequisites: Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 3120, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

BIOS 5260 - Molecular Biology Laboratory

This course is designed to expose students to techniques that are currently being used to manipulate and analyze nucleic acids. Student will gain extensive hands-on experience with restriction mapping, ligations, bacterial transformations, eukaryotic gene-replacements, gel electrophoresis, non-isotopic hybridizations, as well as application of the polymerase chain reaction (PCR). Experimental design, use of appropriate controls and handling of acquired data will be stressed.

Prerequisites & Corequisites: Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 2500, CHEM 3750, and CHEM 3760; with grades of "C" or better in all prerequisites.

Credits: 3 hours

Notes: Open to upper level and graduate students.

BIOS 5265 - Proteins as Biological Machines

The survey of principles of protein sequence, structure, and biological function. The course will review fundamental aspects of proteins, including amino acid sequence, structure, biological function, and biophysical properties such as solubility, folding, stability, molecular recognition and self-assembly, enzyme catalysis and evolution of protein function with respect to amino acid sequence and structure. Individual case studies of model proteins that have biomedical relevance or applications in diagnostic assays, biopharmaceuticals and nanotechnology, will be presented. The use of molecular graphics and bioinformatics software for visualization and analysis of protein sequence and structure will be emphasized.

Prerequisites & Corequisites: Prerequisites: BIOS 2300, BIOS 2500, CHEM 1120 and CHEM 1130; or instructor approval. Grades of "C" or better required in all prerequisites.

Credits: 3 hours

Notes: This course is approved for the capstone requirement for the Biology and Biomedical Sciences

majors. Open to upper level and graduate students.
When Offered: Fall or Spring, possibly on alternate years

BIOS 5270 - Cancer Biology

This course will cover advanced topics in cellular and molecular biology of cancer. Topics to be covered will include oncogenes, tumor suppressor genes, cell cycle, and pathology. New and developing treatments for cancer will also be discussed.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 2300 and BIOS 2500 with grades of "C" or better in all prerequisites, or instructor approval; CHEM 3550 recommended.

Credits: 3 hours

Notes: This course is approved for the capstone requirement for the Biology and Biomedical Sciences majors. Open to upper level and graduate students.

When Offered: Fall, alternate years

BIOS 5310 - Biology of Aging

This course is designed to provide students with an understanding of the aging process. The lectures will emphasize the anatomical, physiological and molecular changes which occur in cells and organs with aging. Clinical applications are introduced where they provide additional insight into the aging process.

Prerequisites & Corequisites: Prerequisites: Junior standing and at least 12 credits in biology, including either BIOS 2400 or BIOS 3500, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

BIOS 5340 - Virology

This course is designed to provide students with the basic understanding of viruses, their structures and replication strategies. Emphasis is placed on host virus interactions leading to disease processes and cellular alterations in mammalian systems. Viruses are considered as miniature model systems to unify biology at the molecular level.

Prerequisites & Corequisites: Prerequisite: Junior

standing and at least 12 credits in biology, including BIOS 3120, or department approval; Biochemistry is recommended.

Credits: 3 hours

Notes: This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upper level and graduate students.

When Offered: Spring

BIOS 5360 - Immunology

This course is designed to provide students with the basic understanding of the mammalian immune system at cellular and molecular levels. This course also covers the role of the immune system both in health and disease, and explores the applications of immunological concepts in a variety of biological and biomedical sciences.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 3120, or department approval; Biochemistry is recommended.

Credits: 4 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

BIOS 5440 - Global Change Ecology

The causes and consequences of global climate change will be the focus of this course. We will examine the most recent predictions about the rate and magnitude of global warming, and the likely consequences for plants, animals, and other components of natural ecosystems, and humans. The last several weeks will be devoted to additional global change issues, including loss of biodiversity, introduced species, ozone depletion, and acid precipitation. Twice during the semester, each student will prepare a detailed illustrated outline and lead a class discussion.

Prerequisites & Corequisites: Prerequisite: BIOS 3010 or ENV5 2250 (with grade of "C" or better in any prerequisite), or instructor approval.

Credits: 3 hours

Notes: This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upper level and graduate students.

When Offered: Fall

BIOS 5445 - Human Ecology

Students will examine patterns of distribution and abundance of *Homo sapiens* and the ecological processes that generate these patterns, through lectures, reading, multi-media, interactive discussion and dissemination of research and understanding. We will also consider the concept of carrying capacity and the dynamics of human population change in relation to the human niche and changing patterns of resource availability.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 3010, or instructor approval.

Credits: 3 hours

Notes: This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upper level and graduate students.

When Offered: Spring, alternate years

BIOS 5460 - Molecular Phylogenetics and Evolution

Molecular Phylogenetics and Evolution is an advanced undergraduate/graduate course designed to provide students with a rigorous exposure to molecular data analysis and literature review. In this course students will learn the principles behind DNA data analysis for evolutionary studies. This will include phylogenetic analyses and studies of molecular evolution. Phylogenetic studies will involve the acquisition of comparative DNA sequence data, sequence alignment, statistical models of nucleotide substitutions, and tree estimation using parsimony, distance, maximum likelihood, and Bayesian methods of tree inference. Uses for phylogenetic data will involve tree-based evaluation of taxonomic classifications, comparative method, ancestral estimation, and character evolution. Part of the phylogenetic inference module will involve the use of parametric simulations to evaluate the performance of selected methods of tree inference as well as for phylogenetic hypothesis testing. For the molecular evolution portion of the course, we will investigate selected examples illustrating the effects of natural selection of DNA sequences.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 2500 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upper level and graduate students.

When Offered: Spring, alternate years

BIOS 5470 - Ornithology

Provides an introduction to the scientific study of birds. Using lectures, readings and discussion, students will explore the origin and evolution of birds, anatomy and physiology, flight, migration and navigation, ecology and conservation, and bird behavior. Although aimed at developing an understanding of bird biology, this course also emphasizes fundamental concepts in ecology, evolution, and physiology. Field trips, including at least one all-day Saturday outing, are required.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 1620 or BIOS 1510, with a grade of "C" or better; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Spring (alternate years)

BIOS 5515 - Wetland Ecology

This course provides an introduction to wetlands, the organisms that inhabit these environments, and discuss human impacts and wetland value. Lectures and readings will define a wetland, introduce the principles of wetland ecology, and functions of wetlands. Students will gain a conceptual understanding of wetland ecosystem functions and processes such as hydrology, productivity, soils and bioeochemical cycling. The field and lab components will emphasize methodological approaches to the study of wetlands and collecting techniques and identification of aquatic insects.

Prerequisites & Corequisites: Prerequisites: Junior standing and at least 12 credits in biology; and departmental approval.

Credits: 3 hours

Restrictions: Restricted to majors in Biology, Biological Sciences, Environmental and Sustainability Studies, Freshwater Science and Sustainability; minors in Biological Sciences, Environmental and Sustainability Studies; master's in Biological Sciences; and doctoral students in Biological Sciences.

Notes: Open to upper level and graduate students. This course is offered at the WMU main campus in Kalamazoo or at Traverse City locations during alternate years.

BIOS 5525 - Fish Biology

This course is a general study of fishes, their structure, classification, physiology, life histories, ecological relationships, and economic importance. Using a combination of lectures, readings, discussion and field trips, students will explore the biology of fishes, with an emphasis on fish species in the Great Lakes basin.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

BIOS 5535 - Freshwater Ecology

This course provides an introduction to the structure and function of aquatic ecosystems. Lectures and readings introduce the physical, chemical, and biological dynamics of streams, lakes, and wetlands. Emphasis is placed on application of fundamental concepts to problems in conservation and management of aquatic systems and species. Laboratory and fieldwork introduce modern methodological approaches to the study of aquatic ecosystems and the organisms that inhabit them. Two day-long Saturday field trips are required. Field exercises will be conducted largely in local streams, lakes, and wetlands.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 1620 or BIOS 1510 or ENVS 2250, with grades of "C" or better in all prerequisites, or instructor approval.

Credits: 4 hours

Notes: This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upper level and graduate students.

When Offered: Fall, alternate years

BIOS 5545 - Human Impact on Great Lakes Ecosystem

Utilizes lecture and multimedia discovery methods to investigate how human activities impact the Great Lakes Environment and how current policy initiatives are attempting to restore Great Lakes Ecosystems and protect human and ecosystem health. EPA's Lakewide Lake Michigan Management Plan (www.epa.gov/glnpo/lamp/lm_2008/index.html) will serve as a guide for environmental issues to be addressed in the course.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology.

Credits: 3 hours

Notes: Open to upper level and graduate students.

BIOS 5590 - Neurobiology

The substrate of behavior will be examined in this interdisciplinary survey of neural structure and function across molecular, cellular and system levels. There will be a strong emphasis on underlying mechanisms in different animal models. Lecture and discussion will be integrated and supplemented by demonstrations. Topics covered will include: membrane biophysics, synaptic physiology, transduction and signaling in the visual, auditory, chemical and somatosensory systems, reflexes, simple behavior and plasticity.

Prerequisites & Corequisites: Prerequisites: Junior standing with at least 12 credits in biology, including BIOS 3500 with a minimum grade of "C" or better, or department approval. PHYS 1130, PHYS 1140, PHYS 1150, and PHYS 1160; with minimum grades of "C" or better. CHEM 3550 and CHEM 3560 recommended.

Credits: 4 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

BIOS 5595 - Biology of Sensory Systems

This course provides an introduction, discussion and analysis of the anatomy, physiology, molecular biology and disease states of developed sensory systems identified in the human body and other animals. Recent sensory systems articles will be utilized to critique, strengthen student's scientific reading skills, scientific writing skills and presentation skills.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 2400 or 3500, or instructor approval.

Credits: 3 hours

Notes: This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upper level and graduate students.

When Offered: Spring

BIOS 5610 - Pharmacology

The study of the mode of action of drugs in the body. Topics may include, but are not limited to pharmacokinetics, pharmacodynamics, autonomic pharmacology, cardiovascular pharmacology, and renal pharmacology. The course will consist of approximately 50 percent lecture and 50 percent student presentations on selected topics.

Prerequisites & Corequisites: Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 3500, CHEM 3750, and CHEM 3760.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Spring

BIOS 5620 - Bioethics

Bioethics seeks to help students reflect intelligently upon and discuss the nature of modern biology as a science and its impact upon our social and governmental discourse. This occurs through classroom and web based discussions of methods and techniques relevant to applications of Biological Sciences and Biomedical Ethics. We focus on issues that rarely are discussed for fear of offending someone. This includes, but is not limited to, euthanasia, abortion, intelligent design, organ transplants, stem cells, and gene therapy. Students learn to appreciate the complexity of bioethical issues and the enormity of the responsibility they will carry while providing an unbiased view to the public.

Prerequisites & Corequisites: Prerequisites: BIOS 2300 and BIOS 2500; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Spring

BIOS 5640 - Developmental Genetics

A survey of basic literature in genetics supporting both historical and recent findings in developmental biology. Practicum in current molecular and genetic methodology, oral presentations, and writing grant applications. Some review of basic cell biology and gene regulation.

Prerequisites & Corequisites: Prerequisites: BIOS 2500 and (BIOS 2300 or BIOS 2600) with grades of "C" or better in all prerequisites.

Credits: 3 hours

Notes: This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upper level and graduate students.

BIOS 5700 - General Pathology

Designed as a general pathology course, the course blends basic pathological principles with current findings and covers new approaches available in the study of disease pathogenesis at the organismal, cellular and molecular levels. The course will begin with general principles and finish with an integrated approach to understanding diseases in organ systems.

Prerequisites & Corequisites: Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 3500; CHEM 3750 and 3760; with a grade of "C" or better in all prerequisites.

Credits: 4 hours

Notes: Open to upper level and graduate students.

When Offered: Spring (alternate years)

BIOS 5740 - Developmental Biology

Developmental biology is the study of the formation of a complex, multicellular organism from a single cell, the fertilized egg. The course will present this material from both a classical description and an experimental cellular point of view. In addition to the lecture, laboratory exercises will provide experience in the recognition of the various stages of development and in the culturing and manipulations of embryos.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 2500, or instructor approval.

Credits: 4 hours

Notes: Open to upper level and graduate students.

When Offered: Spring

BIOS 5750 - Stem Cells and Regeneration

This course is a survey of the literature in stem cell and regeneration research, specifically focusing on model organisms (e.g. planaria, salamanders, frogs, zebrafish, hydra, mice, Arabidopsis). Topics include the role of stem cell regulation, the immune system, scarring, and innervation in regeneration; as well as age dependent-regeneration, the connection between regeneration and cancer, and the regenerative capability of humans. This is an oral intensive course: for each class, student(s) will present findings from assigned readings, followed by class discussion. Students will write a final original research proposal based on course content/discussions.

Prerequisites & Corequisites: Prerequisites: Junior standing and at least 12 credits in biology, or instructor approval. (BIOS 2600 or BIOS 5740 is recommended but not required.)

Credits: 3 hours

Notes: Open to upper level and graduate students. Satisfies Capstone Requirements.

BIOS 5970 - Topics in Biological Sciences

Lectures or seminars in various areas of Biological Sciences will be offered. The student's record will indicate the topic he/she has taken.

Prerequisites & Corequisites: Prerequisite: Junior standing and at least 12 credits in biology; and departmental approval.

Credits: 3 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

When Offered: Fall, Spring

BIOS 5991 - Independent Research in Biological Sciences

Undergraduate students may contact a faculty member to conduct research under the guidance of that faculty member. Before the initiation of the research, a literature search and a written experimental plan must be prepared. At the conclusion of the research project, a written report will be submitted to the guiding faculty member. At least three credits of this course can fulfill the departmental capstone course requirement.

Prerequisites & Corequisites: Prerequisites: Departmental approval required prior to registration.

Credits: 1 to 6 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Biomedical Engineering

BME 1010 - Introduction to Biomedical Engineering

Introduction to biomedical engineering systems, taking and interpreting data from living systems, and the engineering design process. This course provides an overview of the biomedical engineering profession as well as serving as a foundation for subsequent coursework in the biological sciences and biomedical engineering.

Credits: 3 hours

Restrictions: Restricted to majors in Biomedical Engineering.

BME 2010 - Biomedical Engineering Experimentation I

Students will apply principles of engineering, mathematics, and basic science to solving problems in biomedical engineering for both living and non-living systems. This will include experience in experimental design as well as making measurements and interpreting data from living systems.

Prerequisites & Corequisites: Prerequisites: BME 1010, (BIOS 1500 or BIOS 1610), CHEM 1120, and (MATH 1220 or MATH 1700); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Biomedical Engineering.

BME 3010 - Biomedical Engineering Experimentation II

Students will apply principles of engineering, mathematics, basic science, and human physiology to solving problems in biomedical engineering for both living and non-living systems. This will include experience in experimental design as well as making measurements and interpreting data from living systems.

Prerequisites & Corequisites: Prerequisites: BME 2010, BIOS 2400, ECE 2100, and (ME 2560 or CHEG 2960); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Biomedical Engineering.

BME 4850 - Biomedical Engineering Design I

The first in a two-course capstone design experience for biomedical engineering majors. Students will conduct engineering design and project planning along with appropriate data collection and data analysis in response to a current problem in biomedical engineering. Team-based design is stressed throughout.

Prerequisites & Corequisites: Prerequisite: BME 3010 with a grade of "C" or better.

Restrictions: Restricted to senior majors in Biomedical Engineering.

BME 4860 - Biomedical Engineering Design II

The second in a two-course capstone design experience for biomedical engineering majors. Students will execute their project plan from the prerequisite course. This may involve fabrication and testing of new devices, modeling biomedical engineering systems and components, or gathering, analyzing and applying data from biomedical engineering systems. Team-based design is stressed throughout.

Prerequisites & Corequisites: Prerequisite: BME 4850 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to senior majors in Biomedical Engineering.

Blindness and Low Vision Studies

BLS 3050 - Introduction to Adults with Disabilities

This course is intended to help students understand the impact of disability on the individual, in society, and to understand the contributions that can be made by persons with disabilities when they are accepted members of society. This course will present an overview of various disabilities, the services which have developed to help individuals function independently, and the capabilities of persons with disabilities. The student will gain an overview of medical aspects of disability, the demographics of disability, and issues relating to integration into society. The various components which make up independent functioning in our society will be examined as will the adjustment issues relating to disability. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

BLS 5440 - Educating Individuals with Severe Impairments

This course develops specific skills in the assessment, prescription, implementation, and evaluation of educational programs for persons with severe impairments. Course content focuses on the areas of mobility, communication, sensorimotor development, self-help skills, cognition, and adaptive behavior.

Credits: 2 hours

Notes: Open to upper level and graduate students.

BLS 5770 - Services to Individuals with Blindness or Other Disabilities

This course explores issues that affect services for people who are blind or have other disabilities. It includes prevalence and incidence of various disabling conditions,

adaptive recreation, history and current status of service legislation, consumer organizations, professional organizations, accreditation, models of services delivery, national and international agencies and organizations, national and international resources, social service programs, and trends and future issues.

Credits: 1 to 2 hours

Notes: Open to upper level and graduate students.

BLS 5840 - Computer Technology in Rehabilitation

This course is designed to introduce the student to computer technology as it relates to persons who have visual impairments. Students will learn the computer basics, vocabulary, and common applications. Major access technologies such as screen readers, magnification softwares, mobile technologies, Braille output and OCR are investigated. Assessment and instructional strategies are also covered.

Prerequisites & Corequisites: Prerequisite: Touch-typing skills required.

Credits: 3 to 4 hours

Notes: Open to upper level and graduate students in the Department of Blindness and Low Vision Studies.

BLS 5850 - Computer Technology in Rehabilitation Lab

This course is designed to provide additional hands on lab experience in conjunction with the Computer Technology Rehabilitation lecture for those students who are pursuing the assistive technology certificate. Students will develop proficiency in using, troubleshooting, and justifying assistive technology for individuals who are blind or visually impaired.

Prerequisites & Corequisites: Corequisite: BLS 5840

Credits: 2 hours

Restrictions: Restricted to masters in Orientation and Mobility, Orientation and Mobility for Children, Counselor Education/Rehabilitation Teaching, Teaching Children and Visually Impaired, and Vision Rehabilitation Therapy.

Notes: Open to graduate students only.

BLS 5860 - Job Development and Placement

This course applies career choice and job placement concepts to persons with disabilities. It includes occupational aspects of disability, pertinent laws and regulations including ADA and sections 501-504, labor market analysis, job analyses, rehabilitation engineering, job development, and work modification strategies. It provides experience in making employer contacts, overseeing clients' job seeking efforts, and training in job-related social skills.

Credits: 3 hours

Notes: Open to upper level and graduate students.

BLS 5880 - Psychosocial Aspects of Disability

This course provides an understanding of the psycho-social factors that impact upon the integration into society of individuals with disabilities. It examines the philosophy of rehabilitation, major classifications and paradigms, common stereotypes, attitudes and their measurement, psychiatric disabilities, theories of adjustment, psycho-social losses, issues relating to sexuality, personal adjustment training, the role of the family, the use of effective interaction skills, and the stages of group process.

Credits: 2 hours

Notes: Open to upper level and graduate students.

BLS 5890 - Medical and Functional Aspects of Disability

This course presents an interdisciplinary approach to the study of multi-handicapping conditions in rehabilitation. It includes information on the major disabling conditions such as traumatic brain injury; orthopedic, neuromuscular, visual, learning, speech and hearing, cardiovascular, mental and emotional disabilities; and other select disabilities. Emphasis is placed upon cumulative effects of concomitant disabilities with additional emphasis on visual impairment.

Credits: 2 hours

Notes: Open to upper level and graduate students.

BLS 5900 - Physiology and Function of the Eye

The anatomy, structure, and function of the eye. Various eye diseases and malfunctions are stressed. The student is given an opportunity to observe all types of eye conditions and eye prostheses.

Credits: 2 hours

Notes: Open to upper level and graduate students.

BLS 5905 - Physiology and Performance in Blind Children

This course provides an overview of the neurological aspects of visual perception and examines how children who are blind develop skills in using tactile, kinesthetic, and acoustic perception to guide their exploration of the world around them. Biomechanical and acoustic skills will also be explored as practiced by adults who are blind.

Credits: 2 hours

Notes: Open to graduate students only.

BLS 5910 - Braille and Other Tactual Communication Systems

This course provides students with a basic knowledge of the literary braille code - reading and writing - and an overview of other communication methods available to people with visual impairments. It introduces methods for teaching braille and an introduction to the development of literacy skills for individuals who are braille readers. Methods of literacy assessment for children and adults, instructional methods, and braille translation hardware and software are also covered.

Credits: 3 hours

Restrictions: Restricted to master's in Teaching Children with Visual Impairment, Orientation and Mobility for Children, Vision Rehabilitation Therapy and graduate non-degree seeking.

Notes: Open to upper level and graduate students.

BLS 5912 - Teaching Math and Specialty Codes

This course contains study of the Nemeth Code and Unified English Braille Code (UEB) for math and science, the music code, adaptations of worksheets and tests, foreign languages (French, German, and Spanish), transcription of

diacritical marks (dictionary notation), and an introduction to computer Braille notation.

Credits: 2 hours

Restrictions: Restricted to master's in Teaching Children with Visual Impairment, Orientation and Mobility for Children, Vision Rehabilitation Therapy and graduate non-degree seeking.

Notes: Open to upper level and graduate students.

BLS 5915 - Braille for Orientation and Mobility Specialists

This course is designed to teach Orientation and Mobility (O&M) Specialists how to read and write uncontracted braille, as well as prepare quality tactile graphics. Instruction in braille reading, as well as in writing with a slate and stylus, Braille Writer, and braille emulation and translation software will be provided. In addition, the use of both high and low tech products for creating tactile graphics will be taught. Students will also be provided an introduction to contracted braille. Methods for implementing the use of braille and tactile graphics into appropriate teaching strategies will also be emphasized.

Credits: 1 hour

Restrictions: Restricted to masters in Orientation and Mobility, Orientation and Mobility for Children, and Teaching Children with Visual Impairment/Orientation and Mobility for Children.

Notes: Open to graduate students only.

BLS 5920 - Orientation and Mobility with Children

This course will provide strategies for teaching orientation and mobility to children. Assessment techniques and methods for teaching the orientation and mobility curriculum (indoor travel to business travel) to children, including those with multiple disabilities or deaf-blindness will be presented. In addition, strategies for teaching areas specific to children, such as body image, sensory-motor, and concept development will be addressed. The focus will be on practical application in educational settings.

Credits: 3 hours

Restrictions: Restricted to masters in Orientation and

Mobility, Orientation and Mobility for Children, and Teaching Children with Visual Impairment/Orientation and Mobility for Children.

Notes: Open to graduate students only.

BLS 5930 - Methods of Teaching Adaptive Communications

Adaptive communication methods and access technologies used by visually impaired persons are presented in this course. Specifically, Braille, handwriting, digital devices, and keyboarding are presented. Use of mobile apps, resources, social media and use of crowd-sourcing by individuals who have visual impairments are also explored. This course includes supervised practical teaching experience with a visually impaired person.

Credits: 3 hours

Notes: Open to upper level and graduate students.

BLS 5945 - Itinerancy and Effective School Collaboration

This course is designed to prepare educators of the blind and visually impaired to work effectively within school systems utilizing an itinerant teaching model. Legal issues related to providing educational services within schools will be stressed, including federal and state laws pertaining to special education with emphasis on those that are specific to blindness and visual impairment. Both the IEP and IFSP process will be thoroughly covered, including how to develop, implement, and monitor effective educational goals. Effective communication strategies for working with other educators and families will also be emphasized.

Credits: 3 hours

Restrictions: Restricted to master's in Teaching Children with Visual Impairment, Orientation and Mobility, and Orientation and Mobility for Children and graduate non-degree seeking.

Notes: Open to graduate students only.

BLS 5950 - Introduction to Orientation and Mobility

The content of this course relates to problems of independent travel which result from reduced vision.

Simulated experiences are provided which emphasize the sensory, conceptual, and performance levels needed for independent travel in a variety of environments. Course is repeatable.

Credits: 2 to 4 hours

Restrictions: Restricted to masters in Orientation and Mobility, Orientation and Mobility for Children, and Teachers of Children with Visual Impairment and Orientation and Mobility for Children.

Notes: Open to graduate students only.

BLS 5960 - Introduction to Electronic Travel Aids

Systematic instruction in use of fundamental electronic travel aids and overview of major electronic devices.

Credits: 1 hour

Notes: Open to upper level and graduate students.

BLS 5970 - Principles of Low Vision

This course deals with assessment and remediation of functional problems encountered by low vision persons. Emphasis is placed on optical, non-optical, and electronic aids which increase visual functioning. In addition, the nature and needs of low vision persons and the interprofessional nature of low vision services are stressed. The concepts are explored that deal with initial intake procedures, assessment of near and distant visual acuity, assessment of near and distant visual field, color testing, evaluation of sunwear, evaluation of optical aids, training in the use of optical and non-optical aids, and use of equipment such as the lensometer and tonometer.

Prerequisites & Corequisites: Prerequisite: Approval of advisor.

Credits: 2 hours

Notes: Open to upper level and graduate students.

BLS 5980 - Readings in Blindness and Low Vision Studies

This course is arranged on an individual basis to provide students an opportunity to independently pursue an in-depth study of special areas of interest.

Prerequisites & Corequisites: Prerequisite: BLS students only.

Credits: 1 to 4 hours

Restrictions: Restricted to masters in Counselor Education: Rehabilitation Teaching, Orientation and Mobility, Vision Rehabilitation Therapy, Teaching Children with Visual Impairment, Teaching Children with Visual Impairment/Orientation and Mobility for Children.

Notes: Open to graduate students only.

Business Communication

BCM 1420 - Informational Writing

Development of the basic composition skills required of the competent writer in business and professions. Through continuing directed practice in writing, students develop competence in the organization and presentation of facts and information in writing. This course satisfies WMU Essential Studies Level 1: Foundations - Writing category.

Credits: 3 hours

BCM 3700 - Integrated Communication in Business

This course is designed to expand students' understanding of the complexities of oral and written communication in business. Individual and team projects will provide practical experience in the development of effective oral and written communication that reflects upon the students' ability to analyze an audience, adapt to the audience, and develop persuasive communication strategies reflecting the integration of written, oral, visual, and electronic modes of communication.

Prerequisites & Corequisites: Prerequisites & Corequisites: Prerequisites: Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

BCM 4540 - Intercultural Business Communication

Intercultural Business Communication is designed to develop the effectiveness of students' communication skills with culturally diverse audiences, both at home and abroad.

Prerequisites & Corequisites: Prerequisite: Junior standing or instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

BCM 4960 - Independent Study

A directed independent project in an area of Administrative Systems or Business Communication.

Prerequisites & Corequisites: Prerequisite: Approved application required.

Credits: 1 to 4 hours

BCM 4980 - Readings in Business Communication

A series of direct readings in an area of Administrative Systems or Business Communication.

Prerequisites & Corequisites: Prerequisite: Approved application required.

Credits: 1 to 4 hours

Chemical and Paper Engineering

CHP 3100 - Work Experience/Co-op

Full-time employment in a chemical process industry, pulp, paper, printing, or related industry that provides first-hand experience in a job applying the process principles directly related to the student's major. A written report is required.

Prerequisites & Corequisites: Prerequisite: Junior standing and departmental approval.

Credits: 1 hour

Restrictions: Restricted to the three departmental majors- Chemical Engineering, Paper Engineering, and Graphic and Printing Science.

Notes: Students who will work full-time (30 hours or more per week) may register for CHP 3100 and will be granted full-time student status. May be repeated for credit up to a maximum of three times.

Chemical Engineering

CHEG 1010 - Introduction to Chemical Engineering

Introduction to chemical engineering, including process safety, basic laws at the foundation of chemical engineering, units and measurements, chemical equipment and instruments used in the process industries. Emphasis will be on oral and written communication skills and career planning development.

Prerequisites & Corequisites: Prerequisites: CHEM 1100 and IEE 1020 both with a grade of "C" or better (may be taken concurrently).

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

CHEG 1810 - Introduction to Chemical Engineering Computation

An introduction to computer tools used to solve chemical engineering problems. These tools will provide a framework for doing homework, laboratory exercises, and research in later chemical engineering courses. MathCad and Excel with Visual Basic for Applications will be utilized.

Prerequisites & Corequisites: Prerequisites: MATH 1180; CHEG 1010 or PAPR 1000. (CHEG 1010 or PAPR 1000 may be taken concurrently.) A minimum grade of "C" is required in CHEG and PAPR prefixed prerequisites.

Credits: 2 hours

Lecture Hours - Laboratory Hours: (0 - 3)

CHEG 2611 - Environmental Engineering I

The sources, impacts, and management practices for gas, liquid, and solid byproducts of natural, industrial, and municipal sources. Legal, ethical, engineering, and economic implications included in evaluation of applicable

emission reduction and emission control techniques and processes will be stressed. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Prerequisites & Corequisites: Prerequisites: CHEM 1100, CHEM 1110 and either (MATH 1230 or MATH 1710).

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

When Offered: Fall and Spring

CHEG 2810 - Data Acquisition and Handling

A lecture/laboratory consideration of the methods used to collect experimental or process data, data handling, and data presentation; methods and limitations when applying or collecting process information.

Prerequisites & Corequisites: Prerequisite: CHEG 1810, a minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 1 hour

Lecture Hours - Laboratory Hours: (0 - 3)

CHEG 2960 - Material and Energy Balance

Fundamentals of chemical engineering dealing with behavior of gases, thermophysical properties of solids, liquids and gases, thermochemistry and associated problem solving. Emphasis is on material and energy balances. The laboratory session will be used as a problem solving workshop.

Prerequisites & Corequisites: Prerequisites: CHEG 1810, PHYS 2050 (both CHEG 1810 and PHYS 2050 may be taken concurrently), MATH 1230, CHEM 1100. A minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 4 hours

Notes: Will be offered as honors courses for interested students

Lecture Hours - Laboratory Hours: (3 - 3)

CHEG 3110 - Unit Operations in Chemical Engineering I

A consideration of the unit operations in the area of fluid mechanics. Emphasis is on principles of fluid mechanics, equipment design, and applications. The laboratory is centered around problem solving, design, and optimization issues. Relevant software will be used in visualizing and solving industrial problems.

Prerequisites & Corequisites: Prerequisite: CHEG 1810
CHEG 3120 - Unit Operations in Chemical Engineering II

A consideration of the unit operations in the area of heat transfer. Emphasis is on the principles of heat transfer, equipment design, and applications. The laboratory is centered around problem solving, design, and optimization issues. Relevant software will be used in visualizing and solving industrial problems.

Prerequisites & Corequisites: Prerequisite: CHEG 3110, a minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 3 hours

Notes: Will be offered as honors courses for interested students

Lecture Hours - Laboratory Hours: (2 - 3)

CHEG 3200 - Chemical Engineering Thermodynamics

A lecture consideration of the fundamental laws and concepts of thermodynamics and how they explain the behavior of matter in its different phases. Special emphasis on application to industrial situations.

Prerequisites & Corequisites: Prerequisites: CHEM 1120 and CHEG 2960. A minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

CHEG 3300 - Mass Transfer

Fundamentals of diffusional mass balances; diffusion in solids, liquids, and gases. Convective mass transfer; simultaneous heat and mass transfer. Component separation in continuous processes; gas absorption and adsorption; liquid-liquid extraction and distillation.

and CHEG 2960, a minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 3 hours

Notes: Will be offered as honors courses for interested students

Lecture Hours - Laboratory Hours: (2 - 3)

Prerequisites & Corequisites: Corequisites: CHEG 3120 with a grade of "C" or better (may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in chemical engineering and paper engineering.

Lecture Hours - Laboratory Hours: (3 - 0)

CHEG 3550 - Bioprocess Engineering

The extension of chemical engineering fundamentals to biological systems. Topics include: bioreaction engineering, bioseparations, and commercial applications of biomaterials and bioprocesses to societal needs.

Prerequisites & Corequisites: Prerequisite: (BIOS 1500 or BIOS 1610) and CHEG 2960. A minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 3 hours

Notes: Completion of 1 semester of organic chemistry is highly recommended.

Lecture Hours - Laboratory Hours: (2 - 3)

When Offered: Spring

CHEG 3810 - Computer Modeling and Simulation - Chemical Processes

A laboratory class covering usage and application of process simulation packages; module set up, data inputting and optimization techniques.

Prerequisites & Corequisites: Prerequisite: CHEG 2960, a minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 1 hour

Restrictions: Restricted to majors in chemical engineering and paper engineering.

Lecture Hours - Laboratory Hours: (0 - 3)

CHEG 4100 - Chemical Reaction Engineering

Chemical kinetics and equilibria; reaction rate expressions from mechanisms and experimental data; design and analysis of homogeneous flow and batch reactors; heterogeneous reactor design; solid catalyzed reactions.

Prerequisites & Corequisites: Prerequisites: (CHEG 3200 or CHEM 4300), and MATH 3740. A minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in chemical engineering and paper engineering.

Lecture Hours - Laboratory Hours: (3 - 0)

CHEG 4400 - Safety and Hazards Management in Chemical Processes

A study of the technical fundamentals of process safety and hazards associated with chemical, physical and biological processes. Includes fires and explosions, relief systems, hazard identification, risk assessment, hazardous waste generation, toxicology, case studies, and regulatory requirements.

Prerequisites & Corequisites: Prerequisite: CHEG 3120, a minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 1 hour

Lecture Hours - Laboratory Hours: (0 - 2)

CHEG 4440 - Energy Management Engineering

Energy systems including combustion processes and steam generation and distribution. Practical issues and equipment used in the energy industry. Energy efficiency, economic operation, and reduction of emissions.

Prerequisites & Corequisites: Prerequisites: (CHEG 3120 and 3200) or (ME 4310 and 4320) or (CHEG 3120 and CHEM 4300). (CHEM 4300 may be taken concurrently). A minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

CHEG 4600 - Plant Economics and Project Design

A lecture and laboratory consideration of: Process synthesis and operability characteristics; dynamics of chemical process industries; project evaluation and review; optimization in design and selection of process and/or equipment alternatives; environmental, health, final disposal, and safety in the design of chemical processes; basis for cost estimation. Emphasis will be on acquiring business skills, understanding of project planning and management, life cycle, economics, and the impact of projects on various stakeholders. Oral and written reports of individual and team efforts.

Prerequisites & Corequisites: Prerequisites: CHEG 3120, CHEG 3300, and CHEG 3810. (CHEG 3810 may be taken concurrently.) A minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 3 hours

Notes: Will be offered as honors courses for interested students.

Cross-Listed: CHEG 4600 is cross-listed with PAPR 4600. A student may not receive credit for both CHEG 4600 and PAPR 4600.

Lecture Hours - Laboratory Hours: (2 - 3)

CHEG 4810 - Unit Operations Lab: Fluid Flow, Heat and Mass Transfer

A unit operations laboratory course designed to demonstrate the principles of transport phenomena. A variety of experiments will be done requiring the application of transport principles covered in fluid dynamics, heat transfer, and mass transfer.

Prerequisites & Corequisites: Prerequisites: CHEG 3120, CHEG 3300 and IEE 2610 with a grade of "C" or better in all prerequisites.

Credits: 2 hours

Restrictions: Restricted to majors in Chemical Engineering.

Lecture Hours - Laboratory Hours: (0 - 6)

CHEG 4830 - Process Control I

Introduction to automatic control covering control methods, theory, loop analysis, and control loop hardware, including sensors, transmitters, controller and control valves.

Includes the necessary secondary loop topics such as circuits (RC and RL) and circuit laws.

Prerequisites & Corequisites: Prerequisites: CHEG 3120, MATH 3740, and PHYS 2070. A minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

CHEG 4870 - Senior Design Project

Application of chemical engineering to the solution of a complex, open-ended research problem selected in consultation with faculty. The project will involve feasibility analysis, design, and optimization of chemical processes. The project is the culmination of the curriculum and is a major design experience based on the knowledge and skills acquired in earlier coursework and will incorporate appropriate engineering standards and multiple realistic constraints. Emphasis will be on working in small design groups, submission of written report, and oral presentation. This course is approved as a writing-intensive course. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category. Will be offered as honors courses for interested students.

Prerequisites & Corequisites: Prerequisite: CHEG 4600, a minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (1 - 2)

CHEG 4950 - Topics in Chemical Engineering

A specialized course dealing with a specific area in chemical engineering not included in other course offerings.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit with a different topic up to six hours.

CHEG 4990 - Independent Studies

A program of independent study in an area arranged in consultation with the instructor.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 3 hours

Notes: One to three hours per semester, cumulative to six hours.

CHEG 5100 - Medical and Biomolecular Engineering Concepts

A course focused on molecular biotechnology, bioprocessing, and pharmacology concepts related to engineering. Topics may include but are not limited to molecular biology and biochemical techniques, PCR and primer design, chromatography, gel electrophoresis and Western blotting, mass spectrometry, advanced bioprocessing, pharmacokinetics, and pharmacodynamics.

Prerequisites & Corequisites: Prerequisites: BIOS 1610, CHEM 3750, and MATH 2720, or by instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

CHEG 5200 - Renewable Energy and Energy Storage

This course covers the basic concepts of energy, energy conversion and energy storage with emphasis on renewable energy and rechargeable battery. Fundamentals and state-of-the-art technologies for utilizing renewable resources for energy will be introduced. Theories, processes and applications of energy conversion and storage technologies, including electric capacitors, batteries, rechargeable batteries and fuel cells, will be discussed.

Prerequisites & Corequisites: Prerequisites: Senior standing, CHEG 3200 and PHYS 2070; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Notes: Open to upper level and graduate students.

CHEG 5250 - Sustainable Earth Resources Engineering

As global population sources, the demand for food, water, and energy will likewise intensify while supplies are becoming increasingly scarce. This course will examine the state of the art and basic scientific and engineering principles that underlie food, energy, and water production technologies with an emphasis on their interdependence. Potential engineering solutions for enhancing efficiency and sustainability will be discussed. This course is intended for engineering students interested in topics of bio-energy, energy efficiency, and water resources engineering and sustainability.

Prerequisites & Corequisites: Prerequisites: CHEG 2611 and CHEG 2960, or instructor's approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

CHEG 5950 - Topics in Chemical Engineering

A specialized course dealing with some particular area of chemical engineering not included in other course offerings.

Prerequisites & Corequisites: Prerequisite: Approved application and department approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit with a different topic to a total of six credit hours. Open to upper level and graduate students.

Chemistry

CHEM 1000 - Introduction to General Chemistry

A course for students with insufficient background for college level chemistry which develops skills essential to a working understanding of the science of chemistry.

Instruction and practice in the fundamental tools for solving chemical problems: chemical formulas, chemical equations, stoichiometry, measurement units, conversions. An introduction to the nature of matter is developed. Enrollment is restricted to students without high school chemistry or to those who demonstrate inadequate retention of their chemistry background. This course credit will not apply to curricular requirements of chemical science at this university and should be followed by CHEM 1100.

Prerequisites & Corequisites: Prerequisite: One of the following: MATH 1100 or Math 1110 or Math 1180 (with a minimum grade of "C" or better in any prerequisite) or ACT minimum score 20 or SAT minimum score 460 or adequate performance on the MATH placement tool.

Credits: 3 hours

When Offered: Fall, Spring

CHEM 1100 - General Chemistry I

The theory and fundamental principles of chemistry are emphasized in this foundation course which serves primarily those who intend to enroll for more than two semesters of chemistry. Students well prepared may earn credit by taking an examination.

Prerequisites & Corequisites: Prerequisites: One year of high school chemistry; and one of the following: MATH 1110 or MATH 1180 or MATH 2000 (with a minimum grade of "C" or better in any prerequisite) or ACT minimum score 25 or SAT minimum score 560 or adequate performance on the MATH placement tool.

Credits: 3 hours

When Offered: Fall, Spring, Summer I and II

CHEM 1110 - General Chemistry Laboratory I

The companion laboratory course to CHEM 1100. This course is also intended for students who completed a general chemistry course without laboratory at another institution.

Prerequisites & Corequisites: Prerequisite: One of the following: Math 1110 or MATH 1180 or MATH 2000 (with a minimum grade of "C" or better in any prerequisite) or ACT minimum score 25 or SAT minimum score 560 or adequate performance on the MATH placement tool; and CHEM 1100 with a minimum grade of "C" or better (may

be taken concurrently).

Credits: 1 hour

When Offered: Fall, Spring, Summer I and II

CHEM 1120 - General Chemistry II

The properties of a number of the more representative elements and the compounds which they form are studied. Chemical relationships in the periodic table, electrochemistry, and the equilibrium principle are also treated.

Prerequisites & Corequisites: Prerequisites: CHEM 1100 and CHEM 1110; with a minimum grade of "C" or better in all prerequisites.

Credits: 3 hours

When Offered: Fall, Spring, Summer I and II

CHEM 1130 - General Chemistry Laboratory II

The companion laboratory course to CHEM 1120.

Prerequisites & Corequisites: Prerequisites: CHEM 1100 and CHEM 1110 (with a minimum grade of "C" or better in any prerequisites); and CHEM 1120 with a minimum grade of "C" or better (may be taken concurrently).

Credits: 1 hour

When Offered: Fall, Spring, Summer I and II

CHEM 1510 - Chemistry for Health Professionals I

First semester of a two course sequence for College of Health and Human Services students whose curricula require an introduction to biochemistry. The first semester emphasizes general and organic chemistry. This course does not satisfy curricular requirements for chemistry outside of the College of Health and Human Services.

Prerequisites & Corequisites: Prerequisites: MATH 1110 OR MATH 1180 OR MATH 2000 (with a minimum grade of "C" or better) OR ACT minimum score 25 OR SAT minimum score 560 OR adequate performance on the MATH placement tool AND CHEM 1520 with a minimum grade of "C" or better (may be taken concurrently).

Credits: 3 hours

When Offered: Fall

CHEM 1520 - Chemistry for Health Professionals I Lab

This laboratory course is designed to complement CHEM 1510.

Prerequisites & Corequisites: Prerequisite: CHEM 1510 with a minimum grade of "C" or better (may be taken concurrently).

Credits: 1 hour

When Offered: Fall

CHEM 1530 - Chemistry for Health Professionals II

The continuation of CHEM 1510, emphasizing biochemistry. This course does not satisfy curricular requirements for chemistry outside the College of Health and Human Services, nor the chemistry requirements of the Physician Assistant Program.

Prerequisites & Corequisites: Prerequisites: CHEM 1510 and CHEM 1520 (with a minimum grade of "C" or better in any prerequisite); and CHEM 1540 with a minimum grade of "C" or better (may be taken concurrently).

Credits: 3 hours

When Offered: Spring

CHEM 1540 - Chemistry for Health Professionals II Lab

This is the laboratory course which should be taken concurrently with CHEM 1530.

Prerequisites & Corequisites: Prerequisites: CHEM 1510 and CHEM 1520 (with a minimum grade of "C" or better in any prerequisite); and CHEM 1530 with a minimum grade of "C" or better (may be taken concurrently).

Credits: 1 hour

When Offered: Spring

CHEM 1850 - Chemistry Freshman Seminar

Chemistry Seminar introduces students that major in Chemistry and Biochemistry to various research and career opportunities in the field. Students will have an opportunity to meet with experts in their field and understand ways to establish goal for success in their major.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 hour

When Offered: Fall

CHEM 1900 - Chemistry of Climate Change

This course is designed to provide a introduction to the chemistry of climate change and will provide an understanding of the climate's influence on society and our influence on the climate. An introduction to the molecules of the atmosphere and how these interact with solar radiation to keep our planet temperate will be provided. Changes in chemical equilibria, due to natural and anthropological causes, leading to an increase in global temperatures will be discussed. Strategies to mitigate climate change will also be covered. Outcomes include the ability to scientifically evaluate effects of climate change and respond to a changing environment.

Prerequisites & Corequisites: Prerequisite: One of the following: MATH 1100 or MATH 1110 or MATH 1180 (with a minimum grade of "C" or better in any prerequisite) or ACT minimum score 19 or SAT minimum score 460 or adequate performance on the MATH placement tool.

Credits: 3 hours

When Offered: Fall

CHEM 2250 - Quantitative Analysis

This course includes the theory, techniques, and calculations of quantitative analysis. Instrumental techniques are used to supplement classical analytical procedures in the laboratory.

Prerequisites & Corequisites: Prerequisites: CHEM 1120 and CHEM 1130 (with a minimum grade of "C" or better in any prerequisite); and CHEM 2260 with a minimum grade of "C" or better (may be taken concurrently).

Credits: 3 hours

When Offered: Fall, Spring

CHEM 2260 - Quantitative Analysis Laboratory

This is the laboratory course which should be taken concurrently with CHEM 2250.

Prerequisites & Corequisites: Prerequisite: CHEM 1120 and CHEM 1130 (with a minimum grade of "C" or better in any prerequisite); and CHEM 2250 with a minimum grade of "C" or better (may be taken concurrently).

Credits: 1 hour

When Offered: Fall, Spring

CHEM 2800 - Active Chemistry

This course aids students in developing meaningful and functional understanding of chemistry concepts, their interrelations and their implication for everyday chemical technology. Students work in open-ended problem solving environments that facilitate insight in the nature of science as an intellectual activity, explore alternative conceptions of chemical phenomena, help students develop more positive attitudes about chemical technology and increase their confidence in their ability to do chemistry.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (0 - 4)

When Offered: Fall, Spring

CHEM 3550 - Introductory Biochemistry

A basic course in the chemistry and metabolism of carbohydrates, lipids, proteins, and nucleic acids.

Prerequisites & Corequisites: Prerequisites: (CHEM 3700 AND CHEM 3710) or (CHEM 3770 and CHEM 3780); with a minimum grade of "C" or better in any prerequisite.

Credits: 3 hours

When Offered: Fall, Spring, Summer I

CHEM 3560 - Introductory Biochemistry Laboratory

Basic biochemistry laboratory techniques. Isolation and properties of proteins, enzymes, carbohydrates, lipids and nucleic acids. Use of instrumentation for bioanalytical determinations.

Prerequisites & Corequisites: Prerequisite: CHEM 3550 or CHEM 5500 (either may be taken concurrently); with a minimum grade of "C" or better in any prerequisite.

Credits: 1 hour

When Offered: Fall, Spring, Summer I

CHEM 3700 - Introduction to Organic Chemistry

A one semester course which surveys the chemistry of aliphatic and aromatic carbon compounds, designed for those needing a working knowledge of organic chemistry without the theoretical detail of a full year course.

Prerequisites & Corequisites: Prerequisites: CHEM 1120 and CHEM 1130; with a minimum grade of "C" or better in any prerequisite. It is strongly recommended that students take CHEM 3710 concurrently.

Credits: 3 hours

Notes: Credit may not be received for both CHEM 3750 and CHEM 3700. CHEM 3700 is not a satisfactory prerequisite for CHEM 3770.

When Offered: Spring, Summer I

CHEM 3710 - Introduction to Organic Chemistry Lab

This course is the laboratory to accompany CHEM 3700 and should be taken concurrently with CHEM 3700.

Prerequisites & Corequisites: Prerequisite: CHEM 1120, CHEM 1130 and CHEM 3700 (may be taken concurrently); with a minimum grade of "C" or better in any prerequisite. It is strongly recommended that students take CHEM 3700 concurrently.

Credits: 1 hour

When Offered: Spring, Summer I

CHEM 3750 - Organic Chemistry I

The preparation and chemical properties of aliphatic and aromatic compounds are studied. The emphasis is placed on the nature of covalent bonds and molecules and the general reactions of functional groups.

Prerequisites & Corequisites: Prerequisites: CHEM 1120 and CHEM 1130; with a minimum grade of "C" or better in any prerequisite. It is strongly recommended that students take CHEM 3760 concurrently.

Credits: 3 hours

When Offered: Fall, Spring, Summer I

CHEM 3760 - Organic Chemistry Lab I

This course is the laboratory to accompany CHEM 3750. Should be taken concurrently with CHEM 3750.

Prerequisites & Corequisites: Prerequisites: CHEM 1120, CHEM 1130 and CHEM 3750 (may be taken concurrently); with a minimum grade of "C" or better in any prerequisite. It is strongly recommended that students take CHEM 3760 concurrently.

Credits: 1 hour

When Offered: Fall, Spring, Summer I

CHEM 3770 - Organic Chemistry II

This course is the continuation of CHEM 3750.

Prerequisites & Corequisites: Prerequisites: CHEM 3750 and CHEM 3760; with a minimum grade of "C" or better in any prerequisite. It is strongly recommended that students take CHEM 3780 concurrently.

Credits: 3 hours

When Offered: Fall, Spring, Summer II

CHEM 3780 - Organic Chemistry Lab II

This course is the laboratory to accompany CHEM 3770. Should be taken concurrently with CHEM 3770.

Prerequisites & Corequisites: Prerequisites: CHEM 3750, CHEM 3760 and CHEM 3770 (may be taken concurrently); with a minimum grade of "C" or better in any prerequisite. It is strongly recommended that students take CHEM 3770 concurrently.

Credits: 1 hour

When Offered: Fall, Spring, Summer II

CHEM 3900 - Special Problems in Chemistry

This course is designed to give students that have completed basic chemistry an opportunity to receive credit for experience in chemical laboratory independent study in association with a faculty member.

Prerequisites & Corequisites: Prerequisite: 18 hours of chemistry (with a minimum grade of "C" in all courses), and approval of the department chairperson and a faculty director.

Credits: 2 hours

Notes: May be repeated once for credit. Graded on a Credit/No Credit basis.

When Offered: Fall, Spring

CHEM 4300 - Physical Chemistry I

Lectures on kinetic theory of gases, thermodynamics, phase rule, equilibria, electrochemistry, quantum theory, spectroscopy, statistical mechanics, chemical kinetics and mechanisms, transport properties, surface chemistry, macromolecules, crystal structure, etc.

Prerequisites & Corequisites: Prerequisites: CHEM 1120, CHEM 1130, MATH 2720, PHYS 2050, PHYS 2060, PHYS 2070, and PHYS 2080; with a minimum grade of "C" of better in any prerequisite.

Credits: 3 hours

When Offered: Fall

CHEM 4310 - Physical Chemistry II

A continuation of CHEM 4300.

Prerequisites & Corequisites: Prerequisite: CHEM 4300 with a minimum grade of "C" or better.

Credits: 3 hours

When Offered: Spring

CHEM 4360 - Physical Chemistry Laboratory I

Laboratory experiments designed to emphasize and reinforce the principles covered in CHEM 430, with consideration of the limitations of physical measurements and their quantitative and qualitative interpretation.

Prerequisites & Corequisites: Prerequisites: CHEM 2250, CHEM 2260 and CHEM 4300; with a minimum grade of "C" or better in any prerequisite.

Credits: 2 hours

When Offered: Fall, Spring

CHEM 4370 - Physical Chemistry Laboratory II

Laboratory experiments designed to emphasize and reinforce the principles covered in CHEM 4310. This course expands on the qualitative and quantitative interpretation or physical and chemical measurement skills introduced in CHEM 4360.

Prerequisites & Corequisites: Prerequisites: CHEM 4310 and CHEM 4360 (both may be taken concurrently); with a minimum grade of "C" or better in any prerequisite.

Credits: 1 hour

When Offered: Fall, Spring

CHEM 4950 - Co-op/Internship

Research or practical training experience outside the department or university. This work is to be summarized in a written report.

Prerequisites & Corequisites: Prerequisite: Department approval will be required so that students can be matched appropriately with employers according to the course work they have completed.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Students may take up to a maximum of six credit hours. Graded on a Credit/No Credit basis.

CHEM 5070 - Ethical Chemical Practice

This class addresses ethical standards and professional practice for the conduct of chemists. Students will learn to access and search the scientific literature, develop a set of ethical standards, and maintain a safe laboratory environment in an atmosphere of responsible care. The course will also address responsibilities of the individual professional care. The course will also address responsibilities of the individual professional in group, academic, and industrial settings.

Prerequisites & Corequisites: Prerequisite: Junior standing and 24 hours of Chemistry (with a minimum grade of "C" in all courses), and department approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Spring

CHEM 5090 - Topics in Chemistry

A topic is presented in greater depth or from a perspective different from that of a typical undergraduate course. Representative topics such as microprocessors, industrial chemistry, chemical pollution, etc. according to student interest and request.

Prerequisites & Corequisites: Prerequisite: Junior standing and 16 hours of chemistry (with a minimum grade of "C" or better in all courses), and department approval.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

CHEM 5150 - Inorganic Chemistry

The course, along with CHEM 5700 and 5750, provides a capstone chemistry experience for undergraduates. The course will present the principles of inorganic chemistry in terms of its relevance to the "real world" of industry and environmental protection. Topics include symmetry, structure, and bonding, as well as a survey of the descriptive chemistry of the elements.

Prerequisites & Corequisites: Prerequisite: Junior standing and 12 hours of work in chemistry, including CHEM 4310 (with a minimum grade of "C" or better in all courses); and department approval. Students are strongly advised to have already completed CHEM 5700 and be registered concurrently in CHEM 5750.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

CHEM 5200 - Instrumental Methods in Chemistry

An introduction to the theory and application of modern chemical instrumentation is presented. General topics covered are elementary electronics, electrochemistry, spectroscopy, and other instrumental techniques. This course includes lecture and laboratory.

Prerequisites & Corequisites: Prerequisite: Junior standing and 12 hours of work in chemistry, including CHEM 4310 and CHEM 4360 (with a minimum grade of "C" or better in all courses); and department approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

CHEM 5280 - Chemical Separations

Principles and applications of chemical separations, including distillation, crystallization, extraction, electrophoresis and a variety of chromatographic techniques are presented. Laboratory exercises illustrate typical applications of the methods.

Prerequisites & Corequisites: Prerequisite: Junior standing and 12 hours of work in chemistry, including CHEM 3770 (with a minimum grade of "C" or better in all courses); and department approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Spring of odd years

CHEM 5500 - Biochemistry I

The chemistry, properties, and molecular biology of proteins and nucleic acids. Includes discussions of amino acids, enzymes and biochemical energetics.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 hours of work in chemistry, including CHEM 3770, CHEM 3780, and CHEM 4300 (with a minimum grade of "C" or better in all courses); and

department approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

CHEM 5510 - Biochemistry I Laboratory

This is the lab course that complements CHEM 550. Experiments involve more advanced techniques and instrumentation than in CHEM 356. Emphasis will be on purification and properties of proteins and nucleic acids.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 hours of work in chemistry, including CHEM 3770, CHEM 3780, CHEM 4300 and CHEM 5500 (may be taken concurrently); with a minimum grade of "C" or better in all courses; and department approval.

Credits: 2 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

CHEM 5540 - Biochemistry II

Continuation of CHEM 5500. Chemistry and metabolism of carbohydrates and lipids. Metabolism of amino acids and nucleic acids.

Prerequisites & Corequisites: Prerequisite: Junior standing and 12 hours of work in chemistry, including CHEM 5500 (with a minimum grade of "C" or better in all courses); and department approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Spring

CHEM 5700 - Advanced Organic Chemistry and Spectroscopy

This course, along with CHEM 5150 and 5750, provides a capstone chemistry experience for undergraduates. The course expands on fundamentals of organic reactions and mechanisms through investigation of molecular structure and reactivity. Students will gain experience in modern spectral interpretation and will learn to use the organic chemical literature and databases.

Prerequisites & Corequisites: Prerequisites: Junior standing, CHEM 3770, CHEM 3780, and 24 hours of chemistry (with a minimum grade of "C" or better in any courses); and department approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall of even years

CHEM 5720 - Medicinal Chemistry

Contemporary principles of organic chemistry relevant to drug development and action as they apply to biochemical systems.

Prerequisites & Corequisites: Prerequisites: CHEM 3770 and CHEM 3780, with a minimum grade of "C" or better in all prerequisites.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall of odd years

CHEM 5750 - Advanced Chemical Synthesis

This course provides a synthetic laboratory experience for undergraduates in conjunction with the CHEM 5700 and CHEM 5150 capstone courses. The fundamentals of synthetic techniques will be exercised through independent synthetic laboratory projects and detailed investigations of molecular structure using modern spectroscopic methods. Students will get hands-on experience with modern spectroscopic instrumentation and will learn to utilize the chemical literature and databases.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 hours of work in chemistry, including CHEM 3770, CHEM 3780, CHEM 4310, and CHEM 5200 (with minimum grade of "C" or better in all courses); or instructor approval. It is strongly recommended that CHEM 5700 be taken before CHEM 5750 to prepare students for spectral interpretation.

Credits: 2 hours

Notes: Open to upper level and graduate students.

When Offered: Spring

CHEM 5900 - Special Problems in Chemistry

Research work on a problem in chemistry in association with a faculty member. This research work is to be summarized in a written report. May be repeated once for credit.

Prerequisites & Corequisites: Prerequisites: Junior standing and 24 hours of chemistry, including CHEM 4360 (with a minimum grade of "C" or better in all courses); and department approval.

Credits: 2 hours

Notes: May be repeated once for credit. Graded on a Credit/No Credit basis. Open to upper level and graduate students.

When Offered: Fall, Spring

CHEM 5980 - Readings in Chemistry

In consultation with a faculty member, the student will design a reading list in a specialized area. The student will master the material independently and will prepare a paper or other summary work as agreed with the faculty member. This course may be repeated for up to a total of six credit hours.

Prerequisites & Corequisites: Prerequisite: Junior standing and 12 hours of work in chemistry (with a minimum grade of "C" or better in all courses); and department approval.

Credits: 1 to 4 hours

Notes: May be repeated up to a total of six hours. Open to upper level and graduate students.

CHEM 5990 - Independent Study in Chemistry

Under the direction of a faculty member, highly qualified advanced students or small groups may pursue student-initiated research projects. The results will be summarized in a paper or other work as agreed with the faculty member.

Prerequisites & Corequisites: Prerequisite: Junior standing and 12 hours of work in chemistry (with a minimum grade of "C" in all courses); and department approval.

Credits: 1 to 3 hours

Notes: May be repeated for up to a total of six credit hours. Open to upper level and graduate students.

Chinese

CHIN 1000 - Basic Chinese I

Fundamentals of Chinese. Background and practice in listening comprehension, speaking, reading and writing.

Credits: 4 hours

CHIN 1010 - Basic Chinese II

Continuation of CHIN 1000. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Prerequisites & Corequisites: Prerequisite: CHIN 1000 or equivalent.

Credits: 4 hours

CHIN 2000 - Intermediate Chinese I

The development of spoken and written expression in Chinese. Review of fundamental grammar and skills.

Prerequisites & Corequisites: Prerequisite: CHIN 1010 or equivalent.

Credits: 4 hours

CHIN 2010 - Intermediate Chinese II

The continued development of spoken and written expression in Chinese. Readings and discussions of civilization and culture materials.

Prerequisites & Corequisites: Prerequisite: CHIN 2000 or equivalent.

Credits: 4 hours

CHIN 2100 - Business Chinese

This course is designed to introduce students to various aspects of Chinese business culture and to provide basic business Chinese training. By linking the relationship between business culture and business language, this course will equip students with basic language skills and knowledge to do business in Chinese speaking countries and areas or with Chinese companies. Topics such as the following will be studied: the first business meeting;

business negotiation; business connection; signing a contract; shipping and handling; and foreign trade corporations. We will emphasize communicative activities, and combine the language training with the introduction of Chinese business culture. Although students have different language background, all students are required to make a good faith effort to speak the target language at every relevant opportunity. It is our goal to use as much Chinese as possible while participating in this program. By the end of the course, students should be able to actively participate in basic business conversations.

Credits: 3 hours

CHIN 2750 - Chinese Life and Culture

This course is an introduction to Chinese society, culture, and history. The course is designed to increase students' foundational knowledge of the social sciences, humanities, and the arts of China, with the ability to apply key concepts beyond the course content (in other words, beyond the context of East Asia). This class will examine high points of Chinese culture and history while critically analyzing its cultural production (writing, art, film, etc.). Meanwhile, the class will repeatedly return to key themes that apply also outside the Chinese context. These may include factors that accelerate or slow down cultural development, the ways that cultures hybridize and change as the result of intercultural exchange, the ways that events on the world stage shape the life and culture of people at the individual level, and the ways that cultures and nations react during times of crisis. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

CHIN 2760 - Contemporary China

This course is an introduction to contemporary Chinese society and culture, and it is also a continuation of CHIN 2750 - Chinese Life and Culture with the focus on traditional China. The course is designed to increase students' foundational knowledge of the social sciences, humanities, and the arts of contemporary China, with the ability to apply key concepts beyond the course content (in other words, beyond the context of East Asia). This class will examine high points of modern Chinese society and culture while critically analyzing its cultural production (writing, art, film, etc.). Meanwhile, the class will repeatedly return to key themes that apply also outside the Chinese context. These may include factors that accelerate or slow down cultural development, the ways that cultures

hybridize and change as the result of intercultural exchange, the ways that events on the world stage shape the life and culture of people at the individual level, and the ways that cultures and nations react during times of crisis. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

CHIN 2800 - Chinese Calligraphy

Introduction to the history of Chinese calligraphy and a theoretical framework for recognition of the aesthetic qualities of the brushwork. A series of practice sessions will be held to facilitate a hands-on learning process for the lay person on major scripts. Taught in English, with translation for Chinese characters, can count toward minor in Chinese. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

CHIN 3160 - Chinese Composition

Advanced study of composition in Chinese. Emphasis is upon increasing the student's command of written Chinese. Chinese characters competency and basic skills of using Chinese word processors are reinforced.

Prerequisites & Corequisites: Prerequisite: CHIN 2010 or equivalent.

Credits: 3 hours

CHIN 3170 - Chinese Conversation

Advanced study of conversation in Chinese. Students practice spoken Chinese through role-playing, the viewing of films, discussion, and other oral activities. Emphasis on both listening and speaking of the language.

Prerequisites & Corequisites: Prerequisite: CHIN 2010 or equivalent.

Credits: 4 hours

CHIN 4760 - Foreign Study - non WMU

Student participation in pre-approved program of study abroad that is not through Western Michigan University.

Prerequisites & Corequisites: Prerequisites: Prior approval of departmental advisor or chairperson.

Credits: 1 to 16 hours

Notes: Repeatable for credit up to 32 credit hours.

When Offered: (Fall/Spring 1 - 16 hours) Summer I/II 1 - 8 hours

CHIN 4770 - Foreign Study

Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor and chairperson.

Credits: 1 to 16 hours

When Offered: (Fall/Winter 1 to 16 hours)
Spring/Summer 1 to 8 hours

CHIN 5020 - Chinese for Graduate Study

Chinese instruction for graduate students enrolled in a degree program who need knowledge of Chinese for their field of study. Students will sit in appropriate level course for their learning.

Prerequisites & Corequisites: Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures.

Credits: 3 to 4 hours

Notes: May be repeated for credit. May not be taken by undergraduate students in any field.

CHIN 5200 - Topics in Chinese Linguistics and Language Science

The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures.

Credits: 3 hours

Notes: May be offered as ARAB/CHIN/FREN/GER/

GREK/ITAL/JPNS/LAT/RUSS 5200. May be repeated for credit. Open to upper level and graduate students.

CHIN 5500 - Independent Study in Chinese

Directed individual study of a specific topic in Chinese language, literature, or culture. May be repeated for credit to a maximum of three hours.

Prerequisites & Corequisites: Prerequisite: Completion of four courses in Chinese or equivalent; minimum grade point average of 3.0 in Chinese; departmental approval required.

Credits: 1 to 3 hours

Notes: May be repeated for credit to a maximum of three hours. Open to upper level and graduate students.

Civil and Construction Engineering

CCE 1001 - Introduction to Engineering Design

An introduction to engineering design process is taught. The teaching process utilizes local civil and construction engineering problems and allows students to work in teams while seeking solutions to those problems. Course content includes engineering design process, teamwork, written and oral communications, engineering ethics and impact of engineering solutions on society.

Credits: 1 hour

Restrictions: Restricted to majors in Civil Engineering, Construction Engineering, and associated pre-codes.

Lecture Hours - Laboratory Hours: (1 - 0)

CCE 1002 - Introduction to Engineering Analysis

Engineering analyses concepts and related tools essential for the engineering profession. Course content includes problem-solving, use of data organization software such as spreadsheets for engineering analyses, teamwork, communications, and career opportunities and demands of the engineering and engineering technology professions.

Credits: 1 hour

Restrictions: Restricted to majors in Civil Engineering, Construction Engineering, and associated pre-codes.

Lecture Hours - Laboratory Hours: (1 - 0)

CCE 2360 - Geomatics

Spatial data collection methods including surveying, digital photogrammetry and remote sensing, and global positioning systems. Methods and technologies used to manage, manipulate, and analyze spatial and associated attribute data including geographical information systems.

Prerequisites & Corequisites: Prerequisites: EDMM 1420 and (MATH 1220 or 1700), with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 3080 - Civil and Construction Engineering Materials

The course focuses on the study of different materials and their applications in Civil and Construction Engineering. Design and control of concrete mixtures will form a major part of the course. Evaluation of physical and mechanical properties of other important construction materials will also be included.

Prerequisites & Corequisites: Prerequisite: ME 2570 with a grade of "C" or better.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

CCE 3300 - Transportation Engineering

Introduction to transportation engineering with emphasis on highway and airport design. Topics include a survey of various transportation modes for surface, air, and water systems. Emphasis is placed on location and geometric design of highways and airport runways, highway/airport drainage systems, design of rigid and flexible pavement, and pavement testing methods and rehabilitation.

Prerequisites & Corequisites: Prerequisite: CCE 2360 and (IEE 2610 or IME 2610), with a grade of "C" or better in all prerequisites.

Credits: 3 hours

CCE 3330 - Construction Codes, Specifications, and Contracts

Application of model codes to residential and commercial structures, nonstructural and structural plan review; fire codes, codes governing the installation of the electrical, plumbing and heating elements of the building; inspection techniques; code administration; and introduction to construction contracts.

Prerequisites & Corequisites: Prerequisite: ME 2570 with a grade of "C" or better.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 to 0)

CCE 3350 - Water Resources Engineering

Survey of principles and practices of water resources engineering, including groundwater hydrology, surface water hydrology and hydraulics. Topics include hydraulics of closed conduit systems, descriptive and quantitative groundwater and surface water hydrology, and open channel flow.

Prerequisites & Corequisites: Prerequisites: ME 3560 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Construction Engineering and Civil Engineering.

CCE 3360 - Soil Mechanics

Mechanical and physical properties of soils and their relation to soil action in problems of engineering, such as classification, permeability, shearing strength, and consolidation.

Prerequisites & Corequisites: Prerequisite: ME 2570 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Civil Engineering and Construction Engineering.

Lecture Hours - Laboratory Hours: (2 - 2)

CCE 3860 - Structural Analysis

Introduction to structural systems; structural requirements; structural systems and specification of loads; analysis of statically determinate and indeterminate structures using equations of equilibrium, moment distribution, and energy methods; determination of design forces in the structural components including shearing force and bending moment diagrams; and brief introduction to the direct stiffness method.

Prerequisites & Corequisites: Prerequisite: ME 2570 with a grade of "C" or better.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 to 0)

CCE 4300 - Traffic Design

Elements of traffic engineering including traffic flow theory, highway capacity analysis and traffic control systems. Traffic engineering tools and implements including traffic sensor and data systems, parking and traffic accident analysis, freeway traffic management systems and uniform traffic control devices. Application of control measures such as ramp metering systems, actuated signal control systems and traffic impact analysis. Concepts in transportation system management, cost-effectiveness, and public policies.

Prerequisites & Corequisites: Prerequisite: CCE 3300 with a grade of "C" or better.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 2)

CCE 4310 - Construction Planning and Scheduling

Construction planning and integrated time-cost control of construction projects are discussed. Various scheduling techniques, such as the critical path method (CPM), the program evaluation and review technique (PERT), are covered. Manpower loading and costs' correlation to the schedule, and control and accurate project progress reporting are covered. Building Information Modeling

(BIM) tools and Project Scheduling software tools (e.g., Microsoft Project 2010) are extensively used in the course project. Hands-on experiences of using BIM tools for construction planning and scheduling, as well as project progress and performance evaluation is required.

Prerequisites & Corequisites: Prerequisite: CCE 3080 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Civil Engineering or Construction Engineering.

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 4360 - Construction Estimating, Bidding, and Cost Control

Procedures involved in material quantity takeoffs and in estimation of labor, material, equipment, and overhead costs are covered. Estimating software will be used. Building Information Modeling (BIM) software will be used for showing the complexities of integrated time-cost control. Hands-on experiences of using BIM software and relevant data processing tools for completing assignments or course projects are required. Bidding procedures and the elements of construction cost control are also covered.

Prerequisites & Corequisites: Prerequisites: CCE 3080 and CCE 3330, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Civil Engineering or Construction Engineering.

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 4380 - Construction Project Management

The characteristics of construction industry, project organizations, labor, material, and equipment utilization, construction productivity, value engineering, TQM, constructability, construction safety, contract types, and contract bonds are presented. Building Information Modeling and Data Management software tools are used for illustrating the integrated information management process of a construction project.

Prerequisites & Corequisites: Prerequisite: CCE 4310 or CCE 4360, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Civil Engineering or Construction Engineering.

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 4400 - Introduction to Structural Design

Introduction to the process of structural design; application of the ACI-318 Code and AISC Steel Construction Manual; analysis and design of reinforced concrete beams, columns; analysis and design of steel tension member, beams and columns.

Prerequisites & Corequisites: Prerequisites: CCE 3080 and CCE 3860, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 4480 - Structural Analysis II

Analysis of indeterminate structural systems including trusses, frames, and continuous beams using moment distributions, stiffness, and flexibility methods.

Prerequisites & Corequisites: Prerequisite: CCE 3860 with a grade of "C" or better.

Credits: 3 hours

CCE 4561 - Foundation and Earth Retaining Structure Design

This course covers the analysis, design, and construction aspects of shallow and deep foundations and retaining structures. The main objective is to enable students to select, analyze, and design an appropriate foundation and/or an earth retaining structure for a given scenario.

Prerequisites & Corequisites: Prerequisite: CCE 3360 with a grade of "C" or better.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 4830 - Project Design and Control

Problem definition, project planning and scheduling, follow-up and control techniques. Results in presentation and plan for senior project. This course, along with CCE 485, is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisites (may be taken concurrently): Senior standing, (CCE 4300 and CCE 4400), or (CCE 4310, CCE 4360 and CCE 4400); a grade of "C" or better is required in all prerequisites.

Credits: 1 hour

Restrictions: Restricted to majors in construction engineering or civil engineering.

Lecture Hours - Laboratory Hours: (1 - 0)

CCE 4850 - Senior Project

This capstone senior design course features open-ended team projects involving design, analysis, and application which results in a written design report and a professional presentation. Students are expected to draw on knowledge from numerous courses within engineering as well as their broad-based undergraduate education to effectively engage and interact with stakeholders to solve real world engineering problems. This course emphasizes the role of professional and ethical conduct and the significance of sustainability in the civil and construction engineering industry. This course is designed to facilitate the student's transition to working within the practice of the civil and construction engineering profession. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisites: CCE 4830 and approved project; (CCE 4300 and CCE 4400 for CIVJ majors), or (CCE 4310, CCE 4360 and CCE 4400 for CENJ majors), with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 to 3)

CCE 4990 - Independent Studies

An individual study program to supplement regular course work, arranged in consultation with a study supervisor. One to three hours credit per semester.

Prerequisites & Corequisites: Prerequisite: Consent of department. May be repeated not to exceed six credit hours.

Credits: 1 to 3 hours

CCE 5300 - Construction Project Delivery Systems

A comprehensive coverage of the standard contracts between various agencies involved in construction will be described in the course. Analysis of traditional and current project delivery methodologies will also be presented. Issues related to insurance and bonding in the construction industry will be highlighted. Advanced topics such as alternate dispute resolution will also be covered.

Prerequisites & Corequisites: Prerequisites: CCE 4310 and CCE 4360 or permission of instructor.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 5310 - Advanced Construction Project Management

Advanced course in construction engineering builds on the information in the undergraduate construction management courses on planning and control of construction projects. Quantitative tools that are used in planning and controlling construction projects are described. Building Information Modeling (BIM) and relevant construction data management tools for effectively applying the learned quantitative tools in assignments and course project are taught. Cash flow forecasting, site planning, site administration, risk analysis, contract documents and contracts administration are covered. Advanced project management tools such as line of balance, velocity diagrams, time-cost trade off, resource planning, design-construction integration are used.

Prerequisites & Corequisites: Prerequisites: CCE 4310 and CCE 4360, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 5400 - Transportation Planning

Theoretical foundations of transportation planning, analysis, and evaluation methods. Theory and application of aggregate and disaggregate models for land use, trip generation, and destination, mode, and route choice. Travel demand modeling and transportation network analysis for evaluation of system alternatives.

Prerequisites & Corequisites: Prerequisite: CCE 3300 with a grade of "C" or better, or permission of the instructor.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 5440 - Design of Concrete Structures

A continuation of the fundamentals in concrete structural design introduced in CCE 4400 Introduction to Structural Design, with emphasis on the latest ACI design requirements and specifications for Reinforced Concrete. Topics covered include analysis and design of two-way slabs, slender columns, footings, structural walls as well as introduction to seismic design.

Prerequisites & Corequisites: Prerequisite: CCE 4400 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Restrictions: Restricted to the following: majors in Civil Engineering or Construction Engineering; or masters in Civil Engineering.

Notes: Open to upper level and graduate students.

CCE 5450 - Design of Steel Structures

A continuation of the fundamentals in steel structural design introduced in CCE 4400 Introduction to Structural Design, with emphasis on the latest AISC design requirements and specification for structural steel. Topics include design of beam-column member; welded and bolted connections of axial members, framed and seated shear connections, rigid and semi-rigid moment connections, base plate connections; steel-concrete composite construction; plastic analysis and design.

Prerequisites & Corequisites: Prerequisite: CCE 4400 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Restrictions: Restricted to the following: majors in Civil Engineering or Construction Engineering; or masters in Civil Engineering.

Notes: Open to upper level and graduate students.

CCE 5460 - Design of Timber Structures

Structural behavior of wood under loads; application of current timber design codes; design of structural components and systems in wood; mechanical properties of wood fasteners and connections.

Prerequisites & Corequisites: Prerequisites: CCE 3860 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 5470 - Design of Masonry Structures

The course focuses on use and design of masonry in structural applications. Topics include materials and testing, construction, and design of components (under flexural, flexural and axial, and shear loadings) and connections.

Prerequisites & Corequisites: Prerequisite: CCE 3860

Credits: 3 hours

Restrictions: Restricted to majors in civil engineering or construction engineering, and masters in civil engineering.

Notes: Open to seniors and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 5500 - Civil Infrastructure Management and Spatial Analysis

Study for management of civil infrastructure systems, such as highway features, bridges, pavement systems, roadside features, control devices, and pipelines, through spatial analysis techniques.

Prerequisites & Corequisites: Prerequisite: CCE 3300 or graduate standing.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

When Offered: Every other year.

CCE 5520 - Highway Design Principles

Traffic volume; speed; capacity and level of service; sight distances; horizontal curves and super elevation; vertical grades and curves; cross section elements; earthwork; deceleration/acceleration lanes; medians and separations; design of interchanges; roadside design; drainage design; and highway design project.

Prerequisites & Corequisites: Prerequisite: CCE 3300 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors in construction engineering or civil engineering; masters in civil engineering; and doctorates in engineering.

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 5560 - Foundation Design

Foundation analysis and design for different civil engineering facilities. High-rise buildings, bridges, and other complex structures such as piles, drilled piers, and caissons. Theoretical aspects of engineered foundations as well as practical applications are discussed.

Prerequisites & Corequisites: Prerequisites: CCE 3360 and CCE 4400 or permission of instructor.

Credits: 3 hours

Notes: Open to upper level and graduate students.

CCE 5610 - Design of Wastewater Systems

Design of wastewater collection and transport systems. Unit operations in wastewater treatment; physical, chemical, and biological processes for treatment of wastewater; sludge treatment and disposal; design of a wastewater treatment plant; site visits to wastewater treatment plants.

Prerequisites & Corequisites: Prerequisites: CCE 3200 and CCE 3210.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

CCE 5650 - Sustainability Design for Civil and Environmental Engineering

The concept of design for sustainability will be introduced to the students. Sustainability will be represented as an extension of current practices and standards and simply addresses new concerns and constraints of civil engineering design and construction.

Credits: 3 hours

Restrictions: Restricted to majors in civil engineering or construction engineering, and masters in civil engineering.

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 5690 - Principles of Fatigue and Fracture

Basics of experimental techniques and modeling used in industry to study inelastic deformations, fatigue, and fracture of engineering materials and structures.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Cross-Listed: Cross-listed with ME 5690. A student may not receive credit for both CCE 5690 and ME 5690.

Lecture Hours - Laboratory Hours: (3 - 0)

CCE 5960 - Special Topics in Civil and Construction Engineering

New or special topics on current developments in different aspects of civil engineering will be provided. Specific topics and prerequisites are identified by the instructor and will vary from semester to semester.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 3 hours

Restrictions: Restricted to major's in Construction Engineering; and major's or master's in Civil Engineering.

Notes: Open to upper level and graduate students.

Classics

CLAS 1500 - Classical Greek and Roman Mythology

Investigates the origins, elements, and interpretations of the principal myths and legends of Greece and Rome and their preservation not only in literature, but also in painting, music and sculpture. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

CLAS 2500 - Power and Morality

The foundation myth of Rome combines elements of the sacred with rape and fratricide. This course explores the complex and sometimes paradoxical relationship between Rome's power and morality as portrayed by prominent writers. The evolving sense of Roman morality provides a perspective for understanding and appreciating morality, or moralities, today. Works from a variety of genres may be studied, including biography, epic poetry, satire, political oratory, and essays. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

CLAS 3750 - Classics in Global Perspective

The course is an examination of the global reach of the classical world in literature, art, and ideas. Students learn skills like close reading, critical thinking, synthesizing different viewpoints, and basic research to explore questions that are important to humanity and that reach beyond the classroom. Students approach the subject matter from multiple perspectives, interpret information, comprehend complexity, listen to contrasting viewpoints, synthesize information, and express clear, reasoned opinions. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

College of Education and Human Development

CEHD 1000 - Topics in Education and Human Development

An interdisciplinary topics course exploring issues and trends in education and human development that are not offered in other courses. Topics will be designated by faculty offering the course and announced in the schedule of course offerings.

Credits: 1 to 6 hours

Notes: May be repeated for credit.

CEHD 2000 - Topics in Education and Human Development

An interdisciplinary topics course exploring issues and trends in education and human development that are not offered in other courses. Topics will be designated by faculty offering the course and announced in the schedule of course offerings.

Credits: 1 to 6 hours

Notes: May be repeated for credit.

CEHD 2010 - Academic Discovery

The focus of this course is on the development of strategies for overcoming barriers to academic and personal success. Students will explore academic skills and non-cognitive barriers, connect with their strengths to develop an internal motivation to sustain academic success, and either choose or affirm a career focus through career assessment and exploration of campus and community resources.

Credits: 1 hour

CEHD 3000 - Topics in Education and Human Development

An interdisciplinary topics course exploring issues and trends in education and human development that are not offered in other courses. Topics will be designated by faculty offering the course and announced in the schedule of course offerings.

Credits: 1 to 6 hours

Notes: May be repeated for credit.

CEHD 3050 - Study Abroad and Global Learning in Education

Study Abroad and Global Learning in Education in the College of Education and Human Development (CEHD) is an interdisciplinary course conducted outside the United States by WMU faculty in CEHD or others associated with WMU. This course is taught with a portion of the course being set in a country whose educational systems and processes are in contrast to that of the United States. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

CEHD 4000 - Topics in Education and Human Development

An interdisciplinary topics course exploring issues and trends in education and human development that are not offered in other courses. Topics will be designated by faculty offering the course and announced in the schedule of course offerings.

Credits: 1 to 6 hours

Notes: May be repeated for credit.

CEHD 5000 - Topics in Education and Human Development

An interdisciplinary topics course exploring issues and trends in education and human development that are not offered in other courses. Topics will be designated by faculty offering the course and announced in the schedule of course offerings.

Credits: 1 to 6 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Communication

COM 1000 - Communication and Community Engagement

This course will introduce and develop basic skills in major areas of communication and media, with an emphasis on the ways in which oral and digital communication can be used to engage and improve the communities in which we live. COM 1000 is a pre-requisite for students planning to major in any area of communication. Students must complete COM 1000 with a grade of "C" or better to fulfill the pre-requisite. This course satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category.

Credits: 3 hours

Restrictions: Priority registration is given to Communication majors and minors.

COM 1040 - Public Speaking

Study of the application of principles of communication underlying effective oral presentations, with attention given to speaking in business, professional and public settings. Includes practice in preparing, presenting and evaluating speeches and other forms of oral presentations. This course may be offered in an accelerated format. This course satisfies WMU Essential Studies Level 1: Foundations - Oral and Digital Communication Category.

Credits: 3 hours

COM 1700 - Interpersonal Communication

An introductory course in communication theory and practice in which students utilize their powers of speech to increase their effectiveness in interpersonal relations through understanding of self and others. This course may be offered in an accelerated format. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Credits: 3 hours

COM 2000 - Human Communication Theory

An introduction to major theories of human communication, designed to give students an applied, critical understanding of key theories in the field from perspectives that are rooted in original ideas that reflect the scientific objectivity and/or artistic imagination of human interaction. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

COM 2040 - Workplace and Professional Communication

This course provides an arena for gaining the knowledge and skills necessary to communicate competently in a variety of workplace and professional contexts. Topics covered will include the employment interview process, conflict management, technology usage, business presentations, teamwork and meeting management, leadership, conflict management, business writing, diversity management, and issues of work-life balance. This course satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category.

Prerequisites & Corequisites: Prerequisite: (COM 1000 or COM 1040) with a grade of "C" or better; or school approval.

Credits: 3 hours

COM 2400 - Introduction to Media and Telecommunications

This course proposes to help students attain understanding of how media and telecommunication technologies are organized and how media products impact personal attitudes and life styles, patterns of social and public communication, as well as national and international policies and governance. The course surveys the history of these technologies, the scientific development of these technologies, the legal and ethical environment in which they operate, and the organizational, political, economic and social structures that sustain the telecommunication technologies and corresponding industries. Special attention is given to four sectors of the media and telecommunications fields: broadcasting, cable, telephony, and the Internet. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

COM 2410 - Film Communication

An introduction to the unique language and elements of the film medium through the study of outstanding examples of historical and contemporary narrative fiction, documentary,

experimental, and animated films, with attention to the impact of digital technology on production, distribution, reception, and aesthetics. This course satisfies the student learning outcomes in the WMU Essential Studies Level 1: Foundations - Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

COM 2500 - Introduction to Public Relations

This course examines the role of public relations and public information in a variety of organizations with a communication theory perspective. The course is designed to prepare individuals for positions in public relations and public information, or for other positions in organizations concerned with the flow of information across organization boundaries.

Prerequisites & Corequisites: Prerequisite: COM 2000 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 2550 - Introduction to Digital Video Production

Students of all skill levels and backgrounds will benefit from this required course designed to introduce technical aspects and professional workflow for pre-production, production, and post-production in digital video. Students learn non-linear editing software and best practices for media storage in preparation for intermediate and advanced coursework.

Prerequisites & Corequisites: Prerequisite: COM 2410 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 2560 - Digital Media: Planning and Operations

An introduction to the media profession, which explores the structure, technology and personnel of the media industry. Includes significant course material on media planning and design of convergent media. Emphasis on developing professional skills related to production courses and careers in multimedia related professions or organizations.

Credits: 3 hours

COM 2570 - Introduction to Audio Production

This introductory level course familiarizes students with the production of sound as a creative element in radio broadcasting and audio production. Students participate in the studio experience by writing and producing commercials, dramas, soundscapes, documentaries and other formats for radio and alternative creative media outlets.

Prerequisites & Corequisites: Prerequisites: Either (COM 1000 or COM 2000) and either (COM 2410 or COM 2560), with a grade of "C" or better in any prerequisite, or instructor approval.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 2800 - Introduction to Organizational Communication

Provides a broad overview of the field of organizational communication, addressing both traditional and contemporary theories, concepts, and research. Students will undertake the systematic study of internal and external organizational communication processes at the individual, group, and organization-wide levels.

Prerequisites & Corequisites: Prerequisite: (COM 1000 or COM 2000); with a grade of "C" or better.

Credits: 3 hours

COM 3000 - Communication Research Methods

This course introduces students to systematic approaches to asking and answering significant questions about

communication. Research methods include experimentation, survey, content analysis, and field description. An introduction to data analysis and statistical testing is included.

Prerequisites & Corequisites: Prerequisites: COM 1000 and COM 2000, with a grade of "C" or better.

Credits: 3 hours

COM 3050 - Special Topics in Communication

Group study of special topics in communication education, interpersonal and organizational communication, mass communication, oral interpretation, and film. Many of these special courses are organized in response to special needs or interests of students on campus, in the community and in the region. Some topics are announced in the Schedule of Classes; some are added during the semester. Further information and a full listing of topics may be obtained from the School office, 301 Sprau Tower.

Credits: 3 hours

Notes: May elect COM 3050 no more than twice, providing the topics are different.

COM 3070 - Freedom of Expression

This course examines the meaning, scope and challenge of "free expression" in the United States today. Beginning with the historical foundations of the U.S. Constitution and the First Amendment, this course examines how the courts, scholars and political activists have interpreted and applied these rights to a number of controversial issues. Possible topics include prior restraint, social justice, the public's right to know, privacy invasion, symbolic speech, and artistic expression. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

COM 3320 - Teamwork and Communication

This course examines the theories and research pertaining to team communication with an emphasis on practical application of decision making, conflict management, leadership, and critical thinking skills. Individuals will work together in teams learning to communicate competently, make effective decisions, analyze group

communication dynamics, and write and present team reports.

Prerequisites & Corequisites: Prerequisites: COM 1000 or COM 2000, with a grade of "C" or better.

Credits: 3 hours

COM 3350 - Leadership Communication

An overview of theories of leadership with a focus on key communication processes. Emphasis will also be placed on the application of these theories to organizational contexts.

Prerequisites & Corequisites: Prerequisites: (COM 1000 or COM 1700) and COM 2000; with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 3400 - Global Media Literacy

This course provides a theoretical and analytical understanding of global media culture and its impact on human society. It examines the media messages from economic, political, communicative and psychological perspectives. The course examines policy issues such as privacy around digital communication, including social media, and promotes critical reflection with the aim of equipping students to be reflective users and creators of media messages. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

When Offered: Fall and Spring

COM 3410 - Film Modes and Genres

This course focuses on analytic studies of representative films from various modes of cinema (narrative; non-narrative; film movements) and film genres (including, but not limited to, the musical, the western, the horror film, film melodrama, the science fiction film, film comedy, experimental film, etc.)

Prerequisites & Corequisites: Prerequisite: COM 2410

with a grade of "C" or better.

Credits: 3 hours

COM 3420 - The International Film Industry

This course surveys the history and development of commercial film and video from a global perspective, with an emphasis on critical analysis of film and video content as well as industry practices in both Western and non-Western nations.

Prerequisites & Corequisites: Prerequisite: COM 2410 with a grade of "C" or better.

Credits: 3 hours

COM 3430 - Film History

This course is an historical survey of technical, aesthetic and industry developments in the production, distribution and reception of American and international cinemas. Major areas of study include the evolution and impact of cinema technologies, the Hollywood studio system, changing storytelling styles, and the relationship of mainstream cinema to other national or emerging cinema movements. Using historical and cultural studies perspectives, the course explores the shaping impact of cinema on society, and our lives. Representative independent and mainstream films will provide key texts for each unit of the course.

Prerequisites & Corequisites: Prerequisite: COM 2410 with a grade of "C" or better.

Credits: 3 hours

COM 3440 - History of Animation

This course surveys the history of animation from its beginnings in the early twentieth century to its shift toward computer-generated imagery in more recent decades. We will examine short and feature-length animated films from across the world, focusing on the social, cultural, and economic circumstances that have influenced their production and reception.

Prerequisites & Corequisites: Prerequisite: COM 2410 with a grade of "C" or better.

Credits: 3 hours

COM 3480 - Public Relations Writing

The course covers the styles and various forms of advanced PR writing including news releases, fact sheets, media lists, speeches, feature stories, letters, memoranda, company histories, annual reports, etc. Students develop the analytical and writing skills required in the field. Media and message targeting to appropriate audiences are examined and evaluated through the preparation of a traditional social media campaign. Additionally, this course examines the ethics involved in researching and writing for public relations contexts.

Prerequisites & Corequisites: Prerequisite: COM 2500 or COM 3500, with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 3540 - Web Design and Digital Communication

Focuses on intelligent website design, including principles of accessibility, usability, information-richness, and effective communication in a digital environment. Students will learn HTML and CSS as well as the fundamentals of Photoshop and Dreamweaver.

Credits: 3 hours

COM 3550 - Digital Video Production: Nonfiction

This course familiarizes students with the techniques digital field production in HD format, utilizing pre-production, production and post-production professional practices. Students will develop their own short nonfiction projects, serve as crew on various team projects, and demonstrate technical proficiency using non-linear editing software.

Prerequisites & Corequisites: Prerequisite: COM 2550 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 3560 - Digital Video Production: Fiction

This course familiarizes students with the techniques of narrative fiction film-making in the HD format, utilizing pre-production, production and post-production professional practices. Students will develop their own short projects, serve as crew on various team projects, and demonstrate technical proficiency using non-linear editing software.

Prerequisites & Corequisites: Prerequisite: COM 2550 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 3570 - Introduction to TV Studio Production

Explores the elements of television studio production planning and collaborative implementation. Students are introduced to TV studio operations including equipment operation, crew responsibilities, producing and directing various types of television studio formats.

Prerequisites & Corequisites: Prerequisites: (COM 1000 or COM 2000) and either (COM 2410 or COM 2560); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 3580 - Scriptwriting

Through the practice of scriptwriting, students will learn how to represent in words not only story, but also sound design, editing, visual design, and other parameters of media making as applied to commercials, dramatic scripts, small format video, and documentary. Students will discover how core narrative concepts of character, structure, plot, theme and tone interact within existing and emerging media and explore how to utilize these concepts to express their personal vision, creativity, and voice.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 3710 - Human-Machine Communication

An introduction to human-machine communication, this course focuses on the theory and practice of interpersonal interactions with digital interlocutors in the form of artificial conversation entities, artificially intelligent software agents (chatbots), embodied machine communicators (robots), and technologically-augmented persons, as well as interpersonal communication in the context of virtual and augmented spaces.

Credits: 3 hours

COM 3840 - Organizational Communication Technologies

This course reviews the significance of communication techniques in our capacity to organize and engage in collective action; and how communication technologies affect the communication processes and outcomes at the interpersonal, organizational, and social contexts. Our approach encompasses both of the dominant ideological perspectives - techno-determinism and social constructivism in order to develop a more holistic perspective on the impact of communication technologies on our lives.

Credits: 3 hours

COM 3980 - Independent Study Communication

Designed to allow outstanding students to work independently under faculty supervision. Includes extensive study, research or special creative projects in any of the several areas of communication. One to six hours credit may be accumulated.

Prerequisites & Corequisites: Prerequisite: Approval of the School of Communication Director.

Credits: 1 - 6 hours

COM 4300 - Persuasion and Social Influence

This course examines theory and research on social influence processes including compliance, conformity, and persuasion. Specifically, the course examines cognitive, interpersonal, and structural-level models of social influence and persuasion, and the impact of source, message, receiver, context, and channel on the influence process. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

Restrictions: Restricted to juniors and seniors only.

COM 4400 - Public Relations Case Studies

This course uses a case study approach to apply principles of communication and persuasion theory to public relations problems. The course examines a variety of types of organizations in relation to issue advocacy and public policy, risk communication, legitimization, defense, and crisis management.

Prerequisites & Corequisites: Prerequisites: COM 2500 or COM 3500 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 4410 - Documentary in Film and Television

A study of documentary philosophies, strategies, and accomplishments through an examination of important documentarists, movements, and films.

Prerequisites & Corequisites: Prerequisites: COM 2410 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 4430 - Media and Social Change

The course examines the role of the media in diffusing information, ideology, and persuasive messages, and

explores the influence/effects of these transactions on individuals, groups and institutions. The course critically situates media within diverse elements of culture as an agent of social change.

Credits: 3 hours

Restrictions: Restricted to juniors and seniors only.

COM 4440 - Mass Communication, News, and Public Affairs

The course examines the role of the media in covering public affairs news and disseminating it to the public. Questions related to media access, fairness, media regulation and message production are discussed in light of current events.

Credits: 3 hours

Restrictions: Restricted to juniors and seniors only.

COM 4450 - Media Criticism

Examines the content, production, circulation, and consumption of media. Students will apply analytical techniques for breaking down and evaluating media texts developed by various schools of media criticism; these may include semiotics, narrative theory, and political economy.

Credits: 3 hours

Restrictions: Restricted to juniors and seniors only.

COM 4460 - Telecommunications Law and Policy

This course provides an overview of the essential regulatory and policy issues governing the field of media and telecommunications. Special attention is given to such topics as First Amendment, libel, intellectual property, media ownership and privacy. A case study approach is used for the purpose of understanding legal precedent.

Prerequisites & Corequisites: Prerequisite: Junior or senior standing or instructor approval; COM 3070 recommended.

Credits: 3 hours

COM 4480 - Media Management and Telecommunications

Advancements in technology, most notably the Internet and digital media arts, are changing many of our basic assumptions regarding information, news and entertainment content. This course examines the business strategy and management principles involving five sectors of the media and telecommunications fields, including: Broadcast Television, Cable Television, Telephony (wired & wireless communication), Satellite Communication and the Internet. This course is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisites: (COM 1000 or COM 2000 or CIS 2700) and COM 2400; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 4490 - Communication Technology and Innovation

Innovation can also be described as the "power to redefine an industry." From Direct Broadcast Satellites to fiber optic delivery and smart homes, this course will examine a number of media and information technologies that have transformed the business of communication. It is intended for the student and working professional who requires an applied understanding of the design characteristics and performance features of several important communication technologies including satellite communications and television broadcasting, fiber optic delivery and smart homes, the Internet and E-commerce, smart phones and wireless communication, and intelligent networking and virtual reality.

Prerequisites & Corequisites: Prerequisite: CIS 2700 or COM 2400; with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to Junior or senior standing or by instructor approval.

COM 4500 - Public Relations Campaign Development

This is an advanced course in public relations emphasizing research methodology, developing planning objectives, and program evaluation for corporate, governmental, educational, and social service organizations.

Prerequisites & Corequisites: Prerequisites: (COM 2010 or COM 3000) and (COM 2500 or COM 3500); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 4570 - Advanced Digital Video Production

This is an advanced course that gives students the opportunity to apply concepts developed in several other media production classes. Students work in production teams and independently to conceptualize, design, and produce segments for collaborative long-form programs and/or single video projects. Students serve as crew for other members of the class as needed. The course includes specialized areas of focus within single-camera, digital media field production such as pre-production planning, lighting, audio, directing, post-production, and working with talent.

Prerequisites & Corequisites: Prerequisites: Two of the following: COM 3550, COM 3560 or COM 3570; with a grade of "C" or better in all prerequisites; or instructor approval.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

COM 4700 - Applied Topics in Interpersonal Communication

This course will provide students with an in-depth treatment of advanced interpersonal communication. Students will complete an applied project within a particular interpersonal context, synthesizing existing competencies in public presentation, research methods, and interpersonal communication theory.

Prerequisites & Corequisites: Prerequisites: (COM 1000

or COM 1040), and COM 1700, and (COM 2010 or COM 3000), with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

Notes: May be repeated for credit when topics vary.

COM 4710 - AI and Interaction

This course focuses on Artificial Intelligence (AI) and interaction in society from a theoretical and application standpoint. Students will learn critical AI questions, issues, and debates that influence the development and deployment of AI. The basics of building an AI interaction system and the best practices will be discussed.

Credits: 3 hours

Restrictions: Restricted to juniors and seniors only.

COM 4720 - Nonverbal Communication

The course examines theory and research in the nature and function of nonverbal message systems. Topics include: the role of nonverbal communication in the developmental stages of humans; individual differences in ability to interpret messages; the relationship of nonverbal communication to the concept of culture; extension of a person such as space, clothing, possessions; and specific messages related to the face and body.

Credits: 3 hours

Restrictions: Restricted to juniors and seniors only.

COM 4740 - Intercultural Communication

An examination of the factors contributing to effective communication in an intercultural context. The course focuses on such topics as ethnocentrism, cultural perceptions, values and beliefs, language and meaning, and nonverbal factors. Communication systems of selected cultures are described and analyzed.

Credits: 3 hours

Restrictions: Restricted to juniors and seniors only.

COM 4750 - Family Communication

Examines the current literature pertaining to holistic systems, power influences, and satisfactory patterns of family communications. Students analyze family interactions and identify satisfactory patterns of marital family communication.

Credits: 3 hours

Restrictions: Restricted to juniors and seniors only.

COM 4770 - Communication Ethics

Ethical theories and justification models are studied and related to ethical decision making in a variety of communication contexts, including mass communication, organizational communication, and interpersonal communication. The course will examine the components of good ethical decision making in communication, as well as obstacles that can stand in the way of responsible choices.

Credits: 3 hours

Restrictions: Restricted to juniors and seniors only.

COM 4790 - Gender and Communication

This course examines the construct of gender through a communicative lens. Topics include interpersonal, organizational, mass media, and social media communication. Issues of gender identity, sexual orientation, gendered structures, and more are explored.

Credits: 3 hours

Restrictions: Restricted to juniors and seniors only.

COM 4800 - Applied Topics in Organizational Communication

This course will enable students to master knowledge and skills in an applied specialty area of organizational communication. Students will participate in an extensive hands-on project addressing a pragmatic problem in an organizational setting.

Prerequisites & Corequisites: Prerequisites: COM 2800 and (COM 2010 or COM 3000); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

Notes: Topics will vary. Six hours of COM 4800 may be taken for credit toward the Strategic Communication major. May be repeated for credit when topics vary.

COM 4840 - Health Communication

Studies concepts and theories relevant to the maintenance and enhancement of effective communication in health care settings. Emphasis is given to the study and application of communication theories, to the transactions which occur among health professionals, and between professionals and clients/patients. This course may be offered in an accelerated format.

Credits: 3 hours

Restrictions: Restricted to juniors and seniors only.

COM 4990 - Internship

This internship for academic credit is available only to those students who meet School requirements of prerequisite courses and grade point average. Specific requirements for various types of internships are described in the School's undergraduate handbook, available in the School of Communication office.

Prerequisites & Corequisites: Prerequisite: Minimum G.P.A. of 2.5; junior standing or higher, declared major or minor in the School of Communication.

Credits: 1 to 6 hours

Notes: May be repeated for credit. Graded on a Credit/No Credit basis.

COM 5060 - Special Topics in Global Communications

Study of special topics in global/international communication such as comparative media systems, development communication, Asian/African/South American communication, Governments and Propaganda, Transnational Media Corporations and Communication.

Credits: 3 hours

Restrictions: Restricted to majors in the School of Communication, or instructor approval.

Notes: May be repeated for credit. Open to upper level and graduate students.

COM 5600 - Teaching Communication

This course provides an overview of the concepts, materials, and methods used in teaching communication courses. The focus will be on the following: (a) philosophies and theories of speech communication, (b) development of instructional strategies and objectives, and (c) development and evaluation of teaching materials. Students will take part in, observe, and evaluate teaching-learning processes.

Prerequisites & Corequisites: Prerequisites: COM 1000 and COM 1040 and COM 2000; with a grade of "C" or better in all prerequisites; and approval of advisor and/or instructor.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Community and Regional Planning

CORP 3030 - Planning Inquiry

Students will be introduced to Planning as a field of study, research, and professional opportunity. Students will have an opportunity to investigate social and environmental problems through data collection, analysis, interpretation and graphic and written presentation. The emphasis throughout will be on the application of inquiry models to geographic and planning problems. For Planning majors and minors.

Prerequisites & Corequisites: Prerequisite: STAT 2160 or STAT 2600 or STAT 3640 or STAT 3660.

Credits: 4 hours

CORP 4120 - Professional Practice (Internship)

Provision for an advanced student to benefit by supplementary practical experiences in a particular branch of community and regional planning, either by assisting

faculty engaged in research or by working in a departmentally-approved off-campus agency. Specific assignments are arranged in consultation with departmental advisors during the semester preceding that in which the student expects to enroll in 4120. The student may enroll for one additional semester, but no student will be allowed more than three hours total credit for 4120.

Prerequisites & Corequisites: Prerequisites: Junior standing and Department Chair approval.

Credits: 3 hours

Notes: May be repeated for credit.

Comparative Religion

REL 1050 - What is Religion Today?

Introduces students to the fundamental big questions about religion in contemporary life. We begin by trying to define what 'religion' means in the diversity of religious beliefs and practices today. In the following units we address issues such as religion and social justice, political power and religion, religion as ethnic and cultural identity, religion and violence, gender in world religions, mythical figures and spirituality, and globalization and religion. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

REL 2000 - Thinking About Religion

An introduction to some of the ways in which both academics and the people they study have thought about and used "religion" and related concepts. Students will compare and evaluate scholars' efforts to define, describe, interpret, and explain religion(s), as well as analyze case studies illustrating the roles that religion has played in human history and culture. Much of the assessment for this course involves writing.

Prerequisites & Corequisites: Prerequisite: ENGL 1050 or equivalent.

Credits: 4 hours

REL 2010 - Buddhism

An introduction to the variety of Buddhist traditions in South, Southeast, Central and East Asia, as well as in the United States. We will study the history of Buddhism, its characteristic teachings and practices, and assess its cultural impact. Readings include scholarly studies on the traditions as well as original Buddhist texts in translation. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 4 hours

REL 2020 - Religion in China

Compared to the relatively recent appearance of China as a nation state, its written history started over three millennia ago. Many different peoples have dwelled in the geographical area that today is called China, the ethno-political borders of which have long been fluid. These peoples have produced and preserved a rich repertoire of diverse ideas and practices that may be categorized as religious. This course traces the history of the major religious traditions, including Confucianism, Daoism, and Buddhism, that have developed in and adapted to China. The emphasis of the class is on the way that these traditions have been perceived and received in different historical contexts. By introducing how these traditions affected past people's lives, this class aims to lead students to a historically better-informed understanding of the religious aspect of people's life in contemporary China.

Credits: 4 hours

REL 2030 - Religion in Japan

A study of the historical continuity and overall unity in the Japanese religious tradition. The major organized religions of Shinto and Japanese Buddhism, and also the influence of Taoism, Confucianism, and Christianity are discussed. Also taken up are the informal religious movements of "ancestor worship," family religion, and state religion. An attempt is made to assess the role and significance of religion in Japanese culture.

Credits: 4 hours

REL 2040 - Religion in India

Provides a survey of religion in India, focusing mainly on the major religious traditions native to India, i.e., Hinduism, Buddhism, Jainism, and Sikhism. Examines social and political contexts in which these traditions have

arisen and developed, and examines examples of religious literature, art, architecture, music, ritual, and spiritual discipline.

Credits: 4 hours

REL 2050 - Christianity

Provides a selective but wide-ranging survey of Christianity, tracing developments in Christian thought, practices, institutions, and expression, and emphasizing study of primary sources within their social and cultural contexts. Aims to enhance students' knowledge of persons, groups, events, texts, and ideas that have contributed significantly to Christian history, and their appreciation for the diversity of forms that Christian discourses and practices have taken. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

REL 2065 - Islam in America

Explores the histories of the creation and engagement of Muslim communities in the United States. Investigates trends in immigration and conversion, life styles, rituals, beliefs, and the diverse roles of women in American Islam. The aim of the course is to examine deeper questions about the relationship between religion and politics, pluralism, and representations of Islam in the media.

Credits: 4 hours

REL 2070 - Judaism

Traces the development of Judaism from its roots in the Ancient Near East to the present, and examines the role of this religion and its practitioners in world history. Particular attention is given to periods of social, political, and cultural change in Jewish history and hence to the problem of Jewish identity. Attention is given to Jewish writings, customs, and institutions from many periods and places, as well as social movements and political revolutions that have significantly impacted the history of Judaism.

Credits: 4 hours

REL 2080 - Religion in Europe

Selective yet thorough historical and topical survey of religion on the continent of Europe. Topics covered include

ancient "tribal" religions such as the Roman, Celtic, and German/Norse; the intertwined history of forms of Christianity, Islam, and Judaism in the Middle Ages; the redefinitions of religion and its place in society marked by the Reformations and the Enlightenment; and major events and movements of modern European history that have impacted or involved religion, such as the French Revolution, World Wars, and Cold War.

Credits: 4 hours

REL 2100 - Religions of the World

An investigation of fundamental beliefs and practices of the religious traditions of the world, including a selection of the following: the Abrahamic religions of Judaism, Christianity and Islam; and religions originating in Asia: Buddhism, Hinduism, Confucianism, Daoism, and Shinto. Indigenous religious traditions will also be addressed in some semesters. The course explores definitions of religion within the diversity of religious beliefs and practices and focus on the fundamental role of religion in shaping societies and cultures of the past and present. Students will examine skills in applying two models of analysis in religious thought and activity. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

REL 2630 - Asian Religions

Introduces students to the major religious traditions that originated in India and East Asia: Hinduism, Buddhism, Jainism, Confucianism, Daoism, and indigenous traditions. The focus on the course is on patterns of religious understanding and expression that are found throughout the region, including non-theistic and theistic forms, meditation, perceptions of the self and the divine, shamanism, asceticism, and religion and the state. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

REL 2786 - The Qur'an

An overview of the central religious text in Muslim societies, the Qur'an. Students will gain familiarity with the major themes of the Qur'an and explore the historical and cultural context of the earliest Muslim societies.

Students will assess and synthesize the multiple interpretations that have brought the Qur'an to life over various eras. The course goes beyond the text itself to trace how the Qur'an influences ritual, practice, social organization, culture, and everyday life. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 4 hours

REL 3015 - Christianity in the United States

Since its founding, the United States has been dominated by the Christian tradition, although at no time has the tradition been monolithic. The goal of this course therefore is to introduce students to the wide range of Christian groups in the United States from the colonial period to the present. We will explore the process of Protestant denominationalism in this country, the rise of Evangelicalism, and the growth of the Roman Catholic Church. We will also be exploring some broad themes that cut across confessional boundaries: ethnicity, race, and religion; issues of church and state; and the tensions between religious conservatives, religious liberals, and secularists. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

REL 3111 - Superhero Comic Book Religion

This course examines themes pertaining to religion, gods, and myths as they relate to mainstream superhero comic books. Questions we will explore include: How do superheroes resemble and function like gods of traditional religions and mythologies? What does it mean to refer (as many do) to superhero narratives as modern mythology? What are the explicit and implicit theologies and cosmologies of comic book universes? How are gods and other super-powered figures from real-world religions incorporated into superhero stories? How are religious themes and specific religions depicted in superhero comics? What meanings and significance do religious readers of superhero comics find in these stories? Do superhero comics serve as media of religious expression, or even as sources of religious identity? How do fan cultures, in their organizations, practices, and discourses, compare with religious ones? To explore such questions, we will look at sources for the perspectives not only of comic book producers (graphic novels, comic collections, interviews, press releases), but also of consumers (fan letters, fanzines, reviews, blogs, discussion forums) and scholars (academic

histories, analysis, and criticism). This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

REL 3115 - Myth and its Study

Provides students with the opportunity to study and compare a selection of myths and mythological systems from throughout the world and history, and to consider a variety of academic and other sorts of discourses about myth, its nature, forms, functions, and value.

Credits: 4 hours

REL 3145 - Cults, Sects, and New Religions

New Religious Movements (NRMs), also known as "cults and sects," are those religious movements such as Mormonism and Jehovah's Witness that have arisen during the modern period (roughly from the 18th century on). This course will explore a wide range of NRMs in order to ask the question, in what ways do NRMs reflect modern themes and concerns? The course will begin with a discussion of theories of modernity and the sociology of NRMs, and then apply these theories to detailed case studies of particular NSMs, specifically within the context of the United States. The course will also explore the challenges NRMs pose as the United States becomes increasingly religiously diverse. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

REL 3165 - Religion and Globalization

In this class we will analyze intersections between religion and globalization by focusing on recent ethnographic accounts. Beginning with a preliminary definition of globalization as the increasing flows of people, money, technology, media and services across borders, we will deepen our understanding of this complex phenomenon by studying how global forces influence the formulation of religious subjectivities, communities, and practices. In order to gain a contextualized perspective on how macro-level processes impact the everyday lives of people and communities, we will emphasize the work of ethnographers who base their studies on long-term engagements and qualitative research techniques. Through these means, we will gain a set of grounded insights into

the historical and cultural determinants of why and how certain religious individuals or religious groups support, resist, or become swept up in globalizing trends and the long and short term effects these dynamics bring to their moral, communal, and spiritual senses of self. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

REL 3170 - Religion and Gender

Considers questions of gender as they relate to religion and its study. Particular attention is given to the ways in which gender roles and relations between the genders are constructed, defined, articulated, justified, supported, contested, and reformulated in various religious traditions, both throughout history and in contemporary contexts, and in interaction with other social, cultural, and political systems and institutions.

Credits: 4 hours

REL 3180 - Death, Dying, and Beyond

Focuses on death, dying, and the afterlife in the religious traditions of the world. Traditions and regions covered may vary by year and could include the religious traditions of Japan, China, India, and the United States as well as the religious traditions of Christianity or Islam. How one dies, how others view that death, how the body is disposed of, what role the death plays in the life and times of others, the history that develops from it, and what the common beliefs are regarding life beyond death are some of the questions that this course will address. Discussion each week may focus on burial customs, views of the afterlife, the grieving process, hospice, suicide, pollution, ritual, abortion, and other topics. Readings will be drawn from a variety of sources. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 4 hours

REL 3190 - Religion and Health

This course will look at how human beings over time have conceptualized their bodies, the experience of good health and illness, and the causes of good health and illness. Human beings throughout history, and in all cultures, have sought explanatory models for the nature of the body and how our actions and environment affect health and illness. Religious and spiritual beliefs and practices often play a

significant role in these explanatory models. In this course, we will cover how different cultures incorporate religious or spiritual principles for achieving a healthy lifestyle as a part of these explanatory models. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 4 hours

REL 3220 - Spirituality and the Environment

Since 1990, people of faith have become increasingly active in efforts to address climate change. They are developing programs to "care for creation", greening houses of worship, and marching for climate justice. These efforts are not, however, without precedent. Religion and spirituality, which affects cultural perceptions of the relationship between human and nature, have long played a role in efforts to address environmental issues. This course will explore interactions between the environment and spirituality (both formal religion and less formal personal spiritual experiences) in both the past and present, with particular attention to ways people adapt religious ideas to address their experiences with the natural environment in response to specific issues.

Credits: 4 hours

REL 3230 - Religion and Revolution

This course will explore, investigate and compare different religions in different cultures as driving forces of social and cultural change. The course will examine the conservative and progressive roles the religions of the world play in familial, social, economic, and political stability and change. Different approaches to analyzing these forces and roles will be examined, but particular emphasis will be placed upon the contribution of critical theory and its dialectical method of thinking. The course will stress communicative ethics and discourse theory of rights and of the democratic constitutional state.

Credits: 4 hours

REL 3240 - Psychological Elements in Religion

This course offers students a survey of theories and approaches to the study of religion from the perspective of psychology, with an emphasis on psychoanalytical, analytical, humanistic, behavioral, and cognitive psychology as well as on other theorists and trends

emerging out of or relating to these traditions in psychology. The seminal texts of such classical theorists as Freud, Jung, James, Otto, Fromm, Skinner, and Erickson will be considered, as well as more contemporary psychological approaches to religion.

Credits: 4 hours

REL 3320 - Religion and Social Ethics

This course will compare different forms of religious and secular ethics from ancient moral codes to contemporary ethical systems. It will deal with the creative ideas, problems and attitudes toward the social world intrinsic to these different ethical norms. While the course will emphasize the variety of ethical responses to social problems provided by the religions of the world as well as to secular approaches it will pay particular attention to problems raised and solutions proposed by critical theorists about issues such as abortion, euthanasia, artificial insemination, race, gender, class, war and peace, poverty and ecological catastrophes. The course will stress communicative ethics, the discourse theory of rights, and of the democratic constitutional state.

Credits: 4 hours

REL 3325 - Muslim Cultures and Societies

Explores various expressions of religious identity across global Muslim societies. With an eye to religion in specific contexts focus is given to major topics from the Qur'an, Muhammad, rituals, religious and political authority, Islamic mysticism, colonialism, modernity, gender, and representation. To highlight broader questions in the study of Islam, particular examples range from the classical Islamic period in the Middle East to the contemporary United States. The overall approach of the course is grounded in an understanding of the relationship between religion, history, and cultural context.

Credits: 4 hours

REL 3340 - Religion in Modern Society

Whereas a major focus of the systematic study of religion is upon religious traditions, or aspects of them, it is important that attention also be paid to the questions raised by the various contexts in which religion occurs as well as to questions raised by the methods developed in studying religion in such contexts. The specific context of religion to be studied in this course is that of industrial society. For

religion to be understood in more than historical terms it is important that attention be paid to this kind of context. As a consequence of such a focus questions also are raised about the methods developed to specify and delineate such contexts and the role that religion plays in them. This provides an occasion for raising questions about the assumptions underlying such methods and about their relationship to the systematic study of religion.

Credits: 4 hours

REL 3360 - Zen and Buddhist Meditation

This course examines the development and adaptation of Buddhist meditation traditions across cultures. In the first part of the course, students acquire knowledge of Indian Buddhist meditation techniques of mindfulness and the Chinese adaptation of meditation in Zen. The latter part of the course focuses on how the techniques of Buddhist meditation have been adapted to Western culture. In clinical adaptations this often involves stripping out religious perspectives and activities in order to use them in secular contexts, shifting the goal and raising ethical questions. Throughout the semester students will learn different approaches to meditation, reflecting on how Buddhist meditation practices have affected human culture in the past and globally in contemporary society. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Prerequisites & Corequisites: Prerequisite: ENGL 1050 or instructor approval.

Credits: 4 hours

REL 4000 - Topics in Religion

The topic to be announced in the Schedule of Course Offerings. The content of the course will vary from semester to semester. Topics will include religious traditions, forms of religion and current issues in method and theory.

Credits: 4 hours

Notes: May be repeated for credit as long as the subject matter is different.

REL 4010 - Animals and Religion

This course examines connections between animals and religion from a variety of perspectives and drawing on data

from many times, places, and religious traditions. Questions that will be explored include: How are animals thought about in particular theological traditions, in terms of their relationships to god(s), human beings, and the natural world? their possession of souls, their place in the afterlife, and so on? How are animals depicted in religious myths? How are animals used or involved in religious rituals? Can animals be thought of as having or practicing religion? How do religious ideas about animals influence and interact with ethical considerations about the exploitation of animals for food, labor, medical and chemical testing, companionship, entertainment, and so on? What relationships do religions have with animal liberation and vegan philosophies and movements? This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

REL 4500 - Capstone Seminar in Religion

Designed as a culminating experience for Comparative Religion majors completing or nearing completion of their degree. Focuses readings and discussions on a theme or problem identified by the instructor, and requires students to engage in original research that explores this theme or problem through comparison and application of theory. A significant portion of the work assigned in this course involves writing.

Prerequisites & Corequisites: Prerequisites: Completion of REL 2000, with a grade of "C" or better; completion of or concurrent enrollment in at least four total Comparative Religion courses.

Credits: 4 hours

REL 4980 - Independent Study

Research on some selected problem under supervision of a member of the Religion faculty.

Prerequisites & Corequisites: Prerequisite: Application and department approval.

Credits: 1 to 6 hours

Notes: May be repeated for credit.

REL 5000 - Historical Studies in Religion

The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Zen Buddhism; Buddhism; Taoism; Shinto; New Religions of Japan; Religion in Japanese Literature; Islam in the Modern World; Christian Theology to 1500; Renaissance and Reformation Theology; Mystical Dimensions of Islam.

Credits: 2 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

REL 5011 - Religion, Culture and Health: Cultures from the East

Study of spirituality, culture, and religion in relation to understanding the body, illness, and health in South and East Asian culture and religion. The course covers the impact of spirituality, religion and culture on health status and health outcomes; the nature and history of religions that originated in South and East Asia; practical application of culturally competent care for patients with East and South Asian cultural/religious beliefs, and; the impact of religious belief, spirituality, and culture on patient and provider relationships, in the context of the healthcare and human services environment in the United States.

Credits: 3 hours

Notes: Open to upper level and graduate students.

REL 5012 - Religion, Culture and Health: Cultures from Africa, the Middle East, and West

Study of spirituality, culture, and religion in relation to understanding of the body, illness, and health in Middle Eastern and African religions, and in folk medicine and religious healing with origins in multiple geographic areas. The course covers the impact of spirituality, religion, and culture on health status and health outcomes; the nature and history of religions that originated in the Middle East and Africa and folk medicine and religious healing; practical application of culturally competent care for patients with religious/cultural beliefs that originated in the Middle East and Africa, and in cultures where folk medicine and religious healing are practiced, and; the impact of religious belief, spirituality, and culture on patient and provider relationships, and on the process of healing, in the context

of healthcare and human services environment in the United States.

Credits: 3 hours

Notes: Open to upper level and graduate students.

REL 5100 - Comparative Studies in Religion

The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat course for credit as long as the subject matter is different. Topics such as the following will be studied: Millenium, Utopia, and Revolution; Femininity as a Religious Form; Great Islamic Thinkers; the Hindu Yogas; the Occult Tradition.

Credits: 2 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

REL 5980 - Readings in Religion

Research on some selected period or topic under supervision of a member of the Religion faculty.

Prerequisites & Corequisites: Prerequisite: Completion of two previous courses in religion; approval of the instructor involved and Chairperson of the Department must be secured in advance of registration.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students.

Computer Information Systems

CIS 1020 - Introduction to Business Computing and Data Analysis

This course focuses on developing students' skills in business applications of productivity software and information technologies. All course activities relate to data manipulation, communication, organization, or analysis for decision making in various business functional areas. Specific topics covered include advanced use of spreadsheets, development of integrated electronic documents for business communications, database storage, retrieval, and reporting, creating and editing Internet web pages for business information display and data transfer,

development of professional business presentation, and Internet search. This course satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category. A student may receive credit for only one of CIS 1020, CIS 1100, CS 1050, FCS 2250, HPHE 1490, or SOC 1820.

Credits: 3 hours

CIS 1100 - Business Computing

This self-paced, one-credit course focuses on business computing skills needed by individuals to increase their productivity. It is designed as an equivalent course to CIS 1020 for students with partial skills in computer usage. This course develops student's skills with spreadsheets, databases, search techniques, basic Web page creation and the use of computers as a presentation medium. Students are required to pass the test-out exam. There is a one hour lab for Q&A.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 hour

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

Notes: A student may receive credit for only one of CIS 1020, CIS 1100, CS 1000, CS 1050, FCS 2250, HPHE 1490 or SOC 1820. Graded on a Credit/No Credit basis.

CIS 2600 - Business Application Programming

This course introduces the fundamental concepts and implementations of modern visual programming language in a business environment. Major topics include general programming tools for business applications, fundamentals of business programming such as data types, expressions, and operators, etc., and basic programming structures of business applications.

Prerequisites & Corequisites: Prerequisite: CIS 1020, CIS 1100, CS 1000, CS 1050, FCS 2250 or MUS 3860.

Credits: 3 hours

CIS 2610 - Business Mobile Programming

This course introduces the fundamental concepts and implementation of modern visual programming language in a mobile business environment. Major topics include general mobile programming tools for business mobile applications; fundamentals of business programming such as data types, expressions, and operators, etc.; and basic programming structures of business mobile applications.

Prerequisites & Corequisites: Prerequisite: CIS 1020, CIS 1100, CS 1000, CS 1050, FCS 2250 or MUS 3860.

Credits: 3 hours

CIS 2640 - Applied Analytics Foundations

This course is designed to train undergraduate students with skills to apply scientific and analytical methods to plan for analytics projects, design data collection methods, clean and analyze data, and report findings. The students will also be trained to interpret the findings from data analysis in a meaningful way. Emphasis will be placed on uncovering insights through visualization, basic analytics techniques, data manipulation, and other methods for intellectual inquiry. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category. Please see advisor for specific program restrictions.

Prerequisites & Corequisites: Prerequisites: CIS 1020 or equivalent.

Credits: 3 hours

CIS 2650 - Programming for Data Analytics

Introduces programming for predictive analytics utilizing popular software languages. Programming concepts of, data structures, input-output, and flow control will be covered, as well as techniques applied by analysts to organize and interpret data that varies in type, volume, and rate of change.

Prerequisites & Corequisites: Prerequisite: CIS 1020, CIS 1100, CS 1000, CS 1050, FCS 2250 or MUS 3860.

Credits: 3 hours

CIS 2660 - Networking and Data Communications

This course provides an introduction to modern computer networking, data communications, network security, and

associated technologies. The content focuses on the design, implementation, administration, and security of computer (wired and wireless) networks and data communications. The concepts of business networks as business process integration (BPI) tools to facilitate business-to-business (B2B) and business-to-customer (B2C) operations are also discussed. Case projects and hands-on labs are used throughout the course.

Prerequisites & Corequisites: Prerequisites: CIS 1020 or CIS 1100 or CS 1050 or CS 1000 or FCS 2250 or HPHE 1490.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

CIS 2700 - Business-Driven Information Technology

This course provides an introduction to information-communication literacy, system literacy, and business information technologies. It emphasizes the relationship between Information Technology (IT) and business processes and the importance of aligning business information systems with business strategy. By interacting with integrated enterprise system(s), this course helps students understand the modern IT-driven business value chain and business process integration (BPI). The role of IT in organizational change and business transformation, IT history, and IT cultural issues are discussed. Team/individual class projects are used throughout the course.

Prerequisites & Corequisites: Prerequisites: (CIS 1020 or CIS 1100 or CS 1000 or CS 1050 or FCS 2250 or MUS 3860 or HPHE 1490) and (BCM 1420 or ENGL 1050 or IEE 1020); sophomore class standing required.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

CIS 2800 - Internet Programming

This course is a programming course that develops the basic knowledge and skills needed to implement solutions with Internet programming tools. Students will create Internet solutions using current client-side programming

technologies such as XHTML, CSS, JavaScript and VBScript, as well as current server-side programming technologies such as PHP and ASP.

Prerequisites & Corequisites: Prerequisites: CIS 1020, CIS 1100, CS 1000, CS 1050, FCS 2250 or MUS 3860.

Credits: 3 hours

CIS 2900 - User experience Design

This course provides a comprehensive overview of the user-experience design process, and is intended to familiarize students with the methods, concepts, and techniques necessary to make user experience design an integral part of developing information interfaces. In addition, this course will focus on usability, usefulness, emotional impact, and meaningfulness. The course provides students with an opportunity to acquire the resources, skills, and hands-on experience they need to design, develop, and evaluate information interfaces from a user-centered design perspective.

Prerequisites & Corequisites: Prerequisites: (CIS 1020 or CS 1000 or CS 1050 or FCS 2250 or HPHE 1490) or equivalent, and (BCM 1420 or ENGL 1050 or IEE 1020) or equivalent.

Credits: 3 hours

Notes: No programming knowledge is assumed for this course.

CIS 3600 - Systems Analysis and Design

This course focuses on the methodologies that employ multi-phased process for developing information systems to be deployed in an organization. The course introduces various methods, techniques, and tools to determine and meet the information requirements by building proper information models that can be further implemented. This course is not merely a technical or computer course. It is a business course with strong focus on business applications. The course will cover roles, responsibilities, and mindset of the business analyst as well as the project manager rather than those of the programmer.

Prerequisites & Corequisites: Prerequisite: Junior standing and (CIS 2700 or COM 2000 or HSV 2350 or NUR 2350).

Credits: 3 hours

Restrictions: Restricted to majors or minors in Computer Information Systems, Electronic Business Design and Health Informatics and Information Management. Also open to Telecommunication and Information Management majors.

CIS 3620 - Practical Project Management

This course teaches project management knowledge, methodologies, techniques and tools based on international project management standards. Students are trained in project management software, team techniques and methodologies for key project process groups, including project initiation, planning, execution, monitoring and control, and project closure. Techniques and standard-based project management knowledge learned from this course are practical for projects in a wide variety of disciplines.

Prerequisites & Corequisites: Prerequisites: CIS 2700 or instructor approval.

Credits: 3 hours

CIS 3640 - Visual Analytics

This course is designed to give students with foundational analytics experience comprehensive skills, and in-depth knowledge in analytical problem solving through business examples with particular focus on visualizing analyses. Students will learn visual representation techniques to transform data into insights. Tools, techniques, and theories within the realm of business intelligence and data visualization will be explored, utilizing both productivity and specialized software.

Prerequisites & Corequisites: Prerequisite: CIS 2640

Credits: 3 hours

Restrictions: Restricted to majors in Leadership and Business Strategy.

When Offered: Fall and Spring

CIS 3660 - Information Assurance and Compliance

This course examines information security and its managerial and legal requirements. The content focuses on information security fundamentals and technologies, security policy, risk assessment, network defense strategy and design, and information compliance. This course helps

students understand and learn the information security architecture and management requirements for business process integration (BPI), disaster recovery, business continuity, incident response, and security management. Case projects are used throughout the course.

Prerequisites & Corequisites: Prerequisite: Junior standing and (CIS 2700 or COM 2000 or HSV 2350 or NUR 2350).

Credits: 3 hours

Restrictions: Restricted to majors or minors in Computer Information Systems, Electronic Business Design and Health Informatics and Information Management; majors in Telecommunication and Information Management; and minors in Health Informatics and Information Management.

CIS 3900 - Business Web Architecture

This course applies human computer interaction theories, principles, and techniques to develop effective and usable Web applications for the business environment. Topics include WWW architecture, modern web-based languages, search engines, interactive content, multimedia, and other technologies for the WWW. Students will evaluate the effectiveness of various websites and develop Web applications to support Internet commerce.

Prerequisites & Corequisites: Prerequisite: Admission to the Business Administration curriculum; also open to Telecommunications and Information Management majors and e-Business Design minors, both require junior standing.

Credits: 3 hours

CIS 4100 - Internship

Under the direction of a faculty advisor, qualified students may engage in a variety of professional experiences. Scheduled meetings with advisor and written experience reports required.

Prerequisites & Corequisites: Prerequisite: Approved application.

Credits: 1 to 4 hours

Notes: May be repeated for a maximum of 4 hours credit.

CIS 4500 - Customer Relationship Management

Examines customer relationship management (CRM) and its application in marketing, sales, and service. Effective CRM strategies help companies align business process with customer centric strategies using people, technology, and knowledge. Companies strive to use CRM to optimize the identification, acquisition, growth and retention of desired customers to gain competitive advantage and maximize profit. Anyone interested in working with customers and CRM technology will find this course beneficial. Emphasis is given on both conceptual knowledge and hands-on learning using a CRM software.

Prerequisites & Corequisites: Prerequisites: CIS 2700 and MKTG 2500.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

CIS 4600 - Business Database Applications

This course focuses on the design and development of business database applications. Content includes data modeling, data dictionary, normalization theory, logical and physical database design, database inquiry using query languages, database implementation using modern database management systems and networking technologies, and data maintenance and administration skills. Students are required to construct and develop a business database using current technology and graphic user interface design packages.

Prerequisites & Corequisites: Prerequisites: CIS 3600 or CIS 3900.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

CIS 4610 - Database for Business Analytics

Database for Business Analytics emphasizes on preparing students with database skills necessary for them to thrive in Business Analytics positions. The course focuses on delivering relational database modeling techniques along

with teaching advanced SQL code to create flexible and usable solutions to solve business problems. Students will work on Data Migration e.g., Extraction from multiple sources, Transformation and Loading into the target database. A portion of this course will involve hands-on experience in data access and analytics reporting. Students will learn how to use SQL Server Reporting Services (SSRS) for report generation and data visualization. The course will finish with coverage of current database options such as NoSQL DB and/or DB for Big Data as well as 5 Vs of Big data. This class will build upon individual's strengths in business, information technology and analytics.

Prerequisites & Corequisites: Prerequisites: CIS 2650 and junior standing.

Credits: 3 hours

CIS 4640 - Business Data Mining

This course focuses on the theoretical understanding and practical applications of data mining as a decision support tool. Specifically, it covers several types of modeling techniques and tools such as prediction, classification, segmentation and association detection algorithms. Students are introduced to the state-of-the-art data mining applications software such as SAS Enterprise Miner or SPSS Clementine for their class assignments and term project.

Prerequisites & Corequisites: Prerequisite: CIS 2700 and (MGMT 2500 or MKTG 2500) or instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

CIS 4700 - Mobile Commerce Development

This is an advanced mobile programming course that focuses on advanced mobile commerce, or m-commerce, programming to include location-based services, mobile payment services and transactions, as well as designing and delivering advanced content and advertising for smartphones, tablets, and other mobile devices. Because m-commerce is constantly evolving, this course will integrate new topics as necessary as reflected in the mobile application development area.

Prerequisites & Corequisites: Prerequisite: CIS 2610

Credits: 3 hours

CIS 4960 - Independent Study

A directed independent project in the area of Computer Information Systems.

Prerequisites & Corequisites: Prerequisite: Approved application.

Credits: 1 to 4 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

Notes: May be repeated for credit.

CIS 4980 - Readings

A series of direct readings in the area of Computer Information Systems.

Prerequisites & Corequisites: Prerequisite: Approved application.

Credits: 1 to 4 hours

Restrictions: Restricted to Pre-Business, Business Administration and General Business majors.

Notes: May be repeated for credit.

CIS 4990 - Enterprise Project

This is the capstone course of the CIS curriculum. Applications of computer, programming, and system knowledge, and skills gained from the previous classes are applied in developing an enterprise-wide software project. Some industrial enterprise-wide packages are reviewed. A team approach is applied to develop and integrate different computerized business functions into an integrated software system. Project management techniques and computer simulated solutions are formally presented to emphasize team dynamics and management skills.

Prerequisites & Corequisites: Prerequisite: CIS 4600

Credits: 3 hours

Restrictions: Restricted to majors/minors in Computer

Information Systems; and majors in Health Informatics and Information Management, and Telecommunication and Information Management.

Notes: A student with a major in Health Informatics and Information Management is strongly recommended to take CIS 3660 and HSV 4900 prior to or concurrently with this course.

CIS 5550 - Topics in Computer Information Systems

Special topics appropriate to business applications such as data base management systems, structured concepts, networking, programming documentation and efficiency, planning, organizing and directing management information systems.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

Notes: May be repeated for credit. Open to upper level and graduate students.

CIS 5650 - Big Data Analytics

This course introduces students to the concept of big data, Hadoop (the industry standard for big data), and its ecosystems (i.e., the supporting software that enhances the core Hadoop system or bridge the core system with other existing systems in use). The course will focus on how to leverage the big data analytics to make better business decisions. It teaches students the skills to manipulate and analyze big volumes of data, which usually is not easily possible with traditional systems. There will be a lot of hands-on exercises in class.

Prerequisites & Corequisites: Prerequisite: CIS 4610 or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Computer Science

CS 1021 - Introduction to Engineering Computing I: Spreadsheets

An introduction to computing for engineers and technologists using spreadsheets. Basic concepts and structures of spreadsheets are presented. Examples come from diverse disciplines of engineering, technology, and computer science. Students learn how spreadsheets are different from and similar to mathematical software and computer programming. Practical experience with spreadsheets is gained in laboratories built into this course.

Prerequisites & Corequisites: Prerequisite: MATH 1180

Credits: 1 hour

When Offered: Fall, Spring

CS 1022 - Introduction to Engineering Computing II: Mathematical Software

An introduction to computing for engineers and technologists using mathematical software. Basic concepts and structures of mathematical software are presented. Examples come from diverse disciplines of engineering, technology, and computer science. Students learn how mathematical software is different from and similar to mathematical software and computer programming. Practical experience with mathematical software is gained in laboratories built into this course.

Prerequisites & Corequisites: Prerequisite: MATH 1180

Credits: 1 hour

When Offered: Fall, Spring

CS 1023 - Introduction to Engineering Computing III: Computer Programming

An introduction to computing for engineers and technologists using elementary computer programming. Basic concepts and structures of computer programming are presented. Examples come from diverse disciplines of engineering, technology, and computer science. Students learn how computer programming is different from and similar to mathematical software and computer programming. Practical experience with elementary computer programming is gained in laboratories built into this course.

Prerequisites & Corequisites: Prerequisite: MATH 1180

Credits: 1 hour

When Offered: Fall, Spring

CS 1050 - Introduction to Computers

This course, which consists of one hour of lecture and two hours of laboratory/recitation each week, provides an introduction to computers and their applications. Topics include computer terminology and social and ethical issues of computing. Students will be introduced to a variety of computer applications which may include spreadsheets, databases, word processing or an introduction to the BASIC programming language. Recitation and laboratory sections may vary according to the applications covered. Students will also be introduced to the campus network and system utilities available there.

Credits: 3 hours

Notes: A student may not receive credit for both BIS 1020 and CS 1050. This course may not be used in computer science major or minor programs.

CS 1106 - Computational Thinking

Gets students thinking about computing, their education and their career. Introduces algorithms and algorithmic thinking to solve problems using computers. Introduces working with open data and Big Data as well as data visualization. Discusses the evolution of the Internet and World Wide Web including an introduction to XML and the Semantic Web. Explores computing disciplines and professional organizations.

Credits: 3 hours

CS 1110 - Computer Science I

A first course in the science of programming digital computers. Analysis of problems and development of correct procedures for their solution will be emphasized along with the expression of algorithmic solutions to problems in a structured high level computer language. Applications will solve both numerical and non-numerical problems for the computer.

Prerequisites & Corequisites: Prerequisite: MATH 1180 or MATH 1220 or MATH 2000 or MATH 1700 or MATH 1230 or MATH 1710 or MATH 2720 or MATH 3740.

(Any of these courses may be taken concurrently with CS 1110 and must earn a grade of "C" or better.)

Credits: 4 hours

When Offered: Fall, Spring

CS 1120 - Computer Science II

This course is a continuation of Computer Science I with more emphasis on top-down, modular, structured design and techniques involved in the production of large computer programs. Advanced language features such as recursion, sets, pointers, records/structures will be discussed. Data structures and their various implementations are introduced. Design and analysis of various searching and sorting techniques will be presented. Elementary file processing using sequential and random access input and output will be demonstrated. A team project will be assigned.

Prerequisites & Corequisites: Prerequisites: CS 1110 and one of the following: MATH 1220 or MATH 2000 or MATH 1700 or MATH 1230 or MATH 1710 or MATH 2720 or MATH 3740 (Any of the MATH prerequisites may be taken concurrently with CS 1120. Must earn a grade of "C" or better in any prerequisite.)

Credits: 4 hours

When Offered: Fall, Spring

CS 1200 - Programming in C for Engineers

This course focuses on the fundamentals of programming and the basics of the C language. Topics include compiling, variables, math, input/output, conditional statements, loops, arrays, functions, random numbers, pointers, arrays, strings, structures, reading/writing files, and the C preprocessor.

Prerequisites & Corequisites: Prerequisite: MATH 1180 or MATH 1220 or MATH 2000 or MATH 1700 or MATH 1230 or MATH 1710 or MATH 2720 or MATH 3740. (Any of these courses may be taken concurrently with CS 1200 and must earn a grade of "C" or better.)

Credits: 3 hours

CS 1210 - Introduction to C

This course covers the fundamentals of programming in C. Topics include basic syntax, data types, declarations, expressions, variables, compiling, input/output, conditional statements, loops, arrays, functions, pointers, arrays, strings, structures, structures as parameters, array of structures, reading/writing files, and the C preprocessor.

Prerequisites & Corequisites: Prerequisite: CS 1120 with a grade of "C" or better.

Credits: 1 hour

CS 1310 - Foundations of Computer Science

Covers fundamental concepts in discrete mathematics and introduction to automata theory. Topics include: sets, functions, relations, proof techniques, graphs and trees, sequences, asymptotic behavior, counting and probability. Will also include an introduction to automata, regular expressions and grammars, machine representations of integer and real numbers. Algorithms related to the course topics will be introduced and implementations examined and their efficiency considered.

Prerequisites & Corequisites: Prerequisite: MATH 1180 or MATH 1220 or MATH 2000 or MATH 1700 or MATH 1230 or MATH 1710 or MATH 2720 or MATH 3740, and some programming experience. (Must earn a grade of "C" or better in any prerequisite.)

Credits: 4 hours

CS 2000 - Programming Language Experience

Details of a specific computer programming language are presented. The name of the specific language discussed will appear in the student's transcript. Students obtain practice by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. It is suitable for anyone wishing to learn the specific language being taught.

Prerequisites & Corequisites: Prerequisite: CS 1110 and (1-1/2 years of high school algebra or MATH 1110).

Credits: 1 to 3 hours

Notes: Course can be repeated for credit in a different language.

CS 2100 - Introductory Topics in Computing Technology

A topics course presenting introductory computer science material suitable for credit in some undergraduate computer science major and minor programs. Topic can vary with each offering. The course can be repeated with different topics for credit.

Credits: 1 to 3 hours

CS 2230 - Computer Organization and Assembly Language

This course introduces concepts of computer architecture and assembly language. CISC and RISC instruction sets, along with associated hardware issues (e.g., data representation and instruction formats, instruction pipelining, register windows, context switching, and memory management) will be discussed. The student will program in both assembly language and the C programming language as well as interfacing the two languages.

Prerequisites & Corequisites: Prerequisite: CS 1110 with a grade of "C" or better.

Credits: 3 hours

When Offered: Fall, Spring

CS 2610 - R Programming for Data Science

This course provides the student with an advanced understanding of the R system. It prepares the student for effective usage of and program development in the R system. This includes: understanding functional programming in R, understanding R objects, and how to develop reliable R programs. R graphics for interactive data exploration, producing publication quality graphics and producing web based graphics will also be covered. This course will be very small team project oriented.

Prerequisites & Corequisites: Prerequisite: STAT 2600 with a grade of "C" or better and a suitable laptop.

Credits: 4 hours

When Offered: Fall and Spring

CS 3100 - Storage, Retrieval, and Processing of Big Data

This course provides the student with an understanding of the issues involved in dealing with Big Data. It prepares the student for dealing with the storage of extremely large data sets, accessing the data, reduction of the data into manageable size and processing the results. Such Big Data can come from stored structured information, unstructured distributed information or streaming sources. Students will reduce Big Data sets, use R packages and other code to analyze the data, and produce graphics to explore and explain the Data. This course will be very small team project oriented.

Prerequisites & Corequisites: Prerequisite: CS 2610 with a grade of "C" or better and a suitable laptop.

Credits: 3 hours

CS 3240 - System Programming Concepts

Topics include: program development tools, basic testing, timing, profiling and benchmarking, characteristics of physical devices, memory management, device drivers, pseudo-devices, file structures, file I/O (both buffered and unbuffered), processes, shells, inter-process communications, signals, exceptions, pipes, sockets, shared memory and file and record locking. All topics are viewed from a UNIX system programming perspective.

Prerequisites & Corequisites: Prerequisites: CS 1120 and (CS 2230 or ECE 2510), with a grade of "C" in all prerequisites.

Credits: 3 hours

CS 3310 - Data and File Structures

This course focuses on the study of internal and external data structures and algorithms with an ongoing emphasis on the application of software engineering principles. Trees, graphs and the basic algorithms for creating, manipulating and using them will be studied. Various types of hash and indexed random access file structures will be discussed and implemented. B-trees and external file sorting will be introduced. Internal and external data and file organizations and algorithms will be compared and analyzed. Students will carry out a number of programming projects which will include the various interface (person-to-person, module-to-module, person-to-module-to-person) aspects of the software development process.

Prerequisites & Corequisites: Prerequisite: CS 1120 and (CS 1310 or MATH 1450), with a grade of "C" or better, or equivalent.

Credits: 3 hours

When Offered: Fall, Spring

CS 3500 - Introduction to Web Technologies

Covers theory and practice of major technologies involved in current web services. Topics include: installing, administering and securing a web server; http and https protocols; cgi scripts; connecting to a database; php; javascript; ajax; and css. Will include best practices in developing and securing web applications; and current attacks on web services. Practical applications will be developed in a team environment and testing for standards compliance, mobile device support, security and performance will be done.

Prerequisites & Corequisites: Prerequisite: Significant previous programming experience and a laptop.

Credits: 3 hours

CS 3550 - Network Fundamentals

This course examines the fundamentals of network communication. The course covers network addressing, protocols, and basic attacks against an organization's network infrastructure as well as their mitigation's. Students will learn to implement network applications and capture and analyze network traffic to monitor for potential attacks. Practical exercises and labs will be used during this course to allow the students to apply these concepts in real-world scenarios.

Prerequisites & Corequisites: Prerequisite: CS 1120 with a grade of "C" or better.

Credits: 3 hours

CS 3950 - Venture Project

This course engages sophomore/junior students to gain professional experience with their specific venture topic. Participating students will operate a simulated full-scale consulting and development firm that specializes in the venture topic. The goal of the course is to have the students spend time in the lab working as part of a team that

provides solutions to real clients. Computer Science major students can count up to six credits of CS electives from this course towards their degree.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit.

CS 4120 - Professional Field Experience

This course allows students to receive academic credit for professional work experience in the computing field. The work activities must require significant computer science knowledge and education. This course may not be taken for work already completed and may not be used for computer science major or minor elective. It is a credit/no credit course and may be taken for a maximum of three credit hours.

Prerequisites & Corequisites: Prerequisites: CS 3310 or equivalent, and approval in advance by the Department.

Credits: 1 to 3 hours

CS 4310 - Design and Analysis of Algorithms

A continuation of the study of data structures and algorithms. It provides a theoretical foundation in designing algorithms. The focus is on the advanced analysis of algorithms and on how the selections of different data structures affect the performance of algorithms.

Algorithmic paradigms such as divide and conquer, greedy method, dynamic programming, backtracking and branch and bound are covered. B-trees and 2 to 3 search trees and a variety of graph structures are discussed along with their applications to algorithm implementation. Algorithms will be analyzed for their complexity. NP-completeness will be introduced.

Prerequisites & Corequisites: Prerequisite: CS 3310 or equivalent.

Credits: 3 hours

When Offered: Fall

CS 4430 - Database Management Systems

This course presents fundamental concepts and practices of database management systems. Database environment and administration are defined along with roles of the database administrator and the data dictionary. Conceptual and logical models are discussed with emphasis on the relational approach. Data access techniques such as sequential and multi-level sequential indexes, linked lists, inverted files and hashing are briefly reviewed. A few commercial systems will be surveyed. Security, reliability and integrity will be studied. Students will acquire experience with the various topics by applying them to an actual database system. Students will also write application programs which use the database systems.

Prerequisites & Corequisites: Prerequisite: CS 1120 with a grade of "C" or better, or equivalent.

Credits: 3 hours

Notes: A student may not receive credit for both CS 4430 and CS 5430.

CS 4540 - Operating Systems

The internal and external views of computer operating systems are presented. A historical survey of the development and growth of operating systems is given. Fundamentals of systems and system design are stressed. Basic concepts and terminology are emphasized. Processes, communications and synchronizations, deadlocks, scheduling, shared resources, resource allocation and deallocation, memory management, files management, and protection are discussed. Applications to real systems are investigated to motivate the ideas presented. Students build or run simulations and modify the internals of a working operating system.

Prerequisites & Corequisites: Prerequisites: CS 3310 and (CS 2240 or CS 3240 or ECE 3570), with a grade of "C" or better in all prerequisites.

Credits: 3 hours

When Offered: Fall, Spring

CS 4541 - Computer Systems Fundamentals

This course offers an intensive study of computer system design, emphasizing modern operating systems and their impact on application programming. Topics covered include processes and threads, CPU scheduling, process synchronization, deadlock, memory management, caches, virtual memory, virtual machines, shared-memory and

message-passing based parallelism, clusters, security and protection, authentication, and cloud computing.

Prerequisites & Corequisites: Prerequisites: CS 3310 and CS 3240, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

CS 4610 - Reusable Software Architectures

This course covers common reusable patterns of software design: creational, structural and behavioral patterns are explored using the Java programming language. General Java concepts are also covered such as class creation, building GUIs and using the debugger inside an IDE.

Prerequisites & Corequisites: Prerequisite: CS 3310 with a grade of "C" or better.

Credits: 3 hours

CS 4850 - Foundations of Programming Languages

This course covers the syntax and semantics of programming languages. Topics include regular expressions, finite automata, regular grammars, context-free grammars, push-down automata, operational semantics, interpreters and compilers. The course emphasizes the practical relationship between computer science theory and the implementation of programming languages.

Prerequisites & Corequisites: Prerequisite: CS 3310 and CS 3240, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

When Offered: Fall, Spring

CS 4900 - Software Systems Development I: Requirements and Design

This course is the first of a capstone project sequence required for all computer science majors. Software engineering and its methodologies are explained. Various software life cycle models are introduced. Students are placed into teams and assigned to a client and project. The teams create a project plan, analyze and specify requirements for their project and develop a design. Prototype demonstrations and periodic oral and written progress reports are required to help assure steady progress.

Individuals and teams produce a variety of documents throughout the course. Documents include a management plan, project abstracts, a requirements specification, a user interface prototype document, and a design document consisting of architectural and detailed design elements.

Prerequisites & Corequisites: Prerequisite: CS 3310

Credits: 3 hours

Notes: This course is approved as a writing-intensive course.

When Offered: Fall, Spring

CS 4910 - Software Systems Development II: Implementation, Testing

This course is the second of a capstone project sequence required for all computer science majors. Students are placed into teams and assigned to complete an existing project for a client. The teams implement and debug code according to a design produced earlier. They produce a testing plan, carry out testing, record test results and summarize them. Prototype demonstrations and periodic progress reports are required to help assure steady progress. Individuals and teams produce a variety of documents throughout the course. These documents include a testing plan, a testing log, a summary of testing, a maintenance manual and a user manual. Teams also deliver a public demonstration at the end of the course. Discussion of the role of the computer scientist in society and current social and ethical issues related to computing and software development will be integrated into the course. Topics covered are designed to promote awareness of professional, ethical, and societal issues in the field of computer science. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: CS 4900

Credits: 3 hours

CS 4980 - The Computer Science Profession

This course examines the role of the computer scientist in society. Topics covered are designed to promote awareness of professional, ethical, and societal issues in the field of computer science.

Prerequisites & Corequisites: Prerequisite: Senior status.

Credits: 1 hour

When Offered: Spring

CS 4990 - Undergraduate Research in Computer Science

Supervised undergraduate research. Topics are chosen and arrangements are made on an individual student basis. With prior written approval, this course may be used for elective credit in the Theory and Analysis option of the B.S. degree in computer science. Students interested in CS 4990 should consult their department advisor or the department chair for details.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit to a maximum of three hours. Graded on a Credit/No Credit basis.

CS 5250 - Computer Architecture

General topics in computer architecture, memory systems design and evaluation, pipeline design techniques, RISC architectures, vector computers, VLSI systems architecture.

Prerequisites & Corequisites: Prerequisites: (CS 2230 or ECE 2510) and CS 3310, with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students. Undergraduates with junior or senior status who have met the specific course prerequisites or have the permission of the instructor may enroll in 5000-level courses.

CS 5260 - Parallel Computations

Architecture, synchronization and communication aspects of parallel and distributed systems. This course will focus on the design and analysis of parallel algorithms with a prototype treatment on current machines. The algorithms may include parallel sorting, combinatorial search, graph search and traversal, applications in graphics, 2-d finite differences, 2-d finite element techniques, matrix algorithms and the Fast Fourier Transform.

Prerequisites & Corequisites: Prerequisite: CS 3310 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students. Undergraduates with junior or senior status who have met the specific course Prerequisites or have the permission of the instructor may enroll in 5000-level courses.

CS 5270 - Computer Graphics

An introduction to modern computer graphics systems. Topics covered include graphics hardware, two- and three-dimensional geometry and transformations, rendering, shading, texturing, raster and vector graphics, and modeling with curves and surfaces. Students will learn basic concepts and techniques in interactive computer graphics with emphasis on modern graphics programming.

Prerequisites & Corequisites: Prerequisites: CS 3310 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students. Undergraduates with junior or senior status who have met the specific course Prerequisites or have the permission of the instructor may enroll in 5000-level courses.

CS 5300 - Artificial Neural Systems

An introduction to neural net concepts, algorithms, and applications. A history of neural nets will be presented along with some discussion of models of Biological neural systems. The salient features of neural nets (architecture, activation functions, weighting scheme) will be characterized. Standard algorithms will be presented including Hopfield nets, linear associative mode bidirectional associative memories, and adaptive resonance models. The student will use neural net software to experiment with standard models to develop an application for a project.

Prerequisites & Corequisites: Prerequisite: CS 3310.

Credits: 3 hours

Notes: An introductory statistics course is recommended. Open to upper level and graduate students.

CS 5310 - Algorithms

This course is a continuation of the study of data structures and algorithms, emphasizing methods useful in practice. It

provides a theoretical foundation in designing algorithms as well as their efficient implementations. The focus is on the advanced analysis of algorithms and on how the selections of different data structures affect the performance of algorithms. Topics covered include: sorting, search trees, heaps, and hashing; divide-and-conquer; dynamic programming; backtracking; branch-and-bound; amortized analysis; graph algorithms; shortest paths; network flow; computational geometry; number-theoretic algorithms; polynomial and matrix calculations; and parallel computing. It comprises four hours of lecture and recitation experience every week.

Prerequisites & Corequisites: Prerequisite: CS 3310 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to graduate students only.

Lecture Hours - Laboratory Hours: (2 - 2)

CS 5400 - Design of User Interfaces

An introduction to the specification, development, and evaluation of user interfaces. This course provides an overview of human capabilities, technological possibilities, interaction design, and interface evaluation. The course presents both the theoretical foundations of interaction design and practical case studies of good and bad interface design. During the course, students will design and test one or more interfaces.

Prerequisites & Corequisites: Prerequisite: CS 3310 with a grade of "C" or better or permission of instructor.

Credits: 3 hours

Notes: Open to upper level and graduate students.

CS 5430 - Database Systems

An introductory course on relational database design, query and programming. Topics include relational model, relational algebra, conceptual design using entity-relationship model, functional dependency and normal forms, SQL, constraints and triggers, indexes, views, authorization, stored procedures, database programming, and transactions. Other topics include object-relational data model and an overview of database management system implementations. Students will get experience on how to design and use a relational database. A student may not receive credit for both CS 4430 and CS 5430.

Prerequisites & Corequisites: Prerequisite: CS 3310 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

CS 5541 - Computer Systems

This course offers an intensive study of computer system design, emphasizing modern operating systems and their impact on application programming. Topics covered include: processes and threads, CPU scheduling; process synchronization; deadlock, memory management; cache; main memory; virtual memory; virtual machine; shared-memory and message-passing based parallelism; clusters; database concepts; security and protection; authentication; and cloud computing. It comprises four hours of lecture and recitation experience every week.

Prerequisites & Corequisites: Prerequisites: CS 3240 or (CS 2240 and CS 3310), with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Notes: Open to upper level and graduate students.

CS 5550 - Computer Networks and Distributed Systems

The design and evaluation of computer networks using current hardware and software are explained. Various types of computer buses, local area networks, and long haul networks are defined. Case studies of popular networks are presented. Layered network models are studied. There is lab work with local area and long haul networks.

Prerequisites & Corequisites: Prerequisites: CS 3310 and (CS 3240 or ECE 3570).

Credits: 3 hours

Notes: Open to upper level and graduate students.

CS 5610 - Advanced R Programming for Data Science

This course provides the student with an advanced understanding of the R system. It prepares the student for effective usage of and program development in the R system at the graduate level. This includes: a deep

understanding of functional programming in R and R objects, and how to develop reliable R programs. R graphics for interactive data exploration, producing publication quality graphics and producing web based graphics will also be covered. This course will be very small team project oriented.

Prerequisites & Corequisites: Prerequisites: CS 2610 and STAT 3640, with a grade of "C" or better in all prerequisites.

Credits: 4 hours

Notes: Open to seniors and graduate students.

CS 5700 - Computer Security and Information Assurance

This course is an introduction to computer/network security and information assurance. The topics include cryptographic techniques; network security - threats, controls, and tools; program security; and legal, ethical and privacy issues in computer security. Students will learn fundamental concepts of security applicable to computer programming and computer system design. Assignments will improve students' practical skills in using computer networks and systems.

Prerequisites & Corequisites: Prerequisite: CS 5550 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

CS 5750 - Secure Software Development

This course covers the theory and practice of software security, focusing on common software security risks for systems software including identification of potential vulnerabilities and coding principles to avoid security holes in new software. The course covers essential guidelines for building secure software through secure coding, access control, data integrity, and confidentiality.

Prerequisites & Corequisites: Prerequisites: CIS 3240 and CS 3310 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

CS 5800 - Theory Foundations

This course covers the theory of computer science emphasizing automata, grammars and their applications in the specification of languages and computer systems, models of computation, and complexity. Analytic and problem solving abilities will be reinforced, and concepts covered in the course will be applied to real-world problems. It comprises four hours of lecture and recitation experience every week.

Prerequisites & Corequisites: Prerequisite: CS 3310 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

CS 5810 - Compiler Design and Implementation

The design and implementation of programming language translation. Topics include: lexical analysis, parsing, intermediate representations and code generation. A major project is required.

Prerequisites & Corequisites: Prerequisite: CS 4800 or CS 4850 or CS 5800, with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

CS 5820 - Artificial Intelligence

This course covers basic AI techniques and concepts including rule-based systems, intelligent search, heuristics, knowledge representation and reasoning, predicate logic and pattern recognition. It introduces several AI application areas such as learning, vision, natural language processing, games, and expert systems.

Prerequisites & Corequisites: Prerequisite: CS 3310 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students. Undergraduates with junior or senior status who have met the specific course Prerequisites or have the permission of the instructor may enroll in 5000-level courses.

CS 5821 - Machine Learning

The course will cover both theory and practice, applying a variety of Machine Learning techniques and models using available tools on large widely available data sets. R will be presumed, but Python and Numpy/Scipy will be used freely, as well as the natural language tools available in Python. Feature selection, model choices and relative performance measures will be presented within a Bayesian framework.

Prerequisites & Corequisites: Prerequisites: MATH 2300 and (CS 3100 or CS 3310). A grade of "C" for undergraduates and "B" for graduates needed in prerequisite courses.

Credits: 3 hours

Notes: Open to upper level and graduate students.

CS 5950 - Advanced Topics in Computer and Information Science

The content of this course varies. It is intended to introduce the student to advanced topics which are normally offered as separate courses. The course may be taken more than once with approval of the student's advisor.

Prerequisites & Corequisites: Prerequisite: Approval of Department.

Credits: 1 to 3 hours

Notes: Open to upper level and graduate students.

CS 5990 - Independent Study in Computer Science

Advanced students with good scholastic records may elect to pursue independently the study of some topic of special interest. Topics are chosen and arrangements are made to suit the needs of each particular student.

Prerequisites & Corequisites: Prerequisite: Written approval of instructor.

Credits: 1 to 3 hours

Notes: Open to upper level and graduate students.

Counselor Education and Counseling Psychology

CECP 3700 - Introduction to Career Planning and Development

This course is designed to help students understand the process of career decision-making and to help prepare them for future career experiences by focusing on career planning and development. The course provides an overview of theories and concepts involved in career decision-making using established psychological research. Students' vocational interests, values, personality, and abilities are explored to enhance career exploration and decision-making. The links between career identity development, career planning and multicultural factors (e.g., gender, race, social class, and other issues of diversity) are examined with an emphasis on enhancing students' ability to incorporate the contextual dimensions of work. Finally, research on contemporary aspects of career development and the workforce are introduced enabling students to implement a strategic career plan by focusing on employability skills and strategies for implementing academic/career development plans. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Credits: 3 hours

CECP 3800 - Personal Growth and Development through the Lifespan

This course examines personal development from a psychological perspective by exploring a wide variety of ways in which to change, grow, and achieve one's creative potential. Drawing from counseling psychology's emphasis on strengths-focused, preventative and contextual influences on development, the course advances a multi-faceted approach to personal development combining research, theory, personal experience, and self-reflection. The content includes: (a) theories of human development; (b) strategies for facilitating optimum development over the lifespan; and (c) the stages of family development. The course emphasizes psychological approaches for assessing and enhancing human development within a cultural context across the lifespan. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Credits: 3 hours

CECP 4840 - Community Diversity in Substance Abuse Services

This course of study will help students to understand diverse cultures and incorporate the relevant needs of culturally diverse groups, as well as people with disabilities, into clinical practice. This course will also examine the ethical topics directly related to diverse populations, such as different strategies of coping and how various cultures view addiction and recovery.

Credits: 3 hours

CECP 5200 - Foundations of Rehabilitation Counseling

This course surveys the role of the rehabilitation counselor in establishing eligibility, planning services, the tracking system, counseling, case management, work evaluation, work adjustment, supported employment, transition, client assistance programs, job analysis, job development, post-employment, and advocacy. Major emphasis is given to the operation of the state vocational/federal system.

Credits: 3 hours

Notes: Open to upper level and graduate students.

CECP 5830 - Workshops in Counselor Education and Counseling Psychology

Workshops designed to enhance skill development related to Counselor Education and Counseling Psychology practices. Open to all students, but is not intended for counseling majors.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Cybersecurity: CIS

CYIS 2110 - Cryptology Concepts and Techniques

This course introduces cryptology concepts and examines their mathematical bases. Historical items of interest such as the Enigma Machine and Navajo Code will be introduced. The mathematics behind various types of

ciphers as well as cryptanalysis techniques that apply to them will be covered. Topics will include, but are not limited to, substitution, transposition, RSA, ElGamal, and Rijndael ciphers.

Prerequisites & Corequisites: Prerequisite: CYCS 1310 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYIS 2310 - Ethics and Impacts

This course focuses on the multitude of ethical challenges faced by all cybersecurity personnel. Topics in the course include ethical responses to cyberattacks, intellectual property disclosure, data privacy, and development ethics as it relates to software and systems. Students will be exposed to a myriad of ethical quandaries as they relate to issues such as information disclosure, workplace monitoring, and content controls.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYIS 2710 - Windows System Administration

This course focuses on building the knowledge, skills, and techniques required to manage Windows systems in an organizational environment. Course topics cover Windows functionality design, Windows Server installation, server role provisioning, user configuration, server visualization, and group policy implementation. Topics also include network configuration, security policies management, and disaster recovery within an organizational environment. Students will learn how to manage Windows systems and users, implement group and security policies, monitor system performance, troubleshoot from system diagnostics, and orchestrate services and functionalities necessary for an organization.

Prerequisites & Corequisites: Prerequisite: CYCS 1120 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYIS 2910 - Linux System Administration

This course focuses on the configuration, deployment, and management of Linux systems—to include servers and workstations—in diverse environments. Course topics will include configurations and installs using automated tools and shell scripting to meet operational requirements using accepted security controls and procedures. Students will learn how to manage systems and users, implement security policies and processes, monitor system diagnostics, and deploy services and tools necessary for an organization.

Prerequisites & Corequisites: Prerequisite: CYCS 1120 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYIS 3110 - Cybersecurity Data Analytics

This course introduces fundamental programming and analytics concepts, techniques, and tools in managing, analyzing, and interpreting data for cybersecurity informatics. Approaches to programming effective data structures, input-output, and flow control will be covered, as well as basic data mining and visualization techniques applied by security analysts to organize and interpret cybersecurity-related data that varies in type, volume, and rate of change.

Prerequisites & Corequisites: Prerequisite: CYIS 2100 or CYCS 2110, with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYIS 3600 - Secure Systems Analysis and Design

This course focuses on the secure analysis and design architectures and methodologies that employ multi-phased processes for developing information software and systems to be deployed in modern organizations. The course introduces various methods, techniques, frameworks, standards, and tools to determine and meet the information and security requirements by building within system models that can be implemented within an organizational architecture. The secure system development lifecycle will be studied in detail to address various system threats, vulnerabilities, and attacks within diverse contexts. The course will cover roles, responsibilities, and mindset of the security analyst to include business justification of secure systems within the organization.

Prerequisites & Corequisites: Prerequisites: Junior standing, CYCS 1120, and either (CYIS 2110 or CYCS 2110); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYIS 3660 - Cybersecurity Management Principles

This course focuses on the managerial, regulatory, legal, and ethical requirements of cybersecurity. Course topics include security policy, risk management, defense in depth, security design and architectures, and compliance and regulatory issues. Topics also include incident response, disaster recovery, and business continuity planning within diverse organizational environments.

Prerequisites & Corequisites: Prerequisites: Junior standing and (CYIS 2310 or CYCS 2310), with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYIS 3900 - Secure Web Applications and Technologies

This course focuses on defensive security methods and techniques that could be used to assess, identify, and stop vulnerable web applications. It also applies human computer interaction theories, principles, and techniques using a secure software development to implement full stack Web applications. Content includes secure coding standards, client-side and server-side languages, web APIs, identifying vulnerabilities, setting hacker traps, defending different access points and enforcing application flows and other web services and technologies. Students will build and deploy secure web applications to support e-commerce, information exchange, and other business requirements.

Prerequisites & Corequisites: Prerequisites: Junior standing, CYCS 1120, and either (CYIS 2110 or CYCS 2110); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYIS 3910 - Network+

This course is intended for entry-level computer support professionals who wish to increase their knowledge and understanding of networking concepts and acquire the required skills to prepare for a career in network support or administration, or who wish to prepare for the CompTIA Network+ certification. In this course, students will describe the major networking technologies and systems of modern networks, and be able to configure, manage, and troubleshoot modern networks.

Prerequisites & Corequisites: Prerequisites: Junior standing and CYIS 3110, with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYIS 4600 - Secure Database Management Systems

This course focuses on secure database design, development, implementation, administration and management. Course content covers data security within all aspects of database components including design, data storage, access control, change control, permission model, database server security, and database encryption and key management. Data protection during processing and transmission to include data migration (ETL) procedures are also covered in the course. In addition, course topics include basic relational and non-relational (NoSQL) data models. Students will work on a project where they will develop, test, and deploy a secure database.

Prerequisites & Corequisites: Prerequisites: Senior standing and CYIS 3600, with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYIS 4910 - Cybersecurity Capstone Project 1

This course is the first of a capstone project sequence required for all Cybersecurity majors. Applications of computer, programming, and system knowledge, and skills gained from the previous classes are applied to develop a security-oriented software, system deployment, or assessment project. A team approach is implemented to develop and integrate different computerized business

functions into an integrated deliverable. Prototype demonstrations and periodic oral and written progress reports are required to help assure steady progress. Individuals and teams produce a variety of documents throughout the course. Documents include a management plan, project abstracts, a requirements specification, and a design document consisting of architectural and detailed design elements.

Prerequisites & Corequisites: Prerequisites: Senior standing and CYIS 4600, with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYIS 4920 - Cybersecurity Capstone Project 2

This course is the second of a capstone project sequence required for all Cybersecurity majors. Student teams complete an existing project by implementing code, configuring systems, or assessing activities according to a previous design. They produce a testing plan, carry out testing, record test results, and summarize them. Prototype demonstrations and periodic progress reports are required to help assure steady progress. Individuals and teams produce a variety of documents throughout the course. These documents include a testing plan, a testing log, a summary of testing, a maintenance manual and a user manual. Discussion of current social and ethical issues related to individual projects and Cybersecurity in general will be integrated into the course. Project management techniques and computer simulated solutions are formally presented to emphasize team dynamics and management skills.

Prerequisites & Corequisites: Prerequisites: Senior standing and either (CYIS 49010 or CYCS 4910), with a grade of "C" or better.

Credits: 2 hours

Restrictions: Restricted to majors in Cybersecurity.

CYIS 5710 - Information Security Fundamentals

This course examines information security fundamentals needed for a basic understanding of the Information Security discipline. The course covers basic attacks and vulnerabilities against an organization as well as their

mitigation, managerial and legal requirements for organizations, professional ethics, and security policy formation and implementation. This course will help students understand identity and access management, asset security, and risk management. Finally, students will learn the importance of assessing and testing security frameworks to ensure robust incident response, disaster recovery, and business continuity plans. Case projects and scenarios are used throughout the course to illustrate, test, and understand these topics.

Prerequisites & Corequisites: Prerequisite: Admission to the Graduate College or senior standing.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Cybersecurity: CS

CYCS 1110 - Computer Programming 1

A first course in the science of programming digital computers. Analysis of problems and development of correct procedures for their solution will be emphasized along with the expression of algorithmic solutions to problems in a structured high-level computer language. Program applications that will solve both numerical and non-numerical problems for the computer.

Prerequisites & Corequisites: Prerequisite: MATH 1180 (may be taken concurrently).

Credits: 4 hours

Restrictions: Restricted to majors in Cybersecurity.

CYCS 1120 - Computer Programming 2

This course is a continuation of Computer Programming 1 with more emphasis on top-down, modular, structured design and techniques involved in the production of large computer programs. Advanced language features such as recursion, sets, pointers, records/structures will be discussed. Data structures and their various implementations are introduced. Design and analysis of various searching and sorting techniques will be presented. Elementary file processing using sequential and random-access input and output will be demonstrated.

Prerequisites & Corequisites: Prerequisite: CYCS 1110 with a grade of "C" or better.

Credits: 4 hours

Restrictions: Restricted to majors in Cybersecurity.

CYCS 1200 - Programming in C for Cybersecurity

This course focuses on the fundamentals of programming and the basics of the C language. Topics include compiling, variables, math, input/output, conditional statements, loops, arrays, functions, random numbers, pointers, arrays, strings, structures, reading/writing files, and the C preprocessor. Common security flaws involving these topics will be addressed.

Prerequisites & Corequisites: Prerequisite: MATH 1180 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYCS 1310 - Foundations of Cybersecurity

Covers fundamental concepts in discrete mathematics and introduction to automata theory. Topics include: sets, functions, relations, proof techniques, graphs and trees, sequences, asymptotic behavior, counting and probability. The course will also include an introduction to automata, regular expressions and grammars, machine representations of integer and real numbers. Algorithms related to the course topics will be introduced and implementations will be examined, and their efficiency considered.

Prerequisites & Corequisites: Prerequisite: MATH 1180 with a grade of "C" or better.

Credits: 4 hours

Restrictions: Restricted to majors in Cybersecurity.

CYCS 2110 - Cryptology Concepts and Techniques

This course introduces cryptology concepts and examines their mathematical bases. Historical items of interest such as the Enigma Machine and Navajo Code will be introduced. The mathematics behind various types of ciphers as well as cryptanalysis techniques that apply to them will be covered. Topics will include, but are not limited to, substitution, transposition, RSA, ElGamal, and

Rijndael ciphers.

Prerequisites & Corequisites: Prerequisite: CYCS 1310 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYCS 2230 - Basic Computer Organization

This course introduces concepts of computer architecture and assembly language. CISC and RISC instruction sets, along with associated hardware issues (e.g., data representation and instruction formats, instruction pipelining, register windows, context switching, and memory management) will be discussed. The student will program in both assembly language and the C programming language as well as interfacing the two languages.

Prerequisites & Corequisites: Prerequisite: CYCS 1110 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYCS 2310 - Ethics and Impacts

This course focuses on the multitude of ethical challenges faced by all cybersecurity personnel. Topics in the course include ethical responses to cyberattacks, intellectual property disclosure, data privacy, and development ethics as it relates to software and systems. Students will be exposed to a myriad of ethical quandaries as they relate to issues such as information disclosure, workplace monitoring, and content controls.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYCS 3240 - Secure Systems Programming Concepts

Topics include: program development tools, basic testing, timing, profiling and benchmarking, characteristics of physical devices, memory management, device drivers, pseudo-devices, file structures, file I/O (both buffered and unbuffered), processes, shells, inter-process communications, signals, exceptions, pipes, sockets, shared

memory and file and record locking. All topics are viewed from a UNIX system programming perspective.

Prerequisites & Corequisites: Prerequisites: CYCS 1120 and CYCS 2230, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYCS 4540 - Operating Systems for Cybersecurity

The internal and external views of computer operating systems are presented. A historical survey of the development and growth of operating systems is given. Fundamentals of systems and system design are stressed. Basic concepts and terminology are emphasized. Processes, communications and synchronizations, deadlocks, scheduling, shared resources, resource allocation and deallocation, memory management, files management, and protection are discussed. Applications to real systems are investigated to motivate the ideas presented. Students build or run simulations and modify the internals of a working operating system.

Prerequisites & Corequisites: Prerequisite: CYCS 3240 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYCS 4710 - Security+

This course is intended to prepare students for entry-level cybersecurity careers, and to prepare them to test for the CompTIS Security+ exam. The CompTIA Security+ exam will certify the successful candidate has the knowledge and skills required to install and configure systems to secure applications, networks, and devices; perform threat analysis and respond with appropriate mitigation techniques; participate in risk mitigation activities; and operate with an awareness of applicable policies, laws, and regulations. The successful candidate will perform these tasks to support the principles of confidentiality, integrity, and availability.

Prerequisites & Corequisites: Prerequisites: CYCS 3240 and CYIS 3660, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to senior majors in Cybersecurity.

CYCS 4910 - Cybersecurity Capstone 1

This course is the first of a capstone project sequence required for all Cybersecurity majors. Applications of computer, programming, and system knowledge, and skills gained from the previous classes are applied to develop a security-oriented software, system deployment, or assessment project. A team approach is implemented to develop and integrate different computerized business functions into an integrated deliverable. Prototype demonstrations and periodic oral and written progress reports are required to help assure steady progress. Individuals and teams produce a variety of documents throughout the course. Documents include a management plan, project abstracts, a requirements specification, and a design document consisting of architectural and detailed design elements.

Prerequisites & Corequisites: Prerequisite: Senior standing and CYIS 4600, with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

CYCS 4920 - Cybersecurity Capstone 2

This course is the second of a capstone project sequence required for all Cybersecurity majors. Student teams complete an existing project by implementing code, configuring systems, or assessing activities according to a previous design. They produce a testing plan, carry out testing, record test results, and summarize them. Prototype demonstrations and periodic progress reports are required to help assure steady progress. Individuals and teams produce a variety of documents throughout the course. These documents include a testing plan, a testing log, a summary of testing, a maintenance manual and a user manual. Discussion of current social and ethical issues related to individual projects and Cybersecurity in general will be integrated into the course. Project management techniques and computer simulated solutions are formally presented to emphasize team dynamics and management skills.

Prerequisites & Corequisites: Prerequisite: Senior standing and CYCS 4910, with a grade of "C" or better.

Credits: 2 hours

Restrictions: Restricted to majors in Cybersecurity.

CYCS 5710 - Network Security Fundamentals

This course examines the network security fundamentals needed for a basic understanding of the Information Security discipline. The course covers basic attacks and vulnerabilities against an organization's network infrastructure as well as their mitigation's. This course will help students understand network addressing, protocols, and vulnerabilities. Finally, students will learn to capture and analyze network traffic to monitor for potential attacks. Practical exercises and labs will be used during this course to allow the students to apply these concepts in real-world scenarios.

Prerequisites & Corequisites: Prerequisite: Admission to the Graduate College or senior standing.

Credits: 3 hours

CYCS 5730 - Secure System Administration

This course will address the theory and practices involved in securely delivering services from both Linux/Unix and Windows servers in a networked environment. Topics will include encrypted communication channels, intrusion detection systems and log monitoring, and secure consumption of services by client systems. The course covers tools and techniques for building and maintaining servers in a secure manner.

Prerequisites & Corequisites: Prerequisites: (CIS 5710 or CYIS 5710) and (CS 5710 or CYCS 5710).

Credits: 3 hours

Notes: Open to upper level and graduate students.

CYCS 5740 - Web Application Security

This course will address the theory and practices involved in implementing, managing, or protecting Web applications. Students will learn about the underlying technologies and architecture decisions that go into developing a secure application and will learn the skills necessary to evaluate, implement, and test security measures in web applications. Students will complete several practical exercises and labs that will demonstrate and reinforce the theoretical concepts introduced in the

course.

Prerequisites & Corequisites: Prerequisites: (CIS 5710 or CYIS 5710) and (CS 5710 or CYCS 5710).

Credits: 3 hours

Notes: Open to upper level and graduate students.

CYCS 5750 - Software Development for Cybersecurity

This course covers the theory and practice of software security, focusing on common software security risks including: identification of potential threats and vulnerabilities, methods and tools for identifying and eliminating security vulnerabilities and coding principles to avoid security holes in new software. The course covers essential guidelines for building secure software: how to design software with security in mind from the ground up and to integrate analysis and risk management throughout development.

Prerequisites & Corequisites: Prerequisites: (CS 5710 or CYCS 5710) and (CIS 5710 or CYIS 5710), with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Cybersecurity.

Notes: Open to upper level and graduate students.

Dance

DANC 1000 - First Year Performance

Workshops and experiences related to expanding the student's understanding of dance as an art form and introduction of general skills necessary for a career in dance. Course culminates in performances in the final dances choreographed by DANC 3800 students.

Credits: 2 hours

Restrictions: Restricted to dance majors.

When Offered: Fall

DANC 1010 - Beginning Ballet

Elementary ballet technique for the general student. The emphasis is placed on line, control, alignment and musicality. Students will learn elementary combinations utilizing fundamental classical ballet vocabulary.

Credits: 2 hours

When Offered: Fall, Spring

DANC 1020 - Beginning Jazz

Elementary jazz technique for the general student. Rhythmical integration of isolated movements with emphasis on dynamics, style and performance is stressed.

Credits: 2 hours

When Offered: Fall, Spring

DANC 1030 - Beginning Modern

Elementary modern technique for the general student. The emphasis is placed on body integration, locomotor skills, dynamic variety, and musicality.

Credits: 2 hours

When Offered: Fall, Spring

DANC 1040 - Beginning Tap

Elementary tap technique for the general student, emphasizing the basic terminology as well as an investigation of rhythm and improvisation as audibly produced by the feet. Some turns and stylized arm movements may be included.

Credits: 2 hours

When Offered: Fall

DANC 1100 - Ballet Technique I

An introduction to the art of ballet, designed for dance majors and minors, primarily concerned with development of ballet technique. Emphasis is placed on basic ballet movement sequences and patterns used to develop control, balance, alignment, musicality, strength and vocabulary at the elementary level. Students will continue in DANC 1100 until advanced to DANC 2100 by the instructor.

Prerequisites & Corequisites: Prerequisite: Advisor

approval.

Credits: 2 hours

Notes: The content of this course varies each semester.
Repeatable for credit.

When Offered: Fall, Spring

DANC 1200 - Jazz Technique I

An introduction to the art of jazz dance, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on alignment, movement isolation, rhythmic awareness, basic vocabulary and both percussive and free-flow combinations. Students will continue in DANC 1200 until advanced to DANC 2200 by the instructor.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 2 hours

Notes: The content of this course varies each semester.
Repeatable for credit.

When Offered: Fall, Spring

DANC 1210 - Roots of Jazz

An introduction to the basis for the development of contemporary jazz dance forms through exposure to African dance forms and 20th Century American vernacular dance. Students will explore these forms and their interrelationships to contemporary jazz dance styles through movement explorations, videotapes, historical readings, and discussions. Emphasis will be placed on rhythm, syncopation, movement isolation, and improvisation. Live accompaniment and historic music recordings will be used for classes. Required for dance majors and music theatre performance majors. Recommended for dance minors. Not repeatable for credit.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 2 hours

DANC 1250 - Special Studies in Introductory Dance Technique

A study of areas in introductory dance technique not included in regularly scheduled courses. Examples of

possible topics include: Music Theatre Dance Styles, Dance Technique Skill Building, Men's Ballet, and World Dance Forms.

Credits: 1 to 6 hours

Notes: The content of this course varies each semester.
Repeatable for credit up to 6 hours.

DANC 1300 - Modern Technique I

An introduction to the art of modern dance, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on alignment, range of movement, dynamic quality, rhythmic accuracy and the application of kinesiological principles. Students will continue in DANC 1300 until advanced to DANC 2300 by the instructor.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 2 hours

Notes: The content of this course varies each semester.
Repeatable for credit.

When Offered: Fall, Spring

DANC 1450 - Experiencing Dance

An introduction to the art of dance through historical and multicultural perspectives including direct experiences in the studio and viewing of live and recorded performances. Readings, lectures, videos/films, discussions, writings, and movement classes will be used to introduce the student to: non-Western dance, ballet, modern, jazz, tap and other theatrical dance forms. The course also addresses training in dance, the development of movement vocabulary, and the creative process from literal and metaphorical perspectives. Activities are designed to stimulate the perception and enjoyment of dance on a kinesthetic, musical and visual level. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

When Offered: Fall, Spring

DANC 1800 - The Creative Choreographer

A practical experience focusing on the choreographer's creative process for solo dances. Emphasis will be placed on identifying, selecting and utilizing a variety of source material through use of critical evaluation skills for dance, use of choreographic devices, use of improvisation for generating movement, creating meaning through the use of time, space, energy/force, and weight, and creation of a written personal artistic statement.

Prerequisites & Corequisites: Prerequisite: DANC 1860 with a grade of "C" or better.

Credits: 3 hours

Restrictions: This course is restricted to the following programs: BA in Dance, BFA in Dance and Dance minors.

DANC 1810 - Dance Improvisation

Exploration of movement through spontaneous problem-solving. The course is designed to evoke the student's creative individuality and sense of ensemble.

Credits: 1 hour

When Offered: Spring

DANC 1860 - Music for Dancers

Designed for dance students, this course addresses the interrelatedness of dance and music as applied to performance, choreography and pedagogy. Students will explore musical concepts through lecture, movement improvisation, choreography and written assignments. Embodies rhythmic skills and applied music fundamentals will be emphasized.

Credits: 3 hours

Restrictions: This course is restricted to the following programs: BA Dance (DACJ), BFA Dance (DAFJ), and Dance Minor (DANC).

When Offered: Fall

DANC 1950 - Introduction to Bartenieff Fundamentals(SM)

This course introduces Irmgard Bartenieff's theories of functional movement. Through practice students will explore major Fundamentals concepts such as body connections, sequencing, movement initiation,

mobility/stability and spatial intent. Students will also learn the "Basic Six," a series of movement sequences which are distillations of Bartenieff's theories.

Credits: 1 hour

DANC 1960 - Conditioning for Dancers

An introduction to the principles of physical conditioning with a focus on specific application of the information to individual needs and capacities. The course covers methods of building strength, flexibility and cardiorespiratory endurance as a means of enhancing dance performance, including instruction on equipment such as rotator disks, Therabands, and the Current Concepts Reformer utilizing the Pilates technique.

Prerequisites & Corequisites: Prerequisite: Dance majors and minors.

Credits: 2 hours

DANC 2100 - Ballet Technique II

A development of ballet technique continued from DANC 1100. Emphasis is placed in challenging movement sequences used to increase strength, flexibility, musicality, port de bras and vocabulary at the intermediate level. Students will continue in DANC 2100 until advanced to DANC 3100 by the instructor.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 2 hours

Notes: The content of this course varies each semester. Repeatable for credit.

When Offered: Fall, Spring

DANC 2200 - Jazz Technique II

A development of jazz technique at the intermediate level. Emphasis is on lyrical integration of isolated movements, sequential combinations involving multiple turns, and skills in performance and quick study. Students will continue in DANC 2200 until advanced to DANC 3200 by the instructor.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 2 hours

Notes: The content of this course varies each semester.
Repeatable for credit.

When Offered: Fall, Spring

DANC 2250 - Special Studies in Intermediate Dance Technique

A study of areas in intermediate dance technique not included in regularly scheduled courses. Examples of possible topics include: Jazz Skill Building, Repertory, Intermediate Tap, and Contact Improvisation.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 1 to 6 hours

Notes: The content of this course varies each semester.
Repeatable for credit up to 6 hours.

DANC 2300 - Modern Technique II

A development of modern technique at the intermediate level. Emphasis is on quick study skills and movement which has contrasting dynamic qualities, varying rhythmic patterns and spatial complexity. Students will continue in DANC 2300 until advanced to DANC 3300 by the instructor.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 2 hours

Notes: The content of this course varies each semester.
Repeatable for credit.

When Offered: Fall, Spring

DANC 2450 - Ballet History

A survey of the historical development of ballet. Course content includes: roots in 16th century European peasant and court dance forms; refinement and reform in the 17th and 18th centuries; romantic and classic periods in the 19th century; and trends of the 20th century, including modernism, neo-classicism and the influences of other dance forms.

Credits: 3 hours

Restrictions: Sophomore standing and Dance major/minor only.

When Offered: Spring

DANC 2800 - Choreographing for a New Millennium

A practical experience focusing on the choreographer's creative process for duet and group forms, and the application of technology to choreography. Emphasis will be placed in choreography for/with/of the camera, including commercial work, site specific study, telematic choreography, and other new technologies that may develop.

Prerequisites & Corequisites: Prerequisite: DANC 1800 with a grade of "C" or better.

Credits: 3 hours

Restrictions: This course is restricted to the following programs: BA in Dance, BFA in Dance and Dance minors.

DANC 2900 - Dance in the Elementary School

This course covers the principles, materials, and techniques of teaching creative movement and dance activities to elementary school children as they can be applied in various learning environments. Lecture, observation, and laboratory experiences are provided.

Credits: 3 hours

DANC 2950 - Introduction to Dance Science and Kinesiology

An introduction to the field of dance science for dance majors. Emphasis is placed on anatomical analysis, conditioning principles and injury prevention, with special attention given to application of information to technique class, rehearsal, choreography and individual anomalies.

Credits: 3 hours

Restrictions: Restricted to dance majors and minors.

DANC 2960 - Introduction to Laban Movement Analysis

An overview of the theoretical framework and language for describing movement which was developed by Rudolf von Laban. This course includes the history of the development of Laban Movement Analysis, motif writing, and discussion and practice of the theories of Effort, Space, Shape and their relationship to Bartenieff FundamentalsSM.

Prerequisites & Corequisites: Prerequisite: Sophomore standing required.

Credits: 2 hours

DANC 3100 - Ballet Technique III

Ballet technique for the advanced/pre-professional student. Emphasis is placed on complex and sophisticated movement sequences used to develop strength, flexibility, endurance, artistry and vocabulary at the advanced level.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 2 hours

Notes: The content of this course varies each semester. Repeatable for credit.

When Offered: Fall, Spring

DANC 3200 - Jazz Technique III

Jazz technique at the advanced/pre-professional level with work on quick-study and theatrical skill. Combinations will address a variety of jazz styles and develop the student's own dynamic style.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 2 hours

Notes: The content of this course varies each semester. Repeatable for credit.

When Offered: Fall, Spring

DANC 3250 - Special Studies in Dance Theory

A study of areas of dance theory not included in existing courses. Examples of possible topics include: writing and criticism; costuming; make-up; technology (e.g., audio and video techniques; computer applications for music, lighting design, notation or choreography); and dance for the

exceptional student. May be offered with a visiting instructor or artist-in-residence. Repeatable for credit up to 6 hours.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 1 to 6 hours

DANC 3300 - Modern Technique III

Technique for the advanced/pre-professional student in the modern idiom. Emphasis is placed on the ability to quickly analyze and skillfully reproduce complex movement combinations within the technique. Performance skills are emphasized throughout the course.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 2 hours

Notes: The content of this course varies each semester. Repeatable for credit.

When Offered: Fall, Spring

DANC 3450 - Contemporary Dance History

Critical analysis of dance from 1900 to the present. Aesthetics and philosophies of leading artists are examined in relation to broader social, political, and cultural trends. Students write several short papers and prepare a research paper; examinations focus on essay writing. This course is approved as a writing-intensive course.

Credits: 3 hours

Restrictions: Junior standing and Dance major/minor only.

When Offered: Fall

DANC 3510 - Dancer Wellness

This course explores the principles of wellness concepts specifically for dancers and covers nutrition for optimal energy intake, exercise components and energy expenditure, eating disorders, weight management, the female athlete triad, injury prevention and first aid.

Credits: 3 hours

DANC 3520 - Dance Studio Management

An introduction to the principles of dance studio management through the presentation of business philosophies, practical theories, and strategies crucial to managing a successful dance studio business. Topics may include: entrepreneurship, business entities and creating a business plan, studio location and facility considerations, marketing strategies for growing your business, and record keeping and basic financial statements.

Credits: 3 hours

DANC 3530 - Employee Client Relations

This online education course explores incorporating practical application of theories to assist in the daily interactions with clients and staff including hiring practices and legalities, training staff, payroll and compensation, client retention, and communication with parents.

Credits: 3 hours

DANC 3540 - Recital Preparation/Production

This course is an introduction to the principles of recital preparation and production as it pertains specifically to a dance studio. This course covers organizing, music selection and copy-write issues, costume ordering and inventory, financing your recital for profitability, recital services and production.

Credits: 3 hours

DANC 3550 - Training Theories for Dancers

This course explores the training principles of specificity, overload, recovery, adaptation and reversibility as they apply specifically for dancers studying seriously. The content addresses the subjects of anatomical consideration for dance; appropriate warm up, stretching, flexibility and endurance training; the importance of recovery and restoration; motor learning and progression along with physiological development for point work, developing hip joint flexibility and turn out as well as neuromuscular coordination for balance.

Credits: 3 hours

DANC 3560 - Curriculum Development - Dance

The practical application of theories in dance studio curriculum development for ages 3-adult. Specific attention

will be given to the development of age appropriate movement, physiological skill development, and logical progression of skill acquirement with pragmatic utilization in multiple dance styles.

Credits: 3 hours

DANC 3800 - The Choreographer in the Community

A practical experience focusing on the choreographer's creative process for advanced choreographic work. Emphasis includes writing descriptive statements for thesis and grant proposals for choreographic work, running auditions and rehearsals, developing leadership/collaborative styles and articulating artistic visions. Focus is on complex group forms and devices as well as development and structuring of sophisticated choreographic works.

Prerequisites & Corequisites: Prerequisite: A grade of "C" or better in DANC 2800.

Credits: 3 hours

When Offered: Fall

DANC 3890 - Lighting and Staging for Dance

An introduction to dance production from a lighting and staging viewpoint. Course content includes: stage equipment and terminology; stage management; lighting instruments, distribution, and color, and lighting control. Students will have hands-on experience in producing dance concerts through crew assignments completed outside of class. The culminating assignment for the course is designing and executing lighting for a dance.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 2 hours

When Offered: Spring

DANC 4000 - Practicum

An individual approach to a practical field experience in dance. The student must file an approved application for his/her project with the dance academic advisor prior to registration for the course. Through reading and practice, the student will have an opportunity to explore a topic of

interest in dance.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 1 to 4 hours

Notes: Repeatable for credit up to 4 hours.

When Offered: Fall, Spring

DANC 4100 - Supplemental Ballet Technique

Advanced ballet technique for the upper-level dance major.

Prerequisites & Corequisites: Prerequisites: Dance major or minor with Junior standing and advisor approval.

Credits: 1 hour

Notes: The content of this course varies each semester. Repeatable for credit.

When Offered: Fall, Spring

DANC 4200 - Supplemental Jazz Technique

Advanced jazz technique for the upper-level dance major.

Prerequisites & Corequisites: Prerequisites: Dance major or minor with Junior standing and advisor approval.

Credits: 1 hour

Notes: The content of this course varies each semester. Repeatable for credit.

When Offered: Fall, Spring

DANC 4250 - Advanced Technique

A study of areas in advanced dance technique not included in regularly scheduled courses. Examples of possible topics include: Pointe and Variation, Partnering, Advanced Tap, and Senior Technique. Repeatable for credit up to 6 hours.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 1 to 6 hours

Notes: The content of this course varies each semester. Repeatable for credit up to 6 hours.

DANC 4300 - Supplemental Modern Technique

Advanced modern technique for the upper-level dance major.

Prerequisites & Corequisites: Prerequisites: Dance major or minor with Junior standing and advisor approval.

Credits: 1 hour

Notes: The content of this course varies each semester. Repeatable for credit.

When Offered: Fall, Spring

DANC 4400 - Teaching Dance Technique

This course is designed to develop the skills to teach introductory ballet, jazz and modern dance techniques to children and adults in both academic and private studio environments. Topics will include developing creative teaching skills, methods of class preparation, ways of communicating and correcting, preparing age-appropriate material, choosing music, use of imagery and issues of body image for dance students.

Prerequisites & Corequisites: Prerequisite: Dance major only and Junior standing.

Credits: 2 hours

When Offered: Fall

DANC 4450 - Senior Seminar

An exploration of current trends, literature and developments in dance in a seminar format. Students will discuss, compare and analyze ideas generated by assigned readings.

Prerequisites & Corequisites: Prerequisite: Senior standing.

Credits: 1 hour

Restrictions: Restricted to dance majors.

When Offered: Fall

DANC 4600 - Performance

An experience in guest artist or faculty choreographed dance works, in fully produced projects not encompassed in specific courses. Registration concurrent with semester of performance.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 1 to 6 hours

Notes: The content of this course varies each semester. Repeatable for credit.

When Offered: Fall, Spring

DANC 4610 - Advanced Dance Studies

An advanced experience in the preparation and presentation of dance performance, choreography, teaching, production design, or arts management, including but not limited to participation in student-produced choreography or productions. Each student will complete an original project not encompassed in other courses, which enhances and supports the student's career objectives. The student must file an approved application for their project with the dance academic advisor prior to registration for the course.

Prerequisites & Corequisites: Prerequisite: Sophomore standing.

Credits: 1 to 6 hours

Restrictions: Restricted to majors in Dance: BA Program, Dance: BFA Program, and Dance minors.

Notes: May be repeated for credit.

DANC 4650 - Dance Ensemble

An experience in a performing ensemble which provides one or more of the following: master classes, residencies, lecture-demonstrations, and concerts in various dance styles in the region. Members must show proficiency in performance, improvisation, teaching, and public speaking. Members must concurrently enroll in at least one technique course at the 2000- or 3000- level as specified by the ensemble director.

Prerequisites & Corequisites: Prerequisite: Dance majors and minors only, sophomore standing, and audition.

Credits: 1 to 3 hours

Notes: The content of this course varies each semester.

Repeatable for credit.

When Offered: Fall, Spring

DANC 4700 - Senior Capstone Project

A seminar course in which each student completes a Senior Capstone Project that integrates curricular content with the student's career objectives. Students will meet weekly to discuss and present topics related to the preparation of the Senior Capstone Project. Each student will have his/her project evaluated by the course instructor and another member of the faculty.

Prerequisites & Corequisites: Prerequisites: Senior standing; B.A. dance major.

Credits: 2 hours

When Offered: Spring

DANC 4800 - Graduating Presentation

The preparation and presentation of an advanced choreographic or performance project accompanied by a portfolio and an oral examination. Prior to registration the student must complete an application, select a faculty advisory committee, and secure the faculty committee's approval. Course guidelines are available from the Department and should be reviewed by the student at least one semester prior to enrollment.

Prerequisites & Corequisites: Prerequisite: A grade of "C" or better in DANC 3800 and advisor approval.

Credits: 3 hours

When Offered: Spring

DANC 4850 - Race, Gender, and Dance

The study of race and gender as seen through the lens of dance. Students will critically examine artists, events, and theories that challenge the politics of race and gender through developments in technique, modes of expression, and technology. Studies will focus on events from 1900 to present. Students will synthesize material from videos, readings, lecture, and discussion. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: Sophomore standing.

Credits: 3 hours

DANC 4890 - Dance Management

Course covers front-of-house management and publicity, budget, programming, organization of elements involved in company management, and grantsmanship. Practical application of these principles will be evaluated wherever possible.

Prerequisites & Corequisites: Prerequisite: College of Fine Arts only and Sophomore standing.

Credits: 2 hours

DANC 4950 - Music Theatre Performance Workshop II

Students will perform a variety of roles and styles from a broad spectrum of music theatre repertoire. Scenes will be performed before a public or invited audience. Performers will be directed and evaluated by a faculty team from Dance, Music and Theatre.

Prerequisites & Corequisites: Prerequisite: MUS 2950

Credits: 3 hours

When Offered: Fall

DANC 4960 - Performance in Music Theatre

Students will perform in music theatre productions both on and off WMU campus. Their performance will be evaluated by a team of evaluators, to include at least two WMU faculty/staff and/or two full-time professional staff members of the producing theatre.

Credits: 2 hours

Restrictions: Music Theatre majors (MTFJ) only.

When Offered: Fall, Spring

DANC 4990 - Non-Reading Independent Study in Dance

Advanced undergraduate students with good academic standing may elect to independently pursue the study of some area of dance through the creative process. Topics are

chosen and arrangements are made to suit the needs of each particular student.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 1 to 4 hours

Restrictions: Restricted to Dance Majors only.

Notes: Repeatable for credit up to 4 hours.

When Offered: Fall, Spring

Economics

ECON 1000 - Economics for Elementary Education

This course is designed to provide students with an understanding of fundamental economic concepts that are the building blocks of the fields of microeconomics and macroeconomics. These are necessary for understanding and analyzing problems from an economic perspective.

Credits: 3 hours

Notes: This course cannot be used by Economics majors or minors to satisfy requirements.

When Offered: Spring

ECON 1020 - Economics in Our Daily Lives

This course focuses on the intersection of human decision-making and public policy analysis. Students learn how the economic way of thinking can help us to understand how we make (or struggle to make) decisions that we confront over the course of our daily lives, and how that same style of thinking can help us to understand fundamental public policy issues. This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement Category.

Credits: 3 hours

ECON 2010 - Principles of Microeconomics

This course is an introduction to microeconomics, which is the study of the price system and resource allocation, problems of monopoly, and the role of government in regulating and supplementing the price system. Other topics, such as international economics, economics of the environment, and health economics, may be introduced

time permitting. This course satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category.

Credits: 3 hours

When Offered: Fall, Spring

ECON 2020 - Principles of Macroeconomics

An introduction to macroeconomics, the study of total output and employment, inflation, economic growth, and introduction to international trade and development. This course satisfies WMU Essential Studies Level 1: Foundations - Quantitative Literacy Category. For students who plan to take both ECON 2010 and ECON 2020, it is preferable to take ECON 2010 before taking ECON 2020.

Credits: 3 hours

When Offered: Fall, Spring

ECON 2090 - Introductory Economic Statistics

This course is designed to give an introduction to the statistical methods and techniques used in economics. The course will be beneficial to students in economics, other social sciences, and business. This course is focused on presenting the statistical theory necessary to study economics. Specifically, it will prepare students for ECON 4090 - Econometrics.

Prerequisites & Corequisites: Prerequisites: ECON 2010 and ECON 2020 and MATH 1180.

Credits: 3 hours

When Offered: Fall, Spring

ECON 2190 - Economic Principles of Sustainability, the Environment, and Natural Resources

An introduction to economic thought on problems of the environment, sustainability, and natural resources. This course will examine how economists view environmental issues, potential solutions that influence human behavior, and the institutional challenges that arise during implementation. In this course you will explore problems related to pollution control, global climate change, environmental degradation, fisheries, energy, and

environmental sustainability. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

Restrictions: Not available for majors in Economics.

ECON 3040 - The Organization of Industries

This course examines the various ways in which the organization of industries affects pricing and other business behavior and more generally, competition and resource allocation. The topics covered will include the theory of competitive markets, the theory of monopoly and the theories of oligopoly. The course will address the policy implications of various horizontal and vertical agreements among firms in industries.

Prerequisites & Corequisites: Prerequisite: ECON 2010

Credits: 3 hours

When Offered: Fall, Spring, Summer I or Summer II

ECON 3050 - History of Economic Thought

This course surveys the origins and subsequent development of economic analysis from the ancient Greeks to the present.

Prerequisites & Corequisites: Prerequisites: ECON 2010 and ECON 2020.

Credits: 3 hours

When Offered: Fall every other year

ECON 3090 - The Economics of Gender and Race

This course relies on basic microeconomic theory along with relevant ideas from psychology and sociology to study the role that gender and race play in the economy and includes detailed examination of factors related to labor force status as well as marriage and fertility. Topics include an explanation of the ways that gender and race matter in economics, discrimination, diverging fertility patterns by race, explanations for race differences in wealth accumulation, and the effects of public policies on the economic status of women and race/ethnic minorities. This course satisfies WMU Essential Studies Level 2:

Exploration and Discovery – Societies and Cultures Category.

Prerequisites & Corequisites: Prerequisite: ECON 2010 or ECON 2020.

Credits: 3 hours

When Offered: Fall, Spring

ECON 3100 - Labor Economics

An analysis of the nature and underlying causes of the problems facing the worker in modern economic society. Includes an examination of unions, collective bargaining, labor legislation, wages, unemployment and economic insecurity.

Prerequisites & Corequisites: Prerequisite: ECON 2010.

Credits: 3 hours

When Offered: Fall, Spring

ECON 3150 - Sports Economics

This course examines the economic organization of professional and collegiate sports leagues. It also includes discussion of the characteristics of sports labor markets and the impact of teams and sporting events on local and regional economic development.

Prerequisites & Corequisites: Prerequisite: ECON 2010 with a "C" or better.

Credits: 3 hours

ECON 3180 - The Economics of Medical Care

This course is designed to familiarize the student with the basic economic concepts and some of the challenges facing the field of health economics. It introduces to the student economic tools that are useful in analyzing these problems. Issues include health modeling, medical care and the role of health insurance, lifestyle choice, and health systems and policy. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Prerequisites & Corequisites: Prerequisite: ECON 2010

Credits: 3 hours

ECON 3190 - Environmental Economics

The study of economic aspects of environmental problems. Benefit-cost analysis is introduced and applied to problems in the management of air, water and other natural resources. Environmental problems of selected industries—including transportation and electric power—economic growth, population and environmental quality are analyzed. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: ECON 2010.

Credits: 3 hours

When Offered: Fall, Spring

ECON 3200 - Money and Banking

An analysis of the role of money and its impact on the economy—on inflation, unemployment, interest rates, income, and foreign exchange. The operations and relationships of commercial banks and the Federal Reserve are examined.

Prerequisites & Corequisites: Prerequisites: ECON 2010 and ECON 2020.

Credits: 3 hours

When Offered: Fall, Spring

ECON 3210 - The Economics of Immigration

This course seeks to provide students with background and an understanding of human migrations across the globe. Motives for migration, economic consequences of migration on both sending and receiving economies, the assimilation process of migrants, brain drain, immigration policies, refugees and forced migration will be covered. Competency in gathering and using reliable information on immigration flows will be developed throughout the semester.

Prerequisites & Corequisites: Prerequisites: ECON 2010 or ECON 2020.

Credits: 3 hours

ECON 3240 - Public Finance

Practices, effects, and policy issues in federal government budgeting, spending, taxation, borrowing and debt, with particular attention to individual and corporate income taxation.

Prerequisites & Corequisites: Prerequisite: ECON 2010

Credits: 3 hours

When Offered: Spring

ECON 3390 - Exploring Economic Data

Provides students with competency in the use of economic data. Goals are to learn to obtain, process and use economic data. Using statistical software to unlock the richness in economic data is a key component of this class.

Prerequisites & Corequisites: Prerequisites: ECON 2010 or ECON 2020.

Credits: 3 hours

ECON 3400 - Managerial Economics

An introductory examination of the application of tools of economic analysis to management problems and decision making. The basic concepts include marginalism and cost analysis, demand pricing, capital budgeting, and selected optimality models.

Prerequisites & Corequisites: Prerequisites: ECON 2010 and MATH 1160.

Credits: 3 hours

ECON 3450 - Business, Government, and Society

This course examines the interrelationships among business, government and society. The course attempts to provide insights into how, when and why government policy towards business firms can either benefit or harm society. Topics covered include antitrust policies, economic regulation and social regulation.

Prerequisites & Corequisites: Prerequisite: ECON 2010

Credits: 3 hours

When Offered: Fall, Spring, Summer I or Summer II

ECON 3800 - International Economics

This course covers the interaction of economics through international trade, international finance, and the exchange of labor. Governments are constantly attempting to manage these flows, and this course reviews their successes and failures in doing so. In our increasingly interdependent global economy, citizens can no longer afford to think about matters of the local economy in isolation from the rest of the world. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Prerequisites & Corequisites: Prerequisites: ECON 2010 and ECON 2020.

Credits: 3 hours

When Offered: Fall, Spring

ECON 3840 - Economic Development

A study of the economic problems of developing countries and of policies designed to foster economic development. The course includes discussion of the role of education, capital formation, technology transfer, saving, population growth, innovation, and international trade on the process of economic growth and development.

Prerequisites & Corequisites: Prerequisites: ECON 2010 and ECON 2020.

Credits: 3 hours

ECON 3870 - Studies in Asian Economies

The course concentrates on the study of the Japanese, Chinese, and Indian economic systems. These models are then applied as a basis of comparison to other Asian economies.

Prerequisites & Corequisites: Prerequisite: ECON 2010 or ECON 2020.

Credits: 3 hours

When Offered: Fall, Spring

ECON 3880 - African Economies

This course provides students with an understanding of the crucial role of culture and tradition in shaping the economic

evolution of African nations. It is intended for undergraduate majors and minors in African Studies, Black Americana Studies, Economics, Environmental Studies, international business, and other undergraduate students interested in comparative economic and cross-cultural issues focused on Africa.

Prerequisites & Corequisites: Prerequisite: ECON 2010 or ECON 2020.

Credits: 3 hours

When Offered: Fall, Spring

ECON 3890 - Latin American Economies

An examination of the economic problems and challenges of the Latin American region. Topics covered include structure and performance of the Latin American economies, the industrialization process, economic integration, capital formation, poverty, inequality, diversity and inclusion. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Prerequisites & Corequisites: Prerequisite: ECON 2010 or ECON 2020.

Credits: 3 hours

ECON 4030 - Intermediate Microeconomics

An examination of microeconomic theory, with emphasis on the theory of consumer behavior (the derivation of the demand curve), the theory of the firm and factor pricing.

Prerequisites & Corequisites: Prerequisite: ECON 2010

Credits: 3 hours

When Offered: Fall, Spring

ECON 4031 - Intermediate Microeconomics with Calculus

An examination of microeconomic theory using calculus as an analytical tool. Course emphasizes theory of the consumer (the derivation of the demand curve), the theory of the firm and factor pricing. NOTE: One cannot simultaneously receive credit for both ECON 4031 and ECON 4030.

Prerequisites & Corequisites: Prerequisites: ECON 2010 and MATH 1220.

Credits: 3 hours

ECON 4041 - Organization of Industries with Calculus

This course uses calculus to examine the various ways in which the organization of industries affects pricing and other business behavior and more generally, competition and resource allocation. The topics covered will include the theory of competitive markets, the theory of monopoly, the theories of oligopoly, and horizontal and vertical industry agreements. NOTE: One cannot simultaneously receive credit for both ECON 4041 and ECON 3040.

Prerequisites & Corequisites: Prerequisites: ECON 2010 and MATH 1220.

Credits: 3 hours

ECON 4060 - Intermediate Macroeconomics

An examination of macroeconomic theory with particular emphasis on business cycles, economic growth, and price level instability. The interplay between theory and policy is analyzed.

Prerequisites & Corequisites: Prerequisite: ECON 2020

Credits: 3 hours

When Offered: Fall, Spring

ECON 4090 - Econometrics

Instruction is given on the design and conduct of economic research and the analysis of economic data. Each student designs a research project drawing upon economics courses already taken by the student. In addition to examinations, the student conducts in-depth research, gives an oral report, and submits a written report.

Prerequisites & Corequisites: Prerequisites: Either (ECON 4020 or STAT 2160) and ECON 4030 and ECON 4060.

Credits: 3 hours

When Offered: Spring

ECON 4191 - Economic Policy Analysis with Calculus

Government policies often generate welfare changes (i.e. benefits and costs) to individuals. Assessment of the magnitude of welfare changes - and how they are distributed across all members of society - is important considerations for effective policy design. This course develops a mathematical theory of welfare economics with emphasis on social choice, efficiency, policy design, and welfare measurement. Practical applications in the methodology of welfare analysis - including cost-benefit and non-market valuation - will highlight the theory.

Prerequisites & Corequisites: Prerequisites: (ECON 4030 or ECON 4031) and MATH 1220.

Credits: 3 hours

ECON 4840 - Comparative Economic Systems

The economic institutions and conditions of capitalism, socialism, communism, fascism, and the cooperative movement are critically examined as to ideology and actual operation. This course is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisites: ECON 2010 and ECON 2020, or instructor approval.

Credits: 3 hours

When Offered: Fall every other year

ECON 5040 - Mathematics for Economists

This course presents the mathematical material necessary as background for the topics covered in graduate-level economics courses. Topics covered include differential calculus, optimization, comparative statics, and mathematical programming. These techniques are applied to selected economic problems.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 or more credit hours of economics, including ECON 2010, ECON 2020, and either (MATH 1220 or MATH 1700); or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

ECON 5880 - Economic Development

An analysis of the economic factors affecting economic growth and poverty in low-income countries. Both macro and micro economic topics will be studied, including topics such as growth theory, poverty measurement, evaluation methods, market failures, and governance.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 or more credit hours in economics, including ECON 2010 and ECON 2020, or department approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

ECON 5910 - Guest Economist Seminar

Seminar series on a topic of current interest featuring invited visiting economists. Topics will vary.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 or more credit hours of economics, including ECON 2010 and ECON 2020, or department approval.

Credits: 1 hour

Notes: May be repeated for credit. Open to upper level and graduate students.

When Offered: Fall, Spring

ECON 5920 - Guest Economist Seminar

Seminar series on a topic of current interest featuring invited visiting economists. Topics will vary and courses may be repeated.

Prerequisites & Corequisites: Prerequisites: ECON 2010 and 2020.

Credits: 1 hour

Notes: Open to upper level and graduate students.

Undergraduate students wishing to take 5000-level courses must be of junior or senior standing and have 12 or more credit hours of economics or the consent of the department

chairperson.

When Offered: Fall, Spring

ECON 5980 - Readings in Economics

An independent program of study for qualified advanced students to be arranged in consultation with the instructor.

Prerequisites & Corequisites: Prerequisite: Junior standing and 12 or more credit hours in economics; and department approval.

Credits: 1 to 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall, Spring

Educational Leadership

EDLD 2000 - Exploring Leadership in a Changing World

This course is designed to provide an introductory overview to the concepts of leadership in a changing world, including the essential role of oral and digital communication. The core of any leadership role is the ability to acquire and convey information accurately and effectively. In this course leadership is conceptualized broadly to include: knowledge of relevant theories, inventories, and history; the development of skills that allow individuals to understand themselves, and to work with diverse communities; and the ability to gather and share information effectively in a variety of ways (orally, digitally, and in writing). Finally, students will begin to practice and demonstrate their current leadership capacity in a diverse society, specifically becoming familiar with the Leadership for Social Change Model. Information literacy, as well as oral and digital literacy, are foundational skills for effective leadership and will be explored and used throughout the course. This course satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communications Category.

Credits: 3 hours

Notes: Open to undergraduate students only.

EDLD 2020 - Leadership Skills for Social Change

This course explores various leadership principles and practices through experiential activities and individual and group exercises. Throughout the course, students will reflect on concepts related to Leadership for Social Change studied in EDLD 2000: Exploring Leadership for Changing World. Students will focus on developing strategies for enacting social change leadership skills in a variety of personal and professional contexts.

Prerequisites & Corequisites: Prerequisite: EDLD 2000 or instructor approval; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Notes: Open to undergraduate students only.

EDLD 3020 - Leadership and Advocacy for a Diverse Society

This course will focus on topics of leadership and social change. Course topics will include an examination of the Social Change Model of Leadership Development, and applications of this model to various educational and professional contexts. A service-learning project will be used to bring the Social Change Model of Leadership to life. Strategies for leading diverse teams and issues in social justice leadership will be addressed as well.

Prerequisites & Corequisites: Prerequisite: EDLD 2000 or instructor approval; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Notes: Open to undergraduate students only.

EDLD 4795 - Capstone in Leadership for Social Change

This course provides students a final opportunity to reflect on merging leadership for social change with practice in their academic discipline. To accomplish this, students will complete a field-based social change leadership project, develop an electronic leadership portfolio, and interact with leaders in their chosen field. This final course in the undergraduate minor in Leadership for Social Change focuses on the development of transformational leaders who understand and have the will to provide leadership for social change in their professional contexts in a diverse and ever-changing society.

Prerequisites & Corequisites: Prerequisites: EDLD 2000, EDLD 2020, EDLD 3020; with a grade of "C" or better in all prerequisites; junior or senior standing required.

Credits: 3 hours

Restrictions: Restricted to minors in Leadership for Social Change.

Notes: Open to undergraduate students only.

EDLD 5890 - Special Topics in Higher Education

Various seminars exploring contemporary issues and emerging trends relevant to higher education and student affairs that are not offered in other courses. Topics will be designated by professors offering the seminars. Topics are announced in the Schedule of Course Offerings.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students. This course is not intended to satisfy Program of Study requirements for degree-seeking Education Leadership (EDLD) HESA Masters, Certificate of Educational Leadership Doctoral students unless approved by faculty advisor.

Educational Studies

ES 2000 - Introduction to U.S. Education

This course is designed to explore major issues that have provoked public debate and institutional reform in U.S. education. The purpose of the course is to understand the structures and functions of education through historical, sociological and philosophical perspectives. The course explores the interface between secondary schooling and the social, political, and cultural contexts of education. A major aim of this course is to provide an opportunity for pre-education students to orient themselves to a career in teaching.

Credits: 3 hours

When Offered: Fall, Spring

ES 2800 - Human Flourishing and the Pursuit of Happiness

This course is designed to address the enduring question "What is Human Flourishing?" Drawing from philosophy, literature and the social sciences, we introduce students to conceptions, visions, and conditions of human flourishing, its changing nature across many periods of Western history, its manifold expressions in contemporary life, and its pursuit in the local community. This course is also an invitation to explore one's own biases about what it is to flourish and achieve (or at least pursue) happiness. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category. May be repeated for credit.

Credits: 3 hours

ES 3950 - School and Society

This course focuses on major issues affecting the advancement of American education in a culturally diverse, democratic society. Course content includes inquiry as to how social, historical, political, philosophical, economic, and legal factors influence educational policy and practice. Connections between school and issues of race, class, gender, and the environment are explored. An interdisciplinary approach is used. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: Minimum of 70 earned semester credit hours.

Credits: 3 hours

Restrictions: Restricted to majors in education.

When Offered: Fall, Spring, Summer I

ES 5200 - Education From a Socio-Cultural Perspective

This is a graduate-level introduction to relationships between schooling in the United States and the wider social, political, and economic milieu. It focuses on educational issues in a democratic and culturally diverse society, how educational policies and practices are affected by historical, political, and economic factors, and how schooling affects democratic, social, economic, and political relationships, as well as sustainable human-Earth relationships, with particular attention to economically disadvantaged persons and communities.

Prerequisites & Corequisites: Prerequisite: Admission to

Graduate Certificate program in Secondary Education Initial Teacher Certification.
Corequisites: ED 5310 and ED 5450.

Credits: 3 hours

Restrictions: Restricted to MA in Teaching: Secondary Education and Graduate Certificate program in Secondary Education Initial Teacher Certification.

Notes: Open to graduate students only.

ES 5850 - Social Justice and Community Organizing

This course is a critical examination of the role of social justice and community organizing in education and society. It is informed by philosophical conceptions, literary perspectives, and best pedagogical practices, and is designed for youth development professionals and aspiring educators. This course will enjoin community partners that provide powerful examples of how individuals and organizations can address social inequities and promote human flourishing.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ES 5980 - Queer Theory, Youth, and Education

"Queer" is a contested and contesting term. Some remember hearing the term on the playgrounds and in the hallways of our youth, yelled in derogatory ways at those who didn't quite fit in to normed ways of expressing gender. So, what can queer mean in relation to theory? And what does that mean for education/in educational settings/for youth? These are the central questions of this course. Together, we will investigate queer theory and the experiences of lesbian, gay, bisexual, transgender, and queer people - particularly youth - as addressed in educational settings. We aim to challenge ourselves, to develop and to queer our own theoretical practices, and to consider what queer theory had to offer to our own work.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Educational Technology

EDT 3470 - Technology for Elementary Education

An introduction to the contributions of instructional technology to learning and teaching in elementary education. The course will provide a survey of critical use of technology appropriate for meeting or exceeding the 2008 ISTE National Educational Technology Standards for Teachers along with being based on an educational approach called Project-Based Learning (PBL). In PBL, students learn while working on projects, which are complex tasks that involve challenging questions with elements of design, problem-solving, decision making and/or investigative activities. Defining features of PBL instruction include authentic content, authentic assessment, teacher facilitation but not direction, explicit educational goals, reflection, the incorporation of multiple content areas (math, history, science, literature, etc.) and the development of 21st Century skills, such as teamwork, collaboration, and project management. This course introduces various digital technologies which are incorporated into PBL. May repeat course one time only.

Credits: 3 hours

Restrictions: Restricted to majors in education.

EDT 5030 - Special Topics for Instructional Technology Applications

This course is designed to permit students to update knowledge and skills in current instructional technology and apply this learning for use in instructional programs. Such applications include methods of using computers, and digital technologies, video and audiovisual technologies for a variety of instructional and communication tasks. Participation in the course presumes subject matter knowledge and basic computer literacy on the part of the students. Final course outcomes include application of material to the classroom/workplace. These different instructional technology offerings bring students with specific needs, instructors with unique expertise together for intensive and highly-focused learning experiences.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

EDT 5410 - Foundations of Instructional Technology

This course introduces foundational theories, ideas and history that are critical for the development of expertise in the field of instruction technology. Students will engage with this content in a variety of ways and will be given opportunities to synthesize and apply what they learn in ways that are meaningful and productive for their professional interests. This course also introduces students to a variety of computer-base tools and supports their development of instructional strategies that utilize these tools. Many of the tools presented in this course will be used in the delivery of the course.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Every semester on-line.

EDT 5500 - Digital Photography

Intended to sharpen visual perception while improving technical skills, this workshop course emphasizes the photographic process as a creative and expressive medium of visual communication. Using digital photographic equipment, students are expected to produce new photographic images, edit the images using common computer editing tools, and publish the images using common desktop publishing, desktop presentation, and multimedia software for group critique. Each student will be required to find access to appropriate photographic/multimedia and software.

Credits: 1 to 3 hours

Notes: May be repeated up to a total of six credits. Open to upper level and graduate students.

Electrical and Computer Engineering

ECE 2100 - Circuit Analysis

Analysis of linear electric circuits using methods based on Kirchhoff's laws and network theorems. RL, RC, and RLC transients. Sinusoidal steady state analysis.

Prerequisites & Corequisites: Prerequisites: PHYS 2070 (or taken concurrently) and MATH 1230 or 1710; with a grade of "C" or better in all prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

ECE 2110 - Machines and Electronic Circuits

Introduction to machines and electronics for non-electrical engineering students. Principles of operation, characteristics, ratings, and applications of transformers, alternators, motors, diodes, and transistors. EE and CPE students may not use credit in ECE 2110 toward graduation.

Prerequisites & Corequisites: Prerequisite: ECE 2100.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

ECE 2120 - Electronic Circuits and Systems

DC and AC analysis of linear electric circuits. Simple first and second order transients. Analog signals and instrumentation. Applications of operational amplifiers. The first course in a two-course sequence for non-electrical engineering majors.

Prerequisites & Corequisites: Prerequisites: PHYS 2070 or taken concurrently; MATH 3740.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

ECE 2210 - Electronics I

Junction theory, semiconductor diode and models, bipolar transistors and models, field-effect transistors and models. Semiconductor circuits, biasing, and stabilization. Computer-aided design of single- and two-stage amplifiers. Principles and basic technology of MOS and bipolar digital and linear integrated circuits. Contemporary issues pertaining to ethical and professional responsibility in engineering situations, and effective oral and digital communication techniques. This course satisfies the student learning outcomes in the WMU Essential Studies Level 1: Foundations - Oral and Digital Communications Course Category.

Prerequisites & Corequisites: Prerequisites: ECE 2100 and PHYS 2070; with a grade of "C" or better in all prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

ECE 2500 - Digital Logic

Design of digital logic circuits used in computers and mobile devices such as laptops, smartphones and tablets. Boolean algebra, logic circuit minimization, arithmetic logic, programmable logic, memory circuits and state machine design.

Prerequisites & Corequisites: Prerequisite: MATH 1110 or equivalent; with a grade of "C" or better.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

ECE 2510 - Introduction to Microprocessors

Machine and assembly language programming of small computers. Introduction to microcomputer architecture and interfacing.

Prerequisites & Corequisites: Prerequisites: ECE 2500 and (CS 1110 or CS 1200); with a grade of "C" or better in all prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

ECE 2990 - Cooperative Education

A cooperative education program involves a planned and supervised work experience in an ECE relevant industry during the semester. A job offer letter that includes the job title and a description of job tasks and responsibilities is required to be submitted and reviewed prior to enrollment. In addition, a written report of the student's work activities and an employer COOP survey is required. The report and survey must be submitted to the course coordinator/instructor of record in order to receive course credit.

Prerequisites & Corequisites: Prerequisites: ECE 2510 with a grade of "C" or better and course coordinator/instructor of record approval.

Credits: 1 to 3 hours

Notes: This course is restricted to computer engineering and electrical engineering majors only. It may be repeated up to a maximum of 3 credit hours. Graded on a Credit/No Credit basis.

ECE 3100 - Network Analysis

Classical and transform methods of network analysis, signals and waveforms. Fourier series and Fourier transforms. Frequency response.

Prerequisites & Corequisites: Prerequisites: ECE 2100 and MATH 3740; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

ECE 3120 - Fundamentals of Electronics and Machines

Fundamentals of operation, characteristics, ratings, and applications of electronic and magnetic devices such as diodes, transistors, digital logic devices, transformers and motors. Laboratory provides experience with actual hardware. This is the second in a two-course sequence for non-electrical engineering majors.

Prerequisites & Corequisites: Prerequisite: ECE 2120.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

ECE 3200 - Electronics II

Design, analysis, simulation, and laboratory evaluation of electronic amplifiers, filters, and nonlinear signal shaping circuits composed of transistors, diodes, and integrated circuits. Transient response and steady state frequency response behavior for both small and large signal excitation conditions. Amplifier macro-model description and synthesis is introduced.

Prerequisites & Corequisites: Prerequisites: ECE 2210 and ECE 3100; with a grade of "C" or better in all prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

ECE 3300 - Electrical Machinery

Three-phase analysis. Analysis and design of transformers, electromechanical devices, and machines.

Prerequisites & Corequisites: Prerequisites: ECE 3100 and ECE 3610; with a grade of "C" or better in all prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

ECE 3510 - Engineering of Real Time Systems

Characterizing, modeling, and specifying real time systems. Designing, programming and verifying sequential and concurrent real time systems. Software engineering processes in real time system development. Case studies and project.

Prerequisites & Corequisites: Prerequisites: ECE 2510 and CS 2230; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: This course is restricted to the following majors(s): Computer Engineering and Electrical Engineering.

Lecture Hours - Laboratory Hours: (2 - 3)

ECE 3570 - Introduction to Computer Architecture

This course introduces basic hardware structures and communication between components of a modern computer. It covers the basic concepts of instruction sets, computer arithmetic, processor design, memory system design, and input/output. A major component of the course will be reinforcing the principles presented in the lectures in the laboratory through group laboratory projects, in which each team of students will design and build a computer in real hardware and then run programs on it. One of the main goals of this class is to teach students to think critically about different computer architecture topics.

Prerequisites & Corequisites: Prerequisites: ECE 2510 or CS 2230; with a grade of "C" or better.

Credits: 4 hours

Restrictions: This course is restricted to the following majors(s): Computer Engineering and Electrical

Engineering.

Lecture Hours - Laboratory Hours: (3 - 3)

ECE 3610 - Electromagnetic Fields

Static and time-varying electric and magnetic fields, plane waves, guided waves, transmission lines, radiation and antennas.

Prerequisites & Corequisites: Prerequisites: ECE 2100, MATH 3740, and PHYS 2070; with a grade of "C" or better in all prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (4 - 0)

ECE 3710 - Linear Systems

Study of linear controls systems and their models. This course addresses the classical analysis and design of linear, time-invariant systems including stability and performance using the Laplace and frequency domain techniques for analog systems as well as the design and synthesis of analog and digital controllers.

Prerequisites & Corequisites: Prerequisite: ECE 3100 with a grade of "C" or better.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

ECE 3800 - Probabilistic Methods of Signal and System Analysis

Introduction to probability, random variables, random processes, correlation functions, spectral density, response of linear systems to random inputs, optimum linear systems.

Prerequisites & Corequisites: Prerequisite: ECE 3100 with a grade of "C" or better.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 to 0)

ECE 4200 - Power Electronics

Behavior of power semiconductor devices (such as BJT's, MOSFET's, SCR's, GTO's and IGBT's) in circuits and as switches. Applications of the switches in AC-DC, DC-DC, DC-AC and AC-AC converters. Switch-mode converters for power supplies. DC and AC motor drives, wind and solar inverters, hybrids and utility systems. Magnetic circuits and electro-magnetic interference.

Prerequisites & Corequisites: Prerequisites: ECE 2210 and ECE 3300; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in computer engineering or electrical engineering.

Lecture Hours - Laboratory Hours: (3 - 0)

ECE 4300 - Electrical Power Systems

Transmission lines, network analysis, load flow, system faults, fault calculation, transients, and system stability.

Prerequisites & Corequisites: Prerequisite: ECE 3300 with a grade of "C" or better (or taken concurrently).

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

ECE 4500 - Digital Electronics

The electrical and logic aspects of digital integrated circuits and their applications. Transistor-level design and simulation of digital electronic circuits.

Prerequisites & Corequisites: Prerequisites: ECE 2210, ECE 2500, and ECE 3570; with a grade of "C" or better in all prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

When Offered: Spring

ECE 4510 - Microcontroller Applications

Hardware and software design of real-time embedded microcontroller systems.

Prerequisites & Corequisites: Prerequisites: ECE 2210

and ECE 2510; with a grade of "C" or better in all prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

When Offered: Fall and Summer I

ECE 4525 - Digital Design

Analysis of the real-time behavior of combinational and sequential circuits. Analysis and synthesis of synchronous and asynchronous sequential logic circuits. Systems level design of digital logic circuits using Programmable Logic Devices.

Prerequisites & Corequisites: Prerequisite: ECE 2500 with a grade of "C" or better.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

ECE 4550 - Digital Signal Processing

Introduction to discrete time systems. Z-transforms. Discrete Fourier transforms and Fast Fourier transforms. Design and implementation of digital filters. Statistical methods, optimal filters and error analysis.

Prerequisites & Corequisites: Prerequisite: ECE 3800.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

ECE 4600 - Communication Systems

Introduction to digital and analog communication systems. Design constraints of noise and bandwidth, comparison of various modulation techniques, and statistical methods. Information and channel capacity.

Prerequisites & Corequisites: Prerequisite: ECE 3800.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

ECE 4700 - Feedback Systems

Design principles of linear and non-linear feedback systems in both the frequency and time domain.

Prerequisites & Corequisites: Prerequisite: ECE 3710.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

ECE 4710 - Motion and Control

Analysis and implementation of linear closed-loop motion control systems containing electrical, hydraulic, pneumatic and mechanical components. Analytical and experimental development of models for components and systems.

Prerequisites & Corequisites: Prerequisite: ME 3600 or ECE 3710.

Credits: 3 hours

Cross-Listed: This course is cross-listed with ME 4710. A student may not receive credit for both ECE 4710 and ME 4710.

Lecture Hours - Laboratory Hours: (2 - 3)

ECE 4810 - Electrical/Computer Engineering Design I

First of a two-semester sequence on engineering design in which students work in teams on approved design projects. A preliminary design is expected at the conclusion of this course.

Prerequisites & Corequisites: Prerequisites: IEE 3160 and ECE 2510 and ECE 3710, and either (ECE 3200 or ECE 3300) or (ECE 4525 and ECE 4510); with a grade of "C" or better required in all prerequisites. (ECE 4510 may be taken concurrently.)

Credits: 2 hours

Restrictions: This course is restricted to computer engineering and electrical engineering majors only.

Lecture Hours - Laboratory Hours: (1 - 3)

ECE 4820 - Electrical/Computer Engineering Design II

Senior electrical/computer engineering design project. A continuation of ECE 481. A formal written report and a

formal presentation is required at the end of the semester. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: ECE 4810.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (0 - 6)

ECE 4900 - Independent Research and Development

Individual research or special project in Electrical/Computer Engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 4 hours.

Credits: 1 to 4 hours

ECE 4950 - Topics in Electrical/Computer Engineering

A specialized course dealing with some particular area of electrical/computer engineering not included in other course offerings. May be repeated for credit with a different topic.

Prerequisites & Corequisites: Prerequisite: Consent of department chair.

Credits: 1 to 4 hours

ECE 4980 - Readings in Electrical/Computer Engineering

A course in which advanced students may elect to pursue a program of readings in areas of special interest.

Prerequisites & Corequisites: Prerequisite: Permission of the instructor with whom the student wishes to work and consent of department chair.

Credits: 1 to 4 hours

ECE 5150 - Real-Time Computing

Characterizing, modeling, and specifying real-time systems. Software life cycle. Designing and programming sequential and concurrent real-time systems. Scheduling. Distributed real-time computing. Engineering case studies using C++/Ada.

Credits: 3 hours

Restrictions: This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering only. Senior undergraduates may take this course with departmental approval.

ECE 5200 - Power Electronics

Behavior of power semiconductor devices (such as BJT's, MOSFET's, SCR's, GTO's, and IGBT's) in circuits and as switches. Applications of the switches in AC-DC, DC-DC, DC-AC, and AC-AC converters. Switch-mode converters for power supplies, DC and AC motor drives, wind and solar inverters, hybrids, and utility systems. Magnetic circuits and electro-magnetic interference.

Credits: 3 hours

Restrictions: Restricted to master's or doctoral students in electrical and computing engineering.

Notes: Open to graduate students only.

Lecture Hours - Laboratory Hours: (3 - 0)

ECE 5300 - Electric Power Systems

Three-phase circuits and pre-unit notation. Network analysis, load flow studies, symmetrical system faults, and unbalanced faults using symmetrical components, system stability and transients.

Credits: 3 hours

Restrictions: Restricted to graduate students in electrical or computing engineering.

Notes: Open to graduate students only.

Lecture Hours - Laboratory Hours: (3 - 0)

ECE 5410 - Electronic Instrumentation

Analysis of instrumentation systems including basic instrumentation concepts, dynamic analysis of instruments, transducers, classical analog methods, digital methods and application.

Credits: 3 hours

Restrictions: This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering.

Lecture Hours - Laboratory Hours: (3 - 0)

ECE 5450 - Micro Electro Mechanical Systems

This course introduces students to rapidly emerging, multi-disciplinary, and exciting field of Micro Electro Mechanical Systems (MEMS). It will teach fundamentals of micromachining and microfabrication techniques, including planar thin-film process technologies, photolithographic techniques, deposition and etching techniques, and the other technologies that are central to MEMS fabrication. Skills needed for the design and analysis of devices and systems in mechanical, electrical, fluidic, and thermal energy/signal domains, and will teach basic techniques for multi-domain analysis (e.g., electromechanical, electrothermal). Fundamentals of sensing and transduction mechanisms (i.e. conversion of non-electronic signals to electronic signals), including capacitive and piezoresistive techniques, and design and analysis of micromachined miniature sensors and actuators using these techniques will be covered. Many examples of existing devices and their applications will be reviewed.

Credits: 3 hours

Restrictions: This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.

When Offered: Fall

ECE 5510 - Application Specific Integrated Circuit Design

Design, analysis and implementation of application-specific circuits (ASIC.) Emphasis will be placed on programmable design (including field programmable gate arrays (FPGA) and programmable logic devices (PLD). Semi-custom design will also be discussed and full-custom design will be briefly introduced. Introduction to contemporary CAD systems.

Credits: 3 hours

Restrictions: This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.

ECE 5525 - Digital Design

Analysis of the real-time behavior of combinational and sequential circuits. Analysis and synthesis of synchronous and asynchronous sequential logic circuits. VHDL-based design, simulation and prototyping of digital logic circuits and systems using Field Programmable Gate Arrays (FPGA's) and contemporary Computer-Aided Design (CAD) tools.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ECE 5530 - Microcontroller Applications

This course is intended to give students the ability to specify, design, and test real-time embedded microcontroller systems.

Credits: 3 hours

Restrictions: Restricted to graduate students in electrical or computer engineering.

Notes: Open to graduate students only.

ECE 5540 - Digital Electronics

The electronic and logic aspects of digital integrated circuits and their applications. Transistor-level design and simulation of digital electronic circuits.

Credits: 3 hours

Restrictions: Restricted to graduate students in electrical or computing engineering.

Notes: Open to graduate students only.

ECE 5550 - Digital Signal Processing

Discrete-time signals and systems, time and frequency domain representations. Structures of discrete-time systems and digital filters. DFT and FFT methods of special analysis and estimation. Discrete Hilbert Transforms and

multidimensional signal processing.

Credits: 3 hours

Restrictions: This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.

Lecture Hours - Laboratory Hours: (3 to 0)

ECE 5570 - Design of Reconfigurable Digital Machines

Introduction to hardware design languages. Modeling and simulation using VHDL. Advanced design techniques for digital machines based on Field Programmable Gate Arrays and Complex Programmable Logic Devices. System design with on-line reprogrammable FPGAs.

Credits: 3 hours

Restrictions: This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.

ECE 5580 - Computer Architecture

This course examines fundamental computer system design trade-offs and the state-of-the-art in computer architecture with case studies of current and proposed microprocessor architectures. Students will study datapath pipelining/superpipelining, dynamic instruction scheduling, hyper-threading, improving memory throughout, SIMD parallelism, VLIM/EPIC processors, and multi-core processors.

Prerequisites & Corequisites: Prerequisite: ECE 3570 or graduate student in electrical and computer engineering or instructor's approval.

Credits: 3 hours

Restrictions: Restricted to accelerated master's and graduate students in electrical and computer engineering.

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

ECE 5600 - Time-Varying Fields

Electrodynamics, Maxwell's equations, Boundary value problems and solutions of Helmholtz Equation in different coordinate systems, Green's functions, transmission lines and wave guides. Introduction to perturbational and variational methods.

Credits: 3 hours

Restrictions: This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduate may take this course with department approval.

Lecture Hours - Laboratory Hours: (3 to 0)

ECE 5640 - Communication Systems

Introduction to digital and analog communication systems. Design constraints of noise and bandwidth, comparison of various modulation techniques, and statistical methods. Information and channel capacity.

Credits: 3 hours

Restrictions: Restricted to graduate students in electrical or computer engineering.

Notes: Open to graduate students only.

ECE 5645 - Deep Space Telecom

Examines the methods by which telemetry, command and tracking is done between spacecraft and earth-borne antennas through a systems analysis approach. Topics include antenna design, telemetry formats and communication performance parameters intrinsic to deep space missions. Telecom hardware of several current and past planetary observational platforms are examined and evaluated to help understand the science and engineering objectives of these missions.

Credits: 3 hours

Restrictions: Restricted to major's, master's or doctoral students in computer engineering or electrical engineering.

Notes: Open to upper level and graduate students.

ECE 5705 - Feedback Systems

Design principles of linear and non-linear feedback systems in both the frequency and time domain.

Credits: 3 hours

Restrictions: Restricted to master's or doctoral students in electrical and computer engineering.

Notes: Open to graduate students only.

ECE 5710 - State Space Control Systems

An introduction to the state-space representation of linear system. As such, familiarity with the classical Laplace transform techniques will be assumed but not emphasized. Instead, time-domain analysis of differential equations on linear systems will be performed. This course forms the basis upon which modern electrical engineering is founded.

Credits: 3 hours

Restrictions: Restricted to graduate students in electrical or computing engineering.

Notes: Open to graduate students only.

ECE 5730 - Foundations of Neural Networks

Biological and artificial neural networks from an electrical and computer engineering perspective. Neuron anatomy. Electrical signaling, learning, and memory in biological neural networks. Development of neural network circuit models. Artificial neural systems including multilayer feedforward neural networks, Hopfield networks, and associative memories. Electronic implementations and engineering applications of neural networks.

Credits: 3 hours

Restrictions: This course is restricted to graduate students in either Computer Engineering or Electrical Engineering. Senior undergraduates may take the course with departmental approval.

ECE 5800 - System Modeling and Simulation

This is a first course in the principles of mathematical modeling of stochastic and deterministic systems. It will focus on analytical models, mathematical rigor and computer simulation of problems. Students will simulate a number of systems using appropriate stochastic and deterministic models using a computer.

Credits: 3 hours

Restrictions: This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.

Cross-Listed: This course is cross-listed as ME 5800. A student may not receive credit for both ECE 5800 and ME 5800.

ECE 5820 - Stochastic Systems Analysis

An introduction to probability, random variables, random processes, correlation functions and spectral density, primarily as they apply to signal processing in electrical engineering. Special consideration will be given to the stochastic signals, their corresponding response and the optimization of linear systems.

Credits: 3 hours

Restrictions: Restricted to graduate students in electrical or computing engineering.

Notes: Open to graduate students only.

When Offered: Fall

ECE 5850 - Mechatronics

A course in fundamentals of motion control, primarily as it is applied to robotics. Students will learn the basics of control systems as applied to multi-axis servo systems. Appropriate time will be devoted to develop a sound basis in the electro-mechanical discipline.

Credits: 3 hours

Restrictions: This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.

Cross-Listed: This course is cross-listed with ME 5850. A student may not receive credit for both ECE 5850 and ME 5850.

Lecture Hours - Laboratory Hours: (3 to 0)

ECE 5950 - Introduction to Advanced Topics

To introduce students to advanced topics in electrical/computer engineering not included in other course offerings. May be taken more than once up to six

hours.

Credits: 3 hours

Restrictions: Restricted to graduate students in electrical or computer engineering.

Lecture Hours - Laboratory Hours: (3 to 0)

Employee Assistance

EAP 3180 - EAP Assessment Interviewing

This course focuses on the theories and methods of assessment interviewing for EAP services. Course content addresses client readiness; relationships, rationality and resources and drug training.

Prerequisites & Corequisites: Prerequisite: EAP 2200.

Credits: 3 hours

EAP 4700 - EAP Field Placement I

The placement is a field based learning experience in assuming responsibilities in Work Organization and Human Resource Management and EAP Administration. Through the field placement, the student will actively apply the foundations of their knowledge and skill.

Prerequisites & Corequisites: Prerequisite: Successful completion of all EAP course work.

Credits: 6 hours

EAP 4710 - EAP Field Placement II

This course is a continuation of EAP 470 EAP Field Placement I. The placement is undertaken only after the successful completion of EAP Field Placement I. The placement is a field based learning experience in assuming responsibilities in EAP Direct Services and Substance Abuse and Addictions and Personal Psychology and Problems. Through the field placement the students will actively apply the foundations of their knowledge and skill.

Prerequisites & Corequisites: Prerequisite: EAP 4700.

Credits: 6 hours

Engineering and Applied Sciences College

ENGR 1001 - Introduction to Engineering Design

An introduction to engineering design process and the engineering and engineering technology disciplines. Topics include engineering design process, teamwork, written and oral communications, engineering ethics, and impact of engineering solutions on society.

Credits: 1 hour

When Offered: Fall

ENGR 1002 - Introduction to Engineering Analyses

Introduction to Engineering Analyses and exploration of the career opportunities and demands of the engineering and engineering technology professions. Topics include problem-solving, using computer spreadsheet program for engineering analyses, teamwork, communications, and career opportunities and demands of the engineering and engineering technology professions.

Credits: 1 hour

When Offered: Spring

ENGR 2100 - First-Year CEAS Experience

Designed for first-year CEAS Preparatory students. Focus on students transitioning from high school to college; developing an understanding of the engineering fields and the academic rigor/expectations that will be required of all CEAS students; and in making meaningful, supportive connections with faculty, staff and peers that will result in a strong foundation which leads toward persistence, academic success and graduation.

Credits: 2 hours

ENGR 2980 - Parallel Cooperative Education and Internship

A parallel cooperative education program or internship involves part-time planned and supervised work experience related to a student's major during a semester. A written

report of the student's work activities will be required.

Prerequisites & Corequisites: Prerequisite: Sophomore standing or approval of the academic department.

Credits: 1 - 3 hours

Notes: Graded on a Credit/No Credit basis.

May be elected two semesters.

When Offered: Fall, Spring

ENGR 2990 - Alternating Cooperative Education

An alternating cooperative education program involves full-time planned and supervised work experience related to a student's major during a semester. A written report of the student's work activities will be required.

Prerequisites & Corequisites: Prerequisite: Sophomore standing or approval of the academic department.

Credits: 1 - 3 hours

Notes: Students enrolled in this course will be classified as having full-time student status for the purpose of loan deferments and insurance eligibility. Graded on a Credit/No Credit basis.

May be elected two semesters.

When Offered: Fall, Spring

ENGR 3400 - Engineering Global Practices in Non-Western Countries

This course is designed to help students develop the necessary skills to allow them to interpret and understand non-western cultures and enable them to successfully work in a global industry. Design, business, manufacturing, problem solving, quality control, and supply chain management developed in non-western countries will be observed and studied. Theories, practices, copyright and patent protection, research protocol review boards, political practices, etc., will be examined. Discussions will include alternative views of engineering and modern technology to stimulate reflections on their characteristics from a global perspective.

Prerequisites & Corequisites: Prerequisite: Sophomore standing.

Credits: 3 hours

Notes: Pre-visit orientation will be held to provide introduction to culture and language of the host country.
When Offered: Summer I and II

ENGR 3700 - Engineering Global Practices in Western Countries

This course is designed to help students develop the necessary skills to allow them to interpret and understand other western cultures and enable them to successfully work in a global industry. Design, business, manufacturing, problem solving, quality control, and supply chain management developed in other western countries will be observed and studied. Theories, practices, copyright and patent protection, research protocol review boards, political practices, etc., will be examined. Discussions will include alternative views of engineering and modern technology to stimulate reflections on their characteristics from a global perspective.

Prerequisites & Corequisites: Prerequisite: Sophomore standing.

Credits: 3 hours

Notes: Pre-visit orientation will be held to provide introduction to culture and language of the host country.
When Offered: Summer I and II

ENGR 3980 - Parallel Cooperative Education and Internship

A parallel cooperative education program or internship involves part-time planned and supervised work experience related to a student's major during a semester. A written report of the student's work activities will be required.

Prerequisites & Corequisites: Prerequisite: Junior standing or approval of the academic department.

Credits: 1 to 3 hours

Notes: Graded on a Credit/No Credit basis.
May be elected two semesters.
When Offered: Fall, Spring

ENGR 3990 - Alternating Cooperative Education

An alternating cooperative education program involves full-time planned and supervised work experience related to a student's major during a semester. A written report of

the student's work activities will be required.

Prerequisites & Corequisites: Prerequisite: Junior standing or approval of the academic department.

Credits: 1 to 3 hours

Notes: Students enrolled in this course will be classified as having full-time student status for the purpose of loan deferments and insurance eligibility. Graded on a Credit/No Credit basis.

May be elected two semester.

When Offered: Fall, Spring

ENGR 4950 - Topics in Engineering and Applied Sciences

A specialized course dealing with current topics and issues that cut across the engineering and applied sciences disciplines.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit with different topics. Graded on a C/NC basis.
When Offered: Fall, Spring, Summer

Engineering Design, Manufacturing and Management Systems

EDMM 1220 - Automobile in Society

Applications of principles of Physics, Chemistry, Biology and Technology applied to the automobile. Topics included are: Occupant Protections, Vehicle Control, Physical Strength and Durability of Drivers, Power Production, Global Warming, Power Transmission, Energy Storage and Retrieval, Air Pollution, Use and Re-use of Natural Resources, Choices dealing with Vehicle Selection, Purchase Options, Insurance, Productivity, Maintenance, Societal Consequences and a history of the industry's record of successes and failures.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

EDMM 1420 - Engineering Graphics

Essentials of engineering graphics including technical sketching, CAD applications, applied geometry, orthographic projection, section, dimensioning, tolerancing, threads and fasteners, weldments, detail and assembly drawing, charting and basic elements of descriptive geometry. All work is according to current ANSI drafting standards. Previous technical drawing is recommended.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 1430 - Product Design Fundamentals

An introduction to the professional practice of design. Topics include social and economic motives for designing; evolution of style in mass-produced products; orthographic, isometric, perspective, and model representation. Students will work on simple creative projects involving one to three part objects and will learn basic methodology principles with emphasis on research and problem identification.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

When Offered: Fall

EDMM 1440 - Descriptive Geometry

Applications of analytical graphics in solution of engineering and technical design problems. Study of spatial concepts involving points, lines, planes, and solids.

Prerequisites & Corequisites: Prerequisite: Recommended, EDMM 1420.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 1500 - Introduction to Manufacturing

Analysis and application of a broad range of modern manufacturing techniques utilized in industry. Exploration of production methods as influenced by historical impact, materials, processes, productivity, ethics, and social/environmental concerns. The global challenges to product design, performance, quality, and economic considerations will be investigated. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

EDMM 1501 - Processes and Materials in Manufacturing Laboratory

The purpose of this laboratory course is to use introductory processes and materials found in manufacturing. Major topics include manufacturing principles and organization, principle processes used to make metal, plastic and ceramic parts, design considerations for computer integrated manufacturing, simultaneous engineering.

Prerequisites & Corequisites: Prerequisite: EDMM 1500 (may be taken concurrently).

Credits: 1 hour

Lecture Hours - Laboratory Hours: (0 - 3)

EDMM 2001 - Applied Electricity/Electronics

A hands-on foundation exploring and applying fundamental electrical and electronics theory to practical application in everyday industrial settings. An emphasis on the control of various motion actuators and how to troubleshoot the system.

Prerequisites & Corequisites: Prerequisites: (PHYS 1070 and PHYS 1080) or (PHYS 1150 and PHYS 1160) or (PHYS 2070 and PHYS 2080) with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 2220 - Mobile Energy Sources and Lubricants

Principles of energy sources, conversion from fuel to propulsion energy, and recovery of kinetic energy. Lubrication used in transportation will also be discussed and tested. The course will identify energy development, processing, transport along with specifications and standard testing procedures. The course will include conventional and alternative fuels as well as advanced power production.

Prerequisites & Corequisites: Prerequisite: College writing.

Credits: 3 hours

EDMM 2460 - CAD - Solid Modeling

Encompass Computer-Aided Design (CAD) concepts, hardware/software, approaches, trends, and applications. Focuses on solid modeling techniques using parametric sketched-based software. Coverage of the use of sketching, modeling, assembly and documentation options in two world-leading integrated commercial packages. Emphasis placed on efficient modeling and comparative performance.

Prerequisites & Corequisites: Prerequisite: EDMM 1420, with a grade of "C" or better.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 2500 - Plastics Properties and Processing

Effects of polymer chemistry, additives, plasticizers, fillers, and reinforcements on the properties of plastics. Molding, forming, extrusion, casting, lamination, coating, welding, and decorating of thermoplastic and thermoset materials.

Prerequisites & Corequisites: Prerequisite: Recommended, CHEM 1100/1110.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 2540 - Machining Processes

Introduction of both traditional and non-traditional methods of machining of materials. Relationship of machines, jigs and fixtures, and productive tooling to the machining of discrete components. Introduction to measuring and gauging as it relates to machining practices. Hands on experience with traditional CNC equipment, including production techniques.

Prerequisites & Corequisites: Prerequisite: Recommended, EDMM 1500

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 2560 - Engineering Material Design

Students will gain hands-on experience designing, processing, and evaluating engineered materials used in many real world applications. Topics covered include: fundamental structure-processing-property relations, material characterization, and testing techniques. Laboratories will enable students to learn how materials science may be used in a practical engineering design. This will be accomplished by demonstrating how computational methods are used to design and process metals, polymers, and ceramics.

Prerequisites & Corequisites: Prerequisites: CHEM 1100 and CHEM 1110, with a "C" or better in all prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 2810 - Statics and Strength of Materials

Forces on structures, moments, equilibrium. Stresses and deformation in axially-loaded members, torsion members and beams. Elementary design of structural members.

Prerequisites & Corequisites: Prerequisite: MATH 1220 or MATH 1700 or MATH 2000. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (4 - 0)

EDMM 2830 - Thermodynamics

Fundamentals of thermodynamics, first and second laws for open and closed systems, basics of heat transfer. Laboratory practices on thermodynamic system behavior.

Prerequisites & Corequisites: Prerequisites: (PHYS 1130 or PHYS 2050) and (PHYS 1140 or PHYS 2060); and one of the following: (MATH 1220 or MATH 1700 or MATH 2000). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 2 hours

Lecture Hours - Laboratory Hours: (1 - 3)

EDMM 2990 - Cooperative Education

A cooperative education program involves a full-time planned and supervised work experience in industry during the semester or the equivalent on a part-time basis. A written report of the student's activities will be required. May be elected four semesters for a maximum of twelve semester credit hours. Must be taken on a credit/no credit basis.

Credits: 1 to 3 hours

EDMM 3020 - Engineering Teams: Theory and Practice

Methods of understanding, planning and presenting a conference with oral and written components. Task groups will be used to explore creativity, controversy, power, and process in leadership situations.

Prerequisites & Corequisites: Prerequisite: IEE 1020 or ENGL 1050, with a grade of "C" or better.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

EDMM 3050 - Work Analysis

Methods engineering and measurement of human work systems. Techniques for operation analysis, work measurement, and work sampling. Predetermined basic motion-time systems and standard data development are introduced. NOT FOR ENGINEERING CREDIT.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

EDMM 3120 - Systems Decision Making

Investigating decision-making opportunities while incorporating mathematical models and environmental factors such as time, uncertainty, constraints, and multiple goals. Specific emphasis is placed on analyzing problems using a systems approach. Topics include systems analysis, operations research methodologies, dynamic systems, and the application of a variety of computer tools to aid the decision making process.

Prerequisites & Corequisites: Prerequisite: STAT 2600 or IEE 2610. A grade of "C" or better is required to satisfy

any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

EDMM 3150 - Work Analysis and Design Lab

The purpose of this design course is to use in a laboratory setting introductory principles of work analysis, design and measurement. Major topics include human factors, work design principles, work environment, economic justification, work measurement and the design process. NOT FOR ENGINEERING CREDIT.

Prerequisites & Corequisites: Prerequisite: EDMM 3050 (may be taken concurrently)

Credits: 1 hour

Lecture Hours - Laboratory Hours: (0 - 3)

EDMM 3200 - Engineering Cost Analysis

A course in engineering economics and the economic comparison of alternative technical systems. Includes interest, equivalence, depreciation, taxes, and risk. NOT FOR ENGINEERING CREDIT.

Prerequisites & Corequisites: Prerequisite: MATH 1220 or MATH 1700. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

EDMM 3240 - Automotive Power Systems

The construction, disassembly/reassembly, manufacture, examination of design, simulation, operation, testing of performance and durability serviceability, emissions and recyclability of current and contemporary power plants for automotive and truck use. Emphasis on current designs of SI and CI engines, ASTM tests of fuels, lubricants and coolants as well as evaluation of near-term alternatives such as synthetic diesel and fuel cells. Principles of mechanics, thermodynamics, dynamics and chemical principles as applied to engines and power systems.

Prerequisites & Corequisites: Prerequisite:

Recommended EDMM 1220

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 3250 - Automotive Electrical Systems

The study and simulation of electrical power production, regeneration, storage, use, and control in current and alternative automobiles and trucks. Focus on the wide variety of electronic operational enhancements as they aid vehicle, safety, comfort, with the reduction of emission, fuel consumption, driver effort, and skill. The manufacture of components and systems, interaction with other systems, efficiency, on-board and off-board diagnostics, and life cycle testing.

Prerequisites & Corequisites: Prerequisites: Recommended, EDMM 1220 and EDMM 2001.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 to 3)

EDMM 3260 - Operations Planning and Control

Methods of controlling and coordinating production using production planning, scheduling, inventory control, and dispatching. NOT FOR ENGINEERING CREDIT.

Prerequisites & Corequisites: Prerequisite: STAT 2160 or 2600 or IEE 2610. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 to 0)

EDMM 3280 - Quality Assurance and Control

Techniques of controlling quality in manufacturing systems. Topics include organization of quality, methods of measurement, and basic statistical tools. NOT FOR ENGINEERING CREDIT.

Prerequisites & Corequisites: Prerequisite: STAT 2160 or 2600 or IEE 2610. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 to 0)

EDMM 3440 - Product and Machine Design

Analysis of parts and components under combined loads. Failure criteria, design factors and fatigue considerations. Selection and analysis of mechanical components to meet design requirements for applied motion and force transmission projects. CAD will be utilized to report concepts and products.

Prerequisites & Corequisites: Prerequisites: EDMM 1430 and EDMM 2810. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 3460 - Programming for Computer-Aided Design

Modular software development for interactive CAD. Topics include human interface for interactive design, programming structure for modular entity creation, storing and retrieving object data, utilizing peripheral input and output devices, attribute regulation and control, and software transfer and documentation specifications.

Prerequisites & Corequisites: Prerequisites: EDMM 2460 and (CS 1110 or CS 1023). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 3480 - Designing for Production

Engineering documentation as it relates to the product development and manufacturing methods required to bring a quality product to market. ANSI and ISO standards will be studied to acquaint the students with the documentation necessary to develop assembly and part drawings and to control the changes that will effect the assembled parts. Material specifications and cost studies will be combined with geometric dimensioning and tolerancing to be applied to parts gages and tooling. The use of CAD is a major part of this course.

Prerequisites & Corequisites: Prerequisites: EDMM 1420, EDMM 2540, EDMM 2460, and EDMM 2810. A grade of "C" or better is required to satisfy any course prerequisite.
Corequisite: EDMM 3540

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 3500 - Production Thermoplastic Processing

Injection molding, blow molding, extrusion and thermoforming. Effects of thermoplastic melt characteristics on product design and part quality. Effects of machine design, set-up, and operation on part cost and profitability. Overview of processing machinery including take-off and sizing equipment.

Prerequisites & Corequisites: Prerequisite: EDMM 2500, with a grade of "C" or better.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 3520 - Metal Casting

Principles of pattern design, molding, pouring, and process analysis using a variety of materials and production techniques. Solidification of metals and alloys as a nucleation and grain growth process. Formation of inclusions and other casting defects will be discussed. Theory and practice in metal casting principles using green sand, investment, centrifugal, and lost foam processes.

Prerequisites & Corequisites: Prerequisites: EDMM 2540 and (EDMM 2560 or ME 2500). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 3540 - Metrology

Precision measurement, its relationship to geometric tolerances, critical dimensions, and calibration. Statistical process control and quality assurance using manual and automated gauges, checking fixtures, non-destructive testing, and coordinate measuring systems. Use of vision,

laser, and other non-contact measuring systems.

Prerequisites & Corequisites: Prerequisite: IEE 2610, with a grade of "C" or better. Co-requisite: EDMM 3480

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 3580 - Computer-Aided Manufacturing

Principles of operation of numerically-controlled systems for manufacturing. Application of CAD/CAM systems and graphics N/C in programming.

Prerequisites & Corequisites: Prerequisites: EDMM 2540 and EDMM 2460. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 3840 - Fluid Mechanics and Hydraulics

Fluid properties, fluid statics, fluid dynamics, friction loss and fluid power system. Laboratory practices in hydraulic system behavior and fluid power applications.

Prerequisites & Corequisites: Prerequisites: EDMM 2810 and (PHYS 1130 or PHYS 2050) and (PHYS 1140 or PHYS 2060). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 4020 - Engineering Leadership

The essentials of leading and managing in engineering and technical environments will be presented in this course. Students will learn the fundamentals of planning, organizing, motivation, and coaching with emphasis on skills in managing interpersonal work relationships and becoming a leader in engineering organizations.

Prerequisites & Corequisites: Prerequisite: Junior standing.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

EDMM 4040 - Plant Layout and Material Handling

This course is designed to give students a comprehensive understanding of the issues involved in the design of an industrial production system. It will cover the problems in plant location, product analysis, process design, equipment selection, materials handling, and plant layout. NOT FOR ENGINEERING CREDIT.

Prerequisites & Corequisites: Prerequisites: EDMM 3050, EDMM 3260, and Senior standing. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

EDMM 4120 - Industrial Systems Management

Principles and applications of advanced systems management, including project management, continuous improvement and advanced quality systems. Computer tools to manage systems will be introduced. Philosophies of systems management will be discussed. Students will acquire advanced systems management skills as applied to multiple industries, including manufacturing and service.

Prerequisites & Corequisites: Prerequisite: Recommended, EDMM 3120

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

EDMM 4250 - Automatic and Automated Drive Line Control Systems

The operation, study of design, manufacture of automatic and hybrid transmission/transaxles, including hydrodynamic converter, hydraulics, electronics, torque capacities, and gear systems. Measurements and computations for pumps, motor/generator, controller, valve mechanism, clutch, band, and gear system. Includes a study of bearing application, lubrication, heat dissipation and testing of transmission/transaxle and hybrid systems.

Prerequisites & Corequisites: Prerequisite: Recommended, EDMM 1220

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 4260 - Automotive Structure, Ride, and Safety

Study and simulation of the body, structures, and control systems that allow the operator and occupants to travel in a safe, comfortable environment free of annoying vibration. Associated systems include interiors, environmental control, structural stiffness and crush control features, stopping systems including ABS and Traction Control, and Suspension Systems. Emphasis on the evaluation of design, meeting government performance requirements, manufacture, life cycle testing, diagnosis of faults and adjustments of these systems.

Prerequisites & Corequisites: Prerequisite: Recommended, EDMM 1220

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 4460 - Advanced Computer-Aided Design (CAD)

Parametric development and applications customization on selected commercial Computer-Aided Design (CAD) systems. Investigation of existing graphics packages and advanced software design with special emphasis on surface and solids modeling for design creation, display, and analysis.

Prerequisites & Corequisites: Prerequisites: EDMM 2460

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 4480 - Computer-Aided Analysis

Understanding and application of Computer-Aided Design (CAD) principles for design analysis of conceptual designs. Exposure to and utilization of commercial software packages for computer-based design analysis techniques (e.g., Finite Element Analysis - FEA) and customized design evaluation (e.g., symbolic evaluation). Interaction

with, and among, selected drafting/modeling and design/analysis packages.

Prerequisites & Corequisites: Prerequisites: EDMM 4460 and EDMM 3440 and EDMM 3480 (EDMM 3480 may be taken concurrently).

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 4490 - Advanced Product and Systems Design

This course covers advanced concepts in engineering design and CAD for proper integration of components into final product or system. Techniques and methodologies related to modeling, analysis, prototyping and improvement are presented in lecture and will be integrated with topics for previous courses. Individual and team projects are undertaken in parallel with a final comprehensive design project.

Prerequisites & Corequisites: Prerequisite: EDMM 3440 and EDMM 3480 (EDMM 3480 may be taken concurrently).

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 4520 - Die Casting

A study of the elements of the process and control limits to produce sound castings. An analysis of gating systems will be evaluated with industry computer programs. Alloys will be studied in relation to parts being produced.

Prerequisites & Corequisites: Prerequisite: EDMM 2540 and ME 2500. Recommended EDMM 3520. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 4540 - Fabrication, Assembly and Finishing

Overview of assembly processes including adhesion, cohesion (welding), mechanical fasteners, snap and press

fits, forming and fabricating techniques. Product finishing methods including surface preparation of various substrates, painting, plating, anodizing, printing, and vacuum metalizing. Review of the impact of the assembly and finishing procedures on product quality and reliability.

Prerequisites & Corequisites: Prerequisite: EDMM 2810, with a grade of "C" or better.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 4560 - Process Testing and Measurement

Overview of standardized mechanical and thermal testing procedures used to characterize both base materials and product assemblies. Tensile, compressive, flexural, and impact procedures for destructive testing. Measurement with thermal couples, pressure transducers, motion sensors for measurement of both process and resulting product.

Prerequisites & Corequisites: Prerequisites: EDMM 2810, ME 2500, and (STAT 2600 or IEE 2610). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 4570 - Manufacturing for Sustainability

Examines how manufacturing enterprises can develop cost-effective strategies for products and processes that address current and future needs for sustainability. The course focuses on manufacturing processes, systems, and tool/machinery, including energy, materials, and supply chain and distribution factors as they impact manufacturing.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 0)

EDMM 4580 - Manufacturing Systems Integration

Analysis and synthesis of integrated manufacturing systems. Topics include modeling of manufacturing systems and the role of computers in the control and

integration of manufacturing systems.

Prerequisites & Corequisites: Prerequisites: EDMM 2460; recommended, EDMM 2001 and EDMM 3580. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 4590 - Mold Design and Construction

Mold and die design, processing and part requirements, molded holes and undercuts, threads, tool-making processes, tooling, materials, special fixtures. Mold and die construction using a wide range of cavity production methods. Computer analysis of temperature, pressure, and filling characteristics of a mold.

Prerequisites & Corequisites: Prerequisites: EDMM 2500 and EDMM 2540. A grade of "C" or better is required to satisfy any course prerequisite.

EDMM 4880 - Applied Process Reengineering

Application of analytical and process measurement techniques to process design decisions. Benefits of process standardization and improvement.

Prerequisites & Corequisites: Prerequisites: Senior standing; ISMJ or ISMN or permission of instructor.

Credits: 3 hours

Cross-Listed: This course is cross-listed with MKTG 4880. A student may not receive credit for both EDMM 4880 and MKTG 4880.

Lecture Hours - Laboratory Hours: (3 0 0)

EDMM 4900 - Independent Research and Development

Individual research or special project in engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.

Credits: 1 to 4 hours

EDMM 4910 - Multidisciplinary Senior Proposal

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

EDMM 4870 - Manufacturing Productivity Techniques

The application of modern systems for engineering design and the re-engineering of manufacturing and service operations from the initial product design to delivery of the final product. Emphasis will be on manufacturing systems, principles, practices and procedures to enhance productivity, quality, and customer service in a global business environment.

Prerequisites & Corequisites: Prerequisites: Senior standing; ISMJ or ISMN only.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

Problem definition, project planning and scheduling, follow-up and control techniques. Results in presentation and plan for multidisciplinary senior project. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 0)

EDMM 4920 - Multidisciplinary Senior Project

Open-ended multidisciplinary team projects involving systems design, analysis, or application. Results in a tangible system, written report, and presentation. This course, when completed satisfactorily with EDMM 4910, is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisites: Department approval and "C" or better in EDMM 4910.

Credits: 2 hours

Lecture Hours - Laboratory Hours: (2 - 0)

EDMM 4930 - Multidisciplinary Senior Project Consultation

Supervision of open-ended multidisciplinary team projects involving systems design, analysis, or application. Results in a tangible system, written report, and presentation.

Prerequisites & Corequisites: Prerequisites: Department approval and "C" or better in EDMM 4910.

Credits: 1 hour

Lecture Hours - Laboratory Hours: (0 - 3)

EDMM 4950 - Special Topics in Engineering Technology

A specialized course dealing, each time it is scheduled, with some particular aspect of engineering design, manufacturing or management systems not usually included in other course offerings.

Prerequisites & Corequisites: Prerequisite: Permission of instructor.

Credits: 3 hours

Notes: May be repeated for credit with a different topic.

Lecture Hours - Laboratory Hours: (3 - 0)

EDMM 4980 - Readings in Engineering Technology

Independent readings in engineering design, manufacturing or management systems. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.

Credits: 1 to 6 hours

EDMM 4990 - Studies in Engineering Technology

Independent studies in engineering design, manufacturing or management systems. Open only to students having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.

Credits: 1 to 6 hours

EDMM 5070 - Computer Integrated Manufacturing

Topics related to computer integrated manufacturing. Topics include computer process control, robotics, group technology, CNC, CAD, FMS. Hands-on experience with miniature computer controlled equipment will be included.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

EDMM 5460 - Concurrent Engineering

The synthesis of automated design, analysis, and manufacturing processes through integrated computer systems. Topics in automated graphics, wireframe, surface and solids modeling, boundary element analysis, and manufacturing process generation will be investigated.

Prerequisites & Corequisites: Prerequisite: Recommended, EDMM 2460 or equivalent.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

EDMM 5500 - Advanced Plastics Processing

Review of optimum machine components and systems. Identification of key process variables within injection molding and extrusion systems. Discussion of the causes of process instability. Determination of the process capability within injection molding and extrusion systems.

Prerequisites & Corequisites: Prerequisite: Recommended, EDMM 2500 or equivalent.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

EDMM 5520 - Casting Simulation and Solidification

The process of computer simulation illustrates the way a casting is filled and how the alloy is allowed to cool. By simulating the process conditions to observe 3-D fill and solidification, researchers will be able to predict potential defects in the casting and redesign the process to eliminate the defects, before making actual castings. Activities will compare theory to practice.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (2 - 2)

EDMM 5570 - Topics in Manufacturing

Group study of special topics in manufacturing. The specific topic will be shown in the course title when scheduled.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 3 hours

Notes: May be repeated for credit with a different topic. Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

Engineering Management

EM 5050 - Continuous Improvement in Operations

The purpose of this course is to introduce business and engineering students as well as managers to the process of kaizen (Continuous Improvement) and Total Employee Involvement.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

EM 5080 - Advanced Quality Management

Analysis and application of new concepts in the field of quality control. Tests of significance, probability studies, and other uses of statistics as applied to quality control.

Prerequisites & Corequisites: Prerequisite: Recommended, IEE 2622 or EDMM 3280 or IEE 5010 or

equivalent.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

EM 5120 - Management of Service Operations

An analysis of service industries, exploring differences in planning and controlling operations. Emphasis will be on service system design, service quality, and comparing customer expectations with their perceptions.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

EM 5570 - Topics in Engineering Management

Study of special topics in engineering management. The specific topic will be shown in the course title when scheduled.

Prerequisites & Corequisites: Prerequisite: Departmental approval.

Credits: 3 hours

Notes: May be repeated for credit with a different topic. Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

English

ENGL 1000 - The Writing Process

A writing course designed to introduce students to a variety of genres, including narrative, personal, creative, analytic, and argumentative. Focus is on development and improvement in writing process skills that can be applied in all disciplines including grammar and usage, sentence and paragraph development, and organization/focus. Does not count toward English major or minor. Graded on a Credit/No Credit basis. Credit for the course will not apply to the number of credits needed for graduation.

Prerequisites & Corequisites: Prerequisite: Academic

Skills Center approval.

Credits: 4 hours

ENGL 1040 - Writing Studies Lab

Designed as a companion to specifically-designated ENGL 1050 sections (1050S-Support) for students identified as needing additional college-level writing support. Provides hands-on experience in college-level writing including additional instruction in writing process, research, revision, editing, and other writing-related issues. Required for students placed in ENGL 1050S sections, based on appropriate WMU placement criteria.

Prerequisites & Corequisites: Corequisite: ENGL 1050

Credits: 1 hour

Notes: Graded on a Credit/No Credit basis.

ENGL 1050 - Foundations in Written Communication: Strategies, Behaviors, Success

A foundational writing course offering students practice and guidance in the strategies and behaviors that contribute to success in written communication and information literacy. Emphasis on the production, reception, and revision of writing for varied audiences, situations, and information needs. This course satisfies WMU Essential Studies Level 1: Foundations – Writing Category.

Prerequisites & Corequisites: Prerequisite: Satisfactory ACT English score, or placement essay, or ENGL 1000.

Credits: 3 hours

Restrictions: The following pre-programs are excluded from enrolling: Pre-Engineering and Pre-Aviation Flight Science.

When Offered: Fall, Spring

ENGL 1060 - Writing, Research, and Inquiry

An inquiry-based course offering writing instruction to help you participate in the creation and circulation of disciplinary knowledge. Emphasis on applying theories of rhetoric, argumentation, and genre to situated writing tasks for the purpose of accommodation, awareness, and action.

Prerequisites & Corequisites: Prerequisite: ENGL 1050

Credits: 3 hours

ENGL 1070 - Good Books

An exploration of good literature, selected from all times and countries experienced in a variety of ways - as fantasy and adventure, as imaginative response to fundamental human experience such as death or evil, as social criticism and analysis, as revelation of character and psychology, as experience of unfamiliar customs and cultures.

Credits: 4 hours

Notes: A course for the general student rather than the student who plans to specialize in the study of literature. Credit towards English major or minor by permission of the department only.

When Offered: Fall, Spring

ENGL 1080 - Listening as Inquiry

An introduction to the art of rhetoric that positions listening as a critical and foundational skill complementary to speaking, reading, and writing. Course focuses on listening as a mode of inquiry and engagement during discussion, debate, and deliberation. Course requirements include a community-based rhetorical listening project and a sonic composition crafted for a listening audience. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

ENGL 1100 - Literary Interpretation

An introduction to the study of literature, aimed at developing abilities to read literature and write about it with skill, sensitivity, and care. Students will read poetry, drama, and prose fiction, and through the writing of several papers will be introduced to terms and methods of formal study of literature. Course required for entry into most upper-level English courses. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Prerequisites & Corequisites: Prerequisite: ENGL 1050 or BCM 1420 or BIS 1420 or IEE 1020; with a grade of "C" or better in any prerequisite.

Credits: 4 hours

When Offered: Fall, Spring

ENGL 1120 - Literary Classics

Readings in selected literary masterpieces from Homer to the present. The works studied are chosen to introduce students to the rich and diverse literary traditions which represent an invaluable aspect of their heritage. Recommended for the general student as well as for potential English majors or minors; does not, however, count for English major or minor credit. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

When Offered: Fall

ENGL 2070 - Topics in Literature

Course description varies.

Credits: 4 hours

Notes: May be repeated for credit under different topics.

ENGL 2080 - Literature in Our Lives

This course examines the ways that literary works represent and reflect upon human experience and the human condition. It emphasizes the response of the individual reader to both the intellectual content and the aesthetic properties of texts and seeks to develop critical standards as a basis for a life-long engagement with literature; does not count as credit toward English major or minor. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

ENGL 2100 - Film Interpretation

Studies in the motion picture as art form. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 4 hours

When Offered: Fall, Spring

ENGL 2110 - Folklore and Mythology

Exploration of folklore and mythology from around the world and through the ages using poetry, fiction, film, and other materials.

Credits: 4 hours

When Offered: Fall

ENGL 2220 - Literatures and Cultures of the United States

Through study of literary works (and, when possible, other artistic achievements or cultural artifacts) by members of the varied cultures which comprise the United States of America, this course considers the perspectives and sustaining values of these cultural groups and considers the challenges, problems, and opportunities of a pluralistic American society.

Credits: 4 hours

When Offered: Fall, Spring

ENGL 2230 - African American Literature

A survey of important African American writers and the historical development of the African American image and experience in American literature and culture.

Credits: 4 hours

When Offered: Fall, Spring

ENGL 2520 - Shakespeare

A survey of Shakespeare's art through study of selected tragedies, histories, and comedies. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Prerequisites & Corequisites: Prerequisite: ENGL 1050 or BCM 1420 or BIS 1420 or IEE 1020; with a grade of "C" or better in any prerequisite.

Credits: 4 hours

When Offered: Fall, Spring

ENGL 2660 - Writing Fiction and Poetry

Study and practice in writing of fiction and poetry, intended to develop the student's understanding of formal techniques and skill in the use of these techniques. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 4 hours

When Offered: Fall, Spring

ENGL 2790 - Introduction to English Education

An introduction to the responsibilities, aspirations, and professional knowledge of secondary English language arts teachers.

Credits: 3 hours

ENGL 2810 - Youth Literature and Culture

The course will introduce students to terminology and key ideas of a particular literary and/or visual form within children's literature and youth culture. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

ENGL 2980 - Topics in English Studies

Topics may include literature, film, English language, and writing. Many of these special courses are organized around special events or speakers on campus or in the community, or in response to special needs or interests of students.

Credits: 1 to 4 hours

Notes: May be repeated for credit.

ENGL 3050 - Professional Writing: Audience, Genre, and Workplace Cultures

This course prepares students to produce effective communications in workplaces and organizations, helping them transition from academic to professional writing. Students gain practice with both informational and persuasive genres in print, digital, and visual formats.

Students also gain practice with various methods of intellectual inquiry, including both qualitative and quantitative research methods, with special attention on discovering the needs and expectations of readers in workplace and professional contexts. Inherent in all student projects is consideration of ethics in a writer's rhetorical and methodological decisions. At the center of the course is the vital connection between effective communication and the success of organizations at both the local and national levels. Thus this course interrogates the "Big Question": how can the study and practice of professional communication prepare students for success as they seek careers in the arena of local and national organizations? This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 4 hours

When Offered: Fall, Spring

ENGL 3060 - Rhetoric, Writing, and American Culture

Investigates rhetorical theory and concepts as tools for analyzing consumer, corporate, organizational, and popular culture. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

ENGL 3080 - Quest for Self

Exploration of the perennial quest for the self through the special perspective provided by literature. The literary perspectives may be supplemented by materials from other arts or disciplines. A non-technical course for the general student rather than the student specializing in the study of literature; does not count as credit towards an English major or minor. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Credits: 3 hours

ENGL 3110 - Our Place In Nature

Exploration of the human's place in nature through the special perspective provided by literature. The literary perspectives may be supplemented by materials from other arts or disciplines. A non-technical course for the general

student rather than the student specializing in the study of literature; does not count as credit towards an English major or minor.

Credits: 3 hours

When Offered: Fall

ENGL 3120 - Western World Literature

Study of works selected from the Western literary tradition, excluding those from Great Britain and the U.S.A. Selections may range from biblical literature and great works of Greece and Rome through classics of the Middle Ages and Renaissance to major works of the present. Works will be studied in English.

Credits: 3 hours

When Offered: Fall, Spring

ENGL 3130 - Asian Literature

Study of works selected from the great literature of Asia, especially the Chinese, Japanese, and Indian traditions. Works will be studied in English.

Credits: 3 hours

When Offered: Fall, Spring

ENGL 3140 - African Literature

A topical and/or regional study of African literature which may focus on North Africa, Sub-Saharan Africa, West, East, and/or South Africa. Topics may be historical or contemporary and can include oral tradition, mythology, religious texts, epic, poetry, drama, fiction, autobiography, biography, film, popular culture, essays, and address the development of autochthonous cultures as well as connections between cultural areas and/or contact with the West and other parts of the world. Works will be studied in English. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

When Offered: Fall, Spring

ENGL 3150 - The English Bible as Literature

Study of selections from the Old and New Testaments and the Apocrypha. Some attention will be given to the influence of the English Bible on a few representative writers, musicians, and artists, but emphasis will be on the poetic, philosophical, and narrative elements of the Bible itself.

Credits: 3 hours

When Offered: Fall, Spring

ENGL 3160 - Storytellers

Storytelling is both universal and specific to each society. The course examines storytellers in non-Western societies: how they work in traditional and written genres; how they transform inherited myths and tales into new narratives; and how they serve society by confronting pain and suffering and contextualizing them in art through the power of words. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

ENGL 3170 - Stories of the Other

This course examines the stories of gender, religious, and sexual "minorities" in the non-Western world from a comparative perspective. These people are called others of the "others" in their respective societies. This course brings their voices to the classroom. Their stories put a spotlight on universally vital concerns that may include the issues of migrants and LGBTQ individuals in parts of the third world, such as in Turkey, Kenya, Azerbaijan, and Uganda. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

ENGL 3200 - American Literature I

A survey of American literature from its beginnings to 1880, with attention to the diversity of American cultures.

Prerequisites & Corequisites: Prerequisites: ENGL 1100

Credits: 3 hours

When Offered: Fall, Spring

ENGL 3210 - American Literature II

A survey of American literature since 1880, with attention to the diversity of American cultures.

Prerequisites & Corequisites: Prerequisites: ENGL 1100

Credits: 3 hours

When Offered: Fall, Spring

ENGL 3300 - British Literature I

A survey of British literature from its beginnings through Boswell.

Prerequisites & Corequisites: Prerequisites: ENGL 1100

Credits: 3 hours

When Offered: Fall, Spring

ENGL 3310 - British Literature II

A survey of British literature from the Romantics to the present.

Prerequisites & Corequisites: Prerequisites: ENGL 1100

Credits: 3 hours

When Offered: Fall, Spring

ENGL 3620 - Readings in Creative Non-Fiction

A course in literary analysis of the form and development of the non-fiction prose. This course is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisites: (ENGL 1050 or BCM 1420 or BIS 1420 or IEE 1020) and ENGL 1100.

Credits: 3 hours

ENGL 3660 - Advanced Fiction Writing

An advanced course in the writing of fiction, with emphasis on class discussion and criticism of each student's writing.

Prerequisites & Corequisites: Prerequisite: ENGL 2660

or department approval.

Credits: 3 hours

Notes: May be repeated one time for credit.

When Offered: Fall, Spring

ENGL 3670 - Advanced Poetry Writing

An advanced course in the writing of poetry, with emphasis on class discussion and criticism of each student's writing.

Prerequisites & Corequisites: Prerequisite: ENGL 2660 or department approval.

Credits: 3 hours

Notes: May be repeated one time for credit.

When Offered: Fall, Spring

ENGL 3680 - Playwriting

An introductory course in the writing of drama, with class discussion and criticism of each student's writing, and including study of selected examples of drama in print and in production.

Prerequisites & Corequisites: Prerequisite: Com 2410 or ENGL 1100 or ENGL 2660 or THEA 1410 or department approval. A grade of "C" or better is required for all prerequisites.

Credits: 3 hours

Notes: May be repeated one time for credit.

When Offered: Fall, Spring

ENGL 3690 - Writing in the Elementary School

Focuses on writing development of kindergarten through sixth grade children. Preservice teachers will learn ways to implement best practices, respond to student writing, assess writing growth, use writing as a means of learning, and build a motivating and engaging culture of writing in their classrooms. This course fosters a theoretical understanding of the writing process and requisite skills in part by writing in varied genres and forms and emphasizes writing as an integral component in all content areas.

Credits: 3 hours

Restrictions: Restricted to education students.

When Offered: Fall, Spring

ENGL 3700 - Writing Creative Non-Fiction

An introductory course in the writing of creative non-fiction, with class discussion and criticism of each student's writing, and including study of selected examples of creative non-fiction in print.

Prerequisites & Corequisites: Prerequisites: ENGL 2660 or ENGL 3050 or JRN 1000 or instructor approval. A grade of "C" or better is required for all prerequisites.

Credits: 3 hours

Notes: May be repeated one time for credit.

When Offered: Fall, Spring

ENGL 3710 - Structures of Modern English

Examines the structures of the English language and surveys major grammatical theories. Emphasizes syntactic analysis of oral and written English to develop an understanding of the diversity of forms, meanings, and stylistic choices available in the language.

Credits: 4 hours

When Offered: Fall, Spring

ENGL 3720 - Development of Modern English

Traces the development of modern English from its beginnings to the present, examining historic and linguistic influences on change in both spoken and written English. Explores theories of language development, with emphasis on their practical implications.

Credits: 4 hours

When Offered: Fall, Spring

ENGL 3740 - Language in the Elementary School

This course will deal with the following topics: the history and structure of words, dialects, and interlanguage (i.e., lingua franca, a common language used by speakers of

different languages) as cultural phenomena; teaching reading and writing in light of language variations; aspects of grammar most useful to writers; research on teaching grammar; and integrating language study into the elementary curriculum.

Prerequisites & Corequisites: Prerequisite: ENGL 3690

Credits: 3 hours

When Offered: Fall, Spring

ENGL 3770 - Language and Learning in Multilingual Classrooms

This course deals with second language acquisition, both oral and written, as a foundation for understanding how the learning of English can be fostered by elementary classroom teachers when content, language, and literacy are taught and learned together. The course emphasizes strategies for teaching students with limited English proficiency while immersing them in literacy-rich classrooms with an integrative inquiry approach to learning.

Prerequisites & Corequisites: Prerequisite: ENGL 2790 or ENGL 3690.

Credits: 3 hours

When Offered: Fall, Spring

ENGL 3820 - Literature for the Young Child

An exploration of human and literary values in the best of children's works for the very young through age nine. Emphasis is on critical sensitivity and techniques necessary for interpreting and evaluating works representative of the major forms of children's literature. Discussion will focus on how literature is first learned through adult-child interaction and how interaction creates changes that are influenced by time period and culture as well as the personal dynamics inherent in the oral tradition. Visual reading through picture books will be examined as well as the evaluation of good picture book literature. Developmental issues related to a child's reading capability and narrative skills will be considered through an examination of transitional reader (chapter books) and novels. Poetry, both in its oral form and its written form, will be considered as will be mythology and folklore: its versions, variants, and adaptations (both in book and film form). This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures

Category.

Prerequisites & Corequisites: Prerequisite: Sophomore standing.

Credits: 4 hours

When Offered: Fall, Spring, Summer I

ENGL 3830 - Literature for the Intermediate Reader

An exploration of human and literary values in the best of children's works for preadolescents. Emphasis is on critical sensitivity and techniques necessary for interpreting and evaluating works representative of the major forms of children's literature for the older reader. Discussion will focus on narrative forms and on how the more experienced reader comes to prose and poetry. Novels will be explored both in terms of literary structure and content and in terms of what makes a piece of literature work for children.

Genres such as historical fiction, realistic fiction, nonfiction, fantasy, and survival literature will be considered. Ever growing complexity in structure and content will be evaluated as they relate to child's biological, psychological, and mental development, and in the context of cultural and historical change. How media influence literature will be explored as well as the changing population of child-readers and what that means for book production.

Prerequisites & Corequisites: Prerequisite: ENGL 1100

Credits: 4 hours

When Offered: Fall, Spring

ENGL 3840 - Adolescent Literature

This course focuses on an analysis of literature for adolescents from a variety of critical and culturally diverse perspectives. It emphasizes the adolescent experience as reflected in literature, the history of adolescent literature and media, and the distinguishing features of classical and contemporary works.

Prerequisites & Corequisites: Prerequisite: ENGL 1100

Credits: 3 hours

When Offered: Fall, Spring

ENGL 4060 - Topics in Textual Production

Advanced writing course emphasizing the study and production of specialized genres and media, with attention to the impact of technology on composing, designing, and publishing expository texts. Course may feature such topics as web authoring, multimedia writing, composing for print-based publication, editing and style, or proposal/grant writing.

Prerequisites & Corequisites: Prerequisite: ENGL 3050 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors and minors in English.

Notes: May be repeated for credit under different topics.

ENGL 4080 - Topics in Rhetoric and Writing

This writing intensive course examines contributions from scholars working in various sub-fields and specializations in the field of rhetoric and writing studies, with emphasis on the relationship of compositions and/or rhetorical discourse to critical thinking.

Prerequisites & Corequisites: Prerequisite: ENGL 3050

Credits: 3 hours

Restrictions: Restricted to majors and minors in English.

Notes: May be repeated for credit under different topics.

ENGL 4090 - Writing in the Sciences

A course designed for science majors and others interested in science communication. The course is focused on how arguments are constructed and how knowledge is formed in the sciences. Students will learn to analyze historical and current examples of scientific argumentation to inform their own writing and research. A significant component of the course will be dedicated to accommodating scientific information for non-expert audiences, and learning the stylistic and argumentative changes that occur with accommodation. The major projects in this class will revolve around students' research interests, including possible projects from coursework in the sciences. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: Junior

standing.

Credits: 3 hours

ENGL 4100 - Special Topics in Literature

A study in historical perspective of selected literary works of the English speaking world or international literature in translation.

Prerequisites & Corequisites: Prerequisite: ENGL 1100

Credits: 4 hours

Notes: May be repeated for credit as long as the topics are different.

ENGL 4120 - Climate Change and Culture

This course brings together critical theory, tools from the humanities and social sciences, and the literary imagination to consider the ethics and politics of climate change, to examine representations of climate change in fictive, documentary, and scientific discourses, and to understand efforts to address climate change and its social and cultural dimensions. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Prerequisites & Corequisites: Prerequisite: Junior standing or instructor approval.

Credits: 3 hours

Cross-Listed: Cross-listed with ENVS 4120.

ENGL 4150 - Literary Theory and Criticism

An introduction to the theory and methods of literary criticism. Readings may be drawn from the history of critical theory or from modern and contemporary schools of criticism. Strongly recommended for all English majors, especially those planning to pursue graduate study.

Prerequisites & Corequisites: Prerequisites: At least two upper-division English courses.

Credits: 4 hours

ENGL 4160 - Women in Literature

A course focusing on women protagonists and writers through an international perspective that explores how

gender intersects with race, class, sexuality, history, and culture. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 4 hours

ENGL 4400 - Studies in Verse

A historical and formal study of poetry, emphasizing the development of poetic techniques, major verse forms and styles, and their relation to theories of poetry. Attention shall be paid to the critical and theoretical bases of interpretation.

Prerequisites & Corequisites: Prerequisites: Two courses at the 3000-level that count toward English major.

Credits: 4 hours

ENGL 4420 - Studies in Drama

Studies in the major styles and forms of drama. Attention shall be paid to the critical and theoretical bases of interpretation.

Prerequisites & Corequisites: Prerequisites: Two courses that count toward the English major at the 3000-level.

Credits: 4 hours

ENGL 4440 - Studies in the Novel

The study of the development and diversity of the novel as a literary form. Emphasis will be on the novel from the eighteenth- to the early twentieth-century. Attention shall be paid to the critical and theoretical bases of interpretation.

Prerequisites & Corequisites: Prerequisites: Two courses that count toward the English major at the 3000-level.

Credits: 4 hours

When Offered: Fall, Spring

ENGL 4520 - Shakespeare Seminar

Intensive study of selected aspects of Shakespeare's poetic and dramatic art.

Prerequisites & Corequisites: Prerequisite: ENGL 1100 or ENGL 2520.

Credits: 4 hours

ENGL 4720 - Language Variation in American English

A study of regional and social varieties of American English from sociolinguistic perspectives, focusing on the forces which influence different types of language variation. Examines issues of linguistic bias, and offers a multi-cultural perspective on the role of language in daily life.

Credits: 4 hours

ENGL 4790 - Writing in the Secondary School

Focuses on the continued development of student writers in grades 7 to 12, and on ways one can encourage and respond to student writing, assess writing growth, and use writing as a means of learning. Fosters a theoretical understanding of the writing process, in part by writing in varied genres and forms. Emphasizes writing as an integral component of the entire curriculum.

Prerequisites & Corequisites: Prerequisites: ENGL 2790 with a grade of "C" or better and two 3000-level English courses that count toward the major.

Credits: 4 hours

When Offered: Fall, Spring

ENGL 4800 - Teaching Literature in the Secondary Schools

A study of techniques and theories of teaching literature to young adults. Does not count as credit toward the major.

Prerequisites & Corequisites: Prerequisites: ED 4060 and two 3000-level English courses that count toward the major.

Credits: 4 hours

When Offered: Fall, Spring

ENGL 4970 - Studies in English: Variable Topics

ENGL 4810 - Teaching English Language Arts in the Secondary School

A study of the key theories, methods, and curricular approaches for teaching English language arts. This includes teaching writing, literature, and reading in the middle and secondary school.

Prerequisites & Corequisites: Prerequisite: ENGL 2790 or equivalent; with a grade of "C" or better.

Credits: 4 hours

ENGL 4840 - Culture in Children's Literature

A course designed to develop an understanding of the cultural diversity of the childhood experience through multi-cultural oral and written literature for young people. Attention will be paid to developing criteria for selecting and evaluating literature which reflects an emphasis on diversity and inclusion. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisites: 6 hours of course work in English.

Credits: 3 hours

ENGL 4950 - Internship/Field Work

Open to juniors and seniors with a 3.0 GPA, this course enables advanced students to gain practical writing experience in the working world while earning academic credit. Specific arrangements are made in consultation with the Director of Undergraduate Studies.

Prerequisites & Corequisites: Prerequisite: Writing majors or minors.

Credits: 1 to 4 hours

Notes: May be repeated; no more than four hours total credits.

Group study of special topics in literature, film, English language, and writing. Many of these special courses are organized around special events or speakers on campus or in the community, or in response to special needs or interests of students. Some topics are announced in the

schedule of classes; some are added during the semester. Further information and full listing of topics may be obtained from the English Department, sixth floor Sprau Tower.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit.

ENGL 5110 - Studies in Linguistics

A course focusing on concepts and theories in linguistics, language, storytelling, and orality. Possible foci include World Englishes; Language, Gender, and Culture; Michigan Languages, and Language Acquisition. Topics change with each offering.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses (with a grade of "C" or better), including eight or more hours at the 3000- 4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ENGL 5220 - Studies in American Literature

Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ENGL 5300 - Medieval Literature

Readings in the medieval literary tradition. Some Middle English works will be studied in the original; works in Old English and continental literature will be mainly in

translation.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

ENGL 5320 - English Renaissance Literature

Readings in representative writers of the period 1500-1660.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ENGL 5340 - Restoration and 18th-Century Literature

British Literature 1660-1800. Readings in representative writers of the period, focusing on the diversity of literary forms in the period.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ENGL 5360 - Romantic Literature

Readings in poetry and criticism, with emphasis on such writers as Blake, Burns, Dorothy Wordsworth, William Wordsworth, Coleridge, Scott, Byron, Mary Shelley, P.B. Shelley, and Keats.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ENGL 5370 - Victorian Literature

Readings emphasizing such writers as Carlyle, Mill, Dickens, Thackeray, George Eliot, Tennyson, Robert Browning, Elizabeth Barrett Browning, and Arnold.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ENGL 5380 - Modern Literature

Readings in representative writers in the period 1890-1945, not exclusively in British and American literature.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ENGL 5390 - Post-colonial Literature

Readings in representative writers from colonial and post-colonial cultures.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ENGL 5400 - Contemporary Literature

Readings in representative writers who have come to prominence chiefly since 1945.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ENGL 5550 - Studies in Major Writers

Study of the works of classical, European, British or American writers. Limited to one or two authors.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: May be repeated for credit as long as the authors covered are different. Open to upper level and graduate students.

ENGL 5660 - Creative Writing Workshop - Fiction

A workshop and conference course in the writing of fiction, with emphasis on refinement of the individual student's style and skills.

Prerequisites & Corequisites: Prerequisites: ENGL 3660 or department approval.

Credits: 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ENGL 5670 - Creative Writing Workshop - Poetry

A workshop and conference course in the writing of poetry, with emphasis on refinement of the individual student's style and skills.

Prerequisites & Corequisites: Prerequisites: ENGL 3670 or department approval.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ENGL 5680 - Creative Writing Workshop - Playwriting

A workshop and conference course in playwriting, with emphasis on refinement of the individual student's style and skills.

Prerequisites & Corequisites: Prerequisites: ENGL 3680 or department approval.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ENGL 5700 - Creative Writing Workshop - Creative Non-fiction

A workshop and conference course in the writing of creative non-fiction, with emphasis on refinement of the individual student's style and skills.

Prerequisites & Corequisites: Prerequisites: ENGL 3700 or department approval.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

ENGL 5740 - Grammar in Teaching Writing

Dealing with issues and methods in the teaching of grammar, this course for teachers focuses on using grammar to develop content, style and voice, and skill in revising and editing writing.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 4 hours

Notes: Open to upper level and graduate students.

ENGL 5750 - Icelandic Sagas in Translation

Readings in medieval Icelandic literature. This class provides students an opportunity to explore medieval Iceland through its rich mythology, literature, and culture. No previous coursework required in either Old Norse/Icelandic or medieval literature.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ENGL 5760 - Introduction to Old Norse

An introduction to the fundamentals of Old Norse grammar and language. By translating prose and poetry, students will develop an appreciation of the literature and culture of medieval Iceland as well as a reading knowledge of Old Norse.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall - every other year

ENGL 5770 - Advanced Readings in Old Norse

A review of the fundamentals of Old Norse grammar and language learned in ENGL 5760 by focusing on longer selections from sagas and poems. This class will further students' knowledge of the language and the literature through discussion of them.

Prerequisites & Corequisites: Prerequisite: ENGL 5760

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Spring - every other year

ENGL 5820 - Studies in Children's Literature

A study in depth of significant themes, movements, types in children's literature. Prerequisite: ENGL 3820 or 3830 or permission of the department.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level (which must include ENGL 3820 or ENGL 3830), and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ENGL 5830 - Multicultural Adolescent Literature

Critical analyses of literature read by young adults, with special attention paid to American and world literatures that reflect the diversity of the increasingly global community.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses with a grade of "C" or better, including eight or more hours at the 3000- 4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ENGL 5970 - Studies in English: Variable Topics

Group study of special topics in literature, film, English language, and writing. Many of these special courses are organized around special events or speakers on campus or in the community, or in response to special needs or interests of students. Some topics are announced in the schedule of classes; some are added during the semester. Further information and full listing of topics may be obtained from the English Department, sixth floor Sprau Tower.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 1 to 3 hours

Notes: Open to upper level and graduate students.

ENGL 5980 - Readings in English

Individual reading project available to advanced students by special permission from the appropriate departmental advisor (undergraduate or graduate) and the staff member who will supervise the study. Normally, permission is granted only to students who have well thought-out projects dealing with authors or materials not being covered currently in the schedule. Permission is usually not granted to students who want to use the course simply to get one or

two hours credit to complete an English major or minor.

Prerequisites & Corequisites: Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Environmental Studies

ENVS 1000 - Climate Challenges and Solutions

This course promotes general awareness and literacy on the broad range of societal challenges that climate change presents, the role of human behavior in both the creation of and solutions to these challenges, and the prospects for fundamental societal transition in values, economics and political institutions necessary to meet these challenges. This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement Category.

Credits: 3 hours

ENVS 1050 - Perspectives on Sustainability

This course offers an interdisciplinary exploration of sustainability with both its promises and paradoxes. Starting with a foundation in the modern concept of sustainability and its historic origins, the course examines sustainability at a variety of scales and contexts through the lenses of economics, physical and life science, global commodity chains, land use and planning, climate change, demography, social justice, and a variety of biotic and abiotic systems. Explorations may include natural resource extraction and protection, sustainable business models, infrastructure management and maintenance, the role of education, health care, housing, transportation, and other topics. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

ENVS 2050 - Nature, Society, and Sustainability

Designed for majors and minors in the program, this course is an interdisciplinary survey of environmental and sustainability topics that introduces students to key problems, ideas, and people. Students will examine our changing relationships to the nonhuman world, our evolving knowledge of those changes, and diverse approaches to environmental and sustainability challenges. The course is reading and writing intensive, and also includes a required weekend field experience.

Credits: 4 hours

ENVS 2150 - Environmental Systems and Cycles

This course presents an overview of the fundamental physical, biological, and geochemical processes governing the movement of energy and matter in the environment, and the constraints imposed by these natural systems on human activities. Topics include the properties and use of energy resources, synthetic chemical and their biological effects, the chemistry of natural and polluted water, food production and population, acid rain, ozone depletion, and global climate change.

Prerequisites & Corequisites: Prerequisites: (ENVS 2050 or ENVS 3000) and (CHEM 1000 or CHEM 1100 or GEOS 1000 or GEOS 1300).

Credits: 3 hours

ENVS 2250 - Environmental Ecology

This course focuses upon the study of living systems of various sizes and degrees of complexity. Emphasis is on how individual organisms, natural populations, biotic communities, and ecosystems vary, how they are interconnected, and how human activities influence the complex interrelationships within and among them.

Prerequisites & Corequisites: Prerequisite: BIOS 1120 or BIOS 1600 or BIOS 1500 or BIOS 1610 or BIOS 1510 or BIOS 1620; with a grade of "C" or better in any prerequisite.

Credits: 3 hours

ENVS 2260 - Field Environmental Ecology

An introduction to the major natural ecosystems of southwest Michigan, and modern ecological methods used in their study. Exercises and activities will be conducted

largely in the field, primarily at the Pierce Cedar Creek Institute. Course content will complement lecture material presented in ENVS 2250.

Prerequisites & Corequisites: Prerequisite: ENVS 2250 (may be taken concurrently); or program advisor approval.

Credits: 1 hour

ENVS 3000 - Introduction to Sustainability: A Local to Global Survey

This course examines the modern concept of sustainability; its historical roots, theories and debates, emerging principles and practices, and moral visions for the future. From household to global scales, students will analyze interrelated questions of ecological resilience, social justice, technological change, and alternative economic paradigms. Case studies will include core sustainability challenges such as energy, water, food systems, endangered species, land use, and population. The class will require community-based field experience during the semester.

Credits: 3 hours

ENVS 3150 - Sustainable Brewing

This course is part of the Sustainable Brewing major, allowing students to take experiential courses related to the business, science, and practice of Craft Brewing. Consult a program advisor for additional details.

Prerequisites & Corequisites: Prerequisite: Departmental approval.

Credits: 1 to 30 hours

Notes: May be repeated for credit.

ENVS 3200 - Major Environmental Writings

This course uses selected readings of classical works in the environmental field, together with current works of significant import, to introduce students to the wisdom and the variety of voices speaking on behalf of the environment and environmentally responsible courses of human action.

Prerequisites & Corequisites: Prerequisites: (ENVS 2050 or ENVS 3000) and (ENVS 2150 or GEOS 2320 or ENVS 2250 or BIOS 3010).

Credits: 3 hours

ENVS 3300 - Climate Change and the Literary Arts

This course explores human responses to the climate change crisis through the special perspective provided by literary studies. We will investigate the ways in which the stories we tell and the words we choose inform the ways we imagine, think, and communicate about, as well as mitigate and adapt to the consequences of a warming planet.

Credits: 3 hours

ENVS 3400 - Environmental Policy

This course explores why environmental policy is necessary and how environmental policy has been made, is being made, and might in the future be made in the United States. The emphasis is on environmental policy and regulation at the national level, but regional, state, and local approaches/initiatives will also be considered. In addition to considering the policy process (the how), we will also review the state of environmental policy (legislation and effectiveness) and explore the policy evaluation process (the tools and techniques policy makers use to make better decisions - cost-benefit analysis, risk analysis, and environmental impact assessment). A substantial part of the course will also be devoted to considering emerging alternatives that are based on the principles of sustainability and the challenges involved in institutionalizing them.

Prerequisites & Corequisites: Prerequisites: (ENVS 2050 or ENVS 3000) and (ENVS 2150 or GEOS 2320 or ENVS 2250 or BIOS 3010).

Credits: 4 hours

Cross-Listed: Cross-listed with PSCI 3060. A student may not receive credit for both ENVS 3400 and PSCI 3060.

ENVS 3600 - Environment and Culture

A global cross-cultural exploration of human-environment interactions. This course will examine a variety of different technological/economic systems ranging from small-scale foraging and horticultural societies to large-scale, complex and stratified societies. Special themes each semester will address different environmental problems and how they have been solved - or not - historically and contemporarily. Such themes might address: the origins and contemporary dimensions of the population debate, the role of "values" in sustainable societies, or controversies between indigenous

peoples and environmentalists.

Prerequisites & Corequisites: Prerequisites: (ENVS 2050 or ENVS 3000) and (ENVS 2150 or GEOS 2320 or ENVS 2250 or BIOS 3010).

Credits: 3 hours

ENVS 3700 - Race, Climate, and the Environment

This course provides an interdisciplinary introduction to the study of race and climate. It explores how climate shaped human population evolution, how modern "races" have experienced the impacts of recent climate change in uneven ways, and what might be done to heighten understanding of the future consequences on vulnerable populations of projected climate changes.

Prerequisites & Corequisites: Prerequisites: (ENVS 1000, ENVS 2150 or GEOS 1200) or instructor approval.

Credits: 3 hours

ENVS 4010 - Selected Environmental Topics

A rotating series of environmental topics covering areas as broadly, such as environmental management, ecological design, applied environmental history, and environmental landscape and restoration. Topic to be announced on Course Offerings through GoWMU. This course may be repeated for credit with a second topic.

Prerequisites & Corequisites: Prerequisites: ENVS 2150, ENVS 3200, ENVS 3400, ENVS 3600 and either (ENVS 2250 or BIOS 3010); or instructor approval.

Credits: 3 hours

ENVS 4020 - Selected Topics in Freshwater Humanities

This course is an intensive study of humanities approaches to knowing, managing, and conserving freshwater resources at community, regional, and global levels. Topics might include (but are not limited to): water in literature and the arts; water justice and pollution; indigenous activism in water protection; water history and the maritime Great Lakes; water ethics and theory in an era of scarcity; community studies in a freshwater context. Topic to be announced in the Schedule of Classes.

Prerequisites & Corequisites: Prerequisites: ENVS 2150, ENVS 3200, ENVS 3400, and either (ENVS 2250 or BIOS 3010); or instructor approval. A grade of "C" or better is required for all prerequisites.

Credits: 3 hours

Notes: This course may be repeated for credit with a second topic.

ENVS 4100 - Appropriate Technologies and Sustainability

In the light of the debates on sustainability, the course analyzes how technologies and technological systems have interacted with and influenced social change in both industrial countries and the Third World. Criteria for assessing the appropriateness and sustainability of various technologies and technological systems in different settings will be discussed and mini-assessments will be conducted.

Prerequisites & Corequisites: Prerequisites: ENVS 2050 or ENVS 3000.

Credits: 3 hours

ENVS 4110 - Climate Change and Society

This course analyzes the social structural causes of global warming, the human consequences of the climate crisis, the social and cultural factors that shape how society understands climate change and the proposed social and political responses to these global threats. The course also explores climate change denial and other social and ideological conflicts that are rife in many of these areas of concern.

Prerequisites & Corequisites: Prerequisite: Junior standing, or instructor approval.

Credits: 3 hours

Cross-Listed: Cross-listed with SOC 4110. A student may not receive credit for both ENVS 4110 and SOC 4110.

ENVS 4120 - Climate Change and Cultural Studies

This course brings together critical theory and tools from the humanities and social sciences to consider the ethics and politics of climate change, to examine representations of climate change in fictive, documentary, and scientific

discourses, and to understand efforts to address climate change as a social movement.

Prerequisites & Corequisites: Prerequisite: Junior standing or instructor approval.

Credits: 3 hours

Notes: Students may not receive credit for both ENVS 4120 and ENGL 4120.

Cross-Listed: Cross-listed with ENGL 4120. Students may not receive credit for both ENVS 4120 and ENGL 4120.

ENVS 4150 - Environmental Law

Surveys the major federal statutes and regulatory schemes relating to environmental quality; analyzes and compares the contrasting approaches to regulation with focus on the interaction of Congress, the regulatory agencies, and the courts in defining and implementing environmental mandates.

Prerequisites & Corequisites: Prerequisite: ENVS 3400

Credits: 3 hours

Cross-Listed: Cross-listed with PSCI 4240. A student may not receive credit for both ENVS 4150 and PSCI 4240.

When Offered: Fall

ENVS 4160 - Worlds of Waste and Recycling

This course offers a broad overview of the contemporary global recycling system. With roots in the 19th rise of industrialization, consumer culture, and urban sanitation, our current system relies on fixed infrastructure around the industrial world, as well as the free flows of global commodities, including natural resources and waste products. Embedded into that system is the persistence of intense (and dirty) manual labor across the globe to glean usable materials from other peoples' discards. This course explores what it would take to make recycling cost-effective, fair to all engaged in its processes, and more environmentally friendly. In essence the course explores the true sustainable potential of recycling. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Prerequisites & Corequisites: Prerequisite: Junior standing.

Credits: 3 hours

ENVS 4200 - Internship

The environmental internship gives students the opportunity to gain practical experience in a particular area of environmental activity, and to work with professionals. Students will gain "hands on" knowledge and add an important non-academic dimension to their resumes.

Prerequisites & Corequisites: Prerequisite: Approval of a program advisor.

Credits: 1 to 3 hours

ENVS 4300 - Environmental Projects

This course is designed for students who wish to carry on advanced interdisciplinary work in Environmental Studies under the direction of a faculty member. Work will be geared to a single project in which there is outside investigation, research, and/or workshop experience. Students selecting this course will work on projects especially designed for their programs. They will be asked to identify a problem, outline an investigatory approach, and consider paths to solving the problem.

Prerequisites & Corequisites: Prerequisites: Approval of instructor and a program advisor.

Credits: 1 to 4 hours

ENVS 4370 - Eco-Justice

This course explores the emergence of eco-justice movements and how environmental burdens and benefits are socially distributed. It considers topics such as the concept of eco-justice, origins and achievements of eco-justice movements, and distribution of burdens/benefits related to class, race and ethnicity, gender, and geography. It uses case studies to explore real-world instances of eco-justice centered on food, waste, health, climate, and migration, and connections between local, national, and global justice issues. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

ENVS 4499 - Sustainable Brewing Capstone

This course is designed to serve as the culminating experience for majors in the Sustainable Brewing major. Incorporating the classroom-based and experiential aspects

of the curriculum, each student will work individually with a designated faculty member on a semester-long project. Projects will address an issue, challenge, or problem potentially drawn from the external advisory board of industry leaders in sustainable brewing.

Prerequisites & Corequisites: Prerequisites: Junior standing, approval of the instructor of record, and a project approval form signed by the student, instructor of record, and the supervising faculty members.

Credits: 3 hours

ENVS 4500 - Senior Seminar in Environmental Studies

A team-taught, integrated capstone experience involving a semester-long environmental problem-solving/planning simulation. Students will be evaluated in terms of their ability to function individually and with their colleagues in a simulated professional work environment. As the capstone course, this should normally be the last course taken from the program.

Prerequisites & Corequisites: Prerequisite: ENVS 2150, ENVS 3200, ENVS 3400, ENVS 3600, and (BIOS 3010 or ENVS 2250/ENVS 2260); or instructor approval.

Credits: 3 hours

ENVS 5400 - Freshwater Policy

This course explores the structure and dynamics of the major policies and politics governing management of freshwater resources. Emphasis is on understanding how underlying social valuation systems of economics, ethics and legal theory shape policy choices and evaluating the role of freshwater policies in achieving sustainable solutions.

Prerequisites & Corequisites: Prerequisites: (ENVS 3400 or PSCI 3060) and ECON 3190, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Evaluation, Measurement and Research

EMR 5400 - Fundamentals of Evaluation, Measurement, and Research

This course is designed to develop skills in the fundamentals of research design and the uses and interpretations of research findings. Each student is expected to prepare a review of literature and a design for a research study.

Credits: 3 hours

Notes: Open to upper level and graduate students.

EMR 5410 - Introduction to Educational Measurement and Assessment

This course provides the student with an examination of the basic concepts, principles, and tools used in the construction and use of educational tests, for the evaluation of classroom learning outcomes. Many aspects of testing will be presented: including writing and using educational objectives; constructing tests; evaluating the psychometric properties of a test reliability and validity; interpretation of test scores norms, scales, and grades; and some of the current controversies in testing. Class discussions will additionally include standardized testing in the areas such as achievement, intelligence, and specific aptitudes, and general teacher teaching evaluation.

Prerequisites & Corequisites: Prerequisite: EMR 5400 with a grade of "B" or better, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Family and Consumer Sciences

FCS 1000 - Career Seminar

Orientation to special career opportunities in various majors, featuring guest speakers. Specific sections per area of interest.

Credits: 1 to 2 hours

When Offered: Fall (for Dietetic and Family Studies), Spring (for Family Studies), Summer I

FCS 1010 - Introduction to Family Science

Introduces the field of family science and explores career options in child and youth development, family studies, and family life education. Ethical standards and professional behaviors are emphasized.

Credits: 3 hours

FCS 1020 - Introduction to the Food Service Industry

The purpose of this course is to learn about the variety of professions available within the food service industry. Exploration of career paths available to the student will be facilitated, setting the stage for the direction of the Food Service Operations and Sustainability program. Includes focused discussion on sustainability and corporate responsibility in the local/domestic/global marketplace.

Credits: 2 hours

FCS 1030 - Lifespan Development

Development of individuals and families, and their reciprocal relationships examined within a framework of life-span developmental tasks (physical, cognitive, language, social, emotional). This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement Category.

Credits: 3 hours

FCS 1240 - Apparel Construction I

Basic construction techniques for apparel products. Addresses how to handle fabrics prior to sewing, and skills commonly used in the construction of clothing. Test available for those desiring placement in upper level courses.

Credits: 3 hours

Restrictions: Restricted to majors in Fashion Merchandising and Design: Design and Development, Family and Consumer Science Teacher Education, and Pre-Family and Consumer Science Teacher Education.

When Offered: Fall, Spring

FCS 1260 - The Fashion Industry

An introduction to the manufacturing and merchandising of apparel. This course includes the business, environment,

movement, and market centers of fashion. An emphasis on designers, specialty fashion retailers, trends and auxiliary services is explored.

Credits: 3 hours

When Offered: Fall, Spring

FCS 1490 - Design Communication I: Mechanical and Digital Drafting

Introduction to the tools and techniques to enable the student to read, compose, and create architectural drawings related to interior design and construction.

Credits: 3 hours

Restrictions: This course is restricted to majors or minors in Interior Design and Industrial Tech.

When Offered: Fall

FCS 1500 - Introduction to Interior Design

Basic study of the elements and principles of design and an introduction to the design process.

Prerequisites & Corequisites: Corequisite: FCS 1490

Credits: 3 hours

Restrictions: This course is restricted to majors or minors in Interior Design.

When Offered: Fall

FCS 1550 - Design Principles

Introduction to basic principles and elements of design and color fundamentals, with application particularly in the fields of fashion and textiles.

Credits: 3 hours

Restrictions: Restricted to majors and minors in Fashion Merchandising and Design.

When Offered: Fall, Spring

FCS 1560 - Psychology and Philosophy of the Built Environment

Students get an overview of design history and how movements in art, architecture and industrial design have influenced the articulation of interior space. An introduction to scientifically based understanding of environmental psychology will be covered.

Credits: 3 hours

Restrictions: This course is restricted to majors or minors in Interior Design.

When Offered: Spring

FCS 1570 - Design Communication II: Sketching (Freehand and Digital)

Development of drawing skills pertinent to interior designers by exploring freehand, mechanical, and digital perspective drawing methods of presentation. Two and three dimensional graphic presentation techniques are introduced.

Prerequisites & Corequisites: Prerequisite: FCS 1490 and FCS 1500.

Credits: 3 hours

Restrictions: This course is restricted to majors or minors in Interior Design.

When Offered: Spring

FCS 1590 - Design Communication III: Graphic Representation

Introduction to graphic composition as a communication tool for presenting design ideas and concepts. Digital software platforms are introduced and explored in conjunction with architectural drawings and imagery.

Prerequisites & Corequisites: Prerequisites: FCS 1490 and FCS 1500.

Corequisite: FCS 1570

Credits: 3 hours

Restrictions: Restricted to majors/minors in Interior Design.

FCS 1650 - Culinary Skills

Teach basic cooking skills with emphasis on modern trends and techniques for home as well as foodservice operations. Basic food sanitation principles, menu planning, use of kitchen tools/equipment, measurement techniques, serving size and yield information, recipe costing, planning and evaluating food budgets. Basic techniques of food preparation and service are covered emphasizing competency development in culinary skills.

Credits: 3 hours

Restrictions: Restricted to majors in Nutrition and Dietetics, Family and Consumer Sciences, Food Service Operations and Sustainability, and Pre-Education.

When Offered: Fall (for Nutrition and Dietetics and Family Studies), Spring (for Family Studies), Summer I

FCS 2020 - Field Experience

On-the-job experience under supervision of department with cooperating organizations. Written assignments, documentation of hours and performance appraisal required.

Prerequisites & Corequisites: Prerequisite: Department approval required.

Credits: 1 to 3 hours

Restrictions: Restricted to family and consumer sciences majors only.

Notes: May be repeated for credit. Graded on a credit/no credit basis.

When Offered: Fall, Spring, Summer I, Summer II

FCS 2050 - Topics in Family and Consumer Sciences

Individual topics in five/ten/fifteen week formats, ranging in 1 to 3 hours of credit. Student may elect up to 6 hours of credit if topics vary. Topics to be announced.

Credits: 1 to 3 hours

When Offered: Fall, Spring

FCS 2090 - Family Resource Management

A study of the decisions individuals and families make about developing and allocating resources, with emphasis

on money, time, and energy management. Includes an overview of decision-making, goal setting, and planning to achieve goals.

Credits: 3 hours

When Offered: Fall, Spring

FCS 2100 - Human Sexuality

A study of the bio-psychosocial factors of human sexuality, emphasizing an understanding of sexuality as a social construction. Topics include: reproduction and birth, family planning, and contraception; sexually transmitted infections; sexual responses and dysfunction; emotional and physical intimacy; the range of sexual values and behaviors; and legal, ethical, and public policy implications related to human sexuality.

Credits: 3 hours

When Offered: Fall, Spring

FCS 2140 - Child Development

A study of the development of children (including prenatal, infancy, early and middle childhood) and their families, and the adjustments required to meet children's changing physical, cognitive, and psychosocial needs. Hands-on experience (20 to 26 hours arranged) with children in a structured environment is required.

Credits: 3 hours

When Offered: Fall

FCS 2150 - Adolescent Development

A study of the development of adolescents, their families, and adjustments required to meet their changing physical, cognitive, and psychosocial needs. Special emphasis is placed on identity, social, moral, and sexual development of adolescents.

Credits: 3 hours

When Offered: Spring

FCS 2170 - Diverse Children, Families, and Communities

This course examines gender, ethnic, and cultural variations in children and families and their communities. Students will focus on the historical and social forces that helped to establish relations of dominance and subordination between groups in our society, examine how their own culture has shaped their perceptions and values, and explore best practices for effective human service work in our diverse society. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

FCS 2190 - Principles of Research in Family Science

This course introduces principles of scientific inquiry in social science including understanding and evaluating research, methods used in the pursuit of research, ethical considerations and dilemmas, and skill development in reviewing and writing about scholarly material.

Prerequisites & Corequisites: Prerequisite: FCS 1010

Credits: 3 hours

FCS 2200 - Textiles

Basic textile course emphasizing fibers, yarns, fabric constructions, dyes and printing, and finishes. These five components are studied for their contribution to the characteristics and performance of a textile fabric, and its use and care.

Credits: 3 hours

Restrictions: Restricted to majors and minors in Fashion Merchandising and Design, or majors in Interior Design.

When Offered: Fall, Spring

FCS 2220 - Fashion Design Studio I

A study of the drafting techniques employed in the flat pattern method for designing clothing.

Prerequisites & Corequisites: Prerequisite: FCS 1240 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Fashion

Merchandising and Design: Design and Development.

When Offered: Spring

FCS 2240 - Apparel Construction II

Continuation of basic construction techniques for apparel products, including skills, pattern alteration and fitting. Emphasis on self-directed individual projects with more difficult fabrics and construction techniques. May be repeated once.

Prerequisites & Corequisites: Prerequisite: FCS 1240 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Fashion Merchandising and Design: Design and Development.

When Offered: Spring

FCS 2250 - Computer Applications

Students in this course will explore word processing programs, spreadsheets, databases, and e-mail application. Additionally, students will refine their presentation skills, analyze and present data, and participate in emerging forms of oral and digital communication such as podcasting and video conferencing. Credit cannot be earned for both FCS 2250 and either CIS 1020, CIS 1100, SOC 1820, PEPR 1490, or CS 1000. This course satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communications Category.

Credits: 3 hours

When Offered: Fall, Spring, Summer I

FCS 2260 - Fashion/Retail Buying

Fundamentals of merchandising mathematics, its relationship to buying, and use in the fashion/retail industry. Includes elements of profit and loss statements, purchase discounts, dating, markup, markdown, turnover, and open-to-buy. Also includes sources of buying information, and responsibilities of buyers in various types of firms.

Prerequisites & Corequisites: Prerequisite: Completion of a college-level mathematics or quantitative reasoning course (MATH 1100 or STAT 1600), with a minimum

grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors and minors in Fashion Merchandising and Design.

When Offered: Spring

FCS 2300 - Computer Aided Design for Fashion

Introduction to the use of CAD software as applied to preproduction tasks in manufacturing of textile and apparel products.

Credits: 3 hours

Restrictions: Restricted to majors in Fashion Merchandising and Design.

When Offered: Fall

FCS 2400 - Woodworking

Identification of selected wood species and man-made composites. Basic principles of wood product design are introduced. Aesthetic and ergonomic criteria will be emphasized. Selection of materials, basic processes and tools, introduction to machining and selection and application of finishing materials is taught. Preparation of Industrial Design documentation is required, i.e. 3D, orthographic and working drawings of the product and its parts.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

FCS 2420 - Design History of the Built Environment

A global view of vernacular traditions and design movements that have shaped this built environment. Emphasis is placed on cultural events that have informed period architecture and interior design, with additional discussion of political, religious, economic and popular movements that have had a significant influence on design history.

Prerequisites & Corequisites: Prerequisites: FCS 1560 and FCS 1570 and FCS 1590.

Corequisites: FCS 2590 and FCS 2500.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Interior Design.

FCS 2440 - Interior Materials

An examination of all interior materials through instructor lectures, guest speaker presentations and hands on student lab assignments. This course introduces students to material options. Students analyze both soft and hard materials in regards to quality, performance, and maintenance for residential and commercial applications. Special attention is devoted to understanding and making sustainable material selections.

Prerequisites & Corequisites: Prerequisites: FCS 2200 and FCS 2590.

Credits: 3 hours

Restrictions: Restricted to majors in Pre-Interior Design and Interior Design.

FCS 2480 - Studio I: Space Planning

Detailed examination of the design process with a concentration in residential and commercial space planning and 3 dimensional spatial development. Digital and hand presentation techniques are explored.

Prerequisites & Corequisites: Prerequisites: FCS 1560 and FCS 1570.

Corequisite: FCS 2420

Credits: 3 hours

Restrictions: Restricted to majors and minors in Interior Design.

FCS 2490 - Studio II: Residential Design

An introduction to residential interiors. The course begins with an analysis of precedents in residential architecture. This approach will expand the understanding of analysis as a design tool. Student projects will focus on individual, multi-family/multi-generational family structures.

Prerequisites & Corequisites: Prerequisites: FCS 2420, FCS 2500, and either (FCS 2480 or FCS 2590).

Corequisites: FCS 2440 and FCS 3530.

Credits: 3 hours

Restrictions: This course is restricted to majors or minors in Interior Design.

When Offered: Fall

FCS 2500 - Design Communication IV: Digital Design

Computer applications for interior design communication which includes two and three dimensional modeling.

Prerequisites & Corequisites: Prerequisites: FCS 1560, FCS 1570, FCS 1590, and CIS 1020.
Corequisites: FCS 2480 and FCS 2420.

Credits: 3 hours

When Offered: Spring

FCS 2510 - Period Interiors I

Influences and characteristics in period decoration and furniture of historical interiors and exteriors from antiquity up to English Victorian.

Credits: 3 hours

Restrictions: This course is restricted to majors or minors in Interior Design.

When Offered: Fall

FCS 2520 - Period Interiors II

Influences and characteristics in period decoration and furniture of historical interiors and exteriors from Early American through contemporary.

Credits: 3 hours

When Offered: Spring

FCS 2530 - Fashion Illustration

Introduction to concepts, techniques and uses of various drawing techniques and media that facilitate the communication of ideas in the fashion industry. Focus on drawing live models and rendering of fabric, color and

texture.

Prerequisites & Corequisites: Prerequisite: FCS 1550

Credits: 3 hours

Restrictions: Restricted to majors in Fashion Merchandising and Design.

FCS 2540 - Materials for Interiors: Hard Finishes

A study of products and finishing materials for the interior environment which considers basic materials, manufacturing processes and the generic characteristics of goods specified by the interior designer.

Prerequisites & Corequisites: Prerequisites: FCS 1490, FCS 1500, and FCS 1570.

Credits: 3 hours

Restrictions: Restricted to majors in Interior Design and Pre-Interior Design.

When Offered: Fall

FCS 2560 - Materials for Interiors: Soft Finishes

Evaluation and analysis of carpets, drapery and upholstery fabrics, carpet and wall coverings products with regard to quality, selection, performance, and maintenance for residential and commercial application. Special attention devoted to material estimating and installation.

Prerequisites & Corequisites: Prerequisites: FCS 1490, FCS 1570, and FCS 2200.

Credits: 3 hours

Restrictions: Restricted to Pre-Interior Design majors only.

When Offered: Fall

FCS 2590 - Studio I

Creation of artistic interiors with appropriate materials, space planning, preparation of graphic documentation, renderings and purchasing data for completing the design process.

Prerequisites & Corequisites: Prerequisite: FCS 2490

Credits: 3 hours

When Offered: Spring

FCS 2600 - Nutrition

A study of the functions and sources of nutrients and their role in health; topics include digestion, absorption and metabolism of nutrients; energy balance and weight maintenance; eating disorders; nutrition and chronic disease prevention.

Prerequisites & Corequisites: Prerequisites: Either (CHEM 1120/1130 or CHEM 1510/1520) and BIOS 2400 with a grade of "C" or better in all prerequisites.

Credits: 3 hours

When Offered: Fall, Spring, Summer I, Summer II

FCS 2660 - Personal Nutrition

A study of the effect of personal nutrition on overall health. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Credits: 3 hours

Restrictions: This course is not recommended for Dietetics majors.

When Offered: Fall, Spring, Summer I, Summer II

FCS 2700 - Advanced Culinary Skills and Food Service

This course covers the concepts involved in the production of common food items prepared in food service operations. Students will apply the principles learned in a lab setting by actually preparing and sampling varied types of foods and baked goods. Students will become more familiar with ingredients, selection criteria, optimal storage, and techniques of preparation and service in order to gain more practical experience in order to feel more comfortable preparing and serving food.

Prerequisites & Corequisites: Prerequisite: FCS 1650

Credits: 4 hours

FCS 2720 - Food Purchasing and Resource Management

This course identifies and describes food, supplies, and related merchandise used in the food service industry. Provides methods and criteria for recognizing quality, and evaluating, specifying, purchasing, and inspecting these products. Application of cost controls, development of cost-reduction methods through management policy and decisions, examination of cost-control techniques for food, labor, and supplies, and emphasis on beverage management control are addressed.

Prerequisites & Corequisites: Prerequisites: FCS 1650 and ACTY 2100.

Credits: 3 hours

FCS 3050 - Professional Job Search Strategies

Extensive investigation of basic elements involved in a job search, including job resume, letter of application, career resources and establishing contacts, and questions and kinesics in the job interview.

Prerequisites & Corequisites: Prerequisite: Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors in Fashion Merchandising and Design. or Food Service Administration.

When Offered: Fall, Spring

FCS 3110 - Youth Development Foundations

Study of the history, status, and examples of youth programs and youth-serving contexts and organizations; theoretical frameworks used to inform youth work; positive youth development principles and practices; partnering with families, schools, and communities; ethical guidelines; safety and wellness; professional development; state and federal policies.

Credits: 3 hours

FCS 3120 - Curriculum and Assessment in Youth Development

Study of developmentally-appropriate tools to assess social-emotional learning of youth; features and characteristics of effective youth development curricula; and methods to promote youth self-regulation, coping strategies, and positive interactions and relationships with peers and adults.

Prerequisites & Corequisites: Prerequisite: FCS 3110

Credits: 3 hours

FCS 3140 - Infant and Toddler Development

Addresses theories related to early development with special emphasis placed on systems theory. Students will gain an awareness of cognitive, physical and psychosocial development of infants and toddlers within our society. This course will address children's development from conception (prenatal factors) up to age three.

Credits: 3 hours

When Offered: Spring

FCS 3150 - Global Ecology of the Family

Study of families in the global environment, using social construction theory on the shared assumptions on how human society and cultures are viewed. The course includes an examination of the following factors and influences on families: religion, ethnicity, education, economics, socio-political, family structure and dynamics, gender roles, meals/food preferences, access to healthcare, housing and geographic location, mass-media, relationships with other people (friendships, community and networking systems), and issues related to globalization and tribalism. A social constructionist perspective guides explanation of families from a variety of world cultures. The course highlights the factors, structures, and dynamics that impact the functioning of family experiences across contexts. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

When Offered: Fall, Spring

FCS 3160 - Early Childhood Assessment and Curricula

Study of developmentally-appropriate methods and tools used to assess young children from infancy through age 5, and of established curricula for early childhood educational programs. Emphasis on inclusive practices in assessment and curriculum development and implementation, and on the role of assessment in the selection and development of curricula.

Prerequisites & Corequisites: Prerequisite: FCS 2140 and FCS 3140.

Credits: 3 hours

FCS 3170 - Crises and Resiliency in Families

Investigation of violence, alcohol and drug misuse/abuse, disasters, incarceration, illness, loss, and death experienced by families. Protective factors; coping strategies; the process of resilience; resiliency; and educational, legal, and treatment interventions are highlighted.

Credits: 3 hours

FCS 3180 - Intimate Relationships: Friends, Family, and Marriage

Exploration of research, literature, and family issues related to formation and maintenance of interpersonal relationships in adolescence and adulthood. Includes study of communication and conflict negotiation strategies for marriage and other relationships.

Credits: 3 hours

When Offered: Fall, Spring

FCS 3190 - Administration of Programs for Young Children

The focus for this course is designing and leading high quality programs for children birth through age five. Child care environments, program philosophies, administrative skills, and application of developmentally appropriate practice are addressed. Emphasis is placed on the role of parent involvement in the early education of children.

Prerequisites & Corequisites: Prerequisites: FCS 1010, FCS 1030, FCS 2140 or equivalent, FCS 3140 or equivalent.

Credits: 3 hours

FCS 3200 - Visual Merchandising

Specific development of display fundamentals in composition, lighting, color, signing, motion, ideas, organization and management, installation, budget, tools, props, materials, mannequins, store planning, point of purchase, exhibits, showrooms, and special promotion.

FCS 3220 - Fashion Design Studio II

A study of advanced drafting techniques, including computer-aided designing, employed in the flat pattern method for designing clothing.

Prerequisites & Corequisites: Prerequisite: FCS 2220 and FCS 2240, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Fashion Merchandising and Design: Design and Development.

When Offered: Fall

FCS 3260 - History of Fashion

Survey of the development of costume throughout history and its relationship to contemporary fashion.

Credits: 3 hours

Restrictions: Restricted to majors and minors in Fashion Merchandising and Design.

When Offered: Fall, Spring

FCS 3290 - Promotion in the Merchandising Environment

Communication principles and strategies important to the promotion of fashion products in the merchandising environment.

Prerequisites & Corequisites: Prerequisites: FCS 1260 and MKTG 2500.

Credits: 3 hours

Restrictions: Restricted to majors and minors in Fashion Merchandising and Design.

When Offered: Fall

Prerequisites & Corequisites: Prerequisite: FCS 1550

Credits: 3 hours

Restrictions: Restricted to majors and minors in Fashion Merchandising and Design.

When Offered: Fall, Spring

FCS 3300 - Entrepreneurship in Family and Consumer Sciences

The course provides students with economic, cultural, political, sociological, and psychological perspectives on the creation and evolution of entrepreneurial ventures. It will provide a broad, practice-based experience in the process of creating and managing a small business in family and consumer science professions with a focus on service-based businesses.

Prerequisites & Corequisites: Prerequisite: FCS major, junior status, or permission of instructor.

Credits: 3 hours

Notes: This course is approved as a writing-intensive course.

When Offered: Fall, Spring

FCS 3460 - Nutrition Education and Counseling

Analysis of the teaching-learning and individual counseling processes for dietetic professionals. Included are interpersonal communications, education skills, interviewing techniques, individual counseling techniques and skills, teaching methods for the delivery of one-on-one instruction as well as to small and large groups and to diverse populations.

Prerequisites & Corequisites: Prerequisites: FCS 2600 and FCS 3150 with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Nutrition and Dietetics.

When Offered: Spring

FCS 3510 - Studio III: Commercial Design I

Introduction to the design of the commercial environments with an emphasis on human centered design. Continued application of the design process and exploration of conceptualization. Development of design communication skills, both presentation and documentation. Introduction to team collaboration and design competitions.

Prerequisites & Corequisites: Prerequisites: FCS 2440, FCS 2490, and FCS 3530; with a grade of "C" or better in all prerequisites.
Corequisite: FCS 3570 and FCS 3550.

Credits: 3 hours

When Offered: Fall

FCS 3530 - Intro to Interior Construction I

A comprehensive overview of building systems and codes that promotes an awareness of the codes, standards, and systems technologies required to inform design projects. Topics addressed include coverage of the ICC codes, the NFPA Life Safety Code, ADA standards and other accessibility requirements, environmental conditions and site context, building form and structure, acoustics, water and waste systems, and HVAC systems. Passive systems approaches and sustainability practices inform each topic presented.

Prerequisites & Corequisites: Prerequisites: FCS 2420, FCS 2500, and either (FCS 2480 or FCS 2590).
Corequisites: FCS 2440 and FCS 2490.

Credits: 3 hours

Restrictions: This course is restricted to Interior Design and Industrial Tech: Vocational majors only.

When Offered: Spring

FCS 3540 - Lighting for Interiors

Considers light as an element of design and investigates its role in designing interiors. Material covered will emphasize

FCS 3570 - Interior Light and Color

This course explores light and color as elements of design. Material covered includes the lighting design process: appropriate fixture location, specification, documentation, and energy consumption. Students investigate color theory and the relationship of color to culture and human behavior.

the practicalities of appropriate fixture location and specification, blueprint reading and budgets.

Prerequisites & Corequisites: Prerequisites: FCS 1570, FCS 2490, FCS 2540 and FCS 2590.

Credits: 3 hours

Restrictions: Restricted to majors in interior design.

When Offered: Spring

FCS 3550 - Design Communication V: 3D

Computer 3D visualization is integrated into the design studio process. Students will learn how to construct, work, and design in three-dimensional space. They will create and edit 3D objects and apply rendering, lighting, and material-mapping techniques.

Prerequisites & Corequisites: Prerequisites: FCS 2490, FCS 3530, and FCS 2400; with a grade of "C" or better in all prerequisites.
Corequisites: FCS 3510 and FCS 3570.

Credits: 3 hours

When Offered: Spring

FCS 3560 - Intro to Interior Construction II

Studio projects (residential and commercial) are revisited and revised based upon the application of codes, standards and systems technologies covered in FCS 3530 - Intro to Interior Construction I.

Prerequisites & Corequisites: Prerequisites: FCS 3570, FCS 3510, and FCS 3550; with a grade of "C" or better needed in all prerequisites.
Corequisite: FCS 3590

Credits: 3 hours

Restrictions: Restricted to majors in Interior Design.

Prerequisites & Corequisites: Prerequisites: FCS 2490 and FCS 2440.
Corequisites: FCS 3510 and FCS 3550.

Credits: 3 hours

Restrictions: Restricted to majors in Interior Design.

FCS 3590 - Studio IV: Commercial Design II

Continued exploration of commercial environments. Larger scale projects with more complex spatial development will be explored. Continued application of the design process and communication skills. Continued experiences with team collaboration and design competitions.

Prerequisites & Corequisites: Prerequisite: FCS 3570, FCS 3510, and FCS 3550; with a grade of "C" or better in all prerequisites.
Corequisite: FCS 3560

Credits: 3 hours

When Offered: Spring

FCS 3600 - Lifespan Nutrition

This course emphasizes application of nutrition principles to the stages of the life cycle in a cultural context. Skills in assessing and meeting nutrition needs of individuals and families are developed.

Prerequisites & Corequisites: Prerequisite: FCS 2600

Credits: 3 hours

Restrictions: Restricted to majors in Nutrition and Dietetics.

When Offered: Spring

FCS 3650 - Understanding Research in Dietetics

This course introduces students to basic research design and applied methods used in research relevant to the field of dietetics. It is designed to prepare students to evaluate and use research in dietetics practice and to equip students with the skills necessary to engage in research and scholarly activities as future investigators. Emphasis is on evaluation of research from settings appropriate to the field of dietetics. Critical examination and evaluation of current controversies and issues in nutrition and food will allow students to learn how to analyze professional and layperson literature.

Prerequisites & Corequisites: Prerequisites: Junior standing in dietetics; FCS 2600 and STAT 3660 with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Nutrition and Dietetics.

When Offered: Spring

FCS 3680 - Quantity Foods

Course emphasizes quantity food purchasing techniques, safety and sanitation, and quantity foods preparation in residence hall kitchens, school lunchrooms, and other quantity foods institutions.

Prerequisites & Corequisites: Prerequisites: FCS 1650, FCS 2600.

Credits: 4 hours

Restrictions: Restricted to majors in Nutrition and Dietetics, and Food Service Operations and Sustainability.

When Offered: Spring

FCS 3700 - Introduction to Food Systems and Sustainability

This course examines the practical and ethical aspects of food production, transformation, service, and consumption on social, economic, and environmental sustainability. Major elements that impact the environment such as use of water, air, land, climate change, natural resource use, energy utilization, and transportation will be discussed.

Credits: 3 hours

FCS 4050 - Travel/Study Seminar

Student participation in departmentally sponsored travel/study program in U.S. and/or abroad. Written assignments and planned itinerary. Maximum 2 to 3 foreign, 1 to 2 domestic, not to exceed 4 in total.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 4 hours

FCS 4110 - Youth Development Skills and Processes

Focus on facilitating group interaction and teamwork; modeling effective communication skills; collaborating with families and community organizations; and improving youth development programs through professional development of youth workers.

Prerequisites & Corequisites: Prerequisite: FCS 3110

Credits: 3 hours

FCS 4120 - Family Policy

This course will explore the reciprocal linkages between family functioning and public and private policies in this country and across the globe. Students will explore in what ways families contribute to social problems, how families are affected by these problems, and whether families should be involved in policy solutions. Students will assess the consequences policies may have for family well-being. The course will include theoretical frameworks for conceptualizing family policy, roles professionals can play in building family policy, and approaches professionals can use in implementing these roles. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

FCS 4130 - Later Life Family Relationships

The study of family relationships and social roles of people in later life families. Exploration of issues related to the post-parental and aging family system and implications for the development of practice and policy.

Prerequisites & Corequisites: Prerequisite: FCS 3180 or approval.

Credits: 3 hours

Restrictions: Restricted to majors in Child and Family Development, Family Studies: Child Development, Family and Consumer Sciences Teacher Education, Family Life Education, Family Studies, Home Economics: Secondary Education.

When Offered: Fall

FCS 4150 - Effective Parenting

Study of the relationships between the child, the child's development, the process of parental development, school,

and family relationships. Special attention to systems theory as it applies to the family.

Prerequisites & Corequisites: Prerequisite: FCS 2140 and FCS 3180.

Credits: 3 hours

Restrictions: Restricted to senior standing.

FCS 4190 - Teaching Family Life Education

This course reinforces family life education (FLE) principles and concepts in conjunction with planning, implementing, and evaluating FLE curriculum and programs. Emphasis is placed on developing a sensitivity to diverse personal and community values and a pluralistic understanding of families.

Prerequisites & Corequisites: Prerequisites: FCS 1010, FCS 1030, FCS 2100, FCS 2170, FCS 2190, FCS 3170, FCS 3180, and 100+ hours, and either (FCS 2020 or FCS 4290). A minimum grade of "C" is required in all prerequisites.

Credits: 3 hours

FCS 4220 - Product Development

The study of garment manufacturing, including the decision making involved in producing apparel.

Prerequisites & Corequisites: Prerequisite: 88 credit hours or more and FCS 1260 and FCS 2200 and (either FCS 2260 or FCS 2220).

Credits: 3 hours

Restrictions: This course is restricted to majors in Fashion Merchandising and Design.

When Offered: Fall, Spring

FCS 4240 - Apparel Line Development

Development of apparel line from concept to completion, including analysis of fit, cost, quality, and performance. Exploration of textile materials, construction methods, grading, and specifications.

Prerequisites & Corequisites: Prerequisites: FCS 2240, FCS 2300 and FCS 3220; with a minimum grade of "C" in

all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Fashion Merchandising and Design: Design and Development.

When Offered: Spring

FCS 4290 - Internship

Off-campus, supervised experience. Specific sections per area of interest.

Prerequisites & Corequisites: Prerequisites: Department junior or senior; FCS 2020 with a grade of "C" or better; departmental approval required.

Credits: 2 to 6 hours

Notes: Graded on a Credit/No Credit basis.

When Offered: Fall, Spring, Summer I, Summer II

FCS 4300 - Merchandising Seminar

Capstone course for FMD majors. Students will integrate and apply principles and theories from textile and apparel, marketing and management courses to the contemporary fashion merchandising environment.

Prerequisites & Corequisites: Prerequisites: FCS 1260, FCS 2260, and MKTG 2500, MGMT 3000.

Credits: 3 hours

Restrictions: Restricted to majors and minors in Fashion Merchandising and Design.

When Offered: Fall, Spring

FCS 4510 - Studio V: Capstone Project Design I

Each interior design student will choose the design of a commercial interior for their capstone project. The primary emphasis of this course will be the research that pertains to this type of project and the development of the project program. A research paper that focuses on this project type will be written. The final presentation will be an infographic that summarizes the project research, the programming and preliminary design phases of the project chosen.

Prerequisites & Corequisites: Prerequisite: FCS 3560 and FCS 3590; with a grade of "C" or better in all prerequisites. Corequisite: FCS 4520

Credits: 4 hours

When Offered: Fall

FCS 4520 - Professional Practices

An analysis of the professional procedures and practices used in the interior design industry. A survey of the diversified career opportunities in both residential and commercial fields.

Prerequisites & Corequisites: Prerequisite: FCS 3560 and FCS 3590, with a grade of "C" or better in all prerequisites. Corequisite: FCS 4510

Credits: 3 hours

When Offered: Fall

FCS 4530 - Interior Design Project Management

Students will be exposed to the project management phase of the design process.

Prerequisites & Corequisites: Prerequisites: FCS 4510 and FCS 4520; with a grade of "C" or better needed in all prerequisites. Corequisite: FCS 4590

Credits: 3 hours

Restrictions: Restricted to majors in Interior Design and Industrial Technology Education.

FCS 4590 - Studio VI: Capstone Project Design II

Completion of the individual student Senior Capstone Project. Emphasis is placed on a research based approach to arrive at a design solution that brings innovation to special problems and projects in the field of interior design.

Prerequisites & Corequisites: Prerequisite: FCS 4510 and FCS 4520, with a grade of "C" or better in all prerequisites. Corequisite: FCS 4530

Credits: 4 hours

When Offered: Spring

FCS 4600 - Medical Nutrition Therapy I

A focus on the development of individual nutrition care plans using the techniques of the Nutrition Care Process: assessment, nutrition diagnosis, intervention, and evaluation and monitoring. Medical Nutrition Therapy (MNT) will be discussed for selected disorders. Drug-nutrient interactions and associated medical terminology are also discussed. Case studies allowing integration of MNT principles are a prominent feature of the course.

Prerequisites & Corequisites: Prerequisites: Senior standing in dietetics; FCS 3600, FCS 3650, BIOS 2400 and CHEM 3550 with a grade of "C" or better in all prerequisites. Corequisite: FCS 4630.

Credits: 4 hours

Restrictions: Restricted to majors in Nutrition and Dietetics.

When Offered: Fall

FCS 4610 - Medical Nutrition Therapy II

This course is a continuation of FCS 4600 and examines the Medical Nutrition Therapy for disorders of the liver, biliary, renal, cardiovascular, endocrine, and pulmonary systems. HIV/AIDS, critical care, and eating disorders are also discussed. Case studies allowing integration of MNT principles are a prominent feature of the course.

Prerequisites & Corequisites: Prerequisite: Senior standing, FCS 4600 and FCS 4630 with and grade of "C" or better in both prerequisites. Corequisite: FCS 4640.

Credits: 4 hours

Restrictions: Restricted to majors in Nutrition and Dietetics.

When Offered: Spring

FCS 4620 - Community Nutrition

This course will utilize online technology to engage students in a study of the structure of community nutrition

programs including the roles of government, health care, economics, and public policy.

Prerequisites & Corequisites: Prerequisites: FCS 2600 and FCS 3600.

Credits: 3 hours

Restrictions: Restricted to majors in Nutrition and Dietetics.

When Offered: Spring

FCS 4630 - Medical Nutrition Therapy Laboratory I

Skill development in nutritional assessment via performing anthropometric measurements, biochemical analysis, physical exam, and diet history. Nutrition counseling and interviewing, as well as documentation and charting are also discussed. Students are also introduced to parenteral and enteral products, practice calculating individual formulations, and become familiar with feeding tubes, pumps, and catheter care.

Prerequisites & Corequisites: Corequisite: FCS 4600.

Credits: 1 hour

Restrictions: Restricted to majors in Nutrition and Dietetics.

When Offered: Fall

FCS 4640 - Medical Nutrition Therapy Laboratory II

A focus on further development and application of skills needed for Medical Nutrition Therapy of liver and gallbladder disease, diabetes, cardiovascular disease, renal disease, cancer, stress/hypermotabolism, eating disorders and weight management.

Prerequisites & Corequisites: Prerequisite: Senior standing, FCS 4600 and FCS 4630 with and grade of "C" or better in both prerequisites. Corequisite: FCS 4610.

Credits: 1 hour

Restrictions: Restricted to majors in Nutrition and Dietetics.

When Offered: Spring

FCS 4660 - Institutional Management

Study and application of multiple systems involved in the management of food service operations in a variety of settings.

Prerequisites & Corequisites: Prerequisite: Senior standing and FCS 3680 with a grade of "C" or better.

Credits: 4 hours

Restrictions: Restricted to majors in Nutrition and Dietetics, and Food Service Operations and Sustainability.

When Offered: Fall

FCS 4670 - Professional Issues in Dietetics

This course will acquaint senior dietetic students with concepts and skills important to professional life. It will allow students to integrate knowledge and theory of nutrition, food, management, communication skills, and social and behavioral sciences necessary to support quality dietetics practice. This course will also allow students to develop a perspective in dealing with issues such as professional ethics and how to function as a member of the health care team. Current public policy and health care reimbursement issues as they influence dietetics practice and the role of registered dietitian in the U.S. health care system will be explored.

Prerequisites & Corequisites: Prerequisites: Senior standing in dietetics; Phil 3340, FCS 3600, and FCS 3650 with a grade of "C" or better in all prerequisites.

Credits: 2 hours

Restrictions: Restricted to majors in Nutrition and Dietetics.

When Offered: Spring

FCS 4680 - Advanced and Experimental Foods

Understanding the physical and chemical properties of foods by use of objective and subjective testing methods. This course is approved as a writing intensive course.

Prerequisites & Corequisites: Prerequisites: Senior standing in dietetics; FCS 1650, FCS 2600, FCS 3650 and CHEM 3700/3710 with a grade of "C" or better in all prerequisites.

Credits: 4 hours

Restrictions: Restricted to majors in Nutrition and Dietetics.

When Offered: Fall

FCS 4690 - Nutrient Metabolism

This course builds on basic concepts of biochemistry to explore the structure, function, and metabolism of nutrients in the human body. Topics include energy metabolism, function and regulation of enzymes and coenzymes, and the cellular environment as it relates to metabolism of nutrients.

Prerequisites & Corequisites: Prerequisites: Senior standing in dietetics; CHEM 3550 and FCS 3600 with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Nutrition and Dietetics.

When Offered: Spring

FCS 4700 - Food and Beverage Systems

This course emphasizes the food and beverage concepts essential to all hospitality managers. Areas such as beverage operations, food-production systems, food-service and delivery systems are studied. Methods for identification, management and control of those beverages used in the hospitality industry are discussed. The course will include lectures and tastings of actual product, beverage service methods, spirits identification and production, legal liabilities, service methods and controls. Responsible alcohol service - personal and professional - is emphasized. The National Restaurant Association ServSafe program is utilized and students have the opportunity to gain their ServSafe certification (responsible alcohol training) by successfully completing the national certification exam.

Prerequisites & Corequisites: Prerequisites: FCS 1650, FCS 2700 and Senior standing.

Credits: 3 hours

FCS 4720 - Farm to Table and Sustainability

This course focuses on improving the ways we meet the need for increased food production across America. Coursework will include examination/discussion/analysis on how the vitality of America's communities is bound to the successes and failures of its farmers. A focus on agricultural (e.g. soil diversity), environmental (e.g. climate change), and operational (e.g. supply chain) issues will address the delivery of fresh, local food and how the lives of farmers and communities have changed as we work to create healthy soil, healthy animals, and healthy food. In the context of federal policy the course examines growing competition from abroad, public misconceptions regarding government subsidies, the dangers of environmental damage and genetically modified crops, and the myths of modern economics are addressed.

Credits: 3 hours

FCS 4740 - Global Food Systems and Sustainability

This course is designed to equip students with a basic macro-level understanding of the global food system and challenges to creating a more sustainable system. Topics covered include food production, transformation, distribution, food wastage, and consumption as well as food system impact on natural resources, social justice issues, diet and health, and social movements. Policy decisions and regulations to achieve societal goals will also be discussed.

Prerequisites & Corequisites: Prerequisite: Junior or senior standing.

Credits: 3 hours

FCS 5100 - Teaching Sexuality Education

Teaching Sexuality Education is designed as a teaching methods course to prepare family life educators, secondary education instructors, and other human service professionals for the implementation of sexuality education in school-base curricula and/or in a variety of community settings.

Credits: 3 hours

Notes: Open to upper level and graduate students.

FCS 5110 - Kinship Care Family Members: Strengths and Challenges

Focuses on highlighting varying experiences and realities for multi-generational kinship care family members, including adult caregivers, the children in their care, and children's biological parents. Common challenges will be presented, along with strategies for assisting family members in resiliency building and accessing available resources. Socio-cultural differences, both within the United States and internationally, will be examined. Topics addressed in this course may vary to some extent each semester, depending on students' professional experiences, needs, and interests.

Credits: 3 hours

Notes: Open to upper level and graduate students.

FCS 5120 - Educational Systems and Kinship Care Families

Explores the interface between educational systems and kinship care families. Topics will include the history of family engagement in U.S. schools, current practices in American schools, educational risks for children living in poor families, models and strategies of family engagement and common school-related experiences for kinship care family members. Students will focus on strategies for reducing educational challenges for both kinship caregivers and children living in kinship care families.

Credits: 1 hour

Notes: Open to upper level and graduate students.

FCS 5130 - Health Care and Kinship Care Families

Focuses on health care systems in the United States and their interfaces with kinship care family members. Topics will include the evolution of health care in the United States, current status of health care systems within the U.S., common health challenges for kinship care family members and effective responses and programming.

Credits: 1 hour

Notes: Open to upper level and graduate students.

FCS 5140 - Economic Realities and Kinship Care Families

Focuses on theories of family economics as well as financial challenges and realities for kinship care family members. Topics will include an overview of family economic theory, poverty in the United States, financial information and challenges for kinship care families, and an analysis of existing and needed services and programs.

Credits: 1 hour

Notes: Open to upper level and graduate students.

FCS 5220 - Topics in Family and Consumer Sciences

A study of the current issues impacting the areas of study in Family and Consumer Sciences: dietetics and human nutrition, family life education and family and consumer sciences, textile and apparel technology, or career and technical education. Students may elect up to six (6) hours if topics vary. Topics to be announced.

Prerequisites & Corequisites: Prerequisite: Seniors and graduate students only.

Credits: 1 to 3 hours

When Offered: Fall, Spring, Summer I, Summer II

FCS 5240 - Socio-Psychological Aspects of Dress

Study of dress and adornment in human interaction. Considers the body in social and cultural contexts, dress in various stages of human development and in individual and group behavior. Uses an interdisciplinary approach to dress-related research.

Credits: 3 hours

Restrictions: Restricted to majors and minors in Fashion Merchandising and Design, or Family and Consumer Science Teacher Education.

Notes: Open to upper level and graduate students.

When Offered: Fall, Spring

FCS 5250 - The Adolescent in Development

The study of individuals between 10 and 22 years of age, the changes that characterize these years, and the role of the family and school in supporting and enhancing development.

Credits: 3 hours

Notes: Open to upper level and graduate students.

FCS 5340 - Consumer Behavior in the Fashion Environment

This course is designed to give students an overview of the important topics in consumer behavior research and practice as they relate to the fashion/retail environment.

Prerequisites & Corequisites: Prerequisite: Junior or Senior status or graduate level.

Credits: 3 hours

Restrictions: Restricted to majors and minors in Fashion Merchandising and Design.

Notes: Open to upper level and graduate students.

When Offered: Fall of even years

FCS 5350 - Communication Skills for Working with Families Across the Lifespan

Laboratory study designed to develop interpersonal helping skills in delivery of family life education. The location of family life education within the range of helping professions is examined.

Prerequisites & Corequisites: Prerequisite: Graduate student or undergraduate with 100+ hours.

Credits: 3 hours

Notes: Open to upper level and graduate students.

FCS 5440 - Global Aspects of the Fashion Industry

The course addresses issues facing fashion-related businesses in global markets, including ethical, economic, political, socio-cultural and professional aspects of working in a globally connected industry.

Prerequisites & Corequisites: Prerequisite: Junior or Senior standing or graduate level.

Credits: 3 hours

Restrictions: Restricted to majors and minors in Fashion Merchandising and Design.

Notes: Open to upper level and graduate students.

When Offered: Fall of odd years.

FCS 5500 - Raising Children in Contemporary Society

This course examines contemporary societal factors that influence children and parenting.

Prerequisites & Corequisites: Prerequisite: Graduate student or undergraduate with 100+ hours.

Credits: 3 hours

Notes: Open to upper level and graduate students.

FCS 5510 - Families and Hospitalization I

This course introduces students to aspects of hospital and medical interventions as they affect children and their families, and the role of child life specialists in making health care experiences positive ones.

Credits: 3 hours

Notes: Open to upper level and graduate students.

FCS 5520 - Families and Hospitalization II

This course builds on theories and skills learned in Families and Hospitalization I, with emphasis on interventions and techniques used regularly by child life specialists. In addition, content will focus on professionalism, the process of certification as a child life specialist, and the field of child life in preparation for a successful practicum/internship.

Prerequisites & Corequisites: Prerequisite: FCS 5510 with a grade of "B" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

FCS 5530 - Advanced Child Life Practice

This course addresses advanced practices in child life, such as administering a child life program, facilitating support groups, and pain management strategies used in pediatrics.

Prerequisites & Corequisites: Prerequisite: FCS 5510 with a grade of "B" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

FCS 5540 - Therapeutic Play with Pediatric Populations

This course focuses on the study of play theory and its application in relation to child development and diverse pediatric populations. Topics include therapeutic play, trauma-informed care, family-centered care, health issues, differing abilities, culture, technology, and end-of-life.

Credits: 3 hours

Notes: Open to upper level and graduate students.

FCS 5680 - Gender, Culture, and Families

Study of the implications of gender and cultural orientation for family, work, social interactions and therapeutic interventions. Includes an examination of sexism and racism in the media, advertising, educational institutions, and social policies.

Prerequisites & Corequisites: Prerequisite: Graduate or undergraduate with 100+ hours.

Credits: 3 hours

When Offered: Spring, Summer I or Summer II

FCS 5750 - Administration of Child Development Centers

Examination of day care and preschool regulations and/or requirements, and knowledge of administrative materials and duties in providing optimum growth for young children. Includes management, planning, and organizing child development centers.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Cross-Listed: ED 5750
When Offered: Fall, Spring

FCS 5900 - Project/Problems in Family and Consumer Sciences

Directed independent project in specialized curricula within Family and Consumer Sciences.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students.
When Offered: Fall, Spring, Summer

FCS 5980 - Independent Study in Family and Consumer Sciences

Directed independent advanced study in subject matter area not otherwise treated in departmental courses.

Prerequisites & Corequisites: Prerequisite: Department approval required prior to enrollment.

Credits: 1 to 6 hours

Notes: Open to upper level and graduate students.
When Offered: Fall, Spring, Summer

Finance

FIN 1010 - Personal Finance

Designed to enable a student to make informed financial decisions. The course includes management of income, savings, and investments. Various types of consumer debt are covered, including credit cards, car loans, and student loans. The course also covers personal income taxes, real estate purchases and mortgages, insurance, retirement planning, and estate planning.

Credits: 3 hours

FIN 2010 - Personal Finance

Course covers a variety of topics related to personal finance. Topics include management of income, savings, and investments. Various types of consumer debt are covered, including credit cards, car loans, and student

loans. This course also covers personal income taxes, real estate purchases and mortgages, insurance, retirement planning, and estate planning. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Prerequisites & Corequisites: Prerequisite: ACTY 1010 or BCM 1420.

Credits: 3 hours

FIN 2420 - Entrepreneurial Finance

This course provides an understanding of the financial decision-making process facing entrepreneurs in small business firms. The course is conducted on a lecture-case discussion basis. Among the topical areas covered are the following: Financial sources available, working capital management, capital budgeting, assessment of risk and valuation techniques. These and other areas are treated from the viewpoint of the entrepreneur in a small business setting.

Credits: 3 hours

FIN 2510 - Securities Industry Essentials

An introduction to the role of licensed professionals roles and responsibilities in the securities industry. The Security Industry Essentials is required to become a 'registered representative' in the various brokerage fields as specified by FINRA. The essentials must be completed before moving onto other examination such as the Series 6, 7, 52, 57, 79, 86, 87, and 99. This course includes a study of market operations, industry terminology, securities products, the structure and function of the markets, regulatory agencies and their functions, and regulated and prohibited practices.

Credits: 2 hours

Restrictions: Not for FIN major/minor program credit.

FIN 3010 - Financial Coaching

This course covers the various elements of both the art and the science of personal financial coaching. Pertaining to the art of personal financial coaching, topics include Effective Planner/Client Communication, Coordinating the Planning Process, Establishing Credibility, and The Commitment to Ethics. Regarding the science of personal financial planning, topics include Cash Management, Using Credit,

Loan Utilization, Investment Planning, Tax Planning, Insurance Planning, Retirement Planning, and Estate Planning, as well as technological innovations in the financial services industry. This course provides a foundation for helping others work towards achieving financial wellness. As such it the capstone for what we call the "Pathway to Financial Wellness". Having mastered Financial Literacy (FIN 2010) built on Information Literacy (BCM 1420) and Quantitative Literacy (ACTY 2010), student completing this course will be able to guide themselves and others towards Financial Wellness with expert advice, time, discipline, and luck as additional factors. Financial Wellness, in turn, is one of the components of Personal Wellness, which makes it part of the response to the question that everyone tries to answer: "How do I use the skills I have learned in the classroom to live the best life possible?" This course also completes the education requirement for the Accredited Financial Counselor® designation in partnership with AFCPE. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: FIN 2010

Credits: 3 hours

FIN 3100 - Introduction to Financial Markets

A survey of financial markets and intermediaries with emphasis on their structure, social justification, and current status. This course provides additional background for advanced study in finance and a practical foundation for those students interested in an exposure to the financial system.

Prerequisites & Corequisites: Prerequisite: ACTY 2100

Credits: 3 hours

Restrictions: Restricted to majors across multiple departments. Please see advisor for specific program restrictions.

FIN 3200 - Business Finance

Presents a basis for understanding the financial management function of the business enterprise. Considers financial principles and techniques essential for planning and controlling profitability and liquidity of assets, planning capital structure and cost of capital, and utilizing financial instruments and institutions for capital raising.

Prerequisites & Corequisites: Prerequisites: ACTY 2100

and (STAT 2160 or STAT 3660 or MATH 2160 or MATH 3660 or IEE 2610), or equivalent.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 3300 - Real Estate Fundamentals

Supplies the basis for comprehension of the basic economic characteristics and the organization and techniques used in the real estate business. Treats real estate resources, marketing, financing, valuation, and trends.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 3310 - Real Estate Finance

Considers the field of real estate finance from the viewpoint of sources of funds, various real estate contracts, valuation techniques, appraisals of residential and income properties and the various aspects of risk analysis in real estate.

Prerequisites & Corequisites: Prerequisites: FIN 3200

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 3350 - Small Business Finance

This course provides an understanding of the financial decision-making process facing entrepreneurs in small business firms. Among the topics covered are financial resources available, working capital management, capital budgeting, assessment of risk and valuation techniques. Topics are treated from the viewpoint of the entrepreneur in a small business setting.

Prerequisites & Corequisites: Prerequisite: FIN 3200

Credits: 3 hours

Restrictions: Restricted to majors in Leadership and Business Strategy.

When Offered: Fall

FIN 3360 - Funding New and Growing Ventures

This course focuses on how entrepreneurs obtain the financing necessary to launch and develop a venture. Students will incorporate a life cycle approach in their analysis and study the financing needs and options for entrepreneurs in the initial development, start-up, rapid growth, and maturity stages of a venture. The concepts and theories underlying the financing decision of entrepreneurial enterprises will be studied, and students will learn how the theory can be applied in practice. The course format includes both lecture and cases.

Prerequisites & Corequisites: Prerequisite: FIN 3200

Credits: 3 hours

When Offered: Spring

FIN 3410 - eFinance

The global electronic marketplace is causing a dramatic change in financial practices. Thus, it is necessary to understand the implications of these changes on the economic structure of financial markets and more specifically how these changes are affecting all areas of finance: corporate, investments, markets and institutions, international, personal financial planning, insurance and real estate. This course provides a framework for meeting the challenges posed by this new technology. Students demonstrate proficiency through technology-related projects, exams and team presentations.

Prerequisites & Corequisites: Prerequisite: FIN 3200

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 3450 - Computer Applications in Finance

Apply commonly used computer software and data systems to finance. Examples of the computer software used are Excel, Expo, Minitab, SAS, and Word. Financial

information is obtained from websites or financial databases such as Compustat and CRSP. Some of the finance problems studied are creating cash budgets and loan amortization tables, estimating beta and forecasting financial needs. Students demonstrate computer proficiency through projects, exams and team presentations.

Prerequisites & Corequisites: Prerequisites: FIN 3100 (may be taken concurrently) and FIN 3200.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 3510 - Investment Analysis

A survey of the securities markets from the viewpoint of the novice investor. This course includes a study of market operations, trading techniques, special investment vehicles such as options and warrants, and a consideration of the investment objectives and practices of institutional investors. Prerequisite:

Prerequisites & Corequisites: Prerequisites: FIN 3100 (may be taken concurrently) and FIN 3200.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 3600 - Risk and Insurance

A comprehensive course that considers the nature and orientation of insurance risks and their management. Major business and personal risks are analyzed and their insurance treatment evaluated, as are the functional aspects of insurer operations. The impact of insurance on public policy is also considered.

Prerequisites & Corequisites: Prerequisite: FIN 3200

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 3720 - Estate Planning

The course examines legal, financial and practical considerations in the creation, management and conservation of an estate. Various types of property interests (joint tenancy, tenancy in common, community property) are reviewed. The use of revocable and irrevocable trusts, gifts, powers of attorneys, retirement and custodial accounts are discussed. The influence of federal estate and gift and state taxation rules on estate planning techniques is examined.

Prerequisites & Corequisites: Prerequisite: FIN 3200

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 3730 - Retirement Planning and Employee Benefits

This course covers all the major retirement-related issues. Retirement plan design, social security, Medicare and similar plans are studied. In addition, group life, health, and disability insurance, non-qualified deferred compensation, and other commonly-provided employee plans are examined.

Prerequisites & Corequisites: Prerequisite: FIN 3200

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 4120 - Global Financial Markets

This course covers the functions and operations of global financial markets. Securities markets, along with commercial and investment banking, will be studied. Consideration will be given to issues in international debt, equity, and derivative securities markets. Policy implications for investors as well as corporations and governments are included.

Prerequisites & Corequisites: Prerequisites: FIN 3100 and FIN 3200.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple

departments. Please see advisor for specific program restrictions.

FIN 4250 - Short Term Financial Management

An analytical approach to the study of short term financial management. In connection with Association for Financial Professionals (AFP) this course is the Corporate Treasury Management program (CTPA). An emphasis is placed on the working capital topics specifically addressed in this program. In addition to the practical emphasis of the CTPA approach the course will include the theoretical underpinnings of short term financial management utilizing cases and lectures to fully cover financial decision making in the area of working capital management, financial analysis, and forecasting.

Prerequisites & Corequisites: Prerequisites: FIN 3100 and FIN 3200.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 4260 - Corporate Finance: Theory and Practice

An analytical approach to the study of the concepts and theories underlying the financial decisions of corporations and business enterprises. In addition to theoretical framework, the course includes cases covering financial decision making processes in the areas of capital budgeting, long-term financing decisions, financial structure, cost of capital, dividend policy, merger, corporate restructuring and valuation.

Prerequisites & Corequisites: Prerequisites: FIN 3100 and FIN 3200.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 4320 - Real Estate Investments

The effect of various forms of taxation, market conditions and governmental policies as they affect the investor's

spendable income are reviewed.

Prerequisites & Corequisites: Prerequisites: FIN 3200

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 4330 - Real Estate Appraisal

A study of the sources of real estate value, the techniques for estimating property value, and the effective use of appraisal information.

Prerequisites & Corequisites: Prerequisites: FIN 3200

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 4370 - Real Estate Management

Management of income producing properties as an agent of the owner. Consideration of professional standards, business promotion, leasing, insurance and maintenance.

Prerequisites & Corequisites: Prerequisite: FIN 3200

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 4420 - International Finance

A study of contemporary problems in international finance. The course examines the international money markets, working capital considerations and capital budgeting problems as faced by the multinational corporation.

Prerequisites & Corequisites: Prerequisites: FIN 3100 and FIN 3200.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple

departments. Please see advisor for specific program restrictions.

FIN 4480 - Internships in Finance

Under the direction of a faculty advisor, students obtain employment experience with industrial, commercial, and financial enterprises (commercial banks, brokerage firms, etc.), with insurance companies or firms with an insurance division or department, or with a real estate firm or enterprises with a real estate department or division. Students are required to file periodic reports to the advisor. In addition, the firm's executives evaluate them.

Prerequisites & Corequisites: Prerequisite: Written approval of instructor and department chair is required.

Credits: 1 to 5 hours

Restrictions: Restricted to students majoring in finance or minoring in finance, insurance, or real estate.

Notes: May be repeated for credit. No more than 3 hours can be used as credit toward a major or minor. (May be substituted for BUS 3900 Business Internship.)

FIN 4530 - Securities Analysis

An analysis of stocks and bonds as investment vehicles. The course is designed as a sophisticated analysis of valuation techniques with a view towards aiding the student to bridge the gaps between techniques used by the academician and the practitioner.

Prerequisites & Corequisites: Prerequisite: FIN 3510

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

FIN 4710 - Applications in Personal Financial Planning

This course examines professional issues in financial planning, including ethical considerations, regulation and certification requirements, written and oral communication skills, and professional responsibility. Successful completion of the course requires the integration of skills learned in other courses, such as insurance, tax planning, investments, retirement planning, and estate planning.

Students must successfully solve problems, mini-cases, and a comprehensive personal financial planning case. This is a capstone course for the personal financial planning curriculum.

Prerequisites & Corequisites: Prerequisites: ACTY 3240, FIN 3510, FIN 3600, FIN 3720 and FIN 3730 (ACTY 3240, FIN 3600, FIN 3720 and FIN 3730 may be taken concurrently).

Credits: 3 hours

When Offered: Spring

FIN 4980 - Readings and Research in Finance

Directed individual study of finance topics that are not treated in departmental course offerings.

Prerequisites & Corequisites: Prerequisite: Written approval of instructor and department chair is required.

Credits: 1 to 3 hours

Restrictions: Restricted to majors across multiple departments. Please see advisor for specific program restrictions.

FIN 5530 - Student Managed Investment Fund

A course in which students get hands-on experience in investment research and portfolio management. Under the guidance of an instructor, the students have fiduciary responsibility to manage a portfolio of real money on behalf of the WMU Foundation, subject to the WMU Foundation Investment Policy Statement and other guidelines provided by the WMU Foundation Investment Committee. The students, acting as research analysts, utilize quantitative, qualitative and fundamental analysis to determine whether a financial security should be included in the portfolio. The students must present their research findings to the class. Admission to this unique class is by application, and class size is limited to 10 to 15 students.

Prerequisites & Corequisites: Prerequisite: FIN 3510

Credits: 3 hours

Restrictions: Restricted to majors in Finance and Personal Finance Planning.

Notes: May be repeated for credit. Open to upper level and graduate students.

First Year Experience

FYE 2100 - First-Year Experience

The First-Year Experience seminar is designed to help students develop a sense of responsibility for their own learning and will provide support during the first semester of transition to the University. This seminar will introduce students to University resources, academic expectations, the eight dimensions of well-being, and will foster community-building. Taught in a small group setting, students will interact with a faculty/staff member and a student leader either once or twice a week. The FYE 2100 seminar will include weekly class meetings, project-based assignments, written assignments, and attendance at selected University events and workshops. The importance of writing, critical thinking, communication, and study skills will be emphasized, as well as exploration of major and career opportunities. Students will earn a letter grade for this course.

Credits: 2 hours

When Offered: Fall and Spring

French

FREN 1000 - Basic French I

Fundamentals of French. A four-skills approach (speaking, listening, reading, writing) with emphasis on communication. Introduction to cultural aspects of France and other Francophone countries.

Credits: 4 hours

FREN 1010 - Basic French II

Continuation of FREN 1000. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Prerequisites & Corequisites: Prerequisite: FREN 1000 or equivalent.

Credits: 4 hours

FREN 2000 - Intermediate French I

The development of French language skills in listening, speaking, reading, and writing, with an emphasis on communication. Increased competence in French and Francophone cultures.

Prerequisites & Corequisites: Prerequisite: FREN 1010 or two years of high school French, or equivalent.

Credits: 4 hours

FREN 2010 - Intermediate French II

The continued development of spoken and written expression in the French language through readings and discussions of civilization and culture materials.

Prerequisites & Corequisites: Prerequisite: FREN 2000 or equivalent.

Credits: 4 hours

FREN 2750 - Francophone Culture

This course, taught in English, is an introduction to various aspects of the culture of non-European countries and regions in which the French language plays a significant role. It will offer a critical and historical perspective on the cultural and social effects of colonialism and decolonialism. This course does not count toward a French major or minor.

Credits: 3 hours

FREN 3150 - French for the Professions

This course aims to develop profession-specific language skills in order to allow students to communicate in French with other professionals in different fields, such as medical and paramedical, scientific and diplomatic. Vocabulary-building and simulations of practical professional settings will be practiced. The course will also discuss the targeted professions in a global setting and comparative policies in France, Canada, selected African countries, and the United States.

Prerequisites & Corequisites: Prerequisite: FREN 2010 with a grade of "C" or better, or equivalent.

Credits: 3 hours

Notes: May be repeated for credit.

When Offered: Every two years

FREN 3160 - Introduction to Advanced French Studies

A review of French structure, form and use; focus on the development of communicative competence and on grammatical difficulties encountered by non-native users. Emphasis on the development of academic writing and speaking skills in preparation for content courses.

Prerequisites & Corequisites: Prerequisite: FREN 2010 with a minimum grade of "C", or equivalent.

Credits: 4 hours

FREN 3170 - French Conversation

Exercises to develop ease and accuracy in the use of everyday French. Emphasis on oral aspects of the language.

Prerequisites & Corequisites: Prerequisite: FREN 2010 with a minimum grade of "C", or equivalent.

Credits: 4 hours

FREN 3200 - French Phonetics

Study and practice to correct typical difficulties encountered by students of French with Anglo-American patterns of pronunciation; also to study the teaching of French patterns.

Prerequisites & Corequisites: Prerequisite: FREN 2000 with a minimum grade of "C", or equivalent.

Credits: 3 hours

FREN 3220 - Life and Culture in France

A study of French civilization based on historical, geographical, literary considerations and art and how those factors illustrate the character and traditions of French people from the medieval period through the present day.

Prerequisites & Corequisites: Prerequisite: FREN 3160 with a minimum grade of "C" or better.

Credits: 3 hours

FREN 3230 - Life and Culture in the Francophone World

An introduction to French-speaking culture outside France, as seen primarily through literary texts. Students will become acquainted with various aspects of life in French-speaking communities both past and present.

Prerequisites & Corequisites: Prerequisite: FREN 3160 with a minimum grade of "C" or better.

Credits: 3 hours

FREN 3250 - Close Reading in French

Prose and verse readings of intrinsic literary and cultural merit, with emphasis on strategies for literary analysis.

Prerequisites & Corequisites: Prerequisite: FREN 3160 with a minimum grade of "C" or better.

Credits: 3 hours

FREN 3260 - Introduction to the Study of French Linguistics

A general survey of the different fields of French linguistics, both theoretical (e.g., phonology, syntax) and applied (acquisition, sociolinguistics, dialectology). Prepares student for more specialized studies.

Prerequisites & Corequisites: Prerequisite: FREN 3160 with a minimum grade of "C" or better.

Credits: 3 hours

FREN 4160 - Advanced Communication in French

Intensive development of communicative competence in French, highlighting the four language skills-listening, speaking, reading, and writing-as well as cultural proficiency. Study of the French language will be organized around a theme or themes relevant to French or Francophone societies (e.g., revolution past and present, decolonization, gender issues).

Prerequisites & Corequisites: Prerequisite: FREN 3160 with a grade of "C" or better.

Credits: 3 hours

Notes: May be repeated for credit with instructor approval.

FREN 4540 - Business French

Course on contemporary French language and society as they relate to business and business practices in France. Intensive practice of written and oral French. This course will prepare the students for the internationally recognized "Diplôme de français professionnel B2" of the Paris Chamber of Commerce. Taught in French.

Prerequisites & Corequisites: Prerequisites: FREN 3160 with a minimum grade of "C" and one other 3000-level course with a minimum grade of "C" or equivalent.

Credits: 3 hours

FREN 4760 - Foreign Study - non WMU

Student participation in pre-approved program of study abroad that is not through Western Michigan University.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor or chairperson.

Credits: 1 to 16 hours

Notes: Repeatable for credit up to 32 credit hours.

When Offered: (Fall/Spring 1 to 16 hours) Summer I/II 1 to 8 hours

FREN 4770 - Foreign Study

Student participation in a departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor and chairperson.

Credits: 1 to 16 hours

When Offered: (Fall-Spring 1 to 16 hours) Summer I/II 1 to 8 hours

FREN 5000 - Elementary French for Reading Proficiency

Intensive grammar and elementary reading for translation and research purposes. The course is primarily for the graduate who has had little or no study in the language. However, undergraduates who desire a thorough reading knowledge may also apply. No oral work.

Prerequisites & Corequisites: Prerequisite: Undergraduates must secure permission of department.

Credits: 3 hours

Notes: This course does not count toward a major or minor in French. Open to upper level and graduate students.

FREN 5010 - Intermediate French for Reading Proficiency

Readings in the language at intermediate and advanced levels for translation and research purposes. Special attention will be given to students' major fields. Completion of FREN 5010 with a minimum of "B" constitutes graduate proficiency in the language.

Prerequisites & Corequisites: Prerequisite: Undergraduates must secure permission of the Department.

Credits: 3 hours

Notes: This course does not count toward a major or minor in French. Open to upper level and graduate students.

FREN 5020 - French for Graduate Study

French instruction for graduate students enrolled in a degree program who need knowledge of French for their field of study. Students will sit in appropriate level course for their learning.

Prerequisites & Corequisites: Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures.

Credits: 3 to 4 hours

Notes: May be repeated for credit. May not be taken by undergraduate students in any field.

FREN 5030 - French - English Translation Practicum

This is a practical course to teach the skills for translating texts from French into English. The objective of this course is to develop further language proficiency and to introduce students to the nuts and bolts of translation. Students will produce English translations from different sorts of French texts, such as news, essays, documents, poetry, and short fiction.

Prerequisites & Corequisites: Prerequisite: FREN 3160 with a minimum grade of "C", or instructor approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

FREN 5100 - Topics in French and Francophone Studies

An intensive study of selected aspects of French and Francophone culture, literature, and film. Course varies according to topic. Representative topics might include Women in French Society, The French Tradition in Quebec, Francophone Cinema, Love and War in Modern French Fiction, Writing and Revolution in the French Caribbean. Taught in French.

Prerequisites & Corequisites: Prerequisites: FREN 3160 and either (FREN 3220 or FREN 3230 or FREN 3250 or FREN 3260) with a minimum grade of "C", or approval of instructor.

Credits: 3 hours

Notes: May be repeated for credit with a different topic. Open to upper level and graduate students.

FREN 5200 - Topics in French Linguistics and Language Science

The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures.

Prerequisites & Corequisites: Prerequisites: FREN 3160 and one other 3000-level course, or equivalent. A minimum grade of "C" is required in all prerequisites.

Credits: 3 hours

Notes: May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPNS/LAT/RUSS 5200. May be repeated for credit. Open to upper level and graduate students.

FREN 5400 - Old French Language and Literature

An introduction to Old French, with an emphasis on the development of reading ability. Various literary works will be studied in Old French and in translation. Coursework includes an individualized translation project.

Prerequisites & Corequisites: Prerequisite: FREN 3160 with a minimum grade of "C", or instructor approval. Working knowledge of Latin helpful.

Credits: 3 hours

Notes: Open to upper level and graduate students.

FREN 5500 - Independent Study in French

Directed individual study of a specific topic in a French literary or linguistic area.

Prerequisites & Corequisites: Prerequisites: One 5000-level course in the major; a minimum grade point average of 3.0 in the major; department approval required.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students. Not open to minors.

Gender and Women's Studies

GWS 1000 - Media and the Sexes

The course investigates how media--such as films, television, music videos, advertising, and gaming and social media--present images of women, men, and people outside gender binary to different audiences. Students analyze various media representations of human experience and critically read visual images, narratives, and texts, using critical feminist theoretical and interdisciplinary frameworks to explore the intersections of gender with race, class, sexuality, religion, and nationality, among other identities. This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement Category.

Credits: 3 hours

GWS 2000 - Introduction to Gender and Women's Studies

This interdisciplinary core course provides analytical frameworks for the study of gender and gender-defining institutions, exploring the social conditions associated with gender in the U.S. society in a global context. Course emphasizes approaches that study the diversity and similarity of gendered experience across class, racial and ethnic groups. This course satisfies WMU Essential Studies

Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 4 hours

GWS 2010 - LGBT Studies

This course provides an overview of lesbian, gay, bisexual, and transgender (LGBT) communities and identities, with an emphasis on history and social justice struggles. We will consider LGBT concerns related to a variety of institutions and structures, such as politics, schools, families, religion, and the workplace. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

GWS 3200 - Women, Globalization and Social Change

This course pursues an interdisciplinary analysis of the status of women worldwide and their efforts to create social change in a global context. We explore similarities and differences among women, recognizing the possibilities of transnational cooperation and the limitations of the idea of a "global sisterhood." This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

GWS 3400 - Race, Gender and Science

Using race and gender as analytical concepts, this course explores social dimensions of the natural sciences. Students examine how cultural values and biases inform scientific inquiry while gaining knowledge about the nature of science, the history of science, scientific policies, and media depiction of the sciences. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

GWS 3480 - Gender and Plastic Bodies

In U.S. society we tend to assume that there are two sexes - male and female. Even if we have learned that gender roles can change, as in expecting men to be more nurturing while more and more women pursue careers for example, we tend to accept that this is simply social change based on natural

sexes. In this course we will focus locally and globally in order to question this assumption of 'natural' sexes as we explore physiological variations that are culturally interpreted and understood and cultural interventions of 'natural' sex. Thus, we will apply global perspective at and beyond the limits of sex and gender, examining: (1) the ways in which human societies interpret physiological variation; (2) transgender experiences and categories as they vary cross-culturally; (3) and the role of technology in (re)shaping the 'natural' sexes and what it means to be human. Whether we are considering cyborg bodies, virtual bodies, tattooed and pierced bodies, or bodies surgically altered in a stunning variety of ways, we will be asking what is 'natural' and 'unnatural' about the assumed biological categories of male and female. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

GWS 3500 - Psychological Perspectives on Gender

The course investigates the meanings of gender in diverse segments of American society. Study will focus on psychological and sociological perspectives on the formation of gender roles and characteristics. The course provides a theoretical and practical analysis of the behavior, thoughts, and feelings of men and women and examines the ways gender is structured through parental and institutional socialization.

Credits: 3 hours

GWS 3700 - Special Topics in Gender and Women's Studies

Variable topics in Gender and Women's Studies.

Credits: 1 to 4 hours

Notes: May be repeated for credit when topic varies.

GWS 4010 - Foundations of Feminist Theory

An investigation of various texts historically significant in the development of feminist concepts and theories. Includes texts from the past as well as the present.

Prerequisites & Corequisites: Prerequisite: GWS 2000 with a grade of "C" or better.

Credits: 3 hours

GWS 4100 - Special Topics in Gender and Women's Studies

Variable topics in Gender and Women's Studies.

Credits: 1 to 4 hours

Notes: May be repeated for credit when topic varies.

GWS 4400 - Internship Seminar

Course offers an opportunity for the advanced student to apply theory and knowledge in Gender and Women's Studies to a professional or community project. Student will work under the supervision of a faculty advisor or a community sponsor. Opportunities available in areas such as television production, K-12 classroom presentations, and a variety of community organizations and agencies serving women and children.

Credits: 3 hours

GWS 4980 - Independent Study

Individual study available to the advanced student by permission of faculty advisor with department approval of project application.

Credits: 1 to 4 hours

Notes: May be repeated for credit.

GWS 5970 - Issues in Gender and Women's Studies: Variable Topics

Group study of special issues in Gender and Women's Studies. Variable topics may address theoretical, critical, or practical issues in the historical or contemporary context. The courses will be offered in response to the special needs and interests of students and may be organized around special events or available guest speakers.

Prerequisites & Corequisites: Prerequisite: Twelve hours of course work from the Gender and Women's Studies approved list (including GWS 2000) and at least junior level status, or departmental approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit when topics vary. Open to upper level and graduate students.

GWS 5980 - Readings in Gender and Women's Studies

Individual study project available to the advanced student by permission of faculty advisor with departmental approval of project application.

Prerequisites & Corequisites: Prerequisite: Twelve hours of course work from the Gender and Women's Studies approved list (including GWS 2000) and at least junior level status, or departmental approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

General Physical Education

PEGN 1020 - Badminton

Open to all students and emphasize the beginning skills in the activity given.

Credits: 1 hour

PEGN 1030 - Group Cardio

A workout guaranteed to challenge you to increase your endurance and become stronger, faster. Expect moderate to high intensity cardio exercises through movement using a variety of exercise equipment such as battle ropes, medicine balls, BOSUs, and plate-weighted bars.

Credits: 1 hour

Notes: Open to all students for general credit or as a co-requisite with HPHE 1701 - Health and Personal Practices, to fulfill the WMU Essential Studies requirement for Level 2: Exploration and Discovery - Personal Wellness Category.

PEGN 1040 - Basketball

Credits: 1 hour

Notes: Open to all students and emphasize the beginning skills in the activity given.

PEGN 1050 - Bowling

Credits: 1 hour

Notes: Open to all students and emphasize the beginning skills in the activity given.

PEGN 1060 - Canoe Camping

The course combines the fundamentals of camping with canoeing. Culminates with a weekend camping trip by canoe.

Credits: 1 hour

Notes: Open to all students and emphasize the beginning skills in the activity given.

PEGN 1070 - Canoeing

Credits: 1 hour

Notes: Open to all students and emphasize the beginning skills in the activity given.

PEGN 1090 - Cycling

Credits: 1 hour

Notes: Open to all students and emphasize the beginning skills in the activity given.

PEGN 1220 - Golf I

Beginners Only.

Credits: 1 hour

Notes: Open to all students and emphasizes the beginning skills in the activity given. The student with some experience in this activity should enroll in 2000/3000 level courses.

PEGN 1280 - Walking/Jogging for Fitness

This is a conditioning course that emphasizes cardiovascular fitness through your choice of walking, jogging, or a combination of both. Students will not be

required to run but will be expected to complete set distances.

Credits: 1 hour

Notes: Open to all students for general credit or as a co-requisite with HPHE 1701 - Health and Personal Practices, to fulfill the WMU Essential Studies requirement for Level 2: Exploration and Discovery - Personal Wellness Category.

PEGN 1310 - Beginning Karate

Beginners Only

Credits: 1 hours

Notes: Open to all students and emphasizes the beginning skills in the activity given. The student with some experience in this activity should enroll in 2000/3000 level courses.

PEGN 1320 - Military Fitness

Open to all students and emphasize the beginning skills in the activity given.

Credits: 1 hour

PEGN 1360 - Physical Fitness

Open to all students and emphasize the beginning skills in the activity given.

Credits: 1 hour

PEGN 1365 - Racquet Sports

This course provides an introduction to the skills of tennis, badminton, racquetball, pickleball, and table tennis. Students will learn the rules and basic techniques for social play.

Credits: 1 hour

Notes: Open to all students for general credit or as a co-requisite with HPHE 1701 - Health and Personal Practices, to fulfill the WMU Essential Studies requirement for Level 2: Exploration and Discovery - Personal Wellness Category.

PEGN 1370 - Racquetball

Beginners Only

Credits: 1 hour

Notes: Open to all students and emphasizes the beginning skills in the activity given. The student with some experience in this activity should enroll in 2000/3000 level courses.

PEGN 1380 - Wall Climbing Techniques

Wall-climbing is a multi-dimensional sport that requires strength and flexibility, as well as a high level of endurance and skill. It also offers a balance between physical exercise and mental discipline. Climbers will quickly begin to develop hand, arm, back, and core strength as a result of the movements the climber needs to scale the wall. With practice, climbers will see improvement in agility, their ability to increase strength-to-weight ratio, and flexibility in hips and hamstrings. No experience needed.

Credits: 1 hour

Notes: Open to all students for general credit or as a co-requisite with HPHE 1701 - Health and Personal Practices, to fulfill the WMU Essential Studies requirement for Level 2: Exploration and Discovery - Personal Wellness Category.

PEGN 1390 - Relaxation

Open to all students and emphasize the beginning skills in the activity given.

Credits: 1 hour

PEGN 1440 - Alpine Skiing/Snowboarding

Designed to teach inexperienced skiers to link turns together with control on beginning and beginning/intermediate terrain. Introduces the fun of downhill skiing and emphasizes skills necessary to ski safely on appropriate terrain. If students choose snowboarding, basic skills necessary for safe and fun snowboarding on appropriate terrain will be taught. Also skidded turns with control on beginning and beginning/intermediate terrain. The variables of weather and snow conditions will be instructed. Students can choose to learn how to alpine ski or snowboard. Equipment is available to rent for a nominal fee at Timber Ridge Ski

Lodge, Students are responsible for personal transportation to Timber Ridge Ski Lodge.

Credits: 1 hour

Notes: Open to all students for general credit or as a co-requisite with HPHE 1701 - Health and Personal Practices, to fulfill the WMU Essential Studies requirement for Level 2: Exploration and Discovery - Personal Wellness Category.

PEGN 1460 - Soccer

Credits: 1 hour

Notes: Open to all students and emphasize the beginning skills in the activity given.

PEGN 1470 - Softball

Credits: 1 hour

Notes: Open to all students and emphasize the beginning skills in the activity given.

PEGN 1495 - Swimming - Beginning

Introduction and practice in basic swimming skills. This course is designed for the non-swimmer. Students will be instructed in proper technique of front and back floats, front crawl and elementary back stroke. Students will receive both shallow and deep water instruction.

Credits: 1 hour

Notes: Open to all students for general credit or as a co-requisite with HPHE 1701 - Health and Personal Practices, to fulfill the WMU Essential Studies requirement for Level 2: Exploration and Discovery - Personal Wellness Category.

PEGN 1500 - Swimming - Intermediate

This class is for those who can swim across a 50-yard pool. In this class you will learn how to: breathe effectively, tread water, dive in from the edge and use swimming equipment (kick boards, pull buoys, hand paddles, fins). You will be introduced to and gain further development of the 4 competitive swimming strokes (Freestyle, Backstroke, Breaststroke, and Butterfly). An introduction to flipturns and intervals (50 yard repeats) will be taught. You MUST be comfortable in deep water, if you are

uncomfortable in deep water please take PEGN 1490 Swimming - Beginning.

Prerequisites & Corequisites: Prerequisite: PEGN 1490 or equal skills.

Credits: 1 hour

Notes: Open to all students for general credit; or as a co-requisite with HPHE 1701 - Health and Personal Practices, to satisfy the WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

PEGN 1600 - Tennis I

Beginners Only.

Credits: 1 hour

Notes: Open to all students and emphasizes the beginning skills in the activity given. The student with some experience in this activity should enroll in 2000/3000 level courses.

PEGN 1630 - Volleyball

Open to all students and emphasize the beginning skills in the activity given.

Credits: 1 hour

PEGN 1655 - Introduction to Weight Training

Introduction to Weight Training is a 1-credit class that allows students to learn and apply weight training principles with an individualized approach. Students will learn proper lifting technique and how to design and implement a basic weight training program tailored to their own fitness goals.

Credits: 1 hour

Notes: Open to all students for general credit or as a co-requisite with HPHE 1701 - Health and Personal Practices, to fulfill the WMU Essential Studies requirement for Level 2: Exploration and Discovery - Personal Wellness Category.

PEGN 1660 - Intermediate Weight Training

This course is designed to introduce the advanced beginner to intermediate weight trainer to a variety of intermediate level weight training skills associated with the elevated levels of weight training.

Credits: 1 hour

Notes: Open to all students for general credit or as a co-requisite with HPHE 1701 - Health and Personal Practices, to fulfill the WMU Essential Studies requirement for Level 2: Exploration and Discovery - Personal Wellness Category.

PEGN 1700 - Health and Wellness - Aerobics

Students are provided information and experience allowing them to (1) acquire a knowledge base about human wellness from physical, mental, personal-social and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle.

Credits: 2 hours

Notes: Open to all students and emphasize the beginning skills in the activity given. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.

PEGN 1701 - Aqua Aerobics

A low impact workout for all fitness levels that develops cardio and muscular strength/endurance. Through the use of equipment and the natural resistance of water, the instructor will keep you motivated. Must be comfortable in deep water.

Credits: 1 hour

Notes: Open to all students for general credit or as a co-requisite with HPHE 1701 - Health and Personal Practices, to fulfill the WMU Essential Studies requirement for Level 2: Exploration and Discovery - Personal Wellness Category.

PEGN 1702 - Circuit Training

This class is a total body workout! We will use resistance and cardio training techniques to improve your endurance and help you build strength. Circuit training allows you to

fit a huge variety of movements into your workout - meaning a full body challenge, and none of the boredom that can come with repetitive exercises. Plus, circuit training has all the metabolism and mood boosting benefits of standard resistance training - just in a quicker format.

Credits: 1 hour

Notes: Open to all students for general credit or as a co-requisite with HPHE 1701 - Health and Personal Practices, to fulfill the WMU Essential Studies requirement for Level 2: Exploration and Discovery - Personal Wellness Category.

PEGN 1710 - Health and Wellness - Water Aerobics

Students are provided information and experience allowing them to (1) acquire a knowledge base about human wellness from physical, mental, personal-social and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle.

Credits: 2 hours

Notes: Open to all students and emphasize the beginning skills in the activity given. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.

PEGN 1720 - Health and Wellness - Circuit Fitness

Students are provided information and experience allowing them to (1) acquire a knowledge base about human wellness from physical, mental, personal-social and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle.

Credits: 2 hours

Notes: Open to all students and emphasize the beginning skills in the activity given. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.

PEGN 1730 - Health and Wellness - Jogging

Students are provided information and experience allowing them to (1) acquire knowledge base about human wellness from physical, mental, personal-social and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle.

Credits: 2 hours

Notes: Open to all students and emphasize the beginning skills in the activity given. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.

PEGN 1740 - Health and Wellness - Walking

Students are provided information and experience allowing them to (1) acquire a knowledge base about human wellness from physical, mental, personal-social and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle.

Credits: 2 hours

Notes: Open to all students and emphasize the beginning skills in the activity given. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.

PEGN 1750 - Special Activities

Various activity classes that are not a part of the regular curriculum are occasionally offered in this course section. Open to all students and emphasizes the beginning skills in the activity given.

Credits: 1 hour

PEGN 1760 - Health and Wellness - Racquet Sports

Students are provided information and experience allowing them to (1) acquire knowledge about human wellness from physical, mental, psychosocial, and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a

positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle.

Credits: 2 hours

Notes: Open to all students and emphasize the beginning skills in the activity given. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.

PEGN 1770 - Health and Wellness - Climbing Techniques

Students are provided information and experience allowing them to (1) acquire knowledge about human wellness from physical, mental, psychosocial, and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle.

Credits: 2 hours

Notes: Open to all students and emphasize the beginning skills in the activity given. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.

PEGN 1800 - Health and Wellness - Beginning Swimming

Students are provided information and experiences which allow them to: (1) acquire knowledge about human wellness from physical, mental, personal-social and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which facilitates a healthy lifestyle.

Credits: 2 hours

Notes: Open to all students and emphasize the beginning skills in the activity given. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.

PEGN 1810 - Health and Wellness - Intermediate Swimming

Students are provided information and experiences which allow them to: (1) acquire knowledge about human wellness from physical, mental, personal-social and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which facilitates a healthy lifestyle.

Credits: 2 hours

Notes: Open to all students and emphasize the beginning skills in the activity given. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.

PEGN 1820 - Health and Wellness - Swim Conditioning

Students are provided information and experiences which allow them to: (1) acquire knowledge about human wellness from physical, mental, personal-social and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which facilitates a healthy lifestyle.

Credits: 2 hours

Notes: Open to all students and emphasize the beginning skills in the activity given. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.

PEGN 2000 - Physical Education Learning Lab Activities

Guided individual instruction in a variety of physical education activities. Resources such as films, books and workshops are available to aid the student to learn in a manner and rate suitable to the individual skill and knowledge. Competency testing will be used to determine achievement and place individuals at beginning, intermediate or advanced levels. Course is repeatable for up to 8 hours credit (University limit) under 2000 number, with different course titles.

Prerequisites & Corequisites: Prerequisite: GPA of 3.0 overall.

Credits: 1 hour

Notes: Open to all students who have completed a 1000-level course in the activity or the equivalent.

PEGN 2080 - Intermediate Backpacking

Credits: 1 hour

Notes: Open to all students who have completed a 1000-level course in the activity or the equivalent.

PEGN 2440 - Intermediate Alpine Skiing

Credits: 1 hour

Notes: Open to all students who have completed a 1000-level course in the activity or the equivalent.

PEGN 2490 - Swimming - Intermediate

Open to all students who have completed a 1000-level course in the activity or the equivalent.

Credits: 1 hour

PEGN 2630 - Volleyball Intermediate

Credits: 1 hour

Notes: Open to all students who have completed a 1000-level course in the activity or the equivalent.

PEGN 3510 - Lifeguard Training Instructor (LGI)

American Red Cross Revised (1992) will prepare the student already certified as a lifeguard to instruct Basic Water Safety, Emergency Water Safety and Lifeguard Training.

Prerequisites & Corequisites: Prerequisite: PEGN 3490.

Credits: 2 hours

Notes: Open to all students desiring additional experience in an activity and who have completed the 2000-level course or permission of instructor to enroll.

PEGN 4000 - Baseball

A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

Credits: 1 hour

PEGN 4010 - Basketball

A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

Credits: 1 hour

PEGN 4050 - Football

A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

Credits: 1 hour

PEGN 4060 - Golf

A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

Credits: 1 hour

PEGN 4070 - Gymnastics

A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

Credits: 1 hour

PEGN 4080 - Ice Hockey

A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

Credits: 1 hour

PEGN 4090 - Soccer

A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

Credits: 1 hour

PEGN 4100 - Softball

A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

Credits: 1 hour

PEGN 4130 - Tennis

A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

Credits: 1 hour

PEGN 4140 - Track/Field

A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

Credits: 1 hour

PEGN 4150 - Volleyball

A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

Credits: 1 hour

Geography

GEOG 1000 - World Ecological Problems and Man

Geographers have long been concerned with studying the interactions between human beings and the environment. The major focus of these investigations today is concerned with misuse of the environment, which has led to the present day environmental crisis. The introductory course combines scientific and non-technical appraisals of processes and problems dealing with the question of environmental quality. Therefore, humanity will be studied in the physical as well as the social setting. Though major issues may vary for developing and developed nations,

topics concerned with population pressure, pollution, and urbanization will be among those considered. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 4 hours

GEOG 1020 - World Geography through Media and Maps

This course presents an introduction to the geography of the earth. This includes the earth as the home of humans, major urban concentrations, descriptive physical characteristics of continents and countries, political subdivision, and general man-land relationships which reflect cultural preferences. Information delivery will be through textual material with a major concentration of carefully selected audiovisual and map study activities to enhance investigating the character of distant places. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

GEOG 1050 - Physical Geography

(Science credit) A study of the physical environmental systems of our earth. The course examines the seasonal and latitudinal distribution of solar energy; analyzes the many elements of weather, climate, vegetation, and soils; and finally considers the earth's major landforms and the processes which shape them. Though each topic is treated separately, this course demonstrates the basic relationships among these topics and points out the human implications in all physical earth systems. Map use and laboratory work is an integral part of this course. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 1)

GEOG 1900 - Exploring Earth Science: The Atmosphere

This is a laboratory course designed to develop and build the concepts and principles of the Earth system with an emphasis on the atmosphere. The objectives of the course are to aid students in developing meaningful and functional understanding of key earth science atmospheric concepts

and their interrelations; to provide students with open-ended problem solving experiences that facilitate inquiry regarding the nature and content of science as an intellectual activity; explore alternate conceptions of scientific phenomena; help students develop more positive attitudes towards science and increase their confidence to both explain and apply Earth system theories and principles. Does not serve as an alternate to GEOG 2250 in any programs.

Credits: 3 hours

GEOG 2050 - Human Geography

This course is an introduction to the study and analysis of humans in the landscape. We will look at how people perceive space, how they interact in space, and how space really matters to the study of everything. The course will touch on concepts in history, economics, demographics, the environment, culture, politics, agriculture and planning. We will look at impacts of technology on human to human and human to environment interaction and will also examine opportunities for future work in the field of Geography.

Credits: 3 hours

GEOG 2250 - Introduction to Meteorology and Climatology

(Science credit) A non-mathematical analysis of atmospheric behavior. The fundamental physical laws affecting the elements of weather - solar radiation, temperature, moisture, pressure, and winds are examined during the first half of the course. Weather systems and forecasting, atmospheric optics, climatic change, and regional climates are examined during the second half of the course. Laboratory meetings dealing with instrumentation and weather map analysis are an integral part of the course. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Prerequisites & Corequisites: Prerequisite: GEOG 1050 or equivalent.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 1)

GEOG 2440 - Economic Geography

This course reviews the spatial processes and patterns for primary production, transportation, manufacturing and energy, service functions, trade and economic development. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

GEOG 2560 - Introduction to Urban, Regional, and Environmental Planning

This course introduces students to the contemporary practices of community and regional planning in American cities, towns and metropolitan areas. Within this context, the course will provide students with a basic understanding of the history, theory and practice of community and regional planning as means by which communities broadly engage in efforts to confront social issues and improve their quality of life. The course will also introduce a variety of techniques commonly used in the professional practice of planning from the perspective of a general understanding of ways by which planning contributes to changing social, economic, and physical conditions in American cities, town and regions. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

GEOG 2650 - Introduction to Geospatial Technologies

Introduction to technologies used for visualization, measurement, and analysis of features that occur on earth. Students are introduced to fundamentals of cartography, global positioning system (GPS), geographic information science (GIS), and remote sensing of the environment (RS). Topics will include nature and characteristics of geospatial technologies, concepts and characteristics of spatial data, principles and methods of capturing and representing spatial data, and methods of analysis and interpretation of spatial data. Students will have hands-on experience in working with the full range of geospatial technologies and products including maps, air photos, satellite images, GPS, as well as current GIS software. This course satisfies the student learning outcomes in the WMU Essential Studies Level 1: Foundations - Oral and Digital Communications Course Category.

Credits: 3 hours

GEOG 3010 - Fundamentals of Geographic Information Systems

An introductory course that covers the use and application of geographic information systems (GIS). It combines an overview of general principles of GIS and practical experience in map creation and the use of spatial information, including fundamental aspects of measurement, representation and analysis. Intro GIS focuses on the basics of working with both vector and raster data, as well as the societal aspects of GIS (emerging uses, interaction with new technologies, data standards, public access to information). This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category. Students cannot receive credit for both GEOG 3010 and GEOG 5010.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 1)

GEOG 3020 - Cartographic Design and Geovisualization

An introduction to the theory, art, and science of mapmaking and cartographic design, specifically focusing on production and evaluation of thematic map products. Students will employ cartographic design principles to create and edit effective visual representations of geospatial data (e.g., maps, virtual environments) in a variety of formats (e.g., print, digital, animated). Specific topics include the history of cartography, map projections, data classification, symbolization and the visual variables including color and shape, typography, thematic map types (e.g., choropleth, dot, flow, proportional symbol, cartogram, multivariate), and web-based and interactive maps.

Prerequisites & Corequisites: Prerequisite: GEOG 3010 with a grade of "C" or better.

Credits: 3 hours

GEOG 3030 - Geographic Inquiry

Students will be introduced to geography as a field of study, research and professional opportunity. Students will have an opportunity to investigate social and environmental problems through data collection, analysis, interpretation, and graphic and written presentation. The emphasis throughout will be on the application of inquiry models to geographic and environmental problems. This course

satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Prerequisites & Corequisites: Prerequisites: STAT 1600 or STAT 2160 or STAT 2660 or STAT 3640 or STAT 3660.

Credits: 4 hours

Restrictions: Restricted to Geography majors and minors and Tourism and Travel majors.

GEOG 3040 - Methods of Planning Analysis

Introduction to a variety of methods of planning analysis used in the investigation of community and regional issues, and the practice of community and regional planning. Topics include population and demographic analysis, local and regional socio-economic analysis, and spatial and environmental analysis.

Prerequisites & Corequisites: Prerequisites: CORP 2560 and STAT 2160 or STAT 2600 or STAT 3660.

Credits: 3 hours

GEOG 3060 - Climate Change: Past, Present, and Future

(Science credit) The study of the atmospheric environment as it interacts with humans and society. Special emphasis is given to the following: the role of weather and climate in affecting the successful outcome of plans and economic decisions; the dynamics of changing climates and their role in affecting the course of history; human physiological and psychological responses to weather and climate; weather forecasting and its value to society; and the hazards to life, health, and property posed by severe weather. Students should expect to achieve a sufficient understanding of the atmospheric environment so that they may make informed decisions involving weather topics. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

GEOG 3070 - Extreme Weather under Changing Climate

This course provides a thorough introduction of both physical mechanisms and social impact of extreme weathers under climate change. Topics will include

introductions of physical properties of different kinds of extreme weather events including hurricanes, tornadoes, thunderstorms, blizzard, freezing rain, and drought, and discussions of their possible relations with climate change. Socio-economic impacts and mitigation of those events will also be introduced with the form of case studies. There will be both class and lab sessions for this course.

Prerequisites & Corequisites: Prerequisite: GEOG 1050 or instructor approval.

Credits: 3 hours

GEOG 3100 - Introduction to Tourism

Overview of the tourism industry and the factors which influence its structure and development. Examination of tourism as a human experience, a social-cultural phenomenon, an industry and a policy and research field.

Credits: 3 hours

GEOG 3110 - Geography of Michigan

An introduction to the physical and cultural patterns in Michigan with emphasis on an understanding of the distribution of population, resources, and forms of economic activity. Attention is also focused upon relevant current State problems.

Credits: 3 hours

GEOG 3200 - Culinary Tourism

Culinary tourism is defined as the pursuit of unique and memorable culinary experiences of all kinds, often while traveling. These experiences, which include famous restaurants, bed and breakfast inns, local eateries, wineries, cooking schools, and food festivals, provide business opportunities to tourism industry, and learning opportunities to individuals about places and cultures from a culinary perspective. This course explores the geography of the culinary world with particular reference to the origins and diffusion of the world's major staples and their relationships with regional cuisines and tourists sites. Topics include the relationship between tourism and food and wine, political, social, and economic contexts of food production and food flow, case studies of regional cuisines in the United States and from around the world, and their implications for the tourism and travel industry. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures

Category.

Credits: 3 hours

GEOG 3260 - Atmospheric Energy and Motion

This course prepares students for advanced coursework in climate science by surveying the application of physical, chemical, and mathematical principles to a broad range of atmospheric phenomena. Students are introduced to fundamental concepts and applications of atmospheric thermodynamics, radiative transfer, atmospheric chemistry, cloud microphysics, atmospheric dynamics, and climate dynamics. These topics are covered broadly but in enough depth to introduce students to the methods atmospheric scientists use to describe and predict atmospheric phenomena and climate impacts.

Prerequisites & Corequisites: Prerequisites: GEOG 2250 and MATH 1220.

Credits: 3 hours

GEOG 3400 - Cultural Tourism

This course provides an introduction to the main principles and practices for cultural tourism development at local, regional, national, and international levels. The course investigates the relationship between culture and tourism, by examining the socio-cultural complexities of cultural tourism. Issues and trends in the management of cultural assets, such as interpretation, globalization, cross-cultural values, authenticity, impacts of development, and sustainable tourism, are investigated. Analysis of a wide range of cultural attractions, cultural events and festivals, cultural visitors' behavior and motivation, souvenirs, and contemporary approaches to the cultural tourism development and management will also be covered. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

GEOG 3500 - Conservation and Environmental Management

(Science credit) A critical evaluation of the management of selected natural resources with primary focus on the United States. Conflicts between environmental and economic interests are examined in both historical and contemporary contexts. This course satisfies WMU Essential Studies

Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

GEOG 3550 - Contemporary Issues in Resources Management

Examination of selected contemporary natural resource and environmental problems, such as questions of natural resource adequacy, environmental pollution, energy shortages, political and economic problems related to resource management, and individual studies of local, national and global environmental problems. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

GEOG 3800 - United States and Canada

A study of the physical environment north of the Rio Grande followed by an analysis of the spatial structure of the area's population and economy. The basis for the regional differentiation of the USA and Canada is considered, followed by a region-by-region analysis of each of these unique integrations of physical and cultural phenomena. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

GEOG 3810 - South America

Regional study of the nations of South America with attention to the interrelationships of the physical and cultural environments. Historical background necessary for the interpretation of the present political, social, and economic conditions is included. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

GEOG 3820 - Mexico and the Caribbean

Systematic review of the physical and cultural environments of Mexico, Central America and the West Indies. Economic, social and political issues will be examined from a spatial viewpoint. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

GEOG 3830 - Geography of Europe

Intensive regional study of the European nations. The physical elements (climate, landforms, resources, etc.) are examined and the derivative cultural elements are identified. Emphasis is placed upon the social and economic activities of contemporary Europe.

Credits: 3 hours

GEOG 3860 - Geography of Africa

Survey of the principle physical, cultural, economic and political patterns of Africa, followed by studies of the significant elements of the major realms and states, e.g., population distribution, agriculture, patterns of economic and natural resource development, environmental issues, transportation systems, etc. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

GEOG 3890 - Monsoon Asia

Systematic survey of the physical and human (socio-economic) environments of the southeastern rim of Asia (Pakistan in the west to Japan in the east). Geographical background necessary to interpret present conditions is included.

Credits: 3 hours

GEOG 3900 - China, Japan, and Korea: Lands and Cultures

An introduction to the contemporary landscapes, cultures, and economies of the countries of East Asia, specifically China, Japan, and the Koreas (ROK, PRK). It is a survey of the interactions over time between the physical environments of East Asia and the cultures, the political conditions, the economies, and societies of the nations and places within the region. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

GEOG 4030 - Planning Law and Administration

The course will focus on the legal foundations of land use planning in the United States and in the state of Michigan including governmental institutions, real property, constitutional law, land use law, and environmental law. Administrative aspects of governmental practice as applied to land use regulation, land development, and the processes of local and regional plan development and implementation will also be covered.

Prerequisites & Corequisites: Prerequisite: CORP 2560

Credits: 3 hours

GEOG 4080 - Tourism Marketing

Examination of the linkages between geography and tourism, the marketing of travel, and tourism and hospitality products. The course covers tourism and marketing research methods, marketing strategies, marketing planning, and marketing plan implementation with a focus on issues of tourism development. Students apply concepts and materials to a course research project related to tourism providers in west Michigan.

Prerequisites & Corequisites: Prerequisite: GEOG 3100

Credits: 3 hours

GEOG 4120 - Professional Practice

Provision for an advanced student to benefit by supplementary practical experiences in a particular branch of geography, either by assisting faculty engaged in research or by working in a departmentally-approved off-campus agency. Specific assignments are arranged in consultation with departmental advisors during the semester preceding that in which the student expects to enroll in 4120.

Prerequisites & Corequisites: Prerequisites: Junior standing and approval of Department Chair.

Credits: 1 to 3 hours

Restrictions: Restricted to Geography majors and minors, and Tourism and Travel majors.

Notes: The student may enroll for one additional semester,

but no student will be allowed more than three hours total credit for 4120.

GEOG 4180 - Tourism Planning and Development

Introduction to concepts, principles, models, and theories of tourism planning and development. Analysis of issues in tourism planning including potential of the tourist sector, tourism image and impacts, positioning of tourism products, destination planning, and tourism development process and strategies at national, regional, and local levels.

Prerequisites & Corequisites: Prerequisite: GEOG 3100

Credits: 3 hours

GEOG 4240 - Biogeography

This course focuses on the application of geographic theory, methods and techniques to the spatial distributions of plant and animal species. The course will explore both the physical and human dimensions of patterns and processes associated with species distributions, movement and conservation. Course themes will include such topics as: physical environment impacts on growth, development and distribution; global regions and ecoregions; agricultural production and domesticated species; movement of species (domestic, invasive); and epidemiology.

Prerequisites & Corequisites: Prerequisites: GEOG 1000 or GEOG 1050.

Credits: 3 hours

GEOG 4250 - Climatology

The course provides a detailed examination of the science of climatology and offers hands-on experience utilizing climatological data and methods to address environmental problems. Topics include the physics of climate, global climatic regions, climate feedback processes, paleoclimate and climate change, air pollution climatology, climatological data analysis methods, application of climatic processes and data to a wide variety of environmental problems.

Prerequisites & Corequisites: Prerequisite: GEOG 2250 or instructor approval.

Credits: 3 hours

GEOG 4260 - Natural Disasters and Risk Management

Examination of a broad range of geographic issues and topics relating to natural hazards/disasters, while emphasizing the understanding of physical and social dynamics that must interact to produce hazards/disasters, the spatial and temporal distributions of various hazards, and policy options for disaster preparation and loss reduction. Topics include the physical dimensions of natural hazards/disasters, community attitudes and adjustments, economic and social impacts of natural hazards/disasters, risk assessment and management, and natural hazards/disasters and public policy.

Prerequisites & Corequisites: Prerequisite: GEOG 1050 or GEOS 1500 or instructor approval.

Credits: 3 hours

GEOG 4300 - Climate Change and Geography

This course takes an interdisciplinary approach to analyze paramount climate change issues from geographical perspectives. Topics to be covered include climate change science, geography of climate change, spatial analysis, environmental and human impacts of, response and adaptation to climate change at global, regional, and local scales. Case studies from different countries and disciplines will be used to facilitate active student participation in the course.

Prerequisites & Corequisites: Prerequisites: GEOG 2250 and senior standing, or instructor approval.

Credits: 3 hours

GEOG 4560 - Land Use and Environmental Planning

A survey of the field of land use planning; concepts of land use planning; traditional and contemporary approaches to land use planning; the background and practice of zoning and subdivision regulations in American municipalities; land use and transportation planning.

Prerequisites & Corequisites: Prerequisites: CORP 2560 or instructor approval.

Credits: 3 hours

GEOG 4600 - Geospatial Technology in Teaching Geography and Social Studies

This pre-service course is designed for students meeting professional requirements necessary for teaching geography/social studies. The course applies a balance of geospatial technology embedded within teaching methodologies that enhance social science inquiry in the classroom. Instructional approaches to meet content standards in social studies from the Michigan Department of Education are a major focus, along with the application of national content standards in the core content of the social studies.

Prerequisites & Corequisites: Prerequisite: LS 4050 and ED 4060; (may be taken concurrently).

Credits: 3 hours

GEOG 4670 - GIS Projects and Programming

Principles and applications of GIS project management, including devising an efficient, innovative and practical solution to a real-world problem by acquiring, organizing, and analyzing data using a GIS and advanced techniques in spatial analysis, spatial statistics, and/or cartographic programming. Discussion topics will include professionally relevant issues such as team management, budget and proposal development and customizing GIS with internal and external languages.

Prerequisites & Corequisites: Prerequisite: GEOG 3010 with a grade of "C" or better.

Credits: 3 hours

GEOG 4685 - Internet GIS

Principles and applications of GIS in the Internet environment. Topics to be covered may include WebGIS application tools, geospatial web services, geospatial mashups, participatory GIS applications, web-based data mining, ArcGIS API for JavaScript, and Mobil GIS.

Prerequisites & Corequisites: Prerequisite: GEOG 3010 with a grade of "C" or better.

Credits: 3 hours

GEOG 5000 - Advanced Tourism Studies

This course uses a multidisciplinary approach to examine the burgeoning tourism industry and addresses some emerging issues in tourism development. Topics include but not limited to cultural tourism, ecotourism, agritourism, and tourism and sustainability. Case studies from different countries will be used to illustrate the topics under discussion. It is a seminar-style course where student participation is expected.

Prerequisites & Corequisites: Prerequisite: GEOG 3100

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

GEOG 5010 - Introduction to Geographic Information Systems

Introduction to basic principles of Geographic Information Systems (GIS) with applications to a variety of problems using established data sources and repositories. Includes fundamental principles of cartographic design and communication. A first course in a curricular sequence developing GIS professional expertise.

Credits: 4 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 1)

GEOG 5020 - Cartographic Design

An introduction to the theory, art, and science of mapmaking and cartographic design, specifically focusing on production and evaluation of thematic map products. Students will employ cartographic design principles to create and edit effective visual representations of geospatial data (e.g., maps, virtual environments) in a variety of formats (e.g., print, digital, animated). Specific topics include the history of cartography, map projections, data classification, symbolization and the visual variables including color and shape, typography, thematic map types (e.g., choropleth, dot, flow, proportional symbol, cartogram, multivariate), and web-based and interactive maps.

Prerequisites & Corequisites: Prerequisite: GEOG 3010 or GEOG 5010; with a grade of "C" or better in any prerequisite.

Credits: 3 hours

Notes: Open to graduate students only.

GEOG 5436 - Transportation Planning

This course covers the practice of planning multimodal transportation systems including motorized transportation networks (roads, cars, and trucking), public transportation (buses and rail), paratransit, non-motorized transportation (trails, bikes, and pedestrian), airlines and airports, freight (road, rail, water, and air), and information networks. Information processing applications covered in this course include GIS-T and Intelligent Transportation Systems.

Prerequisites & Corequisites: Prerequisites: 14 credit hours of geography or community regional planning; or advisor and/or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOG 5440 - Studies in Economic Geography

Studies in world and local patterns of agriculture, manufacture, transportation, or retail/service activities. In any term, the course focuses upon one of these four economic sectors.

- Agriculture. Describes and analyzes agricultural systems throughout the world; focuses on selected crop-livestock systems and the changing character of agricultural land use in the United States.
- Manufacturing. Examination of theories and strategies of industrial plant location, the relationship of industrialization to regional economic growth and development, and selected industry case studies evaluating the interrelations of locational, economic, technological, and political factors in the respective industry's historic evolution.
- Transportation. Examination of the historic evolution of transport systems in developed and developing nations, transport factors in location theory, techniques of transport analysis, the urban transport dilemma, and competitive and complementary characteristics of the different transport modes.
- Retail and Service. Examination of the evolution of the retail and service sector, the geography of retail and service firms, theories and strategies of

retail and service firm location, and the relationship between retail and service sector and local economic development.

Prerequisites & Corequisites: Prerequisites: GEOG 2050 or GEOG 2440 or instructor approval.

Credits: 2 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

GEOG 5450 - Studies in Human Geography

Each course listed under this general title is a concentrated study of one of the principal subdivisions of human geography. The scope and principal themes of each specialized field are reviewed, with consideration given to current research on selected problems.

- Cultural Geography. Techniques of spatial analysis applicable to the study of humans and their environment. The place of origin, diffusion, and present distribution of selected cultural patterns will be traced with emphasis given to cultural traits which strongly influence human occupancy of the earth's surface.
- Historical Geography. Studies of geographic and related features which have combined to influence the course of historical development. This course will concentrate on a particular region and/or period of time during each semester in which it is offered. Each specialization will be designated in the class schedule.
- Political Geography. General survey of the principles and the applied aspects of political geography; primary emphasis on the physical and cultural resource bases and conflicts of national states, the assessment of location, boundary delimitation and the territorial sea, politically-organized territories within the administrative hierarchy, and electoral geography.

Credits: 2 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

GEOG 5530 - Water Resources Management

Examination of water resources management with an emphasis on the effects of water uses and runoff on water

quality and quantity. Topics include: water resource systems, estimating consumptive and non-consumptive water uses, and run off with computer models, and multiple socio-economic and hydrological factors in water resources management.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOG 5541 - Outdoor Recreation: Resources and Planning

(Science Credit) Examination of extensive, resource-based outdoor recreation (such as parks, wilderness, wild rivers, hunting and fishing, hiking, etc.) with emphasis upon recreational planning. Topics include supply and demand for outdoor recreation, identification of present and future recreational needs, policy considerations, administration of recreational land uses, and various problems associated with outdoor recreation. Readings, discussion, and student-designed and executed individual studies provide professional orientation.

Prerequisites & Corequisites: Prerequisites: 14 credit hours of geography or community and regional planning; or advisor and/or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOG 5550 - Contemporary Issues in Resources Management

(Science credit) Examination of selected contemporary natural resource and environmental problems, such as questions of natural resource adequacy, environmental pollution, energy shortages, political and economic problems related to resource management, and individual studies of local environmental problems.

Prerequisites & Corequisites: Prerequisite: GEOG 3500 or department approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOG 5570 - Environmental Impact Assessment

Alteration of the natural and human environment for perceived economic and social benefits often has significant adverse consequences. Recognition of this problem is reflected in federal, state, and local laws and regulations requiring environmental impact statements. The course provides an introduction to the analysis and preparation of environmental impact assessments.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOG 5582 - Planning Studio

A project oriented studio course designed to focus on applied planning and design techniques. Integration and application of skills and knowledge from other courses to "real-life" community-based planning projects. Projects will integrate the physical and human environments: terrain and landscape, natural and cultural context, microclimate, infrastructure, and adjacent land uses, economic and environmental impacts, etc. Studio seminars, discussion, and field visits will explore theory and practice in observation, problem formulation, alternatives generation, and plan development and presentations.

Prerequisites & Corequisites: Prerequisites: 14 credit hours of geography or community regional planning, including CORP 2560; or advisor and/or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOG 5630 - Surveying Techniques

The theory and application of geographic techniques and instruments of field investigations: collection and analysis of field data, preparation and presentation of materials. The course is based primarily upon field operations. The purpose is to introduce students to the capabilities and limitations of traditional surveying techniques and the Global Positioning System (GPS). Students will gain a basic understanding of how satellite-based navigation systems operate and they will put into practice through a series of field exercises.

Prerequisites & Corequisites: Prerequisite: GEOG 3010 or GEOG 5010.

Credits: 4 hours

Notes: Open to upper level and graduate students.

GEOG 5670 - Spatial Analysis

This course provides an introduction to techniques for spatial data analysis in geographical research. Topics include: experimental design and sampling; spatial data visualization and exploration; analysis of clusters and point patterns; global and local indicators of spatial autocorrelation; basic concepts of geostatistics; and an introduction to spatial data analysis. The main focus will be on data description and exploration.

Prerequisites & Corequisites: Prerequisites: STAT 3660 or STAT 6020.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOG 5690 - Geodatabase Design and GIS Workflows

Principles and applications of geographic information systems (GIS). Designing, creating, populating, and using geodatabases and workflows. Emphasis is placed on developing solutions to problems involving spatial entities and attributes by employing logical conceptual analysis using the tools provided by a typical geographic information system.

Prerequisites & Corequisites: Prerequisite: GEOG 3010 or GEOG 5010, with a grade of "C" or better.

Credits: 4 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 1)

GEOG 5710 - Introduction to Community Development and Planning

An introductory survey of community planning and development practices in America. Topics include concepts of community planning and development, evolution and development of planning thought and practice in America, the background of planning and zoning in American municipalities, traditional and contemporary approaches to planning, planning theory, elements of planning law and administration, and ethical issues in planning.

Prerequisites & Corequisites: Prerequisites: GEOG 3560 or Graduate standing or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOG 5720 - Cities and Urban Systems

Study of processes and forms of urban settlement highlighting problems relating to (1) political and geographical realities of urbanized regions, (2) factors in city growth (or decline), (3) the sizes, functions, and geographical distribution of cities, and (4) population patterns in contemporary cities. Activities are designed to provide the student with experience in the use of source materials and methods of analysis utilized in urban geography.

Prerequisites & Corequisites: Prerequisites: 14 credit hours of geography or community and regional planning, including GEOG 2440; or advisor and/or instructor approval.

Notes: Open to upper level and graduate students.

GEOG 5820 - Remote Sensing of the Environment

An introduction to the physical concepts and methodological foundations of air photo and satellite image interpretation, photogrammetry, and digital image processing. Students are also exposed to the physical principles that underlie electromagnetic radiation and its interactions with the earth-atmosphere system. Students who successfully complete this course will understand the capabilities and limitations of photographic and digital imagery obtained from aircraft and space-borne platforms.

Credits: 4 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 1)

GEOG 5830 - Remote Sensing

An introduction to the concepts and foundations of digital earth image acquisition, interpretation, processing, and analysis. Emphasis is placed on analysis of land cover/land use and vegetation health and abundance using imagery obtained by Unmanned Aerial Vehicles (UAV's), aircraft, and satellites.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOG 5840 - Digital Photogrammetry

Making measurements of 3-dimensional location, length, area and volume from digital aerial imagery. Acquisition and processing of imagery from Unmanned Aerial Vehicles with the goal of developing 2-dimensional orthophotomosaics, digital surface models and 3-dimensional models of individual objects.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOG 5970 - Independent Study

Designed for highly qualified majors and graduate students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Repeatable for credit.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Geosciences

GEOS 1000 - Dynamic Earth

Students will be introduced to the workings of our dynamic Earth, with some discussion of other planets. Topics include plate tectonics, evolution, earth materials, volcanoes, earthquakes, earth hazards, rivers and flooding, groundwater and pollution, glaciers and deserts, oceans and coasts, energy resources, and climate change. This course is designed for non-science majors who seek a basic course in geology. Students planning to major in any science or engineering should enroll in GEOS 1300. The course consists of three hours of lecture and a two-hour laboratory period per week. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 2)

When Offered: Fall, Spring

GEOS 1020 - Planetary Geology

An introduction to the origin and geological diversity of the planet, and other bodies that make-up our universe. Emphasis is placed on understanding how and why these planetary systems occur and operate, what makes Earth so unique, how these systems affect the lives of citizens in the United States and around the world, and how geoscience and technology can be used to better understand our universe. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Credits: 4 hours

GEOS 1050 - Dinosaurs

This course takes a multidisciplinary approach to dinosaurs with emphasis on the interaction between dinosaurs and their environment. The course will define what is a dinosaur using the scientific method. Discussion of the interactions between dinosaurs and their environment will cover topics such as predator-prey interactions, dinosaurian behavior, and mortality. Supporting evidence for dinosaur evolution and extinction will be described. The role of dinosaurs in modern culture will also be explored. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

GEOS 1200 - Climate Change Geologic Perspective

We will learn how science works to identify truth. We will see how and why climate has changed over geologic time and is changing now, and how scientists predict future climate change. We will consider how climate change may affect people's lives, and how to best reduce the risks that climate change poses. We will be able to calmly listen to others and confidently share our informed views on climate change. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

GEOS 1290 - Physical Geology Laboratory

A laboratory experience covering minerals and rocks, and the interpretation of topographic and Geologic maps.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 hour

GEOS 1300 - Physical Geology

This course introduces students to the principal geologic processes that shape the earth and methods by which these processes are studied with emphasis on the paradigm of plate tectonics. The interior of the earth is examined from the perspective of how we determine, without direct observation, the layering and composition within.

Principles and techniques of physics and chemistry are applied to the study of the origin of minerals and rocks, and geologic structures. Geomorphic processes and natural disasters like earthquakes are examined with special consideration of their importance to engineering design and practice.

This course is especially designed for students interested in science and engineering and for those who expect to major in geosciences or geosciences education. Students who are interested in a beginning course in geology, but who do not plan to pursue a major in science or engineering are encouraged to enroll in GEOS 1000. Three lectures and a two-hour laboratory period per week. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 2)

When Offered: Fall, Spring

GEOS 1310 - Historical Geology

Geologic time, evolution of prehistoric life, and principles of earth history with case examples from North America. Field excursions, including trips to the MGRRE facility to evaluate subsurface geologic data may be required.

Prerequisites & Corequisites: Prerequisite: GEOS 1000 or GEOS 1300 or GEOG 1050.

Credits: 4 hours

When Offered: Spring

GEOS 1440 - Environmental Earth Science

The earth system is a complicated engine that drives the geosphere, hydrosphere, atmosphere, and the biosphere. This is the most unique planet in our solar system and perhaps the entire universe. The study of this system requires all the branches of physical sciences and some social sciences. Perhaps the most discernible change that has happened in recent times is the impact of humans on the earth system upsetting its delicate environment. Many of the deleterious effects caused by humans are discernible. Knowledge of science and technology is essential to mitigate these effects and make earth a sustainable planet. The course will familiarize the students with several of these issues even if they come with no science background. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

When Offered: Spring and subject to enrollment in Summer II.

GEOS 1500 - Earth Hazards and Disasters

An introduction to the major geologic hazards affecting the earth. Impacts, earthquakes, volcanoes, tsunami and coastal hazards, mass wasting, and flooding will be discussed. Emphasis is placed on understanding how and why these hazards occur, how these hazards affect the lives of citizens in the United States and around the world, and how geoscience and technology can be used to identify and manage potential hazards. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

When Offered: Spring

GEOS 1900 - Evolution of Life - A Geological Perspective

The geologic attributes of our planet have shaped the course of biological evolution across four billion years of Earth's history. This course surveys the major events and mechanisms of that history, focusing on the origins of our planet and its life, self-organization and complexity, bacteria in extreme environments, the rise of animals and plants, the colonization of land, mass extinctions, planetary change over time and the possibility of life elsewhere in the

cosmos. Three lectures and a two-hour laboratory period per week. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 2)

When Offered: Fall

GEOS 2320 - Integrated Earth System Studies

The course will view the whole earth as a single system and focus on the interrelations and interactions among different subsystems and changes that occur in these with time. Topics covered will include basic laws of physics and chemistry that operate on the earth, evolution, biogeochemical cycles, global changes (natural and anthropogenic) and human interactions with the environment. Emphasis will be placed on feedback loops and amplification factors in the earth system. Construction of models of systems will be explored to determine possible impact of a change on the system as a whole.

Prerequisites & Corequisites: Prerequisites: GEOS 1000 or GEOS 1300 or GEOG 1050.

Credits: 3 hours

When Offered: Fall

GEOS 2900 - Earth Systems: Issues and Applications

This is a laboratory-based course designed to develop and build the concepts and principles of the Earth system with an emphasis on applications of earth science to society. The objectives of the course are to aid students in developing meaningful and functional understanding of key Earth Science concepts and their interrelations; provide students with open-ended problem solving experiences that facilitate inquiry regarding the nature and content of science, technology and society; help students develop more positive attitudes towards science and increase their confidence to both explain and apply Earth system theories and principles. A local field trip may be required.

Credits: 3 hours

When Offered: Fall, Spring, Summer I

GEOS 3010 - Minerals and Rocks

This course is a one semester introduction to the materials making up the earth, emphasizing hand specimen mineralogy and petrology. Topics will include basic crystallography, physical and chemical properties of minerals, mineral and rock description and identification, chemical and physical properties of rocks, rock genesis, and economic uses of rock and mineral resources. A field trip may be required.

Prerequisites & Corequisites: Prerequisites: (CHEM 1100 and CHEM 1110) and (GEOS 1000 or GEOS 1300 or GEOG 1050) and (GEOS 1310 or GEOS 2000). GEOS 1310 or GEOS 2000 may be taken concurrently.

Credits: 4 hours

Notes: Will not count toward a major in Geology.

Lecture Hours - Laboratory Hours: (3 - 2)

When Offered: Spring

GEOS 3120 - Geology of the National Parks and Monuments

A study of the origin of Geologic features and the development of landscapes through Geologic time in selected National Parks and Monuments. Students will be expected to read extensively in the available literature. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

When Offered: Fall, Spring, Summer I, Summer II

GEOS 3220 - Ocean Systems

The ocean system encompasses over seventy percent of the world's surface, and comprises one of the largest resources that the peoples of the world hold in common. This course will explore our understanding of this complex system, and the evolution of technology on which this understanding is based. The costs and benefits of the past, present, and future use of the world ocean will be considered in the context of competing values and interests. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

When Offered: Fall, Spring, Summer I

GEOS 3350 - Mineralogy

Introduction to crystallography, crystal chemistry, and determinative mineralogy. Physical and chemical properties, occurrence, uses and determination of about 100 minerals. Lecture 3 hours a week. Laboratory 3 hours a week.

Prerequisites & Corequisites: Prerequisites: GEOS 1300, CHEM 1100 and CHEM 1110; or instructor approval.

Credits: 4 hours

When Offered: Fall

GEOS 4300 - Structural Geology

Development of rock structures and mechanics of rock deformation. Structural interpretation of Geologic maps, cross-sections, and aerial photographs.

Prerequisites & Corequisites: Prerequisites: (GEOS 3010 or GEOS 3350) and MATH 1180; or instructor approval.

Credits: 3 hours

When Offered: Spring

GEOS 4320 - Geomorphology

Detailed consideration of the earth's surficial processes including transformation of fluvial, glacial, mass-wasting, eolian, and coastal landforms. Laboratory exercises involve interpretation of topographic maps, Geologic maps, and air photographs. Three-day field trip required. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisites: GEOS 3010 or GEOS 3350 or instructor approval.

Credits: 3 hours

When Offered: Spring

GEOS 4340 - Problems in Geology

Intensive reading and research on a topic in Geology under the direction of a member of the Geology faculty.

Prerequisites & Corequisites: Prerequisites: 16 hours in Geology and department approval.

Credits: 1 to 3 hours

GEOS 4350 - Sedimentation and Stratigraphy

This course is an introduction to sedimentary geology and the interpretation of the stratigraphic record through application of principles of sedimentology, stratigraphy, and sedimentary petrology. Geological hazards in modern earth surface environments are also considered. Laboratory exercises focus on the application of modern concepts and methodology used in the analysis and interpretation of the sedimentary record. The course includes a required three-day field trip. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisites: GEOS 1310 and either (GEOS 3010 or GEOS 3350).

Credits: 4 hours

When Offered: Fall

GEOS 5010 - Geologic Communications and Presentations

A seminar designed to introduce students to and improve student skills in the oral presentation of Geologic information. Students will critique talks given in the weekly departmental seminar. Students will make one oral presentation to a group of students and faculty. Course may be repeated for credit but only one credit will be applied towards major requirements.

Prerequisites & Corequisites: Prerequisite: Departmental approval.

Credits: 1 hour

Notes: May be repeated for credit. Open to upper level and graduate students.

When Offered: Spring

GEOS 5020 - Problems in Geology and Earth Science

Individual problems involving topical reading and/or research problems in earth sciences. May be repeated for credit.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

GEOS 5040 - Field Excursions

This course introduces students to the tectonic setting, rock types, geologic history, geologic hazards and resources, landforms, and surface processes in a specific area of North America. During the course, students will plan a field trip to the destination of their choosing, and write a field guide to the planned stops. The field trip will take place over the summer following the course. Students intending to take the field trip must register for this course. This course is open to any student who has taken an introductory course in the geosciences.

Prerequisites & Corequisites: Prerequisites: GEOS 1000 or GEOS 1300 (either of which may be taken concurrently) or instructor approval.

Credits: 1 hour

Notes: May be repeated for credit. Open to upper level and graduate students.

When Offered: Spring

GEOS 5060 - Introduction to Soils

Properties of natural and engineered soils. Interactions between soils and plants, microorganisms, water, atmosphere, and contaminants. Soil uses, remediation, and conservation.

Prerequisites & Corequisites: Prerequisites: Either (GEOS 3010 or GEOS 3350), either (MATH 1220 or MATH 1700), and CHEM 1100/1110. Corequisite is MATH 1230 or MATH 1710.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall - every other year

GEOS 5090 - Surface Water Hydrology

Hydrology describes the waters of the earth, their occurrence, circulation and distribution, and their reaction with the environment. Emphasis is on quantitative aspects of surface water. Topics include, stream flow precipitation, evapotranspiration, hydrographs, runoff, probability analysis and modeling.

Prerequisites & Corequisites: Prerequisite: MATH 1230 or MATH 1710.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall - every other year

GEOS 5120 - Principles of Hydrogeology

The study of surface and ground water with special emphasis on its occurrence, movement, and relation to the Geologic environment.

Prerequisites & Corequisites: Prerequisites: Either (GEOS 3010 or GEOS 3350) and either (MATH 1220 or MATH 1700). Corequisite: MATH 1230 or MATH 1710.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Spring - every other year

GEOS 5140 - Isotope Hydrology

Principles of isotope fractionation. Experimental techniques in isotope ratio measurements: mass spectrometry and laser spectroscopy. Carbon, oxygen, and hydrogen isotope systematics in the hydrologic cycle. Application of stable isotope techniques to study ground water - surface water interaction. Use of nitrogen isotope measurements in understanding ground water nitrogen cycling and fate of nitrate load. Introduction to developments in the application of radioactive dating techniques in hydrology.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOS 5200 - Economic Geology

Origin, occurrence, and utilization of metallic and non-metallic mineral deposits, and mineral fuels. Lecture three hours a week.

Prerequisites & Corequisites: Prerequisite: GEOS 3010 or GEOS 3350.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOS 5210 - Geological and Environmental Remote Sensing

The course provides rigorous (70% of student's efforts) hands-on-exercises on the applications of remote sensing techniques in geological and in environmental sciences. The hands-on exercises are primarily based on case studies that were published in peer-reviewed articles, data downloaded from our receiving station, and/or data collected by the students using hand-held VNIR spectro-radiometer. In the process of solving the lab exercise, the students will master image processing techniques. The fundamentals of remote sensing will be covered as well, since the student cannot start dealing with applications unless he or she knows the fundamentals. Throughout the course, the students will work with a wide range of space-borne data sets including CORONA, Landsat MSS, Landsat TM, SPOT, ASTER, SIR-C, SRTM, A VIRIS, ASAR, and ERS.

Credits: 4 hours

Notes: Open to upper level and graduate students.

When Offered: Spring - every other year

GEOS 5230 - Hazardous Waste Operation and Emergency Response

Training in safety procedures for working on hazardous sites. Training in the safe handling of hazardous materials which might be encountered during drilling, soil sampling, or water sampling. Review of State and Federal regulations. Use of personal protection equipment. Satisfies OSHA 40 hour training requirements.

Prerequisites & Corequisites: Prerequisite: GEOS 4120 or GEOS 5120.

Credits: 1 hour

Notes: Open to upper level and graduate students.

When Offered: Summer II

GEOS 5240 - Remediation Design and Implementation

Principles and techniques for the remediation or cleanup of ground water and soils contamination. Introduction to pump and treat systems, bioremediation, soil vapor extraction, air sparging, and others. Choosing the appropriate system and sizing it for economical application to a specific site. Field trips required.

Prerequisites & Corequisites: Prerequisite: GEOS 5120

Credits: 1 hour

Notes: Open to upper level and graduate students.

When Offered: Summer II

GEOS 5250 - Surface Geophysics

An introduction to the use of those surface geophysical methods used in the investigation of groundwater. Includes shallow seismic, electrical, and magnetic methods; and ground-penetrating radar.

Prerequisites & Corequisites: Prerequisite: GEOS 5120

Credits: 1 hour

Notes: Open to upper level and graduate students.

When Offered: Summer II

GEOS 5260 - Principles and Practices of Aquifer Testing

Introduction to the methods of aquifer testing with emphasis on step drawdown pump-tests, forty-hour pumping test with recovery, slug tests and bail tests, data processing, using computer software, water level recorders, data loggers, and water level measuring equipment.

Prerequisites & Corequisites: Prerequisite: GEOS 4120 or GEOS 5120.

Credits: 1 hour

Notes: Open to upper level and graduate students.

When Offered: Summer II

GEOS 5270 - Principles of Well Drilling and Installation

An introduction to hollow-stem auger drilling and well installation, rotary drilling with mud and air, cable tool drilling, monitoring well design, sample collection and description; cuttings, split spoon, and Shelby tube, borehole geophysics, and installation and development of wells.

Prerequisites & Corequisites: Prerequisite: GEOS 4120 or GEOS 5120.

Credits: 1 hour

Notes: Open to upper level and graduate students.

When Offered: Summer II

GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring

An introduction to state-of-the-art techniques for sampling, monitoring, and evaluating ground water systems and surface water interactions. Includes quality control and assurance procedures, ground-water sampling equipment and procedures, field hydrochemical equipment and procedures, and vadose zone sampling of water and gas.

Prerequisites & Corequisites: Prerequisite: GEOS 4120 or GEOS 5120.

Credits: 1 hour

Notes: Open to upper level and graduate students.

When Offered: Summer II

GEOS 5300 - Plate Tectonics and Earth Structure

Major tectonic features and internal structure of the earth in relation to plate tectonics, critical examination of the tenants of plate tectonics.

Prerequisites & Corequisites: Prerequisites: (GEOS 3010 or GEOS 3350) and GEOS 4300.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOS 5350 - GIS Applications in Geological and Environmental Sciences

The course provides rigorous hands-on-exercises (based on data from case studies) on the applications of statistical methods, GIS technologies, and other computer-based software to the management, analysis, and display of multidimensional, geological, hydrogeological, and environmental data sets (70% of student effort). The course will cover (30% of student effort) the fundamentals of spatial data analysis and GIS technologies as well, since the students cannot start dealing with applications unless they understand the fundamentals. In addition, students will be required to complete a research project using spatial data sets and acquired expertise.

Prerequisites & Corequisites: Prerequisites: Instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors in Geosciences.

Notes: Open to upper level and graduate students.

When Offered: Spring - every other year

GEOS 5360 - Glacial Geology

A study of the mechanics of glacier movement, processes of glacial erosion and deposition, and the distribution of glacial features in space and time. Special emphasis will be placed on the glacial Geology of the Great Lakes area.

Prerequisites & Corequisites: Prerequisite: GEOS 3010 or GEOS 3350.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall - every other year

GEOS 5400 - Igneous and Metamorphic Petrology

Advanced discussion of origins and positions of igneous and metamorphic rocks in light of recent experimental evidence and concepts of global tectonics.

Prerequisites & Corequisites: Prerequisite: GEOS 5430

Credits: 4 hours

Notes: Open to upper level and graduate students.

GEOS 5430 - Petrology and Petrography

The origins of igneous, sedimentary, and metamorphic rocks as interpreted from hand specimens, thin sections, principles of chemistry and physics, and descriptions of examples from around the world. Lecture topics are augmented by weekly laboratory studies and a required field trip.

Prerequisites & Corequisites: Prerequisites: GEOS 3350, CHEM 1100 and CHEM 1110.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Spring

GEOS 5450 - Hazardous Waste Remediation

Content includes chemical, physical, and biological processes affecting contaminants in the subsurface. Topics include environmental regulations, remediation, site characterization, contaminant characterization, detailed engineering and management considerations related to the design and operation of hazardous waste remediation systems involving water pollution, air pollution, solid waste, and groundwater pollution.

Prerequisites & Corequisites: Prerequisites: CHEM 1120/1130 and either (MATH 1220 or MATH 1700). Corequisite: MATH 1230 or MATH 1710.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOS 5550 - Introduction to Geochemistry

An introduction to high and low temperature geochemistry. Topics to be discussed include cosmochemistry, crystal chemistry, thermodynamics and kinetics, aqueous geochemistry, stable and radiogenic isotope geochemistry, organic geochemistry, and biogeochemistry. Three hours lecture per week with weekly problem sets.

Prerequisites & Corequisites: Prerequisites: GEOS 3350 and CHEM 1120/1130.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Spring

GEOS 5600 - Introduction to Geophysics

Seismology, gravity, geomagnetism, electrical resistivity, and heat measurements applied to the determination of the internal structure of the earth.

Prerequisites & Corequisites: Prerequisites: Either (GEOS 3010 or GEOS 3350); GEOS 4300; either (MATH 1220 or MATH 1700); and two semesters of college physics.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: Two lectures and three hours of practical laboratory-introduction to geophysical instrumentation.

When Offered: Fall

GEOS 5610 - Reflection Seismology

Reflection seismology and related techniques as applied to petroleum exploration and deep crustal exploration. Theoretical background, data collection, data processing and interpretation will be discussed.

Prerequisites & Corequisites: Prerequisites: GEOS 5600 and either (MATH 1230 or MATH 1710).

Credits: 3 hours

Notes: Open to upper level and graduate students.

GEOS 5620 - Gravity and Magnetic Exploration

Gravity and Magnetic methods applied to tectonic, mineral exploration, hydrogeologic and crustal studies. Theoretical background, instrumentation, surveying techniques, data reduction, processing, and computer modeling and interpretation will be discussed.

Prerequisites & Corequisites: Prerequisites: GEOS 5600, and either (MATH 1230 or MATH 1710).

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: Two lectures and three hours of laboratory, problem solving, and field exercises.

GEOS 5630 - Electrical Methods

Resistivity sounding and profiling, induced polarization, spontaneous potential, electromagnetic methods using natural and artificial fields.

Prerequisites & Corequisites: Prerequisites: GEOS 5600, either (MATH 1230 or MATH 1710), and PHYS 4400 recommended.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: Two lectures and 3 hour laboratory with field studies and laboratory modeling.

When Offered: Fall - every other year

GEOS 5650 - Geological Field Methods

This Field Methods course will focus on both traditional field mapping techniques as well as new, emerging technologies such as satellite GPS, GIS, Digital Tablets, Smart Phone Apps and Drone observations. Students taking this course will gather geological field data, correctly enter it into a notebook (both traditional and digital), and then be able to use these data to produce a geological map and make appropriate geological interpretations of the area. This module will be required for all students wishing to take GEOS 5660 and GEOS 5670. It will be conducted both on the WMU main campus and within the immediate surrounding area. Introduction to "Field Methods" is applicable to a variety of STEM disciplines, and is designed to fill the requirements for continuing education credits. Local field trips are required.

Prerequisites & Corequisites: Prerequisites: GEOS 1000 or GEOS 1300, with a grade of "C" or better; or instructor approval.

Credits: 1 hour

Notes: Open to upper level and graduate students.

When Offered: Summer I

GEOS 5660 - Geological Field Studies

This course introduces students to the tectonic setting, rock types, geologic history, geologic hazards and resources, landforms, and surficial processes found throughout the Michigan region. Field observations will be used in conjunction with previous classroom lessons to develop a more complete understanding of landscape evolution, rock-forming processes, and structural rock-deformation. Emphasis will be placed on how various observations are combined to make geological interpretations, and how the

geological history and evolution of a region can be interpreted from field data. There is a multi-day, overnight field trip required.

Prerequisites & Corequisites: Prerequisite: GEOS 5650 and (GEOS 3350 or GEOS 3010), or instructor approval. GEOS 5650 may be taken concurrently. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 1 hour

Notes: Open to upper level and graduate students.

When Offered: Summer I

GEOS 5670 - Geological Field Mapping

This course will train students how to inspect rock outcrops in the field, collect geological data using approved field methods and how to record those data both manually and digitally. They will learn how to make geological maps and geological cross-sections employing those collected data. They will then, in turn, become adept at interpreting rock mineralogy, associated textural characteristics, rock structures, and deformation changes to reconstruct the geological history of the study area.

Prerequisites & Corequisites: Prerequisite: GEOS 5650, GEOS 5660, and (GEOS 5430 or GEOS 4300); or instructor approval. GEOS 5650 and GEOS 5660 may be taken concurrently. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 1 hour

Notes: Open to upper level and graduate students.

When Offered: Summer I

GEOS 5700 - UAV's: Geophysical Applications

The course provides a fundamental understanding of the geophysical observations that can be extracted from various geophysical sensors mounted on UAV's and provides examples on how these observations could be used to address geological and environmental problems of interest.

Credits: 2 hours

Notes: Open to upper level and graduate students.

GEOS 5710 - UAV's: Geology and Environment

The course provides a comprehensive understanding of the remote sensing observations that could be extracted from various remote sensing sensors mounted on UAV's and provides examples on how these observations could be used to address geological and environmental problems of interest.

Credits: 2 hours

Notes: Open to upper level and graduate students.

GEOS 5720 - UAV's: Geophysics and RS Lab

The course is designed to provide students with hands-on experience on the acquisition, downloading, processing, and analysis of a wide range of geophysical and remote sensing data-sets acquired by UAV's.

Credits: 2 hours

Notes: Open to upper level and graduate students.

German

GER 1000 - Basic German I

Fundamentals of German. A four-skills approach (speaking, listening, reading, writing) with emphasis on communication. Introduction to cultural aspects of Germany and other German-speaking countries.

Credits: 4 hours

Notes: Does not count towards a major or minor.

GER 1010 - Basic German II

Continuation of GER 1000. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Prerequisites & Corequisites: Prerequisite: GER 1000 or equivalent. Does not count toward a major or a minor.

Credits: 4 hours

GER 2000 - Intermediate German I

The development of German language skills in listening, speaking, reading, and writing, with an emphasis on communication. Increased competence in in cultural

aspects of Germany and other German-speaking countries.

Prerequisites & Corequisites: Prerequisite: GER 1010 or two years of high school German, or equivalent.

Credits: 4 hours

GER 2010 - Intermediate German II

The continued development of spoken and written expression in the German language through readings and discussions of civilization and culture materials.

Prerequisites & Corequisites: Prerequisite: GER 2000 or equivalent.

Credits: 4 hours

GER 2750 - Topics in German Studies

This course introduces selected aspects of life and culture of the German-speaking world, past and present. Aspects may include events and currents of thought drawn from history, religion, arts, politics, and literature, seen in an international context. It is offered in English with no prerequisites and is open to all students. The aim is for students to gain an understanding of some of the critical issues and experiences that have shaped German identity and perspective, and for them to apply that understanding to a wider international context and universal human situations. Topics will vary from semester to semester.

Credits: 3 hours

Notes: May be repeated with instructor approval.

When Offered: Spring

GER 3160 - German Composition and Conversation

A review of German structure, form and use; focus on the development of communicative competence and on grammatical difficulties encountered by non-native users. Emphasis on the development of academic writing and speaking skills in preparation for content courses.

Prerequisites & Corequisites: Prerequisite: GER 2010 with a minimum grade of "C", or equivalent.

Credits: 4 hours

GER 3170 - German Conversation

Emphasis upon increasing the student's command of spoken German.

Prerequisites & Corequisites: Prerequisite: GER 2010 or equivalent.

Credits: 3 hours

GER 3220 - German Life and Culture

Investigates cultural aspects necessary for an understanding of Germany. Historic, geographic, social and religious factors are treated.

Prerequisites & Corequisites: Prerequisite: GER 2010 or equivalent.

Credits: 3 hours

GER 3250 - Introduction to the Study of German Literature

An appreciation of German literature through reading and critical interpretation of selected works of various literary types.

Prerequisites & Corequisites: Prerequisite: GER 2010 or equivalent.

Credits: 3 hours

GER 3280 - Fear of the Other: Xenophobia and the Holocaust

This course first analyzes the ways Nazis used fear in excluding, persecuting, and murdering people which it identified as 'Others.' Students then apply this knowledge to examine situations in which fear has been instrumentalized for political and/or personal purposes. Drawing upon international events, this course explores fear and xenophobia using psychological, political, sociological, literary, artistic, philosophical, and historical sources, thus applying a transcultural approach to general patterns in human interactions. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

GER 4520 - Advanced German Composition

Intensive practice in composition and stylistics directed towards appreciation of literary and other written expression in German with work in free composition at an advanced level.

Prerequisites & Corequisites: Prerequisites: GER 3160 and GER 3170.

Credits: 3 hours

GER 4530 - Advanced German Conversation

Intensive training in conversational German with emphasis on colloquial language and idiom.

Prerequisites & Corequisites: Prerequisites: GER 3160 and GER 3170.

Credits: 3 hours

GER 4760 - Foreign Study - non WMU

Student participation in pre-approved program of study abroad that is not through Western Michigan University.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor or chairperson.

Credits: 1 - 16 hours

Notes: Repeatable for credit up to 32 hours.

When Offered: (Fall-Spring 1 to 16 hours) Summer I/II 1 to 8 hours

GER 4770 - Foreign Study

Student participation in departmentally approved program of study abroad.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor and chairperson.

Credits: 1 to 16 hours

Notes: Repeatable for credit up to 32 credit hours.

When Offered: (Fall-Spring 1 to 16 hours) Summer I/II 1 to 8 hours

GER 5000 - Elementary German for Reading Proficiency

Intensive grammar and elementary reading for translation and research purposes. The course is primarily for the graduate student who has had little or no study in the language. However, undergraduates who desire a thorough reading knowledge may also apply. No oral work.

Prerequisites & Corequisites: Prerequisite: Undergraduates must secure permission of Department.

Credits: 3 hours

Notes: This course does not count toward a major or minor in German. Open to upper level and graduate students.

GER 5010 - Intermediate German for Reading Proficiency

Readings in the language at intermediate and advanced levels for translation and research purposes. Special attention will be given to students' major fields. Completion of GER 5010 with a minimum of "B" constitutes graduate proficiency in the language.

Prerequisites & Corequisites: Prerequisite: Undergraduates must secure permission of department.

Credits: 3 hours

Notes: This course does not count toward a major or minor in German. Open to upper level and graduate students.

GER 5020 - German for Graduate Study

German instruction for graduate students enrolled in a degree program who need knowledge of German for their field of study. Students will sit in appropriate level course for their learning.

Prerequisites & Corequisites: Prerequisite: Approval of department of student's graduate program and approval of Department of World Languages and Literatures.

Credits: 3 to 4 hours

Notes: May be repeated for credit. May not be taken by undergraduate students in any field.

GER 5200 - Topics in German Linguistics and Language Science

The advanced study of a language or a group of languages from a scientific point of view, such as the function and

status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures.

Credits: 3 hours

Notes: May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPNS/LAT/RUSS 52000. May be repeated for credit. Open to upper level and graduate students.

GER 5290 - Survey of German Literature

A comprehensive study of German literature from German Realism to the present.

Prerequisites & Corequisites: Prerequisites: GER 3160, GER 3170, GER 3220 and GER 3250; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GER 5500 - Independent Study in German

Directed individual study of a specific topic in German literary or linguistic area.

Prerequisites & Corequisites: Prerequisites: One 5000-level course in the major; a minimum grade point average of 3.0 in the major; department approval required.

Credits: 1 to 3 hours

Notes: Open to upper level and graduate students. Not open to minors.

GER 5590 - History of the German Language

Survey of the development of the German language.

Prerequisites & Corequisites: Prerequisites: Six hours of 3000-level German or above.

Credits: 3 hours

Notes: Open to upper level and graduate students.

GER 5600 - Studies in German Literature

Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit,

although all are listed under 5600. Thus, a student may take any or all of the offerings at various times. Representative topics which may be treated in this area include: The Novelle - Survey of the development with representative selections; Lyric Poetry - Survey of the development with significant selections; 19th Century Drama to -Primarily Kleist, Grillparzer, Hebbel, and Hauptmann; 20th Century Drama - Representative selections.

Prerequisites & Corequisites: Prerequisites: GER 3160, GER 3170, GER 3220 and GER 3250; or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Gerontology

GRN 1000 - Introduction to Aging Studies

Introduction to the content associated with aging studies. Course elements include historical milestones in the development of aging as a subject of study; the aged as a special population; heterogeneity among older persons; the aging network; health systems; and health and allied health professions. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

GRN 2000 - Health and Aging

Focus on the biopsychosocial aspects of health and aging, employing a holistic perspective regarding health promotion and treatment approaches. Discuss age related changes and health conditions that are common in older adults. Explore developmental milestones, life transitions and their effects in later life.

Prerequisites & Corequisites: Prerequisite: GRN 1000 or instructor approval.

Credits: 3 hours

GRN 3000 - Aging in all Environments

Explore the various definitions of environment as well as its impact on the lives of older adults. Opportunities provided to develop basic skills necessary to evaluate the

connections between an older adult, his or her goals and various settings. Interventions to bridge the barriers to participation will be introduced. Roles of professionals and paraprofessionals will be identified.

Prerequisites & Corequisites: Prerequisite: GRN 1000

Credits: 3 hours

GRN 3500 - Issues in Aging: Service Learning in Gerontology

Service learning course; forum for discussion of revolving topics of aging relevant to current issues. Examine attitudes and aspects of aging among diverse populations, special problems of aging in individuals and groups with increased risk for age-related biopsychosocial problems. Impairment, activity, and life-participation problems facing older individuals within their various contexts is discussed.

Prerequisites & Corequisites: Prerequisite: GRN 1000

Credits: 3 hours

GRN 4000 - Public Policy and Aging

Explore the broad range of policies relating to older adults in the U.S. and the various demographic, economic and health determinants that shape these policies. Policy and its link to well-being of older adults and their families is discussed. A special focus will be given to Social Security, Medicare, Medicaid and the Older Americans Act.

Prerequisites & Corequisites: Prerequisite: GRN 1000

Credits: 3 hours

Global and International Studies

GIST 1100 - Special Topics in Global Studies

This is a variable topics course that introduces a problem, issue, or subject of study using a global lens.

Credits: 1 hour

Notes: May be repeated for credit.

GIST 2000 - Introduction to Global and International Studies

Multidisciplinary introduction to global and international studies as an academic field of inquiry, with emphasis on six focus fields: •Identities and cultures in a globalized world •State, security and transnational governance •Inequality and social responsibility •Global health and the environment •Migration and population dynamics •Global communication, expression and information systems. Students will explore the major world regions, be open to intercultural contacts, place issues in historical and ideological context and be able to judge information about major global trends and issues; by the end of the course, students should see themselves as members of global as well as local communities. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

GIST 3100 - Global Studies in the Field

Students are provided with an introduction to historical, political, artistic, and social institutions in the international location(s) of study. While gaining an appreciation for both what is common and what is different relative to the United States, students will develop sensitivity to diversity and inclusion both at home and abroad. Lessons learned about the world beyond us are more effectively absorbed when we pair academic preparation with our boots on the ground in the country of study. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category. May be repeated for credit.

Credits: 3 hours

GIST 3500 - Topics in Global Studies

This is a variable topics course focusing on global and international studies from a variety of perspectives.

Credits: 1 to 4 hours

Notes: May be repeated for credit under different topics.

GIST 4900 - Senior Capstone Seminar in Global and International Studies

Interdisciplinary exploration of one global topic chosen from one of six Focus Fields. Research, preparation and submission of several different writing tasks, including grant proposal, news article, annotated bibliography,

research paper and creative writing exercise. Classroom work helps students to establish connections with the larger community, develop strategies to analyze and address problems, and work with professionals trained in a diverse set of fields.

Prerequisites & Corequisites: Prerequisites: GIST 2000, senior standing and 18 hours of course work toward major in global and international studies, exclusive of foreign language requirements; approval from the global and international studies advisor.

Credits: 3 hours

GIST 4980 - Directed Research and Field Projects

Individual reading, research, and international field projects. Topics may be listed in Schedule of Course Offerings.

Prerequisites & Corequisites: Prerequisite: Approval from the global and international studies advisor.

Credits: 1 to 6 hours

Notes: May be repeated for up to 6 hours.

GIST 5000 - Topics in Global and International Studies

Topics may be listed in Schedule of Course Offerings.

Prerequisites & Corequisites: Prerequisite: Approval from the global and international studies advisor.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Graduate Studies

GRAD 5010 - Special Topics

This is a variable topics, variable credit graduate-level course for consideration of current and special interest to graduate students. Specific topics and number of credit hours will be announced each time the course is scheduled.

Prerequisites & Corequisites: Prerequisite: Instructor

approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

GRAD 5100 - Academic English Proficiency for Graduate Students

This course is for graduate students who are non-native speakers of English and who have sufficient English language proficiency to be admitted to the university, but who need to improve their reading, writing, speaking and listening skills in order to be successful in their academic study. The course promotes further development in the ability to comprehend spoken and written genres needed for academic success and to respond to them critically in writing and speaking.

Prerequisites & Corequisites: Prerequisite: Minimum of 61 on TOEFL or equivalent English proficiency score.

Credits: 3 hours

Notes: Students enrolled in this course who have restricted admission status must pass with a grade of "B" or better or they may be required to repeat the course. Open to graduate students only.

Graphic and Printing Science

GPS 1500 - Introduction to Graphic and Printing Science

An introductory course describing the printing/imaging industry. Image Design, preparation, generation, photo imaging by photomechanical and desktop systems, proofing, presswork, and bindery. A comparison of all printing methods will be included. Learning environment enhance by hands-on experience. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

GPS 1570 - Imaging Systems

Conversion of line and halftone image sources to digital data for output as reflection copy proofs, film or direct to plate. Photosensitive materials, electronic imaging systems, lenses and light, copy and data requirements, chemical and dry processing methods, densitometric and sensitometric instrumentation and image analysis.

Prerequisites & Corequisites: Prerequisite: GPS 1500 (may be taken concurrently). A minimum grade of "C" is required in GPS prefixed prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

GPS 2150 - Introduction to Ink

Ink main components and ink additives. Formulation, manufacturing, quality control, and waste disposal of liquid and paste inks. Ink and color. Relationship between the chemical and physical properties of inks and their printing quality. Working properties of ink. Optical properties of ink. End-use properties of ink. Concepts of rheology and surface energy. Environmental concerns. Water-based, solvent based, UV and EB curable ink chemistries. Inks for impact printing processes. Digital inks.

Prerequisites & Corequisites: Prerequisites: GPS 1500, CHEM 1100, CHEM 1110, PAPR 1000 and MATH 1180. A minimum grade of "C" is required in all prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

GPS 2510 - Multimedia Publication and Design

Design and composition of multimedia publications, including publications for print (prepress), web (design) and optical media. Animation and video editing discussed. Different types of graphic objects and color representations extensively covered. Page layout and web authoring in extensive laboratory exercises.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

GPS 2570 - Computer Graphics and Prepress

Computer graphics from the point of view of both hardware and software. The representation, display and manipulation of graphical objects, including both vector and raster graphics with applications to prepress. The relationships of displayed graphics to printed graphics, including both direct digital and conventional presses.

Prerequisites & Corequisites: Prerequisites: GPS 1570 and GPS 2510. A minimum grade of "C" is required in GPS prefixed prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

GPS 3500 - Offset Lithography

Substrate selection for web and sheetfed offset printing, offset printability, and printing defects. Prepress operations, platemaking, proofing. Offset press components, register controls, printing units, principles of drying, impression rollers and blankets. Ink variables, and differences between inks for publication, packaging and product printing.

Prerequisites & Corequisites: Prerequisites: GPS 2150 (may be taken concurrently) and (STAT 2160 or IEE 2610). A minimum grade of "C" is required in GPS prefixed prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

GPS 3570 - Color Management

Introduction to color management, color science and color imaging technologies. The course covers the basics of color reproduction for printing. It deals with RGB, CMYK and CIE color models. A large focus of the course is practical color management as practiced in the industry today. An ICC workflow and ICC profiles will be constructed and analyzed. Profiles for scanners, monitors and printers will be made.

Prerequisites & Corequisites: Prerequisites: GPS 1570 and GPS 2510. A minimum grade of "C" is required in GPS prefixed prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

GPS 3580 - Flexography

The study of all segments of the flexographic printing process, including current and future technology. Study of market segments and uses of flexography as a label and package printing process.

Prerequisites & Corequisites: Prerequisites: GPS 2150 (may be taken concurrently) and (STAT 2160 or IEE 2610). A minimum grade of "C" is required in GPS prefixed prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

GPS 3590 - Rotogravure

Prepress operations, cylinder plating, engraving, proofing. Gravure press components, register controls, printing units, doctor blades, principles of drying and solvent regeneration, doctor blades, impression rollers and electrostatic assist. Ink variables, and differences between inks for publication, packaging and product printing. Substrate selection for rotogravure, gravure printability, and printing defects.

Prerequisites & Corequisites: Prerequisites: GPS 2150 (may be taken concurrently) and (STAT 2160 or IEE 2610). A minimum grade of "C" is required in GPS prefixed prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

GPS 4400 - Seminar

A seminar course using guest speakers, University staff and field trips to add depth and breadth to the students' education.

Prerequisites & Corequisites: Prerequisite: Junior standing.

Credits: 1 hour

Notes:

GPS 4570 - Advanced Multimedia

Advanced methods in digital multimedia creation and manipulation. Digital video and computer animation will

combined and edited using professional techniques. Multimedia video productions will be produced using CD/DVD recording devices and analog display and recording devices.

Prerequisites & Corequisites: Prerequisite: GPS 2570 (may be taken concurrently). A minimum grade of "C" is required in GPS prefixed prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

GPS 4580 - Digital Printing and Workflow

Digital printing mechanisms, including electrophotography (e.g. laser printers), ionography, magnetography, inkjet, thermal transfer and solid ink, dye sublimation, imagesetters/platesetters and hybrid systems. Workflow standards including CIP4, JDF, PDF/X, etc.

Prerequisites & Corequisites: Prerequisite: GPS 3570 (may be taken concurrently). A minimum grade of "C" is required in GPS prefixed prerequisites.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

GPS 4620 - Print Estimating

Learn the basics of estimating the printed piece including Basic Hourly Rate development, pricing structures of substrates, supplies and various machine costs. Develop methods of comparing estimated costs to final cost/profits. Learn the methods of computing substrate amounts based on materials available. Includes cost of cutting and related finishing operations.

Prerequisites & Corequisites: Prerequisite: GPS 3500 or GPS 3580 or GPS 3590. A minimum grade of "C" is required in GPS prefixed prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

GPS 4630 - Finishing and Converting

Analyze post-press equipment and operations to complete the printed piece. Field trips will demonstrate the scope of operations involved. Study of equipment costs and

development of Basic Hourly Costs. Develop skills in various specialty finishing and converting operations; pop-up visuals, point of purchase displays, packaging, specialty folding.

Prerequisites & Corequisites: Prerequisite: GPS 4620 (may be taken concurrently). A minimum grade of "C" is required in GPS prefixed prerequisites.

Credits: 3 hours

Cross-Listed: (2 - 3)

GPS 4850 - Research Design

Research selection, planning, design, and writing. A research problem selected in consultation with faculty. Student will define and analyze the problem; do a critical review of the literature; and propose a documented research program to increase understanding and knowledge about the problem. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category when taken as a 3-credit hour course in the second semester of the senior design sequence.

Prerequisites & Corequisites: Prerequisite: Senior standing in major.

Credits: 3 hours

Restrictions: Restricted to GPS department majors.

Lecture Hours - Laboratory Hours: (1 - 2)

GPS 5100 - Printability Analysis

Relationships between printed substrate, ink, printing process and resulting print quality from both the theoretical and measurement standpoints. Print recognition and printing problems from the point of view of substrate formation and its physicochemical properties, ink characteristics, and the printing process parameters. Main techniques of printability evaluation will include modern optical methods of light interaction with both printed and unprinted substrate, spectrophotometry, and image analysis.

Prerequisites & Corequisites: Prerequisite: GPS 3500 or GPS 3580 or GPS 3590 or PAPR 2420 or PAPR 3420. A minimum grade of "C" is required in GPS or PAPR prefixed prerequisites.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (2 - 3)

When Offered: Spring

GPS 5201 - Color Printing and Substrates

The interactions between ink and substrates are discussed for different printing processes. Digital prepress methods will be introduced with the purpose of preparing jobs for display, web or printing by different processes. Printing processes covered will be Offset Lithography, Rotogravure, Flexography, Letterpress, Screen and Digital. The colorant and substrate requirements (ink and paper, film etc.) for each process are discussed.

Prerequisites & Corequisites: Prerequisites: GPS 2150 or PAPR 2420 or PAPR 3420 or equivalent. A minimum grade of "C" is required in GPS and PAPR prefixed prerequisites.

Credits: 3 hours

Restrictions: Restricted to Graduate standing or Accelerated masters only.

Lecture Hours - Laboratory Hours: (2 - 3)

When Offered: Every other Fall

Greek

GREK 1000 - Basic Greek I

Fundamentals of classical Greek; readings emphasize Greek thought, culture, and civilization.

Credits: 4 hours

GREK 1010 - Basic Greek II

Continuation of GREK 1000. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Prerequisites & Corequisites: Prerequisite: GREK 1000 or equivalent.

Credits: 4 hours

GREK 5020 - Greek for Graduate Study

Classical Greek instruction for graduate students enrolled in a degree program who need knowledge of Greek for their field of study. Students will sit in appropriate level course for their learning.

Prerequisites & Corequisites: Prerequisite: Approval of department of student's graduate program and approval of Department of World Languages and Literatures.

Credits: 3 to 4 hours

Notes: May be repeated for credit. May not be taken by undergraduate students in any field.

GREK 5030 - Greek - English Translation Practicum

This is a practical course to teach the skills for translating texts from classical Greek into English. The objective of this course is to develop further language proficiency and to introduce students to the nuts and bolts of translation. Students will produce English translations from different sorts of classical Greek texts, such as essays, poetry, documents, and short fiction.

Prerequisites & Corequisites: Prerequisite: GREK 1010 or instructor approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

GREK 5200 - Topics in Greek Linguistics and Language Science

The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures.

Credits: 3 hours

Notes: May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPNS/LAT/RUSS 5200. May be repeated for credit. Open to upper level and graduate students.

GREK 5500 - Independent Study in Greek

Directed, individual study of a specific topic in ancient Greek literature.

Prerequisites & Corequisites: Prerequisite: GREK 1010 and departmental approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Haworth College of Business Courses

BUS 1000 - Business Preparation

Designed for first-year students, the Business Preparation course focuses on: 1) supporting students during the adjustment and transitional phase into WMU and HCoB; 2) helping students develop an understanding of the academic rigor and expectations required of all HCoB students; 3) assisting students in making meaningful, supportive connections with faculty, staff and peers; and 4) guiding students in developing a strong foundation that results in academic engagement and personal success.

Credits: 1 hour

BUS 1750 - Business Enterprise

This course introduces students to the development and value of business institutions in society. Students will examine the dynamics of business decision-making and demonstrate the ability to identify, define, and interpret essential business concepts. The relationships among business activities will be studied to determine their interactions with the economic, political, legal, global, and social environments.

Credits: 3 hours

Notes: Students will download a 75 minute video lecture each week that covers business theory and practice. During class meetings, students will discuss concepts presented in the video lecture, work on team projects, and take quizzes and tests.

BUS 2200 - Introduction to Global Business

An introduction to global business and its complex environment. Develop an understanding of relevant differences in the economic, socio-cultural, political, legal and ethical environment of global business. Realize how

such differences can influence business functional operations such as production, marketing, management, information management, accounting and finance. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Prerequisites & Corequisites: Prerequisite: Sophomore standing.

Credits: 3 hours

Restrictions: Restricted to majors in Leadership and Business Strategy.

BUS 3000 - Business Preparation for Transfer Students

Designed for transfer students, the BUS 3000 Business Preparation for Transfer Students course offers students the opportunity to work with both an academic advisor as well as career center staff. This is a one-credit hour course that meets each week for the entire semester. The concept of the course is focused on several areas which include: 1) Supporting and assisting transfer students during the adjustment and transitional phase into WMU; 2) Helping transfer students develop an understanding of the academic rigor and expectations required of all WMU students across the Haworth College of Business; 3) Assisting transfer students in making meaningful, supportive connections with faculty, advising, career center and communication center staff and peers; and 4) Assisting transfer students in developing a strong foundation in academic and social engagement, and progress toward graduation.

Prerequisites & Corequisites: Prerequisite: 26 credits or higher.

Credits: 1 hour

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restriction.

Notes: Graded on a C/NC basis.

BUS 3750 - Business Process Productivity

This course examines the impact of core business processes on the efficiency and effectiveness of a firm and its supply chain allies. The techniques for the design, implementation, and evaluation of continuous process improvements comprise the body of knowledge. The course uses

experiential learning to challenge students to apply the techniques of continuous improvement and innovation to production and service process.

Prerequisites & Corequisites: Prerequisites: MGMT 2500, and (STAT 1600 or STAT 2160 or STAT 2600 or STAT 3640 or STAT 3660 or IEE 2610); junior standing.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

BUS 3900 - Business Internship

The business internship is designed to provide practical, hands-on business work experience within an organization and may or may not be related to a business discipline. Internships may or may not be related to the student's major field of study and are recommended for completion prior to the senior year of academic work. For each credit hour received, students are expected to participate in a minimum of 75 hours of compensated work. Internships must be approved in advance by the Haworth College of Business before credit is awarded.

Prerequisites & Corequisites: Prerequisite: Students must be admitted to the BBA (Business Administration) program.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Graded on a Credit/No Credit basis.

BUS 3960 - Study Abroad Seminar

An international study seminar for undergraduate students. Provides students with first hand exposure to cultural differences in other environments and how business is conducted overseas through visits to foreign manufacturing, service, governmental and/or non-governmental organizations supplemented by coordinated lectures and assigned readings.

Credits: 1 to 6 hours

Restrictions: Restricted to majors and minors in Leadership and Business Strategy.

Notes: May be repeated for credit.

BUS 3961 - Sustainability Study Abroad Seminar

An international study seminar for undergraduate students. This course provides students with first hand exposure to cultural differences and sustainability efforts in other environments. This course will also explore how business is conducted overseas through visits to foreign manufacturing, service, governmental and/or non-governmental organizations supplemented by coordinated lectures and assigned readings. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category. May be repeated for credit.

Credits: 3 hours

BUS 4000 - Business Professionalism

Designed for senior-level students, the Business Professionalism course provides students the opportunity to build professional competencies through the completion of on-line modules and in-class experiences, in order to prepare them for career success. This course is the capstone experience for the SPuRS program, and a graduation requirement for students seeking the BBA degree. Credit/No Credit basis only.

Prerequisites & Corequisites: Prerequisite: Senior standing.

Credits: 1 hour

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

BUS 4500 - Business Ethics and Sustainability

This course seeks to develop students' understanding of business ethics and sustainability. The goal is to provide students with an enhanced ability to recognize the ethical dimensions of business problems. Students will assess activities from different functional areas of business in the context of developing sustainable practices.

Prerequisites & Corequisites: Prerequisites: (CIS 2700 or BUS 2700), FIN 3200, MGT 2500 and MKTG 2500.

Credits: 3 hours

Restrictions: Restricted to majors in Leadership and Business Strategy.

BUS 4750 - Strategic Business Solutions

In this course students identify strategic issues and opportunities facing organizations and develop effective solutions. Students consider and evaluate strategic business alternatives and their implications by focusing on the key business dimensions of information, operations, people, and technology. The successful strategist integrates these four dimensions, sees the organization as a whole, and works proactively to improve organizational performance. This course requires students to learn new concepts as well as integrate prior course work and professional experiences.

Prerequisites & Corequisites: Prerequisites: ACTY 2110, ECON 2020, MGMT 2500, MKTG 2500, CIS 2700, BCM 3700, (BUS 3750 or MGMT 2800), FIN 3200, LAW 3800 (may be taken concurrently), and senior status.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

Hispanic Studies

HISP 1240 - Indigenous Languages and Cultures in the Americas

This course examines indigenous peoples in the Americas with particular focus on Latin America. It is an introduction to Indigenous Cultures of the Americas through their language, stories and cultural practices. This course will introduce students to some of the myths, trickster stories, cosmology and the sociopolitical traditions of the indigenous peoples of the Americas stressing the importance of cultural contact and the role of indigenous culture in contemporary society, culture and identity. The course will train students to think and write as anthropological linguists. This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement Category.

Credits: 3 hours

HISP 2650 - Hispanic Culture in the U.S.

This course will study the establishment and development in the U.S. of the culture of large groups of Hispanic, such as those of Cuban, Mexican, and Puerto Rican origin, as well as numerous others. Attention will be given to current manifestations of Hispanic culture in the arts, the media,

education, and public life. This course does not count toward a Spanish major or minor. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

HISP 2750 - Latino Writing/Latino Culture

This course, taught in English, emphasizes the diverse nature of Latino writing and Latino culture by focusing on representative literary texts illustrative of the Hispanic role within contemporary United States society. It seeks to explain not only the relevance of this presence, but also the complexities inherent to biculturalism and bilingualism as experienced by those communities depicted in the works of prominent authors. This course does not count toward a Spanish major or minor. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

HISP 3390 - Contemporary Latin America

This course is taught in English and will provide students with the academic tools to appreciate, think, and write critically on cinema, literature, religious performances, and other cultural forms produced by contemporary Latin American societies. Different versions of the course will be offered, taught by faculty representing different areas of expertise in the department. By studying trends in contemporary cinema, literature and other cultural forms in today's Latin America, the student will engage with alternative artistic and linguistic representations of a reality, that of Latin America, whose social, cultural, economical and technological otherness challenges and reconfigures Eurocentric world views. Accordingly, the topics of this course provide opportunities to step outside one's own frame of reference by considering the human experience and the potential for human achievement from other perspectives. In one planned topic of this course, students will learn about a cinematic model that thrives in the midst of economic and technological limitations that are pertinent to Latin American reality. The way films are made in Latin America is very different from the modes of film-making in Hollywood and Western Europe. By examining this example of the arts, ideas and institutions in other cultures, this course will stimulate reflections on the characteristics of various cultures. In doing so, the course will also emphasize the adaptive nature of cultures or civilizations in response to the challenges of physical environment, intercultural and international relations, and internal socio-

economic dynamics. In another planned topic of this course, by reading the works of contemporary Latin American poets and novelists, the student will be faced with manifestations of literary modernity that redefine what has been deemed as literary modernity in the West. Thus, in the process of examining works of literature produced outside the European cultural arena, the course will explore alternative views of modernization. The study of ex-centric sites of literary enunciation (e.g., Mexico, Cuba, and Argentina) will stimulate student reflection on the interaction of cultures and nations in an increasingly interdependent world. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category. May be repeated for credit.

Credits: 3 hours

History

HIST 1000 - Early Western World

Survey of the major political and cultural developments in the ancient near east, Greece, Rome, and medieval Europe to approximately 1500. This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement: Critical Thinking in the Arts and Humanities Course Category.

Credits: 3 hours

HIST 1010 - Modern Western World

Survey of major developments in Western civilization from the Renaissance to the present. This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement: Critical Thinking in the Arts and Humanities Course Category.

Credits: 3 hours

HIST 1450 - Heroes and Villains in the Middle Ages

An introduction to medieval history and culture that focuses on the people of the Middle Ages, especially those who were particularly admired or vilified. The course explores how their lives were shaped by the society in which they lived, and how legends about them have influenced values and ideals down to the present. Students may not receive credit for both HIST 1450 and MDVL 1450. This course satisfies WMU Essential Studies Level

1: Foundations - Inquiry and Engagement: Critical Thinking in the Arts and Humanities Course Category.

Credits: 3 hours

HIST 2000 - Introductory Topics in History

May be repeated for credit under different topics.

Credits: 1 to 3 hours

HIST 2020 - World History to 1500

With the growing integration of different geographical areas into an interconnected economic system, the world we inhabit today is increasingly becoming a global village. To become a competent member of the world community requires a sufficient knowledge of not only its present but also of its past. This course will provide an opportunity to learn about the past of the world, with a geographical coverage that literally extends to the entire globe, and in a span of time that began with the prehistoric age and ended in the 1500s. The focus of the course is on the political, socioeconomic, and cultural experiences of humanity. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

HIST 2030 - World History since 1500

Introduction to World History since 1500, intended for students of all majors. By "world history" is meant not the sum history of the world's separate societies and culture, but major chapters in the history of the interaction between them. We will examine the ways in which societies contacted one another, the ways they influenced one another, and the ways new societies emerged, including the roles played by migration, trade, war, empire, technology, epidemic, and religious and cultural diffusion. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

HIST 2100 - American History to 1877

General survey of United States history from the colonial period to the late nineteenth century. This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement: Critical Thinking in the Arts and Humanities

Course Category.

Credits: 3 hours

HIST 2110 - American History since 1877

General survey of United States history with emphasis on the 20th-century American experience. This course satisfies WMU Essential Studies Level 1: Foundations - Inquiry and Engagement: Critical Thinking in the Arts and Humanities Course Category.

Credits: 3 hours

HIST 2120 - American Culture

Major concepts in American life as seen from the perspective of literature, the arts, and mass media, and the role of these forms of communication on the development of public historical consciousness.

Credits: 3 hours

HIST 2125 - Sport in American Culture

This course examines the political, social, and economic history of sport and evaluates its changing impact on American culture from the 15th century to the present. Placing special emphasis on the intersection of sport with gender, race, ethnicity, and class, the course underscores the ways that diverse groups have shaped the development of sport in the United States. The course also considers the material aspects of sport including clothing, equipment, and facilities. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

HIST 2900 - The Historian's Craft: An Introduction to the Study of History

This course examines the scope and methods of history and introduces basic research, analytical, communication, and study skills required of all historians. In addition, the class emphasizes awareness of history as a profession, and introduces a range of resources that may enhance students' skills and knowledge as professional historians.

Credits: 3 hours

HIST 3010 - Modern Arts and Ideas

Survey of the history and interplay of intellectual and artistic creativity from the Renaissance to the present. Covers all major areas of material culture. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

HIST 3015 - History and Film

In this course, students acquire a broad understanding of film, television, and other audio-visual media as arts that represent history and historical contexts. Possible approaches include how audio-visual media shape our understanding of the past in terms of accuracy and context; how society, culture, and economy have shaped film and other multimedia industries as global commodities over time; or how films and their makers illustrate and re-imagine intellectual histories and political movements from the late nineteenth century to the present. Additionally, students develop the critical skills necessary for film analysis, build their backgrounds in film theory, and augment their awareness of the imaginative and inventive capabilities of film and film making as a fine art. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

HIST 3060 - Technology and Culture

Major technological developments throughout history, and interaction between technological change and culture. Survey of ancient and medieval technology, the industrial revolution, and the twentieth century, including aspects of technology and culture outside the Western tradition.

Credits: 3 hours

HIST 3100 - Topics in History

May be repeated for credit under different topics.

Credits: 1 to 3 hours

HIST 3101 - Colonial America (WI)

This course explores themes and ideas unique to Colonial America. Topics that may be considered include, but are not limited to, European motivations for colonization, the political and economic cultures of the colonies, religion in the New World, race and slavery, and conflicts like the French and Indian War. This course requires multiple writing assignments and is designated a 3000-level writing course in the Department of History.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

HIST 3102 - Era of the American Revolution (WI)

This course explores the central themes and key events in the era of the American Revolution. Topics that may be considered include, but are not limited to, the Revolution and its outcomes, race and slavery, and the political, social, and economic circumstances of the Early Republic. The course requires multiple writing assignments and is designated a 3000-level writing course in the Department of History.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI)

This course explores the central themes and key events in 19th-century United States history. Topics that may be considered include, but are not limited to, the displacement of Native Americans, religious revivals, race and slavery, varied reform movements, the escalation of sectional tensions, political upheaval of the Civil War and Reconstruction, and America's emergence as a global power. The course requires multiple writing assignments and is designated a 3000-level writing intensive course in the Department of History.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

HIST 3104 - The Gilded Age through the World Wars (WI)

This course explores the central trends, events, and personalities in United States history from the Gilded Age through the World Wars, roughly 1878 to 1945. Topics that may be considered include, but are not limited to, America's emergence as a global power, participation in two world wars, the Depression and New Deal, and many other themes critical to an understanding of the 20th century. The course requires multiple writing assignments and is designated a 3000-level writing intensive course in the Department of History.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

HIST 3105 - The United States in the Global Era 1945-Present (WI)

This course will explore the major political, economic, social, and cultural transformations in the United States from the end of World War II through the end of the 20th century. Topics that may be considered, but are not limited to, the Cold War, the civil rights movement, the American War in Vietnam, culture of the nineteen-sixties, and the rise of conservatism. The course requires multiple writing assignments and is designated a 3000-level writing intensive course in the Department of History.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

HIST 3130 - The U.S. and the World

This course covers a range of topics related to U.S. political, military, cultural interventions in the world, and also explores the relationship between those policies and the social, psychological, and cultural components of life within the United States. Based on a series of case studies, the course will examine the links between domestic and international events, and consider the consequences for diverse groups in the U.S. and abroad.

Credits: 3 hours

HIST 3150 - Popular Art and Architecture in America

An introduction to and survey of popular architectural and artistic expression in American life from the point of initial

European contact with Native American groups through the present. Focus on a variety of material and classifications of art and architecture, including high-style, vernacular, folk, popular, commercial, ethnic, and regionally-oriented materials. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

HIST 3160 - Women in United States History

Women's legal and social status, work, daily life, and participation in major events and processes in United States history; variety of women's experience due to class, race, region, ethnicity, and religion. Survey of the women's movement and emergence of feminist perspectives.

Credits: 3 hours

HIST 3180 - American Environmental History

This course explores the impact of environmental conditions on American historical and cultural development and examines changing attitudes toward environmental issues. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

HIST 3191 - American Sport History (WI)

This course will consider the development of sport in American history from the mid-16th and 17th centuries through the 20th century, and will explore how social class, race, gender, ethnicity, religion, and region have influenced American sporting experiences.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3200 - American Military History

Survey of major events and developments in North American and United States military history from the eighteenth century to the present. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

HIST 3230 - History of Healthcare in the United States

This course will explore changes in medical practice and healthcare in the United States from the 17th century to the present day. While focusing on the techniques of medical practice, the course will also consider the rights, laws, ethics, and politics relating to medicine in the United States.

Credits: 3 hours

HIST 3260 - Native American History and Culture

Survey of the history and culture of American Indians from earliest times to the present; emphasis on cultural achievements and diversity, myths and prejudices of non-Indian Americans, and Indian-government interaction. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

HIST 3265 - Readings in Native American History (WI)

This course will examine important events and themes in the histories of native groups and in that of Indian-European relations from earliest contact up to 1783, and will emphasize how native societies developed culturally, politically, and economically in the face of challenges brought about by contact with Europeans.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3280 - African-American History and Culture

Survey of history and culture of African-Americans from colonial times to the present; emphasis on cultural achievements and diversity, myths and prejudices of non-African-Americans, struggle for civil and human rights, and the dilemmas of integration versus separate identity. Brief survey of United States in a pan-Diaspora context.

Credits: 3 hours

HIST 3285 - African Americans in Michigan (WI)

This course will consider the African American experience and actions with regard to key developments in Michigan's history during the 19th and 20th centuries, and place both the African American experience and Michigan history in a broader historical context.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3290 - Michigan History

A survey of the political, economic and social development of Michigan with emphasis on its relation to the history of the United States.

Credits: 3 hours

HIST 3300 - Canadian History and Culture

A survey of Canada from the sixteenth century to the present. Special attention to the sources of Anglo-French discord and Canada's changing relationship with the United States. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

HIST 3310 - Queer History

Queer History uses the lens of queer theory to examine aspects of human sexuality and gender presentation that have been considered deviant or abnormal in different time periods and cultures across the globe over the last 3,500 years. Through a study of how societies categorize normative sexuality, we can reach a better understanding of how attitudes towards sex and gender roles shape the basic structures of human life. While the course will particularly focus on the treatment of same-sex relationships through history, we will also discuss a variety of other marginal sexual identities and behaviors including transgendered individuals, third-genders, prostitution, religious celibacy, and polygamy. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

HIST 3330 - The World since 1945

This course covers the history of the world since 1945 with emphasis on the legacies of World War II, the Cold War, nation-state building in the Third World, the collapse of Communism, and the making of the world economy.

Credits: 3 hours

HIST 3360 - Women in European History

Examination of the condition of women in various periods of European history, with particular attention to women's changing status and experiences in the family and workplace. Study of various institutions, associations, and activities in which women expressed themselves becomes the basis for conclusions about women's contributions to European history and culture.

Credits: 3 hours

HIST 3370 - Touching the Past

This course introduces students to the ways in which historical archaeologists use laboratory methods to analyze and interpret tangible evidence of the past. It demonstrates how scientific literacy can be applied to increase functional knowledge of the sciences, social sciences, humanities and the arts. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Credits: 3 hours

HIST 3404 - Introduction to Public History

Origins and objectives of public history as a philosophy of history and as a discrete field of study and research. Examination of social, economic, political and cultural changes pertinent to the field. Characteristics and interrelationships of the major components of public history, including historic preservation, museology, education, environmental concerns, public policies and information sciences.

Credits: 3 hours

HIST 3490 - Ancient Near East

Ancient history of Near Eastern lands which also figure prominently in biblical accounts. Archaeology, prehistory, and the cradles of civilization in Mesopotamia and the Nile Valley. Survey of ancient Sumerian, Babylonian, Egyptian, Hittite, Phoenician, and Hebrew cultures, as well as the emergence of the Assyrian, Neo-Babylonian, and Persian empires.

Credits: 3 hours

HIST 3500 - Ancient Greece and the Hellenistic World (WI)

The Greeks. Why and how did the ancient Greeks invent democracy, citizenship, freedom of speech, history, philosophy, theater, and naturalistic sculpture? In this course we will follow the Greeks' story across the first millennium BCE, focusing on the interplay between Greek political and cultural innovation and the hard realities of economics, politics, and war. We will pass from the Greeks' early struggles against giant, threatening empires to their own imperial triumphs and efforts to live in the multicultural world they made. This course will use a wide variety of primary source materials ranging from pottery to ancient law cases. We will also practice a variety of innovative learning approaches, including the adoption of a particular Greek character as your perspective on writing exercises and exams throughout the course.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3510 - Ancient Rome (WI)

How did Rome grow from a loose gang of shepherds, exiles, and criminals to an empire of 65 million people stretching from Britain to Egypt? How and why did it then fall into ruins? Topics include Roman history, society, culture, economics, religions, and impact on Western civilization. We also discuss the origins of the republic form of government, explorations of military strategy, imperialism, slavery, and public entertainment. The focus is on original primary sources, including visual and archaeological evidence. This course also teaches general historical methodologies and techniques.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3531 - Early Christianity (WI)

This course explores the emergence of Christianity in the Roman world, and traces its spread and influence in medieval Europe. Students will consider the world of early Christianity, the development of the Church as an institution and community, and issues of church doctrine and discipline.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3600 - The Medieval World: Society and Culture

Society and culture of medieval Europe with emphasis on everyday life, material culture, and ways of knowing. Impact of medieval Europe on the formation of modern European states and systems; brief survey of comparative medieval conditions in other regions, and the impact of "medievalism" on popular culture. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI)

This course examines the rise of Europe as a region after the Carolingians and the transformative events of the high middle ages, which produced a distinctively European culture that flourished until the crisis of the fourteenth century.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3611 - The Crusades: West Meets East (WI)

This course seeks to give students a historical understanding of the three main cultures of the medieval Mediterranean including western European Christendom, Orthodox Byzantium, and the Islamic Near East, and will consider the influence of the Crusades on these cultures. Students will also examine ways in which the Crusades were justified, organized, and financed, and will consider the impact of this on European institutions, thought, and identity.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI)

This course will investigate the background and origins of the Thirty Years War, the major developments and battles of the war, and the significance of the war for later periods in European history.

Prerequisites & Corequisites: Prerequisite: HIST 2900

with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3615 - The European Witch-Hunt (WI)

This course will examine the intellectual and legal foundations, and demographic and religious factors that created an environment conducive for the Witch-Hunt; the targets, the nature, geographic scope, and chronology of the accusations and the trials; some theories explaining the rise and decline of the Witch-Hunt; and its legacy in modern popular culture.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: This course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI)

This course explores the history of Europe between 1914 and 1945, a period marked by two world wars, the rise of fascism, the impact of communism, and the collapse of world empires. Students will also explore the collapse of European democracies, economic turmoil, and the assault on ethnic and religious minorities. The course requires multiple writing assignments and is designated a 3000-level writing intensive course in the Department of History.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

HIST 3618 - The Cold War to Unification Europe 1945-Present (WI)

This course examines the history of Europe since 1945 with particular attention to recovery and reconstruction following World War II, the Cold War, and the emergence and expansion of the European Union. The course requires multiple writing assignments and is designated a 3000-level

writing intensive course in the Department of History.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

HIST 3630 - History of Modern Britain

The course surveys modern British history from the early eighteenth century to the late twentieth century. It traces the transformation of British economic, political, and social life, and the gradual expansion of the formal political sphere. The course addresses the influence of the British Empire on this process. Students will be introduced to key primary and secondary sources.

Credits: 3 hours

HIST 3640 - Modern Europe: Culture and Society

Social and cultural history of Europe in the late nineteenth and twentieth centuries with emphasis on the post-World War II period: reconstruction; era of the Cold War; the dilemma of economic integration and cultural fragmentation; Europe in the wider world; modern European cultural life.

Credits: 3 hours

HIST 3662 - Russia to 1855 (WI)

This course examines the history of Russia from medieval times to the reign of Tsar Alexander II and the close of the Crimean War.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3664 - Russia from 1855 (WI)

This lecture-discussion course surveys Russian history from the death of Nicholas I in 1855 to the post-Cold War era, and explores elements of historical and cultural continuity and change in order to facilitate an

understanding of Russian, Soviet, and post-Soviet history in this period.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: This course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3702 - Colonial Latin America (WI)

Examines the history of Latin America from 1492 to 1810 with a focus on regions where Spain established exclusive colonial dominion. The course will explore the arts and cultural expressions in the vibrant new societies that emerged from the biological and cultural mixing of colonial and native peoples.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: This course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3760 - Modern East Asia

The recent history of China, Japan, and Korea: tradition, reform, and revolutionary movements; ideologies and techniques of modernization; national ambitions and international relations. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

HIST 3764 - Modern Japan (WI)

This course is a survey of Japanese history and traditional society, and examines Japanese response to outside forces in the 19th century, development of the Japanese empire and its destruction in World War II, and the emergence of Japan as an economic world power. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Prerequisites & Corequisites: Prerequisite: HIST 2900

with a grade of "C" or better, or instructor approval.

Credits: 3 hours

HIST 3766 - Traditional China (WI)

This course explores the history of China from Neolithic times to the rise of the Qing Dynasty in the 17th century. Students will examine politics, religion, international relations, and Chinese literature and arts.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3768 - Modern China (WI)

This course explores Chinese history from 1644 to the present, with particular emphasis on 19th- and 20th-century political history, international relations, the republican revolution, the Sino-Japanese War, and the triumph of Communism.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3780 - The Holocaust

This course will focus on the extermination of six million European Jews by the Third Reich and its allies during World War II. It covers the background to the Holocaust, the history and experience of the Holocaust, and the aftermath and memory of the Holocaust. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

HIST 3790 - World War II in American and Japanese History

This course presents parallel versions of the issues and events of World War II in Japan and the United States. The two nations are treated separately within their own domestic and international contexts. The war is placed in the broadest possible perspective to include not only the road to and from Pearl Harbor, but also the meaning and impact of the war on the social, political, and intellectual life in the two countries through the 20th century. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

HIST 3850 - Modern Middle East

How did the Middle East become such an important region in the current era? This course surveys the Middle East from 1500 to the present, focusing on the region's shifting political centers and multiple languages, religions, and societies. Topics include Islamic modernism, European imperial intervention, socio-religious reform, post-World War I partitions, the Palestine-Israel conflict, and the Iranian Revolution, among many others. This course also focuses on near-contemporary events and issues such as the War on Terror, the Arab Spring, and various proxy conflicts in the region. Learning materials include primary sources such as visual artifacts, travelogues, maps, communiques, and de-classified intelligence reports. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

HIST 3880 - Introduction to African Civilization

Overview of major aspects of African history and civilization from earliest times to the present. Emphasis upon elements which contribute to the uniqueness of the African experience. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

Cross-Listed: This course is cross-listed with AFS 3880. A student may not receive credit for both HIST 3880 and AFS 3880.

HIST 3882 - History of Africa and the Atlantic Slave Trade (WI)

This course will examine Africa and the Atlantic slave trade from the 15th to the 19th centuries.

Prerequisites & Corequisites: Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History.

HIST 3981 - Directed Reading in History

May be repeated for credit to a maximum of three semester hours.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 3 hours

HIST 4006 - Topics in Race and Ethnicity

Courses in this topical area will consider race or ethnicity as a lens for interpreting and understanding the history of the United States or the broader world.

Prerequisites & Corequisites: Prerequisite: One 3000-level designated writing intensive course with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: Specific topics listed in Course Offerings. May be repeated for credit under different topics.

HIST 4008 - Topics in Ethnohistory

Courses in this topical area will provide a forum for students to explore the interface between history and anthropology, and will draw on methodologies from both disciplines to understand cultural change over time.

Prerequisites & Corequisites: Prerequisite: One 3000-level designated writing intensive course with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: Specific topics will be listed in Course Offerings. May be repeated for credit under different topics.

HIST 4010 - Environment and History

Courses in this topical area examine environmental, cultural, and geographic interactions and their role in shaping the history of the United States and the World.

Prerequisites & Corequisites: Prerequisite: One 3000-level designated writing intensive course with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: Specific topics will be listed in Course Offerings. May be repeated for credit under different topics.

HIST 4016 - History of Material Life

Courses in this topical area will enable students to explore material artifacts and built environments as keys to cultural and social history at varying times and regions of the world.

Prerequisites & Corequisites: Prerequisite: One 3000-level designated writing intensive course with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: Specific topics will be listed in Course Offerings. May be repeated for credit under different topics.

HIST 4060 - Archives Administration

Theory, techniques, and practice in the development and administration of archives and archival materials.

Credits: 3 hours

HIST 4080 - Museum Studies

History, philosophy, organization and administration of general history, science, technology and art museums. Discussion of collecting theory, conservation and security, display and interpretation, and the role of museums in culture and education.

Credits: 3 hours

HIST 4100 - Historic Preservation

Development, conservation, and interpretation of historic sites and districts: documenting historic sites; registration procedures; preservation law; funding sources; history of the preservation movement; social and political issues in urban rehabilitation.

Credits: 3 hours

HIST 4245 - Topics in U.S. History and Culture

Courses in this topical area will explore important events, themes, circumstances, or ideas in American history from first European contact to the present.

Prerequisites & Corequisites: Prerequisite: One 3000-level designated writing intensive course with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: Specific topics will be listed in Course Offerings. May be repeated for credit under different topics.

HIST 4380 - Topics in History

Examining of major social, economic, intellectual, and cultural themes and issues in history. Topics announced in schedule of course offerings.

Credits: 3 hours

Notes: May be repeated for credit under different topics.

HIST 4495 - Topics in European History and Culture

Courses in this topical area explore political, cultural, economic and social themes in European history from the ancient world to the present day.

Prerequisites & Corequisites: Prerequisite: One 3000-level designated writing intensive course with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: Specific topics will be listed in Course Offerings. May be repeated for credit under different topics.

HIST 4825 - Topics in Asian History

Courses in this topical area examine the geographic, political, economic, and cultural circumstances that have shaped Asian societies over time.

Prerequisites & Corequisites: Prerequisite: One 3000-level designated writing intensive course with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: Specific topics will be listed in Course Offerings. May be repeated for credit under different topics.

HIST 4845 - Topics in Latin American History

Courses in this topical area will examine varied regional, political, social and cultural themes central to the history of Latin American from the colonial era to the present day.

Prerequisites & Corequisites: Prerequisite: One 3000-level designated writing intensive course with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Notes: Specific topics will be listed in Course Offerings. May be repeated for credit under different topics.

HIST 4940 - Teaching Methods for Secondary Schools

Theories and techniques for the effective teaching of history at the secondary level. Evaluation and selection of reading assignments and instructional materials; methods of measuring cognition of historical concepts; course organization and learning activities for students of varying backgrounds and abilities; use of interactive media; the role of history in social science and humanities education, and of historians as curriculum leaders.

Prerequisites & Corequisites: Prerequisites: Senior standing; LS 4050 and ED 4060 with "C" or better; may be taken concurrently.

Credits: 3 hours

HIST 4950 - Internship

Professional internship experience in museums, historical administration, historic preservation, editing, applied research, etc.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 3 to 9 hours

Notes: May be repeated for credit. Graded on a Credit/No Credit basis.

HIST 4980 - Directed Research

Individualized research and production of a written project supervised by a faculty member. Registration requires a research proposal approved by a faculty member and the Department Chair.

Prerequisites & Corequisites: Prerequisites: Senior standing and department approval.

Credits: 3 hours

Restrictions: This course is restricted to majors in History.

HIST 4990 - Senior Thesis

Research, preparation and defense of a supervised research project. Registration requires approval by two faculty supervising project and the Department Chair. Honors students may substitute HNRS 4990 (Honors College Thesis) with appropriate approval.

Prerequisites & Corequisites: Prerequisites: HIST 4006 or HIST 4008 or HIST 4010 or HIST 4016 or HIST 4245 or HIST 4495 or HIST 4825 or HIST 4845; with a grade of "C" or better (students must have at least one writing course in one of these areas); senior standing and department approval.

Credits: 3 hours

Restrictions: This course is restricted to majors in History.

HIST 5000 - Topics in History

Courses in this topical area explore regional, political, cultural, economic and social issues in various geographical, chronological, or thematic fields of history.

Prerequisites & Corequisites: Prerequisite: Grade of "B"

or better in a 4000-level history writing course; or graduate standing; or instructor approval.

Credits: 3 hours

Notes: Specific topics will be listed in the Schedule of Course Offerings. May be repeated for credit under different topics. Open to upper level and graduate students.

HIST 5150 - Topics in Public History

Selected topics in aspects of public history including museology, historic preservation and cultural resource management, historical administration, information science, and applied research. Specific topics will be listed in Schedule of Course Offerings.

Prerequisites & Corequisites: Prerequisite: Grade of "B" or better in a 4000-level history writing course; or graduate standing; or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit under different topics. Open to upper level and graduate students.

HIST 5245 - Topics in American History

Courses in this topical area explore regional, political, cultural, economic, and social themes in the history of North America or the United States from the colonial era to the present. Specific topics will be listed in the Schedule of Course Offerings.

Prerequisites & Corequisites: Prerequisites: Grade of "B" or better in a 4000-level history writing course; or graduate standing; or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit under different topics. Open to upper level and graduate students.

HIST 5405 - Topics in Ancient History

Courses in this topical area explore regional, political, cultural, economic, and social themes in the history of the ancient world. Specific topics will be listed in Schedule of Course Offerings.

Prerequisites & Corequisites: Prerequisite: Grade of "B" or better in a 4000-level history writing course; or graduate

standing; or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit under different topics. Open to upper level and graduate students.

HIST 5495 - Topics in European History

Courses in this topical area explore regional, political, cultural, economic and social themes in European history from the ancient world to the present. Specific topics will be listed in the Schedule of Course Offerings.

Prerequisites & Corequisites: Prerequisite: Grade of "B" or better in a 4000-level history writing course; or graduate standing; or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit under different topics. Open to upper level and graduate students.

HIST 5500 - Topics in Medieval History

Courses in this topical area explore regional, political, cultural, economic, and social themes in the history of the medieval world. Specific topics will be listed in the Schedule of Course Offerings.

Prerequisites & Corequisites: Prerequisite: Grade of "B" or better in a 4000-level history writing course; or graduate standing; or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit under different topics. Open to upper level and graduate students.

HIST 5501 - Medieval History Proseminar

An overview of major themes and scholarly debates in medieval history (ca. 500-1500) covering regions including the Mediterranean basin, northern Europe, and adjacent regions. The course provides a capstone for advanced undergraduates and a foundation for advanced study for graduate students.

Prerequisites & Corequisites: Prerequisite: Grade of "B" or better in a 4000-level history writing course; or graduate standing; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HIST 5850 - Topics in Asian, African, and Latin American History

Courses in this topical area explore regional, political, cultural, economic, and social themes in the history of Asia, Africa, South America, Central America, Mexico, or the Caribbean from ancient times to the present. Specific topics will be listed in the Schedule of Course Offerings.

Prerequisites & Corequisites: Prerequisite: Grade of "B" or better in a 4000-level history writing course; or graduate standing; or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit under different topics. Open to upper level and graduate students.

HIST 5890 - Oral History Workshop

Approaches to the knowledge, theories, and foundations in the study and practice of oral history. Students will be introduced to the tools and applications that will allow them to practice oral history in a way that is connected to the broader field of public history.

Prerequisites & Corequisites: Prerequisites: A grade of "B" or better in a 4000-level History writing course: HIST 4006 or HIST 4008 or HIST 4010 or HIST 4245 or HIST 4495 or HIST 4825 or HIST 4845; or graduate standing; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HIST 5910 - Topics in Historical Theory and Method

Selected theoretical, methodological, and interpretive issues in the field of history, possibly including methodologies from related social science and humanities disciplines. Topics will be listed in Schedule of Course Offerings.

Prerequisites & Corequisites: Prerequisite: Grade of "B" or better in a 4000-level history writing course; or graduate standing; or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit under different topics. Open to upper level and graduate students.

Holistic Health Care

HOL 1000 - Choices in Living

The course will focus on the relationship between individual choices, social responsibilities and optimal human functioning. Students will be educated in current theories and techniques of values clarification, motivation, and behavior change. Health and social issues relevant to young adults and throughout the life cycle will be examined. This course is designed for undergraduate students in all majors and is especially valuable for students interested in health and human services professions. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Credits: 3 hours

HOL 2000 - Choices in Global Living

This course considers the concept of "health" at both the individual and global level by exploring the connection between an individual's lifestyle choices and their impact on the larger world of work and service. The theory of holism, along with related theories (multiculturalism, sustainability, and ecological systems) are considered across a variety of disciplines in order to examine current initiatives that are occurring in order to improve the human condition.

Credits: 3 hours

HOL 2500 - Holism and the Brain

In this class students will be exposed to the role that the brain/mind plays in Holistic Healing modalities. Students will receive an introduction to the basic workings of the brain and nervous system, and a basic understanding in how the various brain/mind processes are involved in the healing methods utilized in holistic and wellness interventions. Special attention will be given to the brain's role in meditation, mindfulness, and guided imagery, as well as the impact of diet and environment on brain functioning.

Prerequisites & Corequisites: Prerequisite: HOL 1000

Credits: 3 hours

HOL 2701 - Resiliency Training for Life

Resiliency Training for Life will provide you the skills, knowledge and techniques necessary to apply what you learn to your daily life and to make healthy life decisions. This entails a holistic approach where mind, body, and spirit are integrated to function to your fullest. In these times of increasing stress and rapid and unsettling change, people will adapt much better when they are able to see clearly, adjust appropriately, listen openly to others, be creative, decide with confidence and act with conviction. In Resiliency Training for Life, you focus on training the mind, as the mind is central to your perceptions, your beliefs and the decisions that you make. You will be introduced, through direct experience, to the practical application of clearing, calming, centering, and focusing your mind in everyday life. The physical movement component of the class allows you to develop flexibility, grace, strength, endurance and focus. Direct application of these practices in daily life will give you glimpses of its potential value for you in your future careers. Wise and compassionate individuals who embody honor, vitality, dedication, values and integrity are needed in every arena of life from government, business, religion and the military to education, energy, and the environment. Resiliency Training for Life will give you practice in refining your ability to act from your center, the place from which we maintain integrity and maximize effectiveness.

Credits: 3 hours

HOL 2801 - Health and Well Being

This course is designed to promote greater awareness, understanding and ownership of the multiple dimensions of health and well-being. This course provides students with a holistic approach to understanding self and community through a health focus. Through dialog, experiential activities, service-learning and reflection, students explore theory and practice in the following areas: culture, research, and self-care; and well-being encompassing mental, emotional, physical, spiritual, environmental, social, and vocational health. As a Service Learning course it requires a minimum of 15 hours of service with a course-relevant community partner, which will count toward the Lee Honors College service requirement. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Credits: 3 hours

Restrictions: Restricted to Honors students only.

HOL 3000 - Exploring Practices in Integrative Health Care

This course is a general survey of holistic health practices and issues, with a focus on the variety of alternative and complementary modalities that are present in integrative health care settings. Students will complete an assessment of the values and attitudes which underpin their current health practices, as well as examining the values and issues that shape our current health care models. They will explore and critically evaluate a variety of holistic health services and their application. The format for the course will be a combination of lectures, experiential activities, and student presentations.

Credits: 3 hours

HOL 3300 - Holism and Nature

This course is designed to increase awareness of the environment and its link to our own health - physical, mental and spiritual. We will examine the connections between individual lifestyle choices and the effects those choices have on the earth. The intentions of the course are to assist participants in the exploration of human interactions with nature on global, historical, and individual levels. The format for the course will be a combination of experiential activities including visiting and working at a nature preserve, being outdoors (potentially in various kinds of weather), video presentations, meditation, readings, and discussions.

Credits: 3 hours

HOL 3301 - Introduction to Meditation

This class will introduce students to the practice of meditation and the benefits that can be realized from a regular meditation practice on their physical, emotional, and spiritual well-being. They will also learn how they can benefit academically from realizing the acquisition of a calm and open mind. Although some of its tenets are grounded in Eastern philosophies, this meditation class is taught with a secular perspective. The main format of the class is experiential and reflective.

Credits: 1 hour

HOL 3303 - Introduction to Tai Chi

This course will provide students with an understanding of the body and mind health benefits of Tai Chi through learning about and practicing a sequence of movements and other fundamental exercises.

Credits: 1 hour

HOL 3305 - Intro to Mindfulness Skills

This course will focus on the theoretical and experiential foundations of mindfulness. This class utilizes assigned independent readings, guided audio mindfulness practices, media didactics and reflective learning. The focus of HOL 3305 is on developing an understanding of mindfulness from a body, mind, community, and heart perspective. Along with our expectations that students will comprehend the information presented in class and readings, students are also expected to learn about mindfulness by directly engaging in an exploration of mindfulness practices (formal and informal).

Credits: 3 hours

HOL 3350 - Introduction to Stress Management

Students will be introduced to theories regarding stress acquisition and management coming from the disciplines of physiology, sociology, psychology, and spirituality. They will explore their own views of and experiences with stress as well as the techniques that have been used to manage it. They will learn what contributes to the development and maintenance of stress and what gets in the way of being able to prevent or reduce it. Finally, they will learn about and practice various stress prevention and reduction methods and be able to apply these to the stress in their own lives.

Credits: 3 hours

HOL 3500 - Holistic Approaches to Food

This course is designed to provide a holistic overview of the role of food as it relates to our body, mind and spirit within this culture; how food choices influence health and well-being; and how choices we make about securing food impacts our values and connection to the greater whole.

Credits: 3 hours

HOL 3900 - Special Topics in Holistic Health

This is a variable topics, variable credit undergraduate level course for the examination of integrative and holistic health care issues. Special topics and number of credit hours will be announced each time the course is scheduled.

Credits: 1 to 4 hours

Notes: May be repeated for credit.

HOL 3910 - Introduction to Spirituality

This course is designed to provide introductory information on spirituality and provides students with a holistic approach to understanding self and community through a spiritual focus. This course is designed about the following themes: spiritual self-care, spiritual research and health, and spiritual diversity. Students will engage in a variety of activities that will foster critical thinking skills and personal exploration. Students will be exposed to spiritual development models, spirituality and health research, and contemplative practices. Students will be assessed on their oral and written communication skills, as well as through their participation in experiential exercises. The course format includes lectures, small-group discussions, experiential exercises, and a final research project.

Credits: 3 hours

When Offered: Spring

HOL 3960 - Learning, Work, and Lifestyles: Holistic Perspectives

This course is designed as an academic and experiential exploration of "whole person" approaches to learning, work and lifestyle choices. Using the lens of holism, it explores individual learning styles, meaningful work theories and practices, as well as personal, communal and global lifestyle options. Students will have an opportunity to deepen their understanding of how they make decisions regarding these dimensions of life, the physical, mental and spiritual interconnection of these decisions and how this has an impact on their health/healing. The format of this course will combine experiential activities, journaling, small group discussions, guest speaker presentations, and video-audio presentations.

Credits: 3 hours

HOL 4700 - Relationship-Centered Skills

This course provides students with a holistic approach to interpersonal process and communication in order to prepare them to function effectively in health care and relationship-centered settings. Students are exposed to theory and practice in the following areas: key principles of effective communication, holistic approaches to interpersonal process, and relationship-centered approaches to providing health and human services. This course is intended for students pursuing either the minor in holistic health or one of the majors in health and human services.

Credits: 3 hours

Restrictions: Restricted enrollment to undergraduates who have completed 57 credits and above.

HOL 4850 - Capstone in Holistic Health

This class is meant to be the capstone class for the minor in Integrative Holistic Health and Wellness. It is meant to be taken by seniors before or concurrent with their senior internship or project. It provides an in-depth exploration of key issues and ethical considerations that arise when considering health at the individual, interpersonal, community and global level. The course provides students with critical thinking and decision-making skills in order to effectively assess scientific information in the field of holistic health. It culminates with students beginning to explore their own research interests in areas relevant to their professional work.

Prerequisites & Corequisites: Prerequisites: HOL 2000, (HOL 1000 or HOL 2801) and senior standing.

Credits: 3 hours

HOL 4970 - Independent Study in Holistic Health

This course will be arranged on an individual basis to provide students the opportunity to pursue independently the study of a special area in holistic healthcare. Students should be in the IHHW minor and should already have taken at least three holistic courses. This independent study opportunity is meant to help the student delve deeper into a topic area to which they have been previously introduced or to explore a holistic topic that is not currently covered by a holistic elective. A set research question and means of assessing the study shall be approved along with the number of credits that can be earned before registration can occur. Exceptions to these criteria must be approved by the Program Coordinator.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit.

HOL 5300 - Special Topics in Holistic Health

Variable topic, variable credit course for consideration of current and special interests in holistic health. Specific topics, number of credit hours and prerequisites, if any, will be announced each time the course is scheduled. May be repeated for credit with different topics.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students. May be repeated for credit under different topics.

HOL 5301 - Meditation to Enhance Living

The purpose of Meditation to Enhance Living is to introduce the student, through direct experience, to the practical application of meditation in daily life. We will discuss and experience various forms of meditation from different cultural and religious perspectives, yet the basic meditation practice is secular in nature. The latest scientific research on meditation will be reviewed, research that clearly supports the efficacy of meditation in reducing stress and in producing a sense of inner calm or peace. Participants who apply this practice to their daily lives will achieve a significant reduction in stress as well as an increase in their performance and perceived ease of performance.

Credits: 1 hour

Notes: Open to upper level and graduate students.

HOL 5302 - Advanced Meditation to Enhance Living

The purpose of Advanced Meditation is twofold. First is to deepen, through direct experience, the student's capacity to meditate and to apply meditation with increasing ease and effectiveness in daily life. The second purpose is to acquaint the student with the research that supports the use of various meditation practices in promoting health, increasing performance and concentration, expanding compassion and tolerance, and enhancing over-all well-being.

Credits: 2 hour

Notes: Open to upper level and graduate students.

HOL 5303 - Tai Chi to Enhance Living

This course will provide students with an understanding of the body and mind health benefits of Tai Chi through learning and practicing a short set and other fundamental exercises. The benefits of practicing Tai Chi for health and well-being will be explored through a selected review of the research on the topic. This course will also prepare students to apply for certification to lead others in Tai Chi practice through the Arthritis Foundation (AF). This will be accomplished by providing students with both the didactic and the practice elements to meet AF requirements.

Credits: 1 hour

Notes: Open to upper level and graduate students.

HOL 5304 - Yoga to Enhance Living

This class is intended to introduce students to the history, philosophy, science, spirituality and health benefits that yoga has to offer. The class will combine lectures with the practice of yoga techniques including: asana (holding of postures), pranayama (breathwork), and meditation.

Credits: 1 hour

Notes: Open to upper level and graduate students.

HOL 5310 - Introduction to Holistic Health

The primary purpose of this course is to provide an introduction to the philosophies, theories, and concepts involved in holistic health care. It is meant to serve both as a general educational experience for students wishing to become familiar with holism who are not IHHW students, and as essential basic instruction for students wishing to apply for admission to one of the graduate certificate programs in Integrative Holistic Health and Wellness. This course may not be used as an elective for the IHHW minor.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HOL 5320 - Holistic Approaches to Personal Relationships

This course is designed to provide students with an opportunity to enhance their knowledge and understanding of interpersonal relationships from a holistic perspective. To facilitate students' learning about healing ways of relating to self, others, and community, we will explore a variety of topics. Some of these topics include: interpersonal and intrapersonal relationship dynamics, phases of relationships, qualities of health relationships with self and others, mindfulness, mindful living and loving. The format of this course will include class discussions, lectures, small group activities, journaling, and daily experiential activities.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HOL 5321 - Holistic Health Coaching

This course introduces students to the foundational concepts of psychological coaching, including the history and theoretical roots, related professional organizations, and ethical codes regulating the coaching profession. The instructor, a professionally certified coach and trainer, will provide an overview of coaching techniques and models of coaching, as well as the role of coaching in promoting holistic health. Clear distinctions will be drawn between psychological coaching and psychotherapy, as well as other helping models. This course will also include an overview of the dimensions of wellness and how coaching techniques can promote lasting change to better support well-being. Suggestions and encouragement for integrating coaching skills into related professional roles will also be emphasized.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HOL 5340 - Holistic Health and Spirituality

This course helps students better understand the spiritual dimensions of each individual and the relationship of spirituality to the meaning of health. Various spiritual traditions, philosophies and practices will be explored with the primary emphasis on the implications of these teachings for everyday living. The course will address the role of spirituality in the therapeutic process for health care professionals and resources available for practitioners and

educators. The format for the course will include lecture, discussion, experiential activities and audio/video presentations.

Credits: 3 hours

Notes: Open to graduate students and undergraduates who have completed 57 credits and above.

HOL 5350 - Holistic Approaches to Stress

Students will be exposed to the current research and theories regarding stress acquisition and management. Historical precepts and information drawn from current scholarly sources will be presented to provide a thorough understanding of the physiological, neurological, and sociological causes for and impact of stress, as well as the spiritual considerations in stress acquisition and management. Students will be taught a variety of stress prevention and reduction methods and how to apply these to their own lives and the lives of those with whom they may work.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HOL 5360 - Wellness Skills for Health Professionals

This course introduces wellness information and strategies for use by students and professionals working in the health and human services fields. The course is designed to teach the theories and techniques used to address wellness issues related to emotional, relational, cognitive, physical, and spiritual concerns. This course is designed to help students and health care professionals explore these wellness issues in their own lives to insure they are able to provide effective services to their clients/patients/consumers and to assist in preventing compassion fatigue. It is also designed to provide them with a guide to implementing these same wellness practices with those with whom they are working. Students will be exposed to current research in the areas of wellness and neurological functioning as it relates to wellness. Finally, students will explore diversity issues and ethical practices as they relate to wellness strategies.

Credits: 3 hours

Notes: Open to graduate students and undergraduates who have completed 57 credits and above.

HOL 5370 - Health and Humor

This course will focus on the physical, intellectual, emotional and spiritual dimensions of laughter, humor and play. We will explore recent discoveries and research regarding their role in human physical and mental health. Students will learn about the social significance of humor and play, what makes people laugh and why, the role of happiness, and will learn ways to increase happiness and playfulness, use laughter and humor as a stress management technique, and build a basis for appropriate use of humor in helping others.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HOL 5380 - Eastern Thought and Practice

Eastern thought and practice has informed our current understanding of the mind/body/spirit connection. For thousands of years the spiritual and/or philosophical practices of the Eastern psychological traditions taught practitioners how to cultivate the qualities of self-awareness, focus, kindness, contentment, mindfulness, and compassion. Modern day science has confirmed that these qualities have a direct and positive impact on health. Through comparative analysis of various philosophical and religious traditions (primarily Tibetan and Zen Buddhism) and experiences, students will explore these practices and consider how they inform their daily life, their understanding of themselves, their communities and the wider world and how they have influenced and continue to influence current scientific research on the mind/body/spirit connection. The meditative/mindfulness practices will help students move along the path to their own sense of inner peace, calmness, clarity and liberation.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HOL 5500 - Introduction to Holism and Expressive Arts

This course is a survey of expressive arts therapies used to facilitate the healing process and will deepen the student's understanding of the role of creative expression in health and healing. The use of arts therapies to promote health, reduce stress, and complement the traditional treatment of physical and mental illness will be discussed. Topics covered will be visual arts, sound/music, movement/dance,

writing/poetry, and drama/psychodrama. The format for the course will be a combination of experiential creative activities, guest lectures, and video and audio presentations. No artistic experience or background required.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HOL 5510 - Holistic Approaches to Healing Through Visual Art

This course introduces a holistic approach to the use of visual art in healing; how to choose and present appropriate art experiences; spontaneous and directed theme art activities, resources, and materials; guides for interpreting art; and ethics. A variety of activities such as drawing, painting, clay, sand tray, collage, mandalas, and masks will be explored. The format for the course is a combination of experiential activities, lectures, video, and slide presentations. The course is designed to give students and professionals in the counseling, social work, psychology, health care, occupational therapy, art, and other fields some practical tools and considerations for using art for health and healing with others or for personal growth. No artistic talent is required.

The format for the course will be a combination of lectures, discussion, experiential activities, and audio and video presentations. Students enrolled in social work, counseling psychology, occupational therapy, nursing, physical education, and dance will especially benefit from this course. No artistic experience or background required.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HOL 5520 - Healing through Movement

This course is a survey of the use of movement for health and healing. Several movement and dance specialty areas are covered in order to explore personal growth, creativity, balance, stress reduction, spirituality, and cultural perspectives on healing of self and others. Body awareness, breathing, and communication will be emphasized throughout the exploration of movement modalities, such as Authentic Movement, Contact Improvisation, Creative Movement, Feldenkrais, Interplay, Labyrinth Walking, Progoff Journal Writing, Tai Chi Chuan, Dances of Universal Peace, and Movement Therapy. No movement or dance experience required.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HOL 5530 - Holistic Strategies for Illness and End of Life

This course will examine holistic strategies and techniques designed to help people cope with illness along the continuum from diagnosis through the end-of-life. Topics will include: complementary methods that assist with treatment, surgery, medical procedures, pain management; guided imagery; psychosocial/spiritual considerations; being/supporting the caregiver, and death and dying. Students will pursue their individual interests in a project which will include assessment, research and recommendations of holistic modalities for a person dealing with a particular illness. This course is appropriate for professionals/students in health care and related fields and for individuals who are looking for assistance with their own illness or caring for a loved one.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HOL 5540 - Love and Forgiveness

Students will be exposed to current research in the areas of love and forgiveness and the impact they have on an individual's personal well-being as well as social well-being. We will examine our own views of and experiences with love and forgiveness as well as how these have been viewed and experienced by notable others in literary, political, and religious areas. We will explore what contributes to the development of a grievance, what maintains it, and what gets in the way of being able to forgive it. And, we will examine methods of achieving love and forgiveness in our lives, and the positive benefits these have.

Credits: 3 hours

Notes: Open to graduate students and undergraduates who have completed 57 credits and above.

HOL 5550 - Successful Aging-Holistic Perspectives

This course will focus on holistic factors of aging and lifestyle choices that enable people to preserve and even enhance wellness and vitality in later life. Current images

and myths of aging will be explored and research studies that outline holistic ways to delay, prevent, or positively treat common chronic diseases will be presented along with programs and policies that enable older people to practice positive aging strategies. This course will highlight the qualities of older people who remain physically active, intellectually engaged, emotionally involved, spiritually connected, and vital throughout their years.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HOL 5560 - Understanding Grief and Loss

This course examines basic principles of grief and loss in their many manifestations and myths including mourning practices and common reactions by the grieving person and those around him/her. Many types of loss will be considered including death, relationship break-up, abandonment, job loss, physical changes, grief and loss related to substance abuse, and other ambiguous and disenfranchised losses. Grief support techniques will be explored as well as issues related to self-awareness, self-care and boundaries in supporting those who grieve. The issues are explored through the lens of holistic health as they relate to physical, emotional, intellectual, relational, and spiritual areas.

Credits: 3 hours

Notes: Open to upper level and graduate students.

HOL 5600 - Advanced Spirituality and Health

This course provides students with a deeper understanding of the role that spirituality plays in developing their values, finding meaning in their lives, promoting their connection to the environment, enhancing their interpersonal relationships, supporting their intra-personal development, and in the delivery and sustainability of their professional lives. Students will also have the opportunity to focus on increasing their understanding of and experience with a select group of spiritual/contemplative practices. In short, this course will allow students to understand how to most effectively and ethically bring a heart-centered and contemplative presence to their work and to their lives. HOL 5600 can be seen as a follow-up to HOL 5340- Holistic Health and Spirituality.

Credits: 3 hours

Notes: Open to graduate students and advanced upper level students with some training in spirituality. One of the courses available to students completing the specialty certificate in Holistic Approaches to Spirituality and Healing.

HOL 5980 - Readings in Holistic Health

This course provides individualized, independent readings in a proposed holistic area under the guidance of a faculty member. Initiative for planning the topic for investigation comes from the student, with consultation from the Program Coordinator. Together they will determine the books/articles to be read, the number of credits to be received, and the means for assessing the completion of the course requirement. Students should be from the IHHW minor or an IHHW graduate certificate program. Students should be nearing the end of their program of study before requesting this course.

Prerequisites & Corequisites: Prerequisite: Consent of instructor.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students.

Honors College

HNRS 1015 - Introductory Honors Seminar

This is the first-year experience seminar for Lee Honors College students. This seminar will introduce students to the Lee Honors College, University resources and will provide support during the first semester transition to the University. Taught in a small group setting, students will interact with a faculty member and a student leader either once or twice a week. HNRS 1015 seminar will include weekly class meetings, sharing a common reading and research experience, project-based assignments, written assignments, and attendance at selected University events. The importance of writing skills, critical thinking skills, communication skills, and study skills will be emphasized, as well as exploration of major and career opportunities.

Credits: 2 hours

Restrictions: Restricted to freshman Honors College students.

Notes: This course may not be repeated and students will receive a letter grade for this course.

HNRS 2500 - Social and Behavioral Sciences: "The Politics of Genocide"

The purpose of this course is to educate students in the patterns and explanations of genocidal violence. Such education should result in a greater appreciation for, and defense of, civilization and civil processes. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 to 4 hours

HNRS 2900 - Honors Seminar

An undergraduate seminar for first- and second-year honors students. The content of the seminar varies and will be announced in advance.

Credits: 1 to 6 hours

HNRS 3201 - Art of the Book

This course will cover the history and development of the book, beginning with ancient and classical forms, through the design, illustration, printing, and binding of manuscripts and printed texts from the early medieval period to the present. In addition, the course will include visits to the Kalamazoo Book Arts Center where students will participate in some basic bookmaking activities—papermaking, bookbinding, hand typesetting using movable type, and printing. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

Restrictions: Restricted to Lee Honors College students only.

HNRS 3202 - Modernism in Art and Literature

The early 20th century was a rich period of innovation in art and literature. Thanks to the efforts of artists and writers including Pablo Picasso, Marcel Duchamp, Ernest Hemingway and D.H. Lawrence, our conception of art and culture was transformed. In this class we will read novels and short stories, and study paintings and sculptures by these and other important figures of this revolutionary period. We will examine artistic movements including Cubism, Futurism and Surrealism and discuss the ways in which the artists and writers interacted with one another

and were affected by historical events. This is a class for students interested in art, who like to read and want to discover more about the artistic developments of Modernism. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

Restrictions: Restricted to Lee Honors College students only.

HNRS 3203 - Utopian and Dystopian Fiction

Since the publication of Thomas More's celebrated yet purposefully ambiguous *Utopia*, the idea of a utopia conjures up two distinct meanings: first, as an imaginative idealized community in which humankind, having seemingly attained sufficient mastery or even perfection, seeks to create a rational, equitable and just society offering genuine human fellowship and solidarity; and second, as an utter impossibility, as "no place,"—for, as the ideal has yet to be realized, perhaps proving inherently unattainable, utopia remains "nowhere." Over time, these twin meanings of utopia purposefully, ironically and artistically joined in More's work, separate into two distinct and immensely popular traditions: the utopian novel, which culminates in 19th century works such as Bellamy's *Looking Backward* and Gilman's *Herland*; and the dystopian novel, prefigured by Dostoevsky and most famously expressed in the 20th century novels by Zamyatin, Huxley, and Orwell. The course seeks to foster critical thinking, reading and interpretive skills through short formal response essays, a creative writing response, group presentations, and the completion of a final formal essay. Students will find opportunities to improve in the conception, writing, and revision of their essays. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

Restrictions: Restricted to Lee Honors College students only.

HNRS 3204 - Postmodern Dystopias: Fiction and Film from 1970 to the Present

Although few would question that our contemporary world should be termed "postmodern," among scholars, there is no consensus on the precise meaning of the term. Two crucial historical events arising from World War II, the birth of computers and the atom bomb, signal a precipitous

break from the modern, and have radically transformed all facets of contemporary political, social and personal life. Yet while our global world and engagement has been generally embraced and integrated within our contemporary existence, often celebrating the "singularity" of technology and everyday life in an age of "spiritual machines" when "computers exceed human intelligence" as Ray Kurzweil puts it, a decidedly dystopic imagination dominates the arts of films and literature. This course, through the exploration of fiction from the past half century, aims to explore the meaning, significance and implications of postmodern life and culture. Students will develop a critical awareness of postmodernity through lectures, class discussion, and student presentations on authors such as Jameson, Lyotard, Baudrillard, and others. Students will write short response essays and a creative response, give a presentation, and write a final formal essay. Time permitting, we will explore two films through a postmodern lens. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

Restrictions: Restricted to Lee Honors College students only.

HNRS 3301 - Jazz, Blues, and the Harlem Renaissance

This course will place special emphasis on American jazz and blues forms as an expression and influence on American culture in the work of artists such as Bessie Smith and Billie Holiday as well as Langston Hughes, Sterling Brown, Zora Neale Hurston, Jean Toomer and a host of others. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

HNRS 3302 - Civil Rights & Jazz, 1970-75

"Civil Rights and Jazz," the second course in a trilogy of studies in twentieth century American literature, music, and culture, picks up where its predecessor, "Jazz, Blues, and the Harlem Renaissance, 1920-1950," leaves off. While this earlier course is not considered a prerequisite for the present class, many of the musicians and authors overlap and several continuing themes will be further developed. "Civil Rights and Jazz" is more deeply grounded in our present historical moment by the conviction that our "culture wars" of the past half century, as well as the frequent analogies drawn between the era of Vietnam and

Civil Rights with our present globalized "age of terror" (this is reflected in our current political climate and in the #BlackLivesMatter movement) offer powerful evidence that the past is still present: we are still coming to terms with the unfinished business of the Civil War, the failure of Reconstruction. The Black Codes that led into the Jim

HNRS 3303 - The Vietnam War in Rock and Soul

This course explores the history, meaning and impact of the 1950s, 1960s, and 1970s through two crucial cultural events: the Vietnam War and the emergence of Rock and Soul music. The course aims to explore the history of the war and the music, as well as the significant cultural debates, changes and impacts that continue to resonate around them today. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 4 hours

HNRS 3304 - The Texas Tour

This Study in the States course is an excellent opportunity to study business and culture in one of the most interesting, fastest growing and important urban triangles in the United States. The trip includes visits to San Antonio, Austin and Houston. Students will have the opportunity to develop an understanding of Texas Culture as they explore Texas communities as well as visit different organizations and groups working to foster economic development including organizations in the energy and technology industries. The course will also include service learning and personal development components as students will have the chance to participate in several projects for the benefit of different community organizations in Texas which will help them understand themselves, teams and teamwork while being exposed to many of the challenges in urban areas in Texas. This course provides students the opportunity to think critically regarding economic development, business issues, history and social life in Texas.

Credits: 3 hours

Restrictions: Restricted to Lee Honors College students only.

HNRS 3701 - Technology in the Arts

This class will explore the ongoing relationship between the fine arts and technology, with an emphasis on recent practices and emerging technologies. Students will learn

Crow Laws and the legacy of the 60's. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

how musicians, theatre artists, choreographers and visual artists have taken advantage of technology to meet their needs, and how technology has influenced and inspired them to explore new creative territory. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

HNRS 3990 - Field Experience (Community Participation)

An organized association with a person or institution involving work and learning activities related to a significant interest of the student.

Credits: 1 to 6 hours

HNRS 4101 - Introduction to World Cinema

The course objective is to provide an overview of World Cinema and the interrelationships between National Cinemas. Though particular attention will be given to the Cinemas of Europe, students will also be introduced to Cinemas of Japan, China, India, Africa, Middle East, South America and others. Each session will include a short introduction to the material and a screening of a film. General areas covered include the history of individual National Cinemas, the variety of different film movements, and the influence of these movements on American films. Coursework includes several small projects involving viewing films outside of class, a major final paper/presentations and two exams.

Credits: 3 hours

Restrictions: Restricted to Lee Honors College students only.

HNRS 4102 - Studies in Film: Film Adaptations

The majority of films made in Hollywood are adaptations of other material. This course will study film adaptations in many forms: remakes, novels, short stories, theatrical plays, graphic novels, etc. Class will study the source material and

then the adapted film paying special attention to the artistic form of each distinct medium and the choices artists make in adapting a work to the cinematic medium. Class work will include reading journals, tests, and a major paper. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

Restrictions: Restricted to Lee Honors College students only.

HNRS 4200 - Reinventing the American Public Schools

The American public school was invented in the middle years of the 19th century in response to massive changes in a nation increasingly industrialized, urbanized, and socially diversified. Once again, the nation is in the midst of changes of a magnitude similar to those occurring in the 19th century. Information and communication technologies have generated deep and wide consequences for how Americans work, play, learn and communicate. The focus of the course is not on fixing the problems in our schools, but on the transformational changes that are necessary to harmonize our schools with the realities of life in the 21st century. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

HNRS 4300 - United States: Culture and Issues

An undergraduate course for upper-level honors students. The content covers historical and contemporary creation and reception of racial and ethnic humor in the U.S. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 to 4 hours

HNRS 4700 - Natural Science and Technology: Application and Implications

An undergraduate course for upper-level honors students.

Credits: 3 to 4 hours

HNRS 4900 - Honors Seminar

An undergraduate seminar for upper-level honors students. The content of the seminar varies and will be announced in advance.

Credits: 1 to 6 hours

HNRS 4950 - Individual Studies

Students in the Lee Honors College may enroll in this course for one or several semesters upon approval of the dean of the Lee Honors College. The course is an administrative facility for individual study outside of the usual course structure.

Credits: 1 to 6 hours

Notes: May be repeated for credit.

HNRS 4980 - How and Why to Write an Undergraduate Thesis

This online course covers all aspects of preparing and completing an honors thesis. Included are modules on identifying a thesis topic, conducting a literature review, citing sources, finding a thesis committee, structuring the thesis and defending the thesis.

Credits: 1 hour

Restrictions: Restricted to Lee Honors College students only.

When Offered: Fall and Spring

HNRS 4990 - Honors College Thesis

The design, writing and defense of a directed research project appropriate to the major disciplinary area of the student. The thesis must be directed by a full time WMU faculty member and approved by one additional faculty member knowledgeable in the discipline or an allied discipline. A copy of the final project must be filed with the Lee Honors College.

Prerequisites & Corequisites: Prerequisite: HNRS 4980 with a grade of "C" or better and approval of the thesis project by the dean.

Credits: 1 to 6 hours

Restrictions: Restricted to Lee Honors College students only.

Notes: This course is approved as a writing-intensive course. May be repeated for credit.

Human Performance and Health Education

HPHE 1100 - Athletic Taping and Bracing Technique

This course is designed to introduce basic contemporary taping and wrapping techniques and the use of protective equipment in preventing and protecting the competitive athlete and the physically active.

Credits: 1 hour

HPHE 1110 - Healthy Living

This course is designed to provide students with the information and skills that are conducive to healthy living. Students will be introduced to concepts and skills related to priority health behaviors associated with substance abuse, depression, lifestyle related diseases, stress, physical inactivity and weight management. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Credits: 2 hours

HPHE 1490 - Computer Applications in HPHE

This course provides an introduction to computer terminology, technology, communication, and information systems. Its purpose is to provide students with the knowledge of current computer applications in the fields of Health, Physical Education and Recreation. The course includes, but is not limited to the use of the computer for information gathering via the Internet, information processing and communications, word processing, spreadsheets, and database management.

Credits: 3 hours

Notes: Credit cannot be earned for both HPHE 1490 and **HPHE 1502 - Teaching Assistantship: Health Education**

either BIS 1020 or 1100, FCS 2250, SOC 1820, or CS 1050.

HPHE 1500 - Foundations of Physical and Health Education

An introduction to contemporary physical and health education teacher education and physical activity, this course will provide a philosophical background in the development of physical and health education and physical activity programs. Course content will include the history and philosophy of physical and health education, examination of the value of physical activity in the 21st century, professional competencies, ethics, organizations and issues. The initial development of a professional philosophy begins in this course.

Credits: 3 hours

Restrictions: Restricted to pre/majors in Physical Education: Teacher/Coach, Physical Education: Secondary Education, and Physical and Health Education Teacher Education: K-12.

HPHE 1501 - Teaching Assistantship: Physical Education

This 1-credit course provides an opportunity to demonstrate a commitment to collegiality, professionalism, and leadership as preparation for the workforce. Physical and Health Education teacher candidates will work with Physical and Health Education Teacher Education: K-12 faculty in collaboration with local teachers to gain skills and experiences to support shared goals and professional development.

Prerequisites & Corequisites: Prerequisite: Current enrollment in or successful completion of HPHE 1500.

Credits: 1 hour

Restrictions: Restricted to minors in Physical Education: Secondary Education and majors in Health Education: School, Physical Education Teacher/Coach, Physical and Health Education Teacher Education: K-12.

Notes: Graded on a Credit/No Credit basis.

This 1-credit course provides an opportunity to demonstrate a commitment to collegiality, professionalism, and leadership as preparation for the workforce. Physical and Health Education teacher candidates will work with Physical and Health Education Teacher Education: K-12

faculty in collaboration with local teachers , other students, and/other community members to gain skills to support shared goals and enhance the profession via health literacy initiatives.

Prerequisites & Corequisites: Prerequisite: Current enrollment in or successful completion of HPHE 1500.

Credits: 1 hour

Restrictions: Restricted to minors in Physical Education: Secondary Education and majors in Health Education: School, Physical Education Teacher/Coach, Physical and Health Education Teacher Education: K-12.

Notes: Graded on a Credit/No Credit basis.

HPHE 1520 - Foundations of Exercise Science

This is an introductory course for students majoring in Exercise Science. Its purpose is to provide students with information about: (a) Exercise science as a field of study; (b) the Exercise Science curriculum; (c) sub-disciplines in Exercise Science; (d) professional organizations and certification; (e) wellness and health related fitness; (f) physical exercise: an historical, sociological, and philosophical perspective; (g) exercise and aging; and (h) career options in Exercise Science. Student's health related fitness will be assessed.

Credits: 3 hours

HPHE 1530 - Introduction to Athletic Training

This course is designed to review the history and the governance of the athletic training profession and to address the educational domains and the responsibilities of the certified athletic trainer. The major content area of injury prevention will be emphasized. This course will also provide a general orientation to the clinical requirements of the student majoring in athletic training.

Credits: 3 hours

HPHE 1550 - Foundations of Health Education

This course will provide students with the philosophical background in the development and implementation of health education programs. Topics include: history and philosophy of health education/health promotion, health

education settings, professional competencies, ethics, organizations and future issues.

Credits: 3 hours

HPHE 1610 - Skills and Instruction of Invasion Games

The purpose of this course is to provide teacher candidates with the opportunity to acquire the motor skills, knowledge and structured experiences that will facilitate teacher certification. Based on the Teaching for Understanding Framework, the domains covered in this course are invasions games (e.g., basketball, soccer, football, lacrosse).

Credits: 3 hours

Restrictions: Restricted to majors in Physical Education: Teacher/Coach (and pre-program), Physical and Health Education Teacher Education K-12 (and pre-program), Secondary Physical Education, and minors in Coaching.

When Offered: Fall and Spring

HPHE 1620 - Skills and Instruction of Net/Wall Games

The purpose of this course is to provide teacher candidates with the opportunity to acquire the motor skills, knowledge and structured experiences that will facilitate teacher certification. Based on the Teaching for Understanding Framework, the domains covered in this course are net/wall games (e.g., volleyball, pickleball, badminton, tennis).

Credits: 3 hours

Restrictions: Restricted to majors in Physical Education: Teacher/Coach (and pre-program), Physical and Health Education Teacher Education K-12 (and pre-program), Secondary Physical Education, and minors in Coaching.

When Offered: Fall and Spring

HPHE 1630 - Skills and Instruction of Target/Striking/Fielding Games

The purpose of this course is to provide teacher candidates with the opportunity to acquire the motor skills, knowledge and structured experiences that will facilitate teacher certification. Based on the Teaching for Understanding Framework, the domains covered in this course are target

or striking/fielding games (e.g., softball, golf, Disc golf, Frisbee).

Credits: 3 hours

Restrictions: Restricted to majors in Physical Education: Teacher/Coach (and pre-program), Physical and Health Education Teacher Education K-12 (and pre-program), Secondary Physical Education, and minors in Coaching.

When Offered: Fall and Spring

HPHE 1640 - Skills and Instruction of Early Elementary and Rhythmic Movements

This course will provide the opportunity to acquire the motor skills, concepts (level, direction, pathway, speed, space), (non-)locomotor, and manipulative activities, selection of developmentally appropriate games, rhythmic activities (e.g., social, square, line dances, aerobics and tumbling), and the basic instructional components required for the plan and delivery of motor appropriate physical education and physical activity.

Credits: 3 hours

Restrictions: Restricted to majors in Physical Education: Teacher/Coach (and pre-program), Physical and Health Education Teacher Education K-12 (and pre-program), Secondary Physical Education, and minors in Coaching.

When Offered: Fall and Spring

HPHE 1650 - Skills and Instruction of Fitness Activities

The purpose of this course is to provide teacher candidates with the opportunity to acquire the motor skills, knowledge and structured experiences that will facilitate teacher certification. Based on the Teaching for Understanding Framework, the domains covered in this course are fitness and nutrition concepts.

Credits: 3 hours

Restrictions: Restricted to majors in Physical Education: Teacher/Coach (and pre-program), Physical and Health Education Teacher Education K-12 (and pre-program), Secondary Physical Education, and minors in Coaching.

When Offered: Fall and Spring

HPHE 1700 - Introduction to Recreation/Sport Management

This course offers an introductory analysis of the philosophical, economic, political, social and psychological impacts of recreation and sport. The course also offers a contemporary analysis of trends in recreational/sport.

Credits: 3 hours

HPHE 1701 - Health and Personal Wellness Practices

The purpose of the course is to provide knowledge and opportunity to facilitate positive health changes. After completion of this course, the student will have the skills to make personal healthful choices and apply these skills immediately. The course will include assessment, planning, and management of wellness areas including topics such as nutrition, stress reduction, sleep, as well as discovery of promoting the connection to the planet. Co-enrollment in a physical activity course develops community and connection and building of lifelong personal healthy habits. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Prerequisites & Corequisites: Corequisite: To fulfill the WMU Essential Studies requirement, students must co-register for a qualifying 1 Credit PEGN physical activity class taught by the HPHE department (PEGN 1030 - PEGN 1660).

Credits: 2 hours

HPHE 1810 - First Aid

The standard course in first aid techniques leading to Red Cross certification.

Credits: 2 hours

Notes: Open to all students.

HPHE 2100 - Event Strategic Planning for Special Events

Provides a theoretical background and practical applications designed to provide a framework for the management of resources associated with the planning, implementation and evaluation of festivals and special

events.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Recreation/Sport Management.

HPHE 2200 - Health Concepts and Strategies

This course examines health concepts, issues, and skills related to all dimensions of wellness throughout the lifecycle. Emphasis on contemporary health education and skills related to issues such as: mental health literacy; sexuality education; food literacy; physical literacy; drug literacy; communicable and chronic disease; injury prevention; growth and development; consumer and community health; and environmental health.

Credits: 4 hours

Restrictions: Restricted to majors in Health Education: Community, Health Education: School, Physical and Health Education Teacher Education K-12 (and pre-program), Pre-Health Education School Emphasis; and minors in Health Education: Community Education, and Health Education School.

HPHE 2210 - Healthy Behaviors

This course will provide students with an introduction to the most commonly used theories in health education promotion practice. Emphasis on the application of health behavior change theories and models to health issues relevant to students and school communities to promote healthy behaviors and guide effective health education programs.

Credits: 4 hours

Restrictions: Restricted to majors in Health Education: Community, Health Education: School, Physical and Health Education Teacher Education K-12 (and pre-program), Pre-Health Education School Emphasis; and minors in Health Education: Community Education, and Health Education School.

HPHE 2220 - Basic Health Concepts III

This course is designed to provide students with basic health education content in the areas of chronic and communicable diseases including sexually transmitted infections and environmental health issues.

Credits: 3 hours

HPHE 2350 - Theory of Coaching

Introduction to coaching includes basic principles, covers State Athletic Handbook, budgets, scheduling, facilities, liability, public relations, relationships with staff, faculty, students, parents, press, etc.

Credits: 2 hours

HPHE 2400 - Human Motor Development and Learning

Course content focuses on birth to death study of the changes in motor behavior due to the interaction of environmental and biological factors. Special emphasis on the physical, cognitive, and personal-social development as this relates to the acquisition of motor skills.

Prerequisites & Corequisites: Prerequisite: BIOS 1120.

Credits: 3 hours

Restrictions: Restricted to majors in Athletic Training (and pre-program), Physical Education: Teacher/Coach (and pre-program), Physical Education: Secondary (and pre-program), Physical Education: Secondary Education, Physical Education Elementary, Physical and Health Education Teacher Education K-12 (and pre-program); and minors in Physical Education Coaching, Physical Education: Elementary, Physical Education: Secondary Education.

HPHE 2430 - Physical Education Methods: Early Elementary Movement/Physical Activities

The content in this course includes movement concepts (level, direction, pathway, speed, space), locomotor, non-locomotor and manipulative activities, selection of developmentally appropriate games, rhythmic activities, and the basic instructional components required for the plan and delivery of motor appropriate physical education curricula for preschool and early elementary school children.

Prerequisites & Corequisites: Prerequisite: HPHE 1500

Credits: 3 hours

HPHE 2480 - Skills and Instruction of Aquatics

This two credit lecture/lab course provides the physical education teacher education candidate the skills, knowledge and safety concepts required in developmentally appropriate aquatics courses. This course is designed for the candidate who does NOT have the aquatic skills necessary for certification as a Water Safety Instructor.

Credits: 2 hours

Restrictions: Restricted to majors in Secondary Physical Education, and Physical Education: Teacher/Coach (and pre-program); minors in Coaching; and Pre-Physical Education Teacher/Coach.

When Offered: Fall and Spring

HPHE 2530 - Injury/Illness Survey and Management

Basic procedures in the recognition, assessment and the treatment of athletic related injuries and illnesses. To obtain the knowledge and skill needed to complete an on-site injury survey, and to initiate the management of the injury/illness. Addressing contemporary taping and wrapping techniques and the use of protective equipment in preventing and protecting the athlete and the physically active is addressed.

Prerequisites & Corequisites: Prerequisites: HPHE 1810, HPHE 1530, BIOS 2110.

Credits: 3 hours

HPHE 2540 - Medical Conditions in Athletic Training

Basic procedures in the recognition, treatment, and management of general medical conditions are addressed. To obtain the knowledge, skills, and values needed to manage illnesses of athletes and the physically active and to recognize the need for a medical referral when appropriate. Pharmacology, drug testing, psychosocial interventions, and selected emergency procedures pertaining to general medical conditions are addressed.

Prerequisites & Corequisites: Prerequisite: HPHE 2530

Credits: 3 hours

HPHE 2720 - Administration of Recreational Sports

This course offers an introductory analysis of recreational sport. Also known as campus recreation, this course will explore the history and growth of the profession. It will also offer students the opportunity to experience real life work in cooperation with the Student Recreation Center at WMU. Finally, the course will explore current issues and trends in the profession and introduce students to various professional associations.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Recreation/Sport Management.

When Offered: Spring

HPHE 2750 - Managing Special Pop-ups, Catering, and Fundraising Events

This course provides both in-class and field experience in the field of food directed events including catering, weddings, and fundraising auctions and dinners. The curriculum will explore event design, food management, auctions, corporate partnerships, and destination events. The course will also feature a section on wedding planning and event day implementation.

Prerequisites & Corequisites: Prerequisites: HPHE 1700 and HPHE 2100, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Notes: May be repeated for credit.

HPHE 2900 - Inclusive and Special Recreation

An overview of inclusive and special recreation programming designed for the student preparing for a career in recreation (leisure services). This course will provide the student with a sensitivity to, and knowledge about individuals with disabling conditions and their recreation/leisure needs.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Recreation/Sport Management.

HPHE 2950 - Functional Anatomy and Biomechanics

This course involves a detailed study of the human musculoskeletal system and its function. It covers bony landmarks, muscle origin, insertion, and actions, as well as biomechanics and injury mechanism and prevention. The course will also emphasize the use of mechanics in assessing and evaluating human and sport related motion.

Prerequisites & Corequisites: Prerequisite: BIOS 2110.

Credits: 3 hours

Restrictions: Restricted to majors in Athletic Training (and pre-program), Exercise Science (and pre-program), Physical Education: Teacher/Coach (and pre-program), Physical Education: Secondary (and pre-program), Physical Education: Secondary Education, Physical and Health Education Teacher Education K-12 (and pre-program); and minors in Coaching, and Physical Education Coaching.

HPHE 2980 - Exercise Physiology

This course explores the physiological concepts and principles related to the acute and chronic adaptations the human body makes when responding to stress in the form of strenuous, physical exercise.

Prerequisites & Corequisites: Prerequisites: BIOS 2110, 2400.

Credits: 3 hours

Restrictions: Restricted to majors in Athletic Training (and pre-program), Exercise Science (and pre-program), Physical Education: Coaching, Physical Education: Teacher/Coach (and pre-program), Physical Education: Secondary (and pre-program), Physical Education: Professional, Physical Education: Elementary, Physical Education: Secondary Education, Physical and Health Education Teacher Education K-12 (and pre-program); and minors in Coaching, Physical Education Coaching.

HPHE 3000 - Seminar Series

Designed to provide an opportunity for qualified students to examine and discuss a subject area in field of common interest.

Prerequisites & Corequisites: Prerequisite: Enrollment by written permission of the instructor.

Credits: 1 to 4 hours

HPHE 3100 - Event Management Advanced Applications

Provides practical applications designed to provide opportunities to implement management theory and best practices in event and festival management, planning, implementation and evaluation.

Prerequisites & Corequisites: Prerequisites: HPHE 1700 and HPHE 2100, with grades of "C" or better.

Credits: 3 hours

HPHE 3110 - Event Marketing

Provides fundamental and advanced concepts in the study and practice of event marketing including event mission and vision development, target audience development, event positioning, event product development, integrated event marketing tactics, and the formulation of the communication plan.

Prerequisites & Corequisites: Prerequisites: HPHE 1700 and HPHE 2100, with grades of "C" or better.

Credits: 3 hours

HPHE 3120 - Planning School Health Programs

Designed to provide information and experiences in school settings which will enable students to develop planning skills for a variety of health promotion programming in the school setting.

Prerequisites & Corequisites: Prerequisites & Corequisites: Prerequisites: HPHE 1500 and HPHE 2200, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: This course is restricted to the following major(s): Health Education: School, Pre-Health Ed: School Emphasis, Health Education: School, Physical and Health Education Teacher Education K-12, Pre-Physical and Health Education Teacher Education K-12.

HPHE 3150 - Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education

This course covers measurement and evaluation techniques in terms of understanding, interpretation, and application with emphasis on administration, selection, and use of tests; interpretation of results through statistical procedures; analysis of tests available in Exercise Science, Health, and Physical Education and techniques for developing assessment tools.

Prerequisites & Corequisites: Prerequisites: HPHE 1500 or HPHE 1520 or HPHE 1530.

Credits: 3 hours

Restrictions: Restricted to majors in Athletic Training (and pre-program), Exercise Science (and pre-program), Physical Education: Teacher/Coach (and pre-program), Physical Education: Secondary, Physical Education: Secondary Education, Physical and Health Education Teacher Education K-12 (and pre-program).

HPHE 3160 - Issues in Health Education

The course will focus on current health issues. May be designed to deal with one issue or several.

Prerequisites & Corequisites: Prerequisites: HPHE 1550, HPHE 2200, HPHE 2210, and HPHE 2220.

Credits: 2 hours

HPHE 3300 - Grants and Fund Development in Sports, Recreation and Events

This course is a practical application of grant writing with an emphasis on sports, recreation and event projects. Students will complete a grant application that supports a recreation, sport, or event program or event. Students will outline community need, create program goals and objectives, design a budget, and determine collaborative partners that create sustainability. This is a writing course that incorporates fund development content in addition to completing a grant application.

Prerequisites & Corequisites: Prerequisites: HPHE 1700, HPHE 3100 (may be taken concurrently), and HPHE 3760 (may be taken concurrently). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Restrictions: Restricted to majors in Recreation/Sport Management and Event Management.

HPHE 3310 - Community Health Education Planning

This course deals with the analysis of principles of program planning in public health education. Topics include: needs assessment, community analysis and organization, program selection, program coordination, and program evaluation.

Prerequisites & Corequisites: Prerequisites: HPHE 1550, HPHE 2200, HPHE 2210, and HPHE 2220.

Credits: 3 hours

HPHE 3350 - Advanced Theory of Coaching

A continuation course for professional students with a major in physical education or minor in coaching pursuing the second level of Program for Athletic Coaches Education Certification (PACE). PACE Level II certification demonstrates advanced competence in the interpersonal and technical skills of coaching high school sports in Michigan. Course content provides an understanding as to significance of quality coaching, human growth and development, conditioning for sport performance and psychological and social skills necessary to coach high school sports.

Prerequisites & Corequisites: Prerequisite: HPHE 2350

Credits: 2 hours

HPHE 3400 - Physical Education for the Elementary Classroom Teacher

This course is structured for the future elementary classroom teacher and/or special education teacher. It provides experience in the participation and teaching of appropriate elementary physical education movement activities in the areas of basic skills, stunts and tumbling, simple games and sports, rhythms and classroom correlated activities. This course is not open to physical education majors or minors. Open to all students.

Credits: 2 hours

HPHE 3460 - Physical and Health Education Methods: Special Populations

This course is an orientation to the instruction of health and physical activity to special populations. Emphasis is placed on meeting the needs of students with disabilities in health and physical education classes. Required curriculum adaptation, effective instructional techniques, identification and development of resources and services, as well as accommodation of activities, equipment, and instructional materials for special populations attending grades K-12 are stressed.

Prerequisites & Corequisites: Prerequisite: HPHE 1500 with a grade of "C" or better.

Credits: 3 hours

Restrictions: This course is restricted to the following major(s): Physical Ed: Secondary Educ, Health Education: School, Phys&Health Ed Teacher Ed:K-12, Physical Ed: Teacher/Coach, Physical and Health Education Teacher Education K-12.

HPHE 3500 - Modification of Health Behavior

This course will provide students with skills that will enable them to comprehend, develop, and apply theories, models, skills, and strategies to help individuals and groups modify and maintain behaviors conducive to health.

Credits: 2 hours

HPHE 3520 - Teaching Health in the Elementary School

This course will provide students with knowledge and skills needed to design, implement, and evaluate health education curricula for grades K-6. The focus of the course will be on the following: (a) planning a developmentally appropriate instructional program for elementary students, (b) identifying and evaluating existing health curricula, and (c) implementing health lesson/units into primary and intermediate grade levels in a public school setting.

Prerequisites & Corequisites: Prerequisites: ED 2500 and (HPHE 1110 or HOL 1000); with a grade of "C" or better in all prerequisites.

Credits: 2 hours

Restrictions: This course is restricted to majors in: Early Childhood Professional Education, Elementary Professional Education, Health Education: School, Special Education: Learning Disabilities and Cognitive Impairment, Special Education: Learning Disabilities and Emotional Impairment and Special Education & Elementary Education: Learning Disabilities & Emotional Impairments K-12.

HPHE 3540 - Human Sexuality Education

This course provides students with knowledge and skills needed to design, implement, and evaluate health education curricula for grades K-6, including content- and process-oriented opportunities in sexuality education. Candidates will enhance their current understanding of human sexuality with knowledge and skills that will enable them to assess, plan, implement, evaluate, and advocate for developmentally appropriate instruction related to evidence-based sexuality education. The course includes: (a) planning a developmentally appropriate instructional program for elementary students, (b) identifying and evaluating existing health curricula, and (c) implementing health lesson/units into primary and intermediate grade levels in a public school setting.

Credits: 4 hours

Restrictions: Restricted to majors/minors in Health Education and majors in Physical Education Teacher/Coach and Physical and Health Education Teacher Education: K-12.

HPHE 3710 - Practical Recreational Programming and Leadership

The purpose of this course is to enable students to put programming theory into practice by allowing students the opportunity for hands-on programming. The course is designed to allow students to apply what they learned in programming/leadership theory (HPHE 2710). The course will center around two practical experiences (1) Programming the Intramural Sports Turkey Trot, and (2) designing a practical program given a real world situation.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Recreation/Sport Management.

HPHE 3750 - Managing Meetings, Conventions, and Expos

This course will explore through curriculum and on-premise event venue service learning experience in convention services, meeting/convention enhancement, expo booth management. Both in-classroom and on-site best practices will be explored in vendor recruitment and design, and technology support for conference planning. The curriculum incorporates service learning including planning and working conventions in Kalamazoo. The course partners with local convention facilities.

Prerequisites & Corequisites: Prerequisites: HPHE 1700 and HPHE 2100, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

HPHE 3760 - Management of Recreational/Sport

This course is designed to provide students with the opportunity to understand the organizational and administrative principles, objectives, procedures, and practices involved in operating recreation and sport organizations.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Recreation/Sport Management.

HPHE 3810 - Instructor First Aid

This course is designed to prepare students to be instructors in Community First Aid and Safety. This will be accomplished by providing first aid and CPR certification, and teaching skills related to certification.

Credits: 2 hours

HPHE 3825 - Athletic Injury Evaluation of the Lower Extremity

This course is designed to present the techniques used in lower extremity athletic injury evaluation. An in depth analysis of lower extremity athletic injury mechanics, the theory and application of orthopedic and neurological evaluation are included.

Prerequisites & Corequisites: Prerequisites: All pre-program core requirements; admission into Athletic Training Professional Program.

Credits: 3 hours

HPHE 3830 - Athletic Injury Evaluation of the Upper Extremity

This course is designed to present the techniques used in upper extremity athletic injury evaluation. An in depth analysis of upper extremity athletic injury mechanics, the theory and application of orthopedic and neurological evaluation are included.

Prerequisites & Corequisites: Prerequisites: All pre-program core requirements; admission into Athletic Training Professional Program and HPHE 3825.

Credits: 3 hours

Restrictions: Restricted to majors in the Athletic Training program.

HPHE 3840 - Therapeutic Modalities

This course is designed to study the pain management techniques and the mediation of theory and practice of therapeutic modalities. To plan, implement, document and evaluate the efficacy of therapeutic modalities in the treatment of injuries to and illness of athletes and others involved in physical activity.

Prerequisites & Corequisites: Prerequisite: Admission into Athletic Training Professional Program.

Credits: 3 hours

HPHE 3960 - Principles for Strength and Conditioning

This course is designed to provide students with the applied scientific knowledge to design and implement strength training and conditioning programs in order to improve health and performance. The major topics in this course include flexibility, cardiovascular conditioning and aerobic exercise, and strength training and endurance. This course will include exercise and sport-specific testing, designing and implementing safe and effective exercise programs, and injury prevention. The course will also familiarize the students with the requirements, knowledge and skills necessary for the NSCA CSCS certification.

Prerequisites & Corequisites: Prerequisites: HPHE 2950 and HPHE 2980.

Credits: 3 hours

HPHE 3970 - Exercise and Sports Nutrition

The purpose of this course is to educate students in various aspects of nutrition, sports nutrition, body composition, and weight management techniques. The course will cover the topics of macro-and micro-nutrients, the assessment and interpretation of dietary intake, the application of nutrition to sport-specific performance, the assessment and interpretation of body composition, and the principles of weight management. Laboratory exercises will support the theoretical knowledge provided in the classroom.

Prerequisites & Corequisites: Prerequisite: HPHE 2980

Credits: 3 hours

HPHE 3980 - Sport Media

This course is designed to introduce students to the many roles and responsibilities of sport media professionals. Students will gain experience in the various media formats which modern sport media professionals use. This is a writing intensive course with weekly assignments, which is a reflection on the importance of writing in the industry.

Credits: 3 hours

Restrictions: Restricted to majors in Recreation/Sport Management: Sport Management.

When Offered: Fall

HPHE 3990 - Practicum in Recreation/Sport

The practical field experiences in recreation/sport. Enrollment by department approval and acceptance of practicum proposal. Students are given letter grades in course.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Recreation/Sport Management.

HPHE 4000 - Field Experience/Internship in HPHE

This course will provide in-depth field experience or internships for undergraduate majors or minors in athletic

training, recreation, health, coaching, exercise science, or exceptional child. Students will be assigned to classes or positions according to their selected area of emphasis. Enrollment by department approval.

Prerequisites & Corequisites: Prerequisite varies with area of emphasis and requires departmental approval.

Credits: 1 to 8 hours

HPHE 4010 - Athletic Training Field Experience I

This course will provide in-depth field experience or internships for undergraduate majors in athletic training. Students will be assigned to clinical field experiences according to their selected area of emphasis.

Credits: 3 hours

Restrictions: Restricted to majors in athletic training professional program.

HPHE 4020 - Athletic Training Field Experience II

This course will provide in-depth field experience or internships for undergraduate majors in athletic training. Students will be assigned to clinical field experiences according to their selected area of emphasis.

Prerequisites & Corequisites: Prerequisites: HPHE 3825 and HPHE 4010, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in athletic training professional program.

HPHE 4030 - Athletic Training Field Experience III

This course will provide in-depth field experience or internships for undergraduate majors in athletic training. Students will be assigned to clinical field experiences according to their selected area of emphasis.

Prerequisites & Corequisites: Prerequisite: HPHE 4020, with a grade of "C" or better. Corequisite: HPHE 4860

Credits: 3 hours

Restrictions: Restricted to majors in athletic training professional program.

HPHE 4040 - Athletic Training Field Experience IV

This course will provide in-depth field experience or internships for undergraduate majors in athletic training. Students will be assigned to clinical field experiences according to their selected area of emphasis.

Prerequisites & Corequisites: Prerequisites: HPHE 4030, with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in athletic training professional program.

HPHE 4100 - Physical Education Intern Seminar

Through course activities and assignments, students develop professional skills which facilitate positive induction into the field of Physical Education. All assignments correspond with practical experiences which occur concurrently during HPHE 4750. Prerequisites: All course work necessary for completion of student's major and minor curricula must be done prior to the semester during which the student applies for intern teaching.

Credits: 1 or 2 hours

HPHE 4110 - Intern Seminar: Health Education

Through course activities and assignments, interns develop professional skills, which facilitate positive induction into the health education field. Course activities and assignments correspond with practical experiences that occur concomitantly during HPHE 4755 (Intern Teaching: Health Education).

Prerequisites & Corequisites: Prerequisite: All coursework completed.
Corequisite: HPHE 4755

Credits: 2 hours

Restrictions: Restricted to seniors in the following majors:

Health Education: School, Physical Education: Teacher/Coach, and Physical and Health Education Teacher Education: K-12; and the minor: Physical Education: Secondary Education.

HPHE 4120 - Teaching Skills and Strategies

Designed to provide information and experiences that enable students to design and implement effective health education strategies in a school setting.

Prerequisites & Corequisites: Prerequisite: HPHE 3120

Credits: 3 hours

HPHE 4140 - Measurement and Evaluation in Health Education

This course provides a forum for developing measurement and evaluation skills relevant to the completion of HPER 4120 (HESJ requirement) and HPER 431 (CHDJ requirement) in health education. The core competencies for professional development of a health educator related to needs assessment and evaluation will also be covered. The settings for health education practice covered in this course would include the school and the community.

Prerequisites & Corequisites: Prerequisites: HPHE 3500 and (HPHE 3310 or HPHE 3120); Recommended Corequisites: HPHE 4310 or HPHE 4120.

Credits: 3 hours

HPHE 4199 - Practicum in Event Management

The purpose of this course is for the student to gain work experience in special event management. The student will spend a minimum of 225 hours working with an organization on special event programming.

Prerequisites & Corequisites: Prerequisites: HPHE 1700, HPHE 2100 and HPHE, with grades of "C" or better in all prerequisites.

Credits: 3 hours

HPHE 4310 - Community Health Education Interventions: Individual Strategies

Designed to prepare students with skills necessary to implement health education programs within the context of community health settings. Emphasis is placed on community health education methods at the individual level, including development of educational materials, working with media, group processes, and effective presentations.

Prerequisites & Corequisites: Prerequisite: HPHE 3310

Credits: 3 hours

HPHE 4320 - Research and Writing in Recreation/Sport

This course is designed to instruct the student on research in the fields of recreation and sport. It will introduce students to the different types of research and research methodologies commonly used in recreation and sport. This course will also emphasize professional writing as it is used in the field. The course will emphasize, but is not limited to writing assignments including reports, research papers, research proposals, year-end reports, and other types of writing that are required of a successful professional in parks and recreation.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Recreation/Sport Management with junior standing.

HPHE 4430 - Professional Development in Athletic Training

This course will concentrate on the professional development and awareness of professional concerns prior to student graduation and graduate school. Special emphasis is placed on the following: cover letters and resumes, interviewing skills, presentation skills, professional organizations, written policy and procedure development, and current events and research topics relating to athletic training. This course also serves as the writing intensive course for athletic training majors.

Prerequisites & Corequisites: Prerequisite: HPHE 4020 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in athletic training professional program.

HPHE 4440 - Professional Development in Exercise Science

This course will concentrate on the professional development and awareness of professional concerns prior to student internships, graduation and graduate school. Special emphasis is placed on the following: cover letters and resumes, interviewing skills, presentation skills, professional organizations and certifications, and current events and research topics relating to exercise science. This course also serves as the writing intensive course for exercise science majors.

Prerequisites & Corequisites: Prerequisites: HPHE 2950, HPHE 2980 and HPHE 3150.

Credits: 3 hours

HPHE 4450 - Exercise Testing and Prescription

This course provides the student with the knowledge and tools to properly conduct various aspects of exercise testing such as the assessment of risk stratification, cardiorespiratory endurance, muscular strength and endurance, body composition and flexibility. The course then instructs the student as to how to apply these assessments in development of exercise programs and prescriptions for both a general health and fitness population and a clinical population. The American College of Sports Medicine's guidelines for exercise training and prescription will be emphasized with specific focus on the knowledge, skills, and abilities for the Health Fitness Instructor Certification.

Prerequisites & Corequisites: Prerequisites: HPHE 2950, HPHE 2980, HPHE 3150, HPHE 3960 and HPHE 3970.

Credits: 3 hours

HPHE 4470 - Health Education: K-12 Methods

This course provides information and experiences, which allow the student to plan and implement effective health education curricula and activities in K-12 school settings considering national/state standards and the Whole School Whole Community Whole Child Approach while using reflective teaching skills.

Prerequisites & Corequisites: Prerequisites: HPHE 1500, HPHE 2400, HPHE 2950, HPHE 2980, HPHE 3120,

HPHE 3150 and HPHE 3460.

Credits: 4 hours

Restrictions: Restricted to majors in Physical Education: Teacher/Coach, Physical and Health Education Teacher Education: K-12, Health Education: School, and minors in Physical Education: Secondary Education.

HPHE 4480 - Physical Education: K-12

Methods

This course provides information and experiences which allow the student to plan and implement effective physical education curricula in K-12 school settings and to self-assess teaching performance using reflective systematic skills.

Prerequisites & Corequisites: Prerequisite: HPHE 2400 (with a minimum grade of "C" or better), HPHE 2950, HPHE 2980, HPHE 3150, AND HPHE 3460.

Credits: 4 hours

Notes: Restricted to majors in Physical Education: Teacher/Coach, Physical and Health Education Teacher Education: K-12, Health Education: School, and minors in Physical Education: Secondary Education.

HPHE 4500 - Cultural Dynamics in Human Performance and Health Education

This course is for majors in the physical education teacher/coach, health, recreation, and exercise science emphases. A comparative approach is taken that applies sociology and multiculturalism to the fields of health, physical activity, and recreation using the vehicle of contemporary sport issues and trends. This course is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisites: HPHE 1500 or HPHE 1530 or HPHE 1550; and 56 hours (junior status).

Credits: 3 hours

Restrictions: Restricted to majors in Athletic Training (and pre-program), Physical Education: Coaching, Health Education: Community, Health Education: School (and pre-program), Physical Education: Teacher/Coach (and pre-program), Physical Education: Secondary (and pre-program), Physical Education: Professional, Physical Education: Elementary, Physical Education: Secondary

Education, Physical and Health Education Teacher Education K-12 (and pre-program).

HPHE 4690 - Fitness Management

The purpose of this course is to provide students with an introduction to the scope, characteristics, management techniques, and business operations used in the field of sport management, as well as exercise science professions.

Prerequisites & Corequisites: Prerequisite: HPHE 3960

Credits: 3 hours

HPHE 4700 - Facilities and Risk Management

This course is intended to provide the student with an understanding of the general principles and strategies related to the management of facilities that support the delivery of recreation/sport services.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Recreation/Sport Management with junior standing.

When Offered: Spring

HPHE 4720 - Recreation for the Aging

An overview of aging especially as it relates to leisure pursuits and organized recreation. Includes observation, participation and leadership of recreational activities or programs for retirees, nursing homes, senior citizens housing units and clubs.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Recreation/Sport Management.

When Offered: Fall

HPHE 4750 - Intern Teaching: Physical Education

This course represents the final experience of the student's curriculum during which an application of all knowledge and skills acquired is facilitated. Through the experiences provided in this course, students develop the skills and

knowledge necessary for certification as a Physical Education teacher in the state of Michigan. Graded on a Credit/No Credit basis.

Prerequisites & Corequisites: Prerequisite: Department approval.

Corequisite: HPHE 4100

Credits: 5 or 10 hours

HPHE 4755 - Intern Teaching: Health Education

This course represents the final experience of the student's curriculum during which an application of all knowledge and skills acquired is facilitated. Through the experiences provided in this course, students develop the skills and knowledge necessary for certification as a health education teacher in the state of Michigan.

Prerequisites & Corequisites: Prerequisite: Departmental approval.

Corequisite: HPHE 4110

Credits: 10 hours

Restrictions: Restricted to seniors in the following majors: Health Education: School, Physical Education: Teacher/Coach, and Physical and Health Education Teacher Education: K-12; and the minor: Physical Education: Secondary Education.

Notes: Graded on a Credit/No Credit basis.

HPHE 4800 - Heart Disease and Rehabilitation

The purpose of this course is to examine the pathophysiology of and the risk factors for heart disease, and to understand the effects of exercise on the rehabilitation of individuals with heart disease. In addition, students will learn to identify various electrocardiographic changes often seen in heart disease, learn about various medications used for the treatment of heart disease, and diagnostic tests used to determine heart disease status. Various surgical procedures used to treat heart disease will also be discussed, along with the appropriate methods to prescribe exercise for patients with heart disease.

Prerequisites & Corequisites: Prerequisite: HPHE 2980

Credits: 3 hours

HPHE 4860 - Therapeutic Exercise for Athletic Injuries

This course will study the theory of rehabilitation and to learn the correct application of therapeutic exercise techniques in the management of athletic injuries. To plan, implement, document, and evaluate the efficacy of therapeutic exercise program for the rehabilitation and reconditioning of athletic related injuries.

Prerequisites & Corequisites: Prerequisites: HPHE 3830 and HPHE 3840.

Credits: 3 hours

HPHE 4870 - Sports Medicine Seminar

A course designed to address relevant and contemporary issues in sports medicine. Particular emphasis is given to the topic of health care administration and professional development of the certified athletic trainer.

Prerequisites & Corequisites: Prerequisite: Admission into Athletic Training Professional Program.

Credits: 3 hours

HPHE 4910 - Exercise Management of Chronic Diseases and Disorders

This course serves as an introduction to exercise management for individuals who experience chronic disease and disabilities. Students will develop and apply knowledge of testing procedures and program development for special populations, including the pathophysiology of various diagnoses and specific effects of exercise response, training, and contraindicated exercises.

Prerequisites & Corequisites: Prerequisites: HPHE 2950, HPHE 2980 and HPHE 3960.

Credits: 3 hours

When Offered: Fall, Winter

HPHE 4960 - Community Health Education Internship

Designed to prepare students with skills necessary to implement health education programs within the context of community health setting. Emphasis is placed on

community health education methods at the community level, including community organization, coalition building, community empowerment, and legislative advocacy.

Prerequisites & Corequisites: Prerequisites: All other required CHDJ major courses; departmental approval.

Credits: 4 to 6 hours

HPHE 4970 - Senior Seminar in Recreation/Sport

The course is designed to present to the undergraduate student a final overview of the field of recreation/sport and to prepare the student for his/her internship. It is also designed to cover topics including professional associations, current issues, ethics, jobs searching, and job skills.

Credits: 2 hours

Restrictions: Restricted to majors/minors in Recreation/Sport Management.

HPHE 4980 - Exercise Science Internship

This course will provide an in depth internship in an applied setting supporting the outcomes of the Exercise Science undergraduate major. All course work must be completed prior to the internship. All internship sites must be approved by the HPHE Department. Student must apply one semester in advance of the internship placement. Course is graded on a Credit/No Credit basis.

Prerequisites & Corequisites: Prerequisites: Exercise Science major; all Exercise Science major courses completed.

Credits: 6 hours

HPHE 4990 - Recreation/Sport Internship

The recreation internship is structured to bring academic course work to life, provide valuable work experience, and professional contacts. This will help ensure a successful professional career. The recreation/sport management major must commit to a 15-week full time experience with an agency/organization in recreation/sport service delivery or an appropriately related field. Students are given letter grades in course.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 6 hours

Restrictions: Restricted to majors/minors in Recreation.

HPHE 5000 - Studies in Human Performance and Health Education

In-depth study of selected topics in HPHE. Format can include clinics, workshops, seminars, travel and/or mini-courses; and provide opportunity to acquire skills and teaching techniques. State, national, and international authorities or consultants may be involved. Topics include: Lifetime Sports, Outdoor Education, Physical Education, Stress Management, Physical Fitness, Business Procedures, and Nutrition. Professional Courses. Open To Upperlevel and Graduate Students (HPER).

Credits: 1 to 2 hours

HPHE 5160 - Issues in Health Education

The focus will be placed on current health issues. May be designed to deal with one issue or several topics.

Credits: 1 to 3 hours

Notes: Open to upper level and graduate students.

HPHE 5610 - Legal Issues in Sport

This course is designed to help the sports professional become more conscious of legal responsibilities in the sport setting, thus reducing the penalties of legal action. Students will discuss basic legal concepts and structures as they apply to the physical activity context. Application will be made in regard to improving risk management strategies and skills.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Recreation/Sport Management.

Notes: Open to upper level and graduate students.

HPHE 5980 - Readings in Human Performance and Health Education

Advanced students with good academic records may elect to pursue independently a program of readings in areas of special interest.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 2 hours

Notes: Open To graduate students only.

When Offered: All Semesters

Industrial and Entrepreneurial Engineering

IEE 1020 - Technical Communication

Principles of objective presentation of factual material in written, oral, and electronic communication, with emphasis on the research process. Content, format, and mechanics, as well as a clear, concise style are important components of individual and collaborative assignments. This course satisfies WMU Essential Studies Level 1: Foundations - Writing Category.

Prerequisites & Corequisites: Prerequisite: ENGL 1000 or placement into College-level writing.

Credits: 3 hours

Notes: This course satisfies WMU Essential Studies Level 1: Foundations - Writing Category.

Lecture Hours - Laboratory Hours: (3 - 0)

IEE 2010 - Entrepreneurial Engineering I: Cost and Financial Analysis

This course will introduce students to how engineers can be entrepreneurs. Topics covered will include techniques used in determining the cost of designing, developing, producing and selling a product or service and how these activities relate to entrepreneurial engineering.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

IEE 2050 - Work Design

Design of jobs and work environments in business and industry. Topics include techniques for job design,

ergonomics in the workplace, and work measurement. A semester project requiring the design of a work station is required.

Prerequisites & Corequisites: Prerequisite: IEE 1020 and MATH 1220 or 1700. Corequisite: Recommended, IEE 2610.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

IEE 2610 - Engineering Statistics

Introduction to statistical methodology emphasizing applications in engineering. Topics include descriptive and inferential statistics, regression, analysis of variance, and design of experiments. This course satisfies WMU Essential Studies Level 1: Foundations - Oral and Digital Communications Course Category.

Prerequisites & Corequisites: Prerequisite: MATH 1220 or 1700.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

IEE 2620 - Probability and Quality for Engineers

Introduction to probability and quality emphasizing applications in engineering. Topics include the use of discrete and continuous random variables, Goodness of Fit Tests, fitting of distributions, statistical process control and process capability.

Prerequisites & Corequisites: Prerequisites: MATH 2720 (may be taken concurrently).

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

IEE 2621 - Probability for Engineers

Introduction to probability emphasizing applications in engineering. Use of discrete and continuous random variables common to engineering problems and engineering models. Includes exploration of probability through theory and computer models.

Prerequisites & Corequisites: Prerequisite: MATH 2720 (may be taken concurrently).

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

IEE 2622 - Statistical Quality Control

Methods of applying statistics and probability theory to control processes. Application of computer programs to analyze quality control problems.

Prerequisites & Corequisites: Prerequisite: IEE 2610

Credits: 2 hours

Lecture Hours - Laboratory Hours: (2 - 0)

When Offered: Spring

IEE 2990 - Cooperative Education

A cooperative education program involves a full-time planned and supervised work experience in industry during the semester or the equivalent on a part-time basis. A written report of the student's activities will be required. May be elected four semesters for a maximum of twelve semester credit hours. Must be taken on a credit/no credit basis.

Credits: 1 to 3 hours

IEE 3010 - Entrepreneurial Engineering II: Product and Service Design

Through research, analysis, drawing and prototyping, students will understand human needs that lead to the conceptualization and design of future products, environments, systems, and services. Students are taught to use design processes to resolve constraints arising from technical, human, aesthetic, and business concerns. The course places emphasis on conceptual thinking, creativity, and risk-taking.

Prerequisites & Corequisites: Prerequisite: Junior or senior standing, or instructor approval required.

Credits: 3 hours

Restrictions: Restricted to majors Industrial and Entrepreneurial Engineering, majors in Product Design, or minors in Entrepreneurship.

Lecture Hours - Laboratory Hours: (2 - 3)

IEE 3090 - Engineering Economy for Mechanical Engineers

Economic decision making from an engineering perspective. This course is designed to provide undergraduate engineering students with sufficient knowledge to perform engineering economy studies. Topics covered include time value of money, decision making criteria, break-even studies, depreciation and taxes, inflation, and life cycle cost analysis.

Prerequisites & Corequisites: Prerequisite: Recommended, MATH 1230.

Credits: 2 hours

Lecture Hours - Laboratory Hours: (2 - 0)

IEE 3100 - Engineering Economy

This course covers the analysis and design of traditional and sustainable economic systems. Analysis of alternatives is presented by including topics such as time value of money, net present value, internal rate of return, depreciation, taxes, and inflation, with emphasis on planetary sustainability as an essential design and analysis consideration. Integrating economic principles across disciplines is emphasized throughout the course. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Prerequisites & Corequisites: Prerequisites: MATH 1230 and Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors in Computer Engineering, Construction Engineering, Chemical Engineering, civil Engineering, Industrial and Entrepreneurial Engineering, Mechanical Engineering, and Paper Engineering.

Lecture Hours - Laboratory Hours: (3 - 0)

IEE 3110 - Introduction to Operations Research

The development of mathematical concepts and models concerned with industrial engineering problems. Topics include queuing theory, game theory, linear, and dynamic programming.

Prerequisites & Corequisites: Prerequisites: IEE 2610 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Industrial Engineering, Industrial and Entrepreneurial Engineering; and accelerated masters in Industrial Engineering.

Lecture Hours - Laboratory Hours: (3 - 0)

IEE 3160 - Report Preparation

Learning techniques and procedures for preparation of technical documents. Intensifying critical, analytical process of thinking, and executing writing and oral strategies for different situations. This course is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisites: Junior standing and IEE 1020 or IME 1020 or ENGL 1050, with a grade of "C" or better in any prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

IEE 3300 - Simulation Modeling and Analysis

Use of computer modeling and discrete event simulation methodology with emphasis on designing and analyzing manufacturing and service systems. Commercial simulation packages will be used.

Prerequisites & Corequisites: Prerequisite: (IEE 2620 or IEE 2621) and IEE 2050 (any prerequisite may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in Industrial Engineering, Industrial and Entrepreneurial Engineering; and accelerated masters in Industrial Engineering.

Lecture Hours - Laboratory Hours: (3 - 0)

IEE 3420 - Ergonomics and Design

An introduction to ergonomics affording students the necessary knowledge essential for the psychological and anthropometrical development leading to good design. Emphasis is placed on health and safety. A design project is required.

Credits: 3 hours

Restrictions: Restricted to majors in Industrial Engineering, Industrial and Entrepreneurial Engineering, Product Design, Engineering Design Technology, Engineering Management Technology, and Manufacturing Engineering Technology.

Lecture Hours - Laboratory Hours: (2 - 3)

IEE 4010 - Entrepreneurial Engineering III: Facilities Planning and Logistics

This course explores how traditional industrial engineering topics such as supply chain management, facility layout and location are relevant to entrepreneurial engineers. Students design a facility that can be used to produce the product that they designed in IEE 3010. The course prepares students to effectively practice industrial and entrepreneurial engineering.

Prerequisites & Corequisites: Prerequisite: IEE 3010 and IEE 3110 and IEE 3300.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

IEE 4160 - Operations Control in Industry

The function of production and inventory operations. Control of manufacturing production systems and modeling.

Prerequisites & Corequisites: Prerequisites: IEE 2010, IEE 3100, IEE 3110, and IEE 3300.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

IEE 4180 - IE Senior Design Proposal

Problem definition, project planning and scheduling, follow-up and control techniques. Results in presentation and plan for senior project.

Prerequisites & Corequisites: Prerequisite: Senior standing and departmental approval.

Credits: 1 hour

Restrictions: Restricted to majors in Industrial Engineering.

IEE 4190 - IEE Senior Design

This course is the capstone industrial engineering course, taken in two separate semesters. The first semester for one credit and the second semester for three credits. The course will require application of several IE design principles to a project. The projects are chosen by students or assigned by faculty. All students are required to present their projects at the Senior Engineering Design Conference hosted by the College of Engineering and Applied Sciences. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: department approval

Credits: 3 hours

IEE 4900 - Independent Research and Development

Individual research or special project in engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.

Credits: 1 to 4 hours

IEE 4950 - Special Topics in Industrial and Entrepreneurial Engineering

A specialized course dealing, each time it is scheduled, with some particular aspect of industrial or entrepreneurial engineering not usually included in other course offerings.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 3 hours

Notes: May be repeated for credit with a different topic.
Lecture Hours - Laboratory Hours: (3 - 0)

IEE 4980 - Readings in Engineering

Independent readings in engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.

Credits: 1 to 6 hours

IEE 4990 - Studies in Engineering

Independent studies in engineering. Open only to students having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.

Credits: 1 to 6 hours

IEE 5010 - Survey of Industrial Engineering Topics

Course devoted to studying the basics of the industrial engineering profession. Subjects will include work analysis, engineering economy, statistical quality control, production planning and control, and material handling. Emphasis is placed on the application of these techniques to manufacturing related problems. This course cannot be applied for credit toward the Masters of Science degrees in Engineering Management or Industrial Engineering.

Prerequisites & Corequisites: Prerequisite: MATH 1220 or MATH 1700 or MATH 2000; Recommended, STAT 2600 or 3660, or equivalent.

Credits: 3 hours

Notes: Open to upper level and graduate students.
Lecture Hours - Laboratory Hours: (3 - 0)

IEE 5160 - Design of Experiments and Regression Analysis

Topics related to experimental design and regression analysis. Topics include randomized blocks, Latin squares, factorials, multiple correlation and regression, and its application to response surfaces.

Prerequisites & Corequisites: Prerequisite: Recommended, IEE 2610 or equivalent.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

IEE 5170 - Applied Data Mining for Engineers

The objective of this course is to introduce data analysis methods, data warehousing, and data mining tools from an engineering perspective. Emphasis will be placed on the use of commercial data mining software to gain knowledge in data-rich engineering environments. Topics to be covered include data storage, preprocessing, clustering, classification, and prediction.

Prerequisites & Corequisites: Prerequisites: IEE 2610 with a grade of "C" or better, or equivalent.

Credits: 3 hours

Notes: Open to upper level and graduate students.

IEE 5200 - Modern Industrial Practices

Students will observe and analyze how advanced concepts in Capital budgeting, Simulation, Production/Operations Management, Project Management, Quality, and Concurrent Engineering are integrated into decision making and R&D functions at industrial and serviced-based enterprises. Students will visit companies and explore the many facets of contemporary practices and procedures.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (1 - 6)

IEE 5420 - Human Factors Engineering

The process of designing for human use. The course covers the study of the interactions between the individual, equipment, products, and the environment in any human-task-environment system. Topics include human capabilities and limitations; human input, output, and control; work space design; and the work environment.

Prerequisites & Corequisites: Prerequisites: Recommended, IEE 2610 or equivalent.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

IEE 5570 - Special Topics in Industrial Engineering

Study of special topics in industrial engineering. The specific topic will be shown in the course title when scheduled.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 3 hours

Notes: May be repeated for credit with a different topic. Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

Interdisciplinary Health Services

HSV 1040 - Introduction to the Health Disciplines and Inter-professional Practice

This course offers an introduction to health professions for students in the business and health professions. This course will provide information about the history, roles, and responsibilities of professionals working in health delivery systems. Students will gain an understanding of critical thinking, evidence-based practice, and the influence of culture, illness, caring, and technology upon health care. Legal considerations, political trends, and theories associated with the delivery of health care will be introduced.

Credits: 2 hours

When Offered: Fall, Spring

HSV 2250 - Lifespan Development

A study of physical, mental, emotional, and social patterns of growth, development, and aging. Aspects to be given special emphasis for the health student will be motor and cognitive development, physiology of aging, growth patterns, and functional development in any of the above aspects. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

HSV 2350 - Special Topics in Interdisciplinary Health Services

A variable topics, variable credit undergraduate level course for consideration of current and special interests in health and human services. Specific topics and number of credits will be announced each time the course is scheduled.

Credits: 1 to 4 hours

Notes: May be repeated for credit.

HSV 2650 - Information Literacy in the Health Sciences

Students will learn about a wide variety of information resources. They will learn how to determine what types of information resources are needed, how to locate information resources efficiently, and how to evaluate the appropriateness of different resources for specific health scenarios. They will learn the ethical and legal considerations surrounding use of information in the health services. They will also learn disciplinary conventions for appropriately formatting and communicating the results of their work.

Prerequisites & Corequisites: Prerequisite: BCM 1420, or ENGL 1050, or IEE 1020; with a grade of "C" or better in any prerequisite.

Credits: 3 hours

Restrictions: Restricted to the following programs: All Concentrations associated with Healthcare Services and Sciences (see your CHHS advisor if you have questions), majors/minors in Health Informatics and Information Management, all majors in Social Work, all majors in Public Health, all majors in University Studies.

HSV 3000 - Research in Health Services

This course provides an introduction to the fundamentals of quantitative research design and evidence-based practice. Students will learn to interpret basic statistics used in health research and the application of this research to improve care and service delivery. This course provides students with the basic skills to conduct literature searches and reviews, as well as critically evaluate and analyze scholarly research.

Prerequisites & Corequisites: Prerequisite: HSV 2650 or

HSV 3650 or the Information Literacy for Health Care Professionals (ILHCP) proficiency exam with a score of 75% or above. A grade of "C" or better is needed for any prerequisite.

Credits: 3 hours

Restrictions: Restricted to majors in all Concentrations in Healthcare Services and Sciences (see your CHHS advisor if you have questions), majors/minors in Health Informatics and Information Management.

HSV 3100 - Professional and Interpersonal Skills for Patient Centered Care

This course focuses on the development of knowledge and interpersonal skills needed to conduct assessments and to develop, implement, and evaluate patient care. It covers concepts for ensuring services meet the unique needs of individual patients. It addresses the utilization of ethical principles and evidence-based practice to address common problems and issues encountered in patient care.

Credits: 15 hours

Restrictions: Restricted to majors in Healthcare Services and Sciences (all Concentrations).

HSV 3200 - Clinical Practice in U.S. Healthcare Delivery

This course focuses on clinical practice within U.S. healthcare systems, and the role various healthcare professionals play in service delivery. It looks at legal and ethical issues affecting clinical practice. It addresses the emerging concepts of interdisciplinary care and the utilization of technology in the healthcare arena.

Credits: 15 hours

Restrictions: Restricted to majors in Healthcare Services and Sciences (all concentrations).

HSV 3550 - Perspectives in Women's Health

This course will provide a socio-cultural perspective on concepts and issues in women's individual and aggregate health. Course will include definitions of women's health, women's health concerns, and the influence of cultural, social, historical, and medical factors on women's health. Students will be introduced to the concepts of inter-relationship and translational research.

Credits: 3 hours

Cross-Listed: Cross-listed with NUR 3550.

HSV 3700 - The Health System and Its Environment

This course provides a descriptive analysis of the organization of the health system. The student who participates can expect to gain an understanding of the structure of the health services as well as the operational processes of the service system and the ways in which consumers make use of the system. The analysis focuses on the interplay of forces within the system as well as behind the system and its environment.

Credits: 3 hours

Restrictions: Restricted to all Concentration Programs associated with Healthcare Services and Sciences (see your CHHS advisor if you have questions), all Public Health majors, all Social Work majors, all student planned program and university studies majors, and majors/minor in Health Informatics and Information Management.

HSV 3900 - Core Competencies and Contemporary Issues in Healthcare

This course introduces students to the core competencies needed across disciplines in today's healthcare environment. These competencies are: providing patient and family centered care, working in interdisciplinary teams, designing evidence-based practices, quality improvement, health literate practices, and utilizing informatics. Use of the core competencies are applied to contemporary issues in health care.

Prerequisites & Corequisites: Prerequisite: HSV 3700 (may be taken concurrently), with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in all Concentrations in Healthcare Services and Sciences (see your CHHS advisor if you have questions), majors/minors in Health Informatics and Information Management.

HSV 4100 - Legal Issues in Healthcare Services

This course presents an overview of the legal issues facing the health care industry. Students are provided with knowledge of health law, including medical errors and patient safety. Quality improvement for its own sake and to prevent legal issues is also introduced.

Prerequisites & Corequisites: Prerequisite: HSV 3700 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in all Concentrations in Healthcare Services and Sciences (see your CHHS advisor if you have questions), minors in Gerontology may take it as well.

HSV 4120 - Principles of Health Finance

This course is an examination of the principles of finance as applied to health care management. The course will provide a basis for understanding the financial management function in a health care administration environment and on the use of financial information in health care management and decision-making.

Credits: 3 hours

HSV 4140 - Basic Principles and Organization of Health Planning

This course is an introduction to the principles and methods of planning in the health system. It includes a descriptive analysis of the significance of planning effective health care services, alternative planning frameworks, and technical approaches to the planning process. In addition, the course surveys the history of planning in the health systems as well as the current structural arrangements for carrying out planning in the health arena both at the macro and micro levels.

Credits: 3 hours

HSV 4150 - Administrative Functions in the Health Care Setting

This course focuses on the knowledge and skills necessary for the major administrative functions in health organizations. These include goal setting, decision-making, personnel management, data processing, service design, and general principles of financial management.

Credits: 3 hours

HSV 4350 - Special Topics in Health and Human Services

This is a variable topics, variable credit undergraduate level course for consideration of current and special interests in health and human services. Specific topics and number of credit hours will be announced each time the course is scheduled. May be repeated for credit.

Credits: 1 to 4 hours

HSV 4400 - Diversity and Inclusion in Health and Human Services

This course will prepare students to engage in ethnically and culturally sensitive health and human services. Students will develop values, knowledge, and skills to engage in more effectively with patients and coworkers who are different from them in a variety of ways. The class will expose students to historical insights into diverse populations, their cultural beginnings, how needs of different groups are or are not met, and how a diversity of values and behaviors may affect the delivery of health and human services. Three professional foundation areas to be covered in this course include: at-risk populations, health disparities, and promotion of social and economic justice.

Credits: 3 hours

HSV 4450 - Service-Learning in Community Health Care Settings

This course provides an overview of preventive approaches in health education. Through a service-learning format, students will work with community-based organizations, schools and public health partners in areas they have identified with the greatest needs. Students will deliver preventive health education services that have some similarity to work within the Peace Corps sector. Guest lecturers will be used frequently, and student discussion and reflection on their community work will be employed as part of the service-learning component of the course. Students will conduct a formal needs assessment to the community partner at the completion of the course.

Credits: 3 hours

HSV 4500 - Individual Studies in Health and Human Services

This course will be arranged on an individual basis to provide students the opportunity to pursue independently the study of special areas of interest. May be repeated for credit.

Credits: 1 to 4 hours

HSV 4780 - U.S. Health Policy

Student will learn to critically read, analyze, and understand current U.S. health policy, and how policy influences and regulates professional practice and delivery of care in health services. Students will learn to analyze how politics affect individuals and groups in the community. As an intensive writing class, students will develop professional writing skills through writing assignments that culminate with a health policy analysis. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisites: BCM 1420 or ENGL 1050 or IEE 1020 with a grade of "C" or better in all prerequisites; pass the Information Literacy for Health Care Professionals (ILHCP) proficiency exam with a score of 75% or above or enroll in and successfully complete HSV 2650 (formerly 3650) with a grade of "C" or better; and HSV 3700 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Health Informatics and Information Management, all majors in Healthcare Services and Sciences, majors in Social Work, majors in Public Health.

HSV 4800 - Healthcare Management

This course introduces the student to the health care delivery system from an administrative and management perspective. The student will learn about different delivery models and how these relate to the management process.

Prerequisites & Corequisites: Prerequisite: Junior standing and HSV 3700 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in all Concentrations in Healthcare Services and Sciences (see your CHHS advisor if you have questions), majors/minors in Health Informatics and Information Management.

HSV 4860 - Health Literacy Practices

This course will examine the complexity of health literacy and the central role that health literacy strategies play in the delivery of health services. Students will also be exposed to national and international health literacy initiatives.

Particular emphasis will be placed on low health literacy, health communication techniques, and organizational approaches. Students will practice adjusting complex information into plain language both orally and in written formats.

Credits: 3 hours

HSV 4880 - Psychosocial Aspects of Health and Healthcare

This course surveys the psychosocial aspects of health and health care for both health care providers and health care recipients. The course covers personal and organizational factors that influence health care provision including: stress, organizational culture, and social support. The course additionally explores how psychosocial factors influence illness and health, including how personality, individual beliefs, family variables, cultural and group factors influence health and illness. The course content also covers how health care providers may encourage patient empowerment, healing and behavior change.

Credits: 3 hours

HSV 4890 - Health and Human Services Independent Research

This course requires the completion of a credible research project related to a current issue in health and human services. The project must be approved and supervised by faculty. This course is only open to students who are registered, certified, or licensed health care providers who wish to substitute a research project for the required HSV 4900 Internship.

Prerequisites & Corequisites: Prerequisites: Senior standing, HSV 3000, HSV 3700, HSV 3900, HSV 4100, HSV 4780 (may be taken concurrently), and HSV 4800 (may be taken concurrently). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Restrictions: Restricted to majors in all Concentrations in Healthcare Services and Sciences (see your CHHS advisor

if you have questions) at the senior level.

Notes: May be repeated for credit.

HSV 4895 - Capstone Project

This class is designed to combine formal instruction in project design, implementation, and evaluation with the opportunity for students to provide a practical service to a health care or health-related organization. Students work individually or in groups, partnering with a community organization to address a community-identified need. Community partners will provide advice and mentoring to students as they work towards completing a project: both the student and community partner are expected to benefit from the project.

Prerequisites & Corequisites: Prerequisites: Senior standing, HSV 3000, HSV 3700, HSV 3900, HSV 4100, and HSV 4780 (may be taken concurrently) and HSV 4800 (may be taken concurrently). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Restrictions: Restricted to majors in all Concentrations in Healthcare Services and Sciences (see your CHHS advisor if you have questions) with senior standing.

Notes: May not be repeated for credit.

HSV 4900 - Internship in Healthcare Services

This course supports an internship placement in a health-related or health care setting. Students apply previously learned knowledge and competency to work within an internship organization and learn additional skills as appropriate to their settings and goals. Successful completion of the course and internship work hours contribute to student readiness and success in graduate study and/or future employment.

Prerequisites & Corequisites: Prerequisites: Senior standing, HSV 3000, HSV 3700, HSV 3900, HSV 4100, HSV 4780 (may be taken concurrently), and HSV 4800 (may be taken concurrently). All prerequisites must have a grade of "C" or better.

Credits: 4 hours

Restrictions: Restricted to majors in all Concentrations in Healthcare Services and Sciences (see your CHHS advisor if you have questions) with senior standing.

Notes: May be repeated for credit.

International and Area Studies

INTL 3300 - Education Abroad - WMU Programs

Student participation in approved college-level programs of study in a college or university outside the United States administered and organized by Western Michigan University Study Abroad.

Prerequisites & Corequisites: Prerequisite: Prior approval for major/minor credit required by the major or minor department advisor, and approval from WMU Study Abroad (Haenicke Institute for Global Education).

Credits: 1 to 19 hours

Notes: Approvals of courses should be obtained prior to departure. Credit is awarded based on transcript from host university. May be repeated for up to 32 credit hours.

INTL 3310 - Education Abroad - Non-WMU Programs

Student participation in approved college-level programs of study in a college or university outside the United States administered by Western Michigan University Study Abroad but organized by an institution other than Western Michigan University.

Prerequisites & Corequisites: Prerequisite: Prior approval for major/minor credit required by the major or minor department advisor, and approval from WMU Study Abroad (Haenicke Institute for Global Education).

Credits: 1 to 19 hours

Notes: Approvals of host university courses should be obtained prior to departure. Credit is awarded based on transcript from host university. May be repeated for up to 32 credit hours.

INTL 4040 - Special Topics Abroad

Undergraduate student experiences conducted outside the United States. Topics listed in Schedule of Classes.

Prerequisites & Corequisites: Prerequisite: Prior approval

of the appropriate department chair or major advisor, and approval from WMU Study Abroad (Haenicke Institute for Global Education).

Credits: 1 to 9 hours

Notes: Approvals of host university courses should be obtained prior to departure. May be repeated for credit.

Interprofessional Education

IPE 2350 - Special Topics in Interprofessional Education

This is a variable topics, variable credit undergraduate level course for consideration of current and special interests in health and human services. Specific topics and number of credit hours will be announced each time the course is scheduled.

Credits: 1 to 4 hours

Notes: May be repeated for credit.

IPE 3050 - Study Abroad and Global Learning in Health and Human Services

Course is an interdisciplinary course conducted outside the United States by WMU faculty in CHHS or others associated with WMU. All IPE 3050/6050 courses are taught with a portion of the course being set in a country whose primary language is other than English, and whose health and human services systems and processes are in contrast to that of the United States. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category. May be repeated for credit.

Credits: 1 to 6 hours

IPE 4350 - Special Topics in Interprofessional Education

This is a variable topics, variable credit undergraduate level course for consideration of current and special interests in health and human services. Specific topics and number of credit hours will be announced each time the course is scheduled.

Credits: 1 to 4 hours

Notes: May be repeated for credit.

Italian

ITAL 1000 - Basic Italian I

Fundamentals of Italian with communicative emphasis. Italian cultural readings.

Credits: 4 hours

ITAL 1010 - Basic Italian II

Continuation of ITAL 1000.

Prerequisites & Corequisites: Prerequisite: ITAL 1000 or instructor approval.

Credits: 4 hours

ITAL 4760 - Foreign Study - non WMU

Student participation in pre-approved program of study abroad that is not through Western Michigan University.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor or chairperson.

Credits: 1 to 16 hours

Notes: Repeatable for credit up to 32 credit hours.

ITAL 4770 - Foreign Study

Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor and chairperson.

Credits: 1 to 16 hours

When Offered: (Fall and Winter 1 to 16 hours) Spring and Summer 1 to 8 hours

ITAL 5020 - Italian for Graduate Study

Italian instruction for graduate students enrolled in a degree program who need knowledge of Italian for their field of

study. Students will sit in appropriate level course for their learning.

Prerequisites & Corequisites: Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures.

Credits: 3 to 4 hours

Notes: May be repeated for credit. May not be taken by undergraduate students in any field.

Japanese

JPNS 1000 - Basic Japanese I

Acquisition of beginning level communicative competence of the Japanese language in all four skills - speaking (able to handle some survival situations); listening (able to understand simple everyday conversation with repetition); writing (able to write short memos, simple letters and journals); and reading (able to read all hiragana and katakana). Introduction to about 25 kanji, or Chinese characters, and some aspects of the Japanese culture and people. Introduction to computer-assisted Japanese language learning, including basic word-processing in Japanese.

Credits: 4 hours

JPNS 1010 - Basic Japanese II

Continuation of JPNS 1000. Acquisition of another 75 kanji. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Prerequisites & Corequisites: Prerequisite: JPNS 1000 or equivalent.

Credits: 4 hours

JPNS 2000 - Intermediate Japanese I

Continuation of JPNS 1010. Achievement of intermediate level communicative competence of the Japanese language in four skills. Acquisition of another 75 kanji.

Prerequisites & Corequisites: Prerequisite: JPNS 1010 or equivalent.

Credits: 4 hours

JPNS 2010 - Intermediate Japanese II

Continuation of JPNS 2000. Learning of another 75 kanji. Completion of basic Japanese grammar and structures.

Prerequisites & Corequisites: Prerequisite: JPNS 2000 or equivalent.

Credits: 4 hours

JPNS 2750 - Japanese Life and Culture

This course is designed to introduce selected themes of Japanese life and culture, past and present. The main themes covered by this course are mostly linguistic, literary, philosophic, artistic, and religious. The course will be offered in English. The aim is to provide students new to the subject with an informed and balanced first impression of some of the fundamental components of Japanese culture, and to do so in such a way as to demonstrate its differences from the Western heritage while also noting their universal human value. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

JPNS 3000 - Advanced Japanese I

Continuation of JPNS 2010. Study of more complex Japanese grammar and structures. Acquisition of another 100 *kanji*. Fundamental skills of Japanese writing both in handwriting and on the computer.

Prerequisites & Corequisites: Prerequisite: JPNS 2010

Credits: 4 hours

JPNS 3010 - Advanced Japanese II

Continuation of JPNS 3000. Study of more complex Japanese grammar and structures. Acquisition of another 100 *kanji*. Emphasis upon increasing the student's command of conversational Japanese. The course includes role play, film viewing with discussion, speeches, debates, and other communicative activities.

Prerequisites & Corequisites: Prerequisite: JPNS 3000

Credits: 4 hours

JPNS 3100 - Extensive Reading in Japanese

Guided reading practicum based on student's individual reading levels.

Prerequisites & Corequisites: Prerequisite: JPNS 1000

Credits: 1 to 3 hours

Notes: May be repeated for credit.

JPNS 3200 - Structures of Modern Japanese

Examines the structures of the Japanese language and surveys major grammatical theories.

Prerequisites & Corequisites: Prerequisite: JPNS 2010 with a grade of "C" or better or equivalent, may be taken concurrently.

Credits: 3 hours

JPNS 3240 - Japanese for Specific Purposes

This course emphasizes the effective use of the Japanese language in specific artistic, cultural, or professional contexts. Topics may include Japanese manga, anime, cinema, artistic traditions, and business rituals and interactions. The course includes practice in reading newspapers, transcription/dictation of texts, and listening to video, film and news broadcasts.

Prerequisites & Corequisites: Prerequisite: JPNS 2010

Credits: 3 hours

JPNS 3250 - Close Reading in Contemporary Japanese

The course introduces students to writing in various genres, including essays, fiction, biography, and verse. Students will work on developing reading fluency and the skills to approach unfamiliar texts in modern and contemporary Japanese.

Prerequisites & Corequisites: Prerequisite: JPNS 3010 or instructor approval.

Credits: 3 hours

JPNS 3260 - Close Reading in Modern and Classical Japanese

The course develops student reading skills by having students read works of various genres, including non-fictional essays, historical texts, and fiction. Students will develop reading fluency and the skills to approach unfamiliar texts from the early twentieth century and before. The course will also provide an introduction to classical Japanese grammar and vocabulary.

Prerequisites & Corequisites: Prerequisite: JPNS 3010 or instructor approval.

Credits: 3 hours

JPNS 4510 - Advanced Japanese Language

Advanced study of conversation, composition, or reading in Japanese. Topic may vary from semester to semester.

Prerequisites & Corequisites: Prerequisites: JPNS 3000 or JPNS 3010, or equivalent.

Credits: 3 hours

Notes: May be repeated for credit with change of topic.

JPNS 4760 - Foreign Study - non WMU

Student participation in pre-approved program of study abroad that is not through Western Michigan University.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor or chairperson.

Credits: 1 to 16 hours

Notes: Repeatable for credit up to 32 credit hours.

JPNS 4770 - Foreign Study

Student participation in departmentally approved program of study abroad.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor and chairperson.

Credits: 1 to 16 hours

Notes: Repeatable for credit up to 32 credit hours.

When Offered: (Fall/Winter 1 to 16 hours)

Spring/Summer 1 to 8 hours

JPNS 5020 - Japanese for Graduate Study

Japanese instruction for graduate students enrolled in a degree program who need knowledge of Japanese for their field of study. Students will sit in appropriate level course for their learning.

Prerequisites & Corequisites: Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures.

Credits: 3 to 4 hours

Notes: May be repeated for credit. May not be taken by undergraduate students in any field.

JPNS 5030 - Japanese - English Translation Practicum

This is a practical course to teach the skills for translating texts from Japanese into English. The objective of this course is to develop further language proficiency and to introduce students to the nuts and bolts of translation. Students will produce English translations from different sorts of Japanese texts, such as news, essays, documents, poetry, and short fiction.

Prerequisites & Corequisites: Prerequisite: JPNS 2010 or instructor approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

JPNS 5100 - Studies in Japanese Culture

An intensive study of selected aspects of Japanese culture. Course varies according to topic and may be repeated for credit with permission of advisor. Representative topics include Women in Japanese Society, the Japanese Tradition to Specific Cities (e.g. Edo/Tokyo, Kyoto, Okinawa), Japanese New Cinema, and Pop Culture in Japan.

Prerequisites & Corequisites: Prerequisite: JPNS 2750 or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

JPNS 5200 - Topics in Japanese Linguistics and Language Science

The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures.

Credits: 3 hours

Notes: May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPNS/LAT/RUSS 5200. May be repeated for credit. Open to upper level and graduate students.

JPNS 5500 - Independent Study in Japanese

Directed individual study of a specific topic in Japanese language, literature, or culture.

Prerequisites & Corequisites: Prerequisites: Completion of four courses in Japanese or equivalent; minimum grade point average of 3.0 in Japanese; departmental approval required.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

JPNS 5600 - Advanced Literary Readings in Japanese

Topics will vary from semester to semester. Selections will be made from Japanese classics and contemporary fiction, to include Kawabata, Akutagawa, Murakami and Yoshimoto among others.

Prerequisites & Corequisites: Prerequisites: JPNS 3250 and JPNS 3260, or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit under different topics with advisor approval. Open to upper level and graduate students.

Journalism

JRN 1000 - Foundations of Journalism

An examination of the role of journalism in American society and an introduction to writing for news organizations. This course includes discussion of news values, objectivity, journalism history, libel, ethics, current events and the impact of the mass media on individuals, groups and institutions. Students will learn news story content and structure and Associated Press Style. There is a strong emphasis on news writing assignments in this course.

Credits: 3 hours

JRN 2200 - Multimedia Journalism

A digital media course with a focus on news writing and reporting using innovative news gathering technology. Students will learn skills in gathering, writing, and disseminating news across multiple platforms including photographic, audio, video and computer-generated graphics. The principles of visual literacy will be emphasized along with related ethical and legal concepts.

Prerequisites & Corequisites: Prerequisite: JRN 1000 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

When Offered: Fall and Spring

JRN 3100 - News Reporting Using New Media

This course develops students' skills in news writing and reporting with an emphasis on social media and digital reporting tools. Online writing techniques, online information gathering, databases, ethics, and a variety of medium and presentation formats are covered in this course that relies heavily on out-of-class reporting. Public agencies as well as community organizations affected by them are covered.

Prerequisites & Corequisites: Prerequisite: JRN 1000 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

JRN 3200 - News Writing and Reporting

This course continues to hone students' skills in news writing and reporting with an emphasis on out-of-class reporting and interviewing. Information gathering, ethics, current events, and a variety of types of news stories and mediums are covered. Students will learn about beat reporting, the use of public documents, and meeting coverage.

Prerequisites & Corequisites: Prerequisite: JRN 1000 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

JRN 3590 - Digital News Production

Digital news and information gathering for radio and television media. Studies and applies principles of news gathering, reporting and writing, commentary, on-the-spot news coverage, features, and the structure of the newscast in a multimedia newsroom.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

JRN 4100 - Specialized Reporting

A writing-intensive capstone course for journalism majors and minors that explores in-depth an area of journalism. The course will include advanced reporting and writing assignments, as well as lecture in the special topic selected for that semester. Topics may include feature writing, health and science reporting, critical writing, narrative journalism and journalism history.

Prerequisites & Corequisites: Prerequisites: JRN 3100 and (JRN 3200 or JRN 2100), with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

JRN 4200 - Journalism Law and Ethics

The study of the legal and intellectual ramifications of the practice of journalism. Topics and issues include the application of Constitutional, common, and statutory law to journalism, reporting on the law and various court systems, and ethical behavior in writing and reporting news. Students will study the responsibilities of journalists to bring to their work relevant knowledge, informed judgment, critical intelligence and appropriate ethical standards.

Prerequisites & Corequisites: Prerequisite: JRN 2100 or JRN 3100 or JRN 3200, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to specific School of Communication majors/minors. Please see advisor for program restrictions.

JRN 4990 - Journalism Practicum

Students must work 40 hours per credit hour during the course of the internship. Students must submit an application prior to contacting an internship sponsor and must receive prior approval from the journalism faculty.

Prerequisites & Corequisites: Prerequisites: JRN 2100 or JRN 3100 or JRN 3200, with a grade of "C" or better in all prerequisites, and school approval.

Credits: 1 to 3 hours

Restrictions: Restricted to majors or minors in journalism.

Notes: May be repeated for credit; no more than 6 credit hours in combination with COM 4990 or JRN 4990.

Latin

LAT 1000 - Basic Latin I

Fundamentals of Latin; readings emphasize Roman thought, culture, and civilization.

Credits: 4 hours

LAT 1010 - Basic Latin II

Continuation of LAT 1000. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Prerequisites & Corequisites: Prerequisite: LAT 1000 or equivalent and Latin Monitored Exam.

Credits: 4 hours

LAT 2000 - An Introduction to the Study of Latin Literature

A review of Latin grammar based on selections from Latin authors representing various genres, for example: history, satire, political oratory, lyric poetry, comic drama.

Prerequisites & Corequisites: Prerequisite: LAT 1010 or equivalent, and Latin Monitored Exam.

Credits: 4 hours

LAT 2010 - Latin Composition

The course will cover fundamentals of writing Latin correctly and well, including grammar, idiom, word-choice, clarity, and elegance. While the course will emphasize ancient models of Latin writing, later examples may be studied. Topics for composition may include contemporary as well as ancient subjects.

Prerequisites & Corequisites: Prerequisite: LAT 2000 or instructor approval; Latin Monitored Exam.

Credits: 4 hours

LAT 2030 - Cicero

Selections from the writing of Cicero with special attention to improving reading skills while studying the thought and style of one of Rome's leading statesmen and orators.

Prerequisites & Corequisites: Prerequisite: LAT 2000 or instructor approval; Latin Monitored Exam.

Credits: 4 hours

LAT 2040 - Vergil

Readings from the works of Vergil, especially the *Aeneid*, with particular attention to improving language skills while exploring Vergil's thought and style.

Prerequisites & Corequisites: Prerequisite: LAT 2000 or equivalent; Latin Monitored Exam.

Credits: 4 hours

LAT 3240 - Latin Literature

Selections from Latin prose and poetry. Since specific readings vary according to genre, author, or period, this course may be repeated for credit.

Prerequisites & Corequisites: Prerequisite: LAT 2000 or equivalent.

Credits: 4 hours

LAT 4760 - Foreign Study - non WMU

Student participation in pre-approved program of study abroad that is not through Western Michigan University.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor or chairperson.

Credits: 1 to 16 hours

Notes: Repeatable for credit up to 32 credit hours.

LAT 4770 - Foreign Study

Student participation in departmentally approved program of study abroad.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor and chairperson.

Credits: 1 to 16 hours

Notes: Repeatable for credit up to 32 credit hours.

When Offered: (Fall-Winter 1 to 16 hours) Spring-Summer 1 to 8 hours

LAT 5020 - Latin for Graduate Study

Latin instruction for graduate students enrolled in a degree program who need knowledge of Latin for their field of study. Students will sit in appropriate level course for their learning.

Prerequisites & Corequisites: Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures.

Credits: 3 to 4 hours

Notes: May be repeated for credit. May not be taken by undergraduate students in any field.

LAT 5030 - Latin - English Translation Practicum

This is a practical course to teach the skills for translating texts from Latin into English. The objective of this course is to develop further language proficiency and to introduce students to the nuts and bolts of translation. Students will produce English translations from different sorts of Latin texts, such as essays, poetry, documents, and short fiction.

Prerequisites & Corequisites: Prerequisite: LAT 2010 or instructor approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

LAT 5500 - Independent Study in Latin

Directed, individual study of a specific topic in Latin literature or linguistics.

Prerequisites & Corequisites: Prerequisite: Completion of four courses in Latin; minimum grade point average of 3.0 in the major; departmental approval required.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

LAT 5570 - Teaching of Latin

The purpose of the course is to acquaint the prospective teacher with theory and practice appropriate to the teaching of the Latin language, literature, and culture in its classical context and as it relates to the modern world. Required of Latin teaching majors and minors.

Prerequisites & Corequisites: Prerequisites: Completion of four courses, or equivalent, in Latin; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

LAT 5600 - Medieval Latin

A survey of the development of medieval Latin from late antiquity to the Renaissance. Specimens will include major literary and documentary sources of the medieval centuries including new genres such as hagiography, monastic rules, hymns, and homilies.

Prerequisites & Corequisites: Prerequisite: One 2000-level Latin course or LAT 3240 or instructor approval.

Credits: 4 hours

Notes: Open to upper level and graduate students.

Law

LAW 3500 - Computer Law

Students will learn how the legal systems of the United States and other countries address the legal challenges raised by rapidly changing computer technology. Students will learn what laws apply to their business and personal actions so that they can make the most appropriate decisions. However, more importantly, students will learn how those laws were passed and why.

Credits: 3 hours

Restrictions: Restricted to majors across multiple departments. Please see advisor for specific program restrictions.

LAW 3800 - Legal Environment

An introduction to the legal environment in society. An examination of the role of law in society, the structure of the American legal system and the basic legal principles governing individual conduct.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

LAW 3820 - Business Law

The study of law affecting common business transactions. The course examines the formation and performance of contracts, basic types of property interests, and key aspects of laws affecting commercial paper. Sales law, creditor-debtor relationships, and estate planning laws are briefly discussed.

Prerequisites & Corequisites: Prerequisite: LAW 3800

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

LAW 3840 - Criminal Law and Procedure

This course surveys the laws and procedures underlying the American criminal justice system. After an introduction to the philosophy and sources of criminal law, the course investigates the legal definition of particular crimes and studies their elements. Legal procedures from arrest, through pre-trial and trial phases, to sentencing, probation and parole are also considered, together with relevant evidentiary topics.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

LAW 4840 - International Business Law

A study of national, regional and international laws which affect the conduct of international business. An examination of the legal regulations which promote or restraint trade or investment by international business firms.

Prerequisites & Corequisites: Prerequisite: LAW 3800

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

LAW 4860 - Marketing and Sales Law

The course examines the law as it applies to the sale of goods, warranties affecting such sales and the methods of

financing those sales. Legal obligations imposed upon and risks assumed by the seller are emphasized.

Prerequisites & Corequisites: Prerequisite: LAW 3800

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

LAW 4870 - Accounting Ethics and Legal Liability

This course provides students with an opportunity to examine the ethical and legal issues affecting the work of accountants and related business professionals. The goals of this course include providing students with the ability to recognize the ethical implications of accounting issues, develop the abilities needed to deal with ethical conflicts and dilemmas, and learn to deal with the uncertainties of the accounting profession. Students will study the following topics: ethical theory; concepts and tools for recognizing and analyzing ethical issues in accounting and business; promoting ethical behavior in corporations and institutions; the social and legal responsibilities of accountants, including their obligations under Sarbanes-Oxley; the role of business and accounting in a free market economy; and the role of the accounting business profession in contemporary American society.

Prerequisites & Corequisites: Prerequisites: ACTY 2100, ACTY 2110 and LAW 3800.

Credits: 3 hours

LAW 4880 - Legal Aspects of Entrepreneurship

This course will cover the legal aspects of entrepreneurship. For example, should a person set up her start-up venture as a sole proprietorship, partnership, corporation or limited liability company? The course will trace the development of a successful start-up all the way to the IPO. The course will also cover intellectual property, employment law, the law regarding business competition and legal issues relating to the raising of capital.

Prerequisites & Corequisites: Prerequisite: LAW 3800

Credits: 3 hours

Restrictions: Restricted to majors in Leadership and Business Strategy.

LAW 4980 - Readings and Research in Commercial Law

Directed individual study of legal problems that are not treated in departmental course offerings.

Prerequisites & Corequisites: Prerequisite: Written approval of instructor and department chair.

Credits: 1 to 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

Lewis Walker Institute for Race and Ethnic Relations

LWIR 2000 - U.S. Civil Rights Movements

Provides students with a cross-cultural and historical perspective on civil rights movements in the U.S. Students will gain a broad understanding of race and the social movements that have occurred to promote equal rights under the law, primarily focusing on African Americans, but also considering the struggles of Native Americans and Latinos. This course will focus on the period of struggle from 1954 to the present.

Credits: 3 hours

When Offered: Fall

LWIR 3000 - Immigration, Race and Ethnicity in the U.S.

Explore the role of immigration in transforming racial and ethnic identity, inter-group relations, patterns of racial/ethnic stratification and inter-generational mobility in the United States, especially since the Immigration Act of 1965.

Prerequisites & Corequisites:

Credits: 3 hours

When Offered: Fall or Spring

LWIR 3500 - Special Topics in Race and Ethnic Relations

Courses in this topical area will examine various topics through the lens of race or ethnic relations.

Credits: 3 hours

Notes: Specific topics will be listed in Course Offerings. May be repeated for credit under different topics.

LWIR 4000 - Research in Race and Ethnic Relations

Provides students with a foundation in theory, methods and concepts needed to conduct research in race and ethnic relations. Students prepare a research proposal that, upon approval of the instructor, becomes the basis for a research project. Research findings are presented to the class in an oral presentation and in the form of a written research report.

Prerequisites & Corequisites: Prerequisite: Completion of at least 12 credits of recommended courses toward the minor in Race and Ethnic Relations.

Credits: 3 hours

Notes: This is the capstone course for the minor in Race and Ethnic Relations.

When Offered: Fall or Spring

Literacy Studies

LS 1040 - Effective Reading for College Students

This course is designed to provide students with strategic literacy skills for academic success. The areas of focus include developing academic vocabulary, critically understanding texts, and strengthening reading and study practices. Students will use visual, digital, and print-based texts to build knowledge in all areas of study. Credit for course will not apply to the number of credit hours needed for graduation from WMU.

Credits: 2 hours

LS 2900 - Literacy Learning through Reading and Writing

This course addresses racially, culturally and linguistically responsive reading and writing pedagogy in early and elementary settings through the study of multiple mediums, genres, multicultural literature and digital resources. Receptive and expressive forms of communication will be analyzed, evaluated and constructed with special attention to supporting overall literacy development.

Credits: 3 hours

LS 3050 - K-12 Content Area Literacy

This course is designed to provide the K-12 preservice content area teacher (Art; Human Performance and Health Education; Music; Vocational Education) with the knowledge and skills necessary to assist students in using the language processes—reading, writing, speaking, listening, thinking, as well as performance—as tools for learning. Students will explore the following topics: 1) factors affecting the learner; 2) instructional methods designed to meet the needs of a diverse population; 3) the nature of the reading process and reading to learn; 4) implications of current research on teaching and learning; 5) ways to integrate language arts across the curriculum. The major goal of the course is the application of course concepts and strategies to subject area instruction.

Prerequisites & Corequisites: Prerequisites: ED 2500 and admission to the College of Education and Human Development.

Credits: 3 hours

LS 3770 - Literacy I: Early Literacy and Language Acquisition

This course addresses early literacy and oral language processes in readers and writers in pre-K through 3rd grade. Preservice teachers will examine how young learners' first experiences with language and literacy help shape them as readers and writers. Preservice teachers will learn about evidence-based literacy practices and standards for literacy including letters/sounds, word recognition, comprehension, fluency, vocabulary, critical thinking, speaking, listening and writing. Preservice teachers will explore the sociocultural, linguistic, and dynamic nature of language and how these factors inform responsive instructional planning based on formative and summative assessments. Multiple materials, genres, multimodal resources, texts, and assessments will be used to meet learners' instructional needs, and effective communication with caregivers, colleagues, and stakeholders will be emphasized. Students will complete 6-9 hours of a field experience in an

educational setting. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisites: ED 3090 or ED3100 or SPED 3300, with a grade of "CB" or better in all prerequisites. These prerequisites may be taken concurrently.

Credits: 3 hours

Restrictions: Restricted to majors in education.

LS 3780 - Literacy II: Literacy/Language Arts across Disciplines

This course explores teaching methods, materials, and assessments that foster independent and strategic uses of literacy for students in grades K-8 across all subject areas (disciplines). Preservice teacher will explore and participate in literacy as a social, cultural, cognitive and critical process. The emphasis will be on how learners create meaning across multiple contexts in and out of school through literacy. Candidates will study ways to integrate literacy learning through a wide application of literacy practices, strategies, varied texts and multimedia to meet individualized needs of all learners. Candidates will design, select, and modify materials and assessments in response to student needs. This course addresses current standards for K-8 learners and for professionals seeking elementary K-8 certification. A field placement is required with this course. Students complete 18 hours of field experience with K-8 learners. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: LS 3770 with a grade of "CB" or better.

Credits: 3 hours

Restrictions: Restricted to majors in education.

LS 4050 - Secondary Content Literacy

This course explores content literacy as it relates to the acquisition of new knowledge in various subject areas. Students will apply the cognitive components of content literacy through assessment of learners and subject area materials, as well as instructional procedures designed to meet the needs of diverse students. Requires participating in a secondary classroom for a minimum of two class periods three days per week. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: Minimum of 70 earned credit hours, ED 3000 and ED 4060 with a grade of "CB" or better (ED 4060 may be taken concurrently).

Credits: 3 hours

Restrictions: This course is restricted to Secondary Education majors.

LS 4150 - Foundations of Literacy

The content of this course explores the foundations of literacy PreK-6. Specifically, teacher candidates will gain a solid foundation of the various literacy components and the ways in which these develop across the elementary years. Teacher candidates will also examine literacy assessments that inform lesson planning and implement instructional practices related to literacy constructs.

Prerequisites & Corequisites: Prerequisites: Junior or Senior standing.

Credits: 3 hours

LS 4200 - Literacy Assessment and Instruction

This course focuses on developing teacher candidates' knowledge, skills, and dispositions around the use of assessment tools for literacy instruction PK-6. Teacher candidates will examine both formative and summative assessments that inform instruction while considering children's overall literacy development and literacy standards. By doing so, teacher candidates will understand that literacy instruction is an iterative cycle of assessment, teaching, and reflection.

Prerequisites & Corequisites: Prerequisite: LS 4150 with a grade of "B" or better and Junior or Senior status. Corequisite: LS 4210

Credits: 2 hours

LS 4210 - Literacy Assessment and Instructional Practice

This practicum course focuses on developing teacher candidates' knowledge, skills, and dispositions around the use of assessment tools for literacy instruction PK-6. Teacher candidates will examine and implement both formative and summative assessments to inform instruction while considering children's overall literacy development

and literacy standards. By doing so, teacher candidates will experience literacy instruction as an iterative cycle of assessment, teaching, and reflection.

Prerequisites & Corequisites: Prerequisite: LS 4150 with a grade of "B" or better and Junior or Senior standing. Corequisite: LS 4200

Credits: 1 hour

LS 5100 - Diversity in Language, Literacy, and Learning

This course explores how diversity influences language, literacy, and learning in K-8 settings. Students will examine and apply theories and research on instructional practices responsive to students' local, national, and international histories, individual identities, and languages/dialects as they affect language and literacy learning. The course emphasizes language arts and literacy instruction that promotes social justice and critical engagement with complex issues related to maintaining a diverse, inclusive, and equitable society.

Credits: 3 hours

Notes: Open to upper level and graduate students.

LS 5160 - Professional Symposium in Reading

This course meets the Michigan reading course requirement for K-12 teachers seeking professional certification. The course examines reading, writing, and thinking processes with an emphasis on reading, writing, and communication across disciplines and across all grade levels. Special emphasis will be placed on the foundations of reading and writing, language development; vocabulary/concept development; sociocultural and linguistic factors that influence literacy; and the effective use of standards, strategic instruction, and assessment to support the diverse needs of all students.

Credits: 3 hours

Notes: Open to upper level and graduate students.

LS 5190 - Elementary Disciplinary Literacy

An exploration of curriculum and assessments that foster independent and strategic use of disciplinary literacy practices in grades 3-6. Literacy is examined through

social, cultural, linguistic, cognitive and critical perspectives with an emphasis on developing new understandings and building academic vocabulary across science, social studies, math, English language arts and other disciplinary areas. Candidates will plan and implement literacy instruction that aligns with current standards and effective practices.

Prerequisites & Corequisites: Prerequisites: LS 4150, LS 4200 (may be taken concurrently), LS 4210 (may be taken concurrently), Junior or Senior standing; with a grade of "B" or better needed in all prerequisites.

Credits: 3 hours

Notes: Open to upper level and graduate students.

LS 5980 - Selected Readings in Education

Designed for highly qualified students who wish to study in-depth some aspect of literacy studies under a member of the departmental staff.

Prerequisites & Corequisites: Prerequisite: Advisor and department approval.

Credits: 1-4 hours

Notes: Open to upper level and graduate students.

Management

MGMT 2140 - Exploring Entrepreneurship

This course is an introduction to the exploration of entrepreneurs and entrepreneurship. It is specifically targeted to both the non-business student and the business student. It is intended for students who are interested in or presently involved in entrepreneurial activities in diversified pursuits including but not limited to engineering, sustainability, technology, and natural science along with the students who have a traditional business focus.

Credits: 3 hours

Restrictions: Restricted to majors and minors in Leadership and Business Strategy.

When Offered: Fall and Spring

MGMT 2500 - Organizational Behavior

This course provides an examination of individual, interpersonal, group, and organization processes faced by employees. Current theory, research, and practice regarding variables that influence human behavior are discussed. Emphasis is placed on learning relevant to goal setting, managing change, team processes, reward structures, human productivity, and career management in organization settings.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 2520 - Human Resource Management

This course covers various HRM functions including work force needs; staffing and development; organization and individual appraisal; employee compensation and benefits; safety and health; approaches to employee problems; and labor relations.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 2750 - Analytical Foundations

This course covers the use of qualitative and quantitative techniques for research and decision-making across the business functions of production, distribution, marketing, information management, accounting, finance, and human resource management. It may include analytical techniques such as research methods, problem identification, project management, decision cycle, decision models, forecasting, etc.

Prerequisites & Corequisites: Prerequisite: STAT 2160 or STAT 1600 or STAT 3660.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 2800 - Introduction to Supply Management

This course introduces the integrated/cross-functional core concepts of supply chains from product/service development and launch through customer service and redemption. The primary focus is on critical analysis and the decision-making tools necessary to develop and manage supply chains that deliver customer requirements and contributes to the organization's overall competitive advantage. An emphasis will also be placed on supply chain management as a competitive weapon using various industry and externally validated models such as the SCOR framework, the Gartner Talent Attribute Model, IBM 7-step Sourcing Process, etc. Key topics include: quantitative analysis, fact-based decision-making, project management concepts, information technologies, and supply/demand integration methodologies which create a cross-functional, demand driven value-added supply chain network.

Prerequisites & Corequisites: Prerequisite: Sophomore standing.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 3010 - Experiential Leadership and Strategy I

Students acquire the knowledge, tools, and experience related to strategic analysis, and how to work effectively as a member of a team through a combination of lectures and experiential learning. In addition to acquiring specific strategic analysis theories and teamwork theories, the course advances students' understanding in strategic analysis, problem solving, and realistic solution design through working in teams on experiential projects.

Prerequisites & Corequisites: Prerequisite: MGMT 2500

Credits: 6 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 3011 - Leading in Business Organizations

Leadership ability is in great demand in the business world. Leaders are needed in all types of organizations and at all levels within organizations. This course is designed to

provide students with theoretical knowledge, practical guidelines and skill building exercises that will enhance their leadership abilities.

Prerequisites & Corequisites: Prerequisite: MGMT 2500 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Leadership and Business Strategy. Please see advisor for specific program restrictions.

MGMT 3120 - Sustainability Operations

This course provides students with an understanding of the design, implementation, management and continuous improvement of sustainable operations. It provides frameworks, tools and techniques for making short and long term sustainable operations decisions that are consistent with the business strategy of the organization. Topics covered may include: corporate social responsibility; triple bottom line management; sustainable operations challenges and opportunities; environmental legislation and regulation; ISO 14000 and ISO 26000; closed-loop supply chains; life cycle assessment; sustainable product and process design; lean systems; quality management; remanufacturing, reduce, reuse and recycle processes; LEED certification; operations ethics; and the measurement and communication of sustainable operations performance.

Prerequisites & Corequisites: Prerequisite: Junior standing or instructor approval.

Credits: 3 hours

MGMT 3140 - Small Business Management

The knowledge and skills a business-trained individual needs after founding or buying an independent firm are introduced in this course. Specific applications of business areas such as finance, advertising, accounting, and tax law for the owner/operator of a small business will be addressed. It is assumed that students have a basic knowledge of business fundamentals before taking this course.

Prerequisites & Corequisites: Prerequisites: MGMT 2500 and MKTG 2500.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 3200 - Managing ERP Systems

Through a hands-on Enterprise Requirements Planning (ERP) software configuration project, students learn how information technology can help a firm manage its business processes. Management issues associated with implementing and managing ERP systems, such as project management, configuration control, training, system testing and change management, will also be explored.

Credits: 3 hours

MGMT 3340 - Business Model Design

This course provides a tested methodology for university students who are interested in developing, testing and validating business models and value propositions to start new businesses or increase innovation in existing businesses. Students will get hands-on experience talking to customers, partners, and competitors as they encounter chaos and uncertainty in starting a new business and when changing an existing business.

Prerequisites & Corequisites: Prerequisites: (MGMT 2140 or MGMT 2500) and (FIN 2420 or FIN 3200).

Credits: 3 hours

Restrictions: Restricted to majors and minors in Entrepreneurship and Management, and Leadership and Business Strategy.

MGMT 3350 - Building the Entrepreneurial Business

Students will learn about the different approaches for starting a business, including the resources available to entrepreneurs both locally and nationally as well as basic funding approaches. Students will learn the skills to manage the human resources of new, small, and growing firms; gain knowledge of how to be resourceful and properly manage the limited resources in new, young, and small firms; and develop the ability to evaluate the progress of an entrepreneurial enterprise and make appropriate and timely adjustments to the business operations and strategy.

Prerequisites & Corequisites: Prerequisites: Sophomore standing and (MGMT 2140 or MGMT 2500) and (FIN

2420 or FIN 3200).

Credits: 3 hours

MGMT 3500 - Managing Diversity in Organizations

Knowledge and skills needed to manage an increasingly diverse work force are explored. The impact of gender, race, ethnicity, culture, and other dimensions of a diverse work force on organizations are examined. Human Resource Information Systems (HRIS) are used to study effective utilization of human resources.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 3540 - HR Metrics and Management Systems

This course covers the use of quantitative techniques for decision-making in human resource management. It may include analytical techniques such as correlational and regression analysis, trend analysis, forecasting, etc. There will be an emphasis on identifying trends and interpreting results based on data in employee data sets. Exploration of employee management systems will help students become familiar with basic practices.

Prerequisites & Corequisites: Prerequisites: (STAT 2160 or STAT 1600 or STAT 3660) and MGMT 2520.

Credits: 3 hours

Restrictions: Restricted to majors in Human Resource Management.

MGMT 3560 - HR Training and Development

This course will allow students to understand the training and development functions in an organization, including conducting a needs assessment at all levels, relevant factors in instructional planning and design, development and implementation of training, facilitating transfer of training topics back to the job, and evaluating the training process and outcomes to determine effectiveness and necessary modifications.

Prerequisites & Corequisites: Prerequisites: MGMT 2520 (with a grade of "C" or better) and MGMT 3540.

Credits: 3 hours

Restrictions: Restricted to majors in Human Resource Management.

MGMT 3580 - Labor and Employee Relations

This course is designed to present methods and concepts of managing employment relations. How labor unions operate and how businesses avoid or become involved with labor unions are investigated. Negotiation, conflict resolution, and contract administration processes and their operation are covered. The goals, purposes and history of organized labor are examined. Maintenance of the quality of relationships between employees and organizations is explored.

Prerequisites & Corequisites: Prerequisites: (MGMT 2520 or MGMT 3520, with a grade of "C" or better in either prerequisite) and MGMT 3540.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 3810 - Applied Six Sigma Problem-Solving

This course provides a unique opportunity for students to apply the concepts, tools and techniques studied in previous ISM classes to issues and problems facing today's supply chain. After mastering process management concepts and techniques (e.g., value stream mapping, value analysis/value engineering, quick changeover, etc.), students are given the opportunity to apply a problem solving architecture i.e. Lean Six Sigma, A3, etc. to on-site industry processes. In collaboration with WMU industry partners, faculty and student teams scope a company's supply chain problem area, develop and execute a problem-solving strategy, and present the conclusion and recommendations to the firm's executives. Students gain valuable professional work experience by solving real world industry issues and insight into the design, implementation, and management of effective and efficient integrated Supply Chain Systems.

Prerequisites & Corequisites: Prerequisite: MGMT 2800

Credits: 3 hours

Restrictions: Restricted to majors/minors in Integrated Supply Management.

MGMT 4000 - Topics in Management

An examination of advanced topical problems in management.

Credits: 3 hours

Restrictions: Restricted to majors across multiple departments. Please see advisor for specific program restrictions.

Notes: May be repeated for credit.

MGMT 4010 - Experiential Leadership and Business Strategy II

Students acquire the knowledge, tools, and experience related to leading a strategic analysis, and leading a team effectively through a combination of lectures and experiential learning. In addition to acquiring specific strategic analysis theories and teamwork and leadership theories, the course advances students' understanding in strategic analysis, problem solving, and leadership through their experiential leadership role of a team.

Prerequisites & Corequisites: Prerequisite: MGMT 3010 and MGMT 3011.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 4020 - Leadership in Business Organizations

Leadership ability is in great demand in the business world. Leaders are needed in all types of organizations and at all levels within organizations. This course is designed to provide students with theoretical knowledge, practical guidelines and skill building exercises that will enhance their leadership abilities.

Prerequisites & Corequisites: Prerequisite: MGMT 3010

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

When Offered: Fall and Spring

MGMT 4040 - Business and Society

A systematic analysis and evaluation of the institutions and other external and internal factors which shape the role of business in the United States. Illustrative topics: pluralism, values, ethics, social responsibility, the business/government relationship, productivity, corporate governance and social responsiveness.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 4070 - Change Management

The purpose of this course is to provide students with an understanding of the role managers play in guiding organizational change. The course is designed to promote an understanding of processes and techniques necessary to create and support productive organizational transformation. Essentially, the course aims to enhance student insights on how the effective management of organizational change can contribute to improved organizational capabilities and performance.

Prerequisites & Corequisites: Prerequisite: Senior standing and (MGMT 2500 or MGMT 2520 or MGMT 3520), with a grade of "C" or better in any prerequisite.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 4100 - Global Human Resource Management

The purpose of this course is to provide students with an understanding of the key practices associated with effective global human resource management. In this course, we will

explore various topics like expatriate management, global staffing and performance management, and dimensions of cross-cultural management. Essentially, the course aims to enhance student insights into some of the key challenges facing global operations in their pursuit of effective human resource management.

Prerequisites & Corequisites: Prerequisites: MGMT 2520 and MGMT 3540.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 4120 - Management Internship

Students may engage in a variety of professional experiences under the direction of a faculty advisor. Each internship is supervised by a faculty member, requires written term reports by the intern, and requires a written evaluation of the intern's performance by the firm hosting the internship. Repeatable for a maximum of 4 hours credit. Graded credit/no credit. Does not count toward the major.

Credits: 1 to 4 hours

MGMT 4140 - Building the Business

Students will learn about the different approaches for starting a business, including the resources available to entrepreneurs both locally and nationally as well as basic funding approaches. Students will learn the skills to manage the human resources of new, small, and growing firms; gain knowledge of how to be resourceful and properly manage the limited resources in new, young, and small firms; and develop the ability to evaluate the progress of an entrepreneurial enterprise and make appropriate and timely adjustments to the business operations and strategy.

Prerequisites & Corequisites: Prerequisites: (MGMT 2140 or MGMT 2500) and (FIN 2420 or FIN 3200).

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 4320 - Total Rewards

This course will explore the various reward systems that organizations use to recruit, retain and motivate employees, with a focus on total compensation (cash compensation and benefits). Specific topics include balancing internal equity and external competitiveness in pay systems, rewarding individual and group contributions, legal compliance and cost containment.

Prerequisites & Corequisites: Prerequisites: (MGMT 2520 or MGMT 3520, with a grade of "C" or better in either prerequisite) and MGMT 3540.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 4340 - Family Business Management

This course will explore and analyze family business continuity challenges and present examples of successful management, family, and governance practices to lead a family owned business. Topics will include the dynamics of family interactions and family business culture, communication and conflict resolution, as well as succession planning.

Prerequisites & Corequisites: Prerequisites: (MGMT 2140 or MGMT 2500) and (FIN 2420 or FIN 3200).

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 4350 - Growing the Entrepreneurial Business

The knowledge and skills a business-trained individual needs after founding or buying an independent firm are introduced in this course. Specific applications of business areas such as finance, advertising, accounting, and tax law for the owner/operator of a small business will be addressed. It is assumed that students have a basic knowledge of business fundamentals before taking this course.

Prerequisites & Corequisites: Prerequisites: Sophomore standing and (MGMT 2140 or MGMT 2500) and (FIN 2420 or FIN 3200) and MGMT 3350 (may be taken concurrently).

Credits: 3 hours

MGMT 4360 - Technology Entrepreneurship

This course provides students with a unique understanding of how technology-focused firms are created and technologies are commercialized. Technology commercialization topics that lie at the intersection of technology and business will be the focus of the class. Topics include intellectual property, technological convergence, industry creation, technology standards, modularity, and technology strategy. Students will apply these principles by assessing the commercial potential of real technological ideas.

Prerequisites & Corequisites: Prerequisites: MGMT 2500, MKTG 2500, FIN 3200 and (BUS 2700 or CIS 2700); or approval of instructor.

Credits: 3 hours

Restrictions: Restricted to majors in Entrepreneurship and Computer Information Systems.

Cross-Listed: This course is cross-listed with CIS 4360.

MGMT 4380 - Entrepreneurship Practicum

This course focuses on executing real entrepreneurial opportunities. Students will put entrepreneurial thought into practice by engaging with customers, experts, suppliers, competitors and investors to develop and implement a business idea/model/plan as part of the launch of their venture. Core to the class experience is the question - how do you build and lead a start-up? Students work independently as well as interdependently with other students in the course. Students are guided by the instructor, but are expected to provide most of the initiative to identify and deliver upon the key outcomes of the course. Contact time for this course will be split between in-class sessions and out-of-class individual meetings with the instructor, faculty advisors, and start-up mentors.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 3 hours

Notes: May be repeated for credit.

MGMT 4510 - Staffing Organizations

This course is intended to: a) provide an overview of the process by which organizations acquire and deploy the organization's workforce, and b) begin developing specific knowledge, skills, and abilities needed to effectively carry out staffing activities (attracting, selecting, placing, and socializing employees). Students learn theories, research, policies, practices, and legal considerations relevant to these objectives.

Prerequisites & Corequisites: Prerequisite: MGMT 2520 or MGMT 3520, with a grade of "C" or better in any prerequisite.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 4640 - Production Management and Control

Quantitative and computer-based methods of planning and controlling operations in manufacturing are explored. Topics covered in depth include forecasting, production planning and inventory control. The course employs a problem-based approach using in-class problems, spreadsheet analysis, enterprise system applications and simulations.

Prerequisites & Corequisites: Prerequisite: ACTY 2110 and either (BUS 3750 or MGMT 2800).

Credits: 3 hours

Restrictions: Restricted to majors in Management and Integrated Supply Management, and Leadership and Business Strategy.

MGMT 4646 - TrekNext: Entrepreneurship and Innovation Field Study

The course is designed to experientially expand student thinking to encompass the global perspectives of entrepreneurship patterns, by bringing students directly to various geographic centers of entrepreneurship, technology, design and innovation.

TrekNext is a 3 credit, experiential course combining class work the weeks prior to a 3 to 21 day field-study in a chosen geographic center. Some sections may incorporate shorter multiple field study travel trips.

In the field, students will meet with senior executives, entrepreneurs, and venture capitalists. While focusing on entrepreneurship, TrekNext is designed to appeal to all majors. Course work and visits will have a varied focus on areas impacted by technology; including start-up, executive, marketing, finance, operations, research, and innovation functions.

Credits: 3 hours

Notes: May be repeated for credit.

MGMT 4650 - Managing for Quality

The course will examine the total quality management (TQM) philosophy. The topics include benchmarking, continuous improvement, employee participation, statistical control charts and quality tools. A detailed discussion of the Deming, Juran and Crosby principles is undertaken. Also, Malcolm Baldrige Award and ISO 9000 certification are examined. To further enhance understanding about the TQM philosophy, the principles are applied in the classroom.

Prerequisites & Corequisites: Prerequisites: MGMT 2500 and MKTG 2500.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 4740 - Entrepreneurial Strategy

In this course students identify strategic issues and opportunities facing entrepreneurs and small- and medium-sized enterprises and develop effective solutions for sustainable competitive advantage. Students evaluate strategic business strategies and their implications by focusing on resource constraints and competing in the marketplace with larger companies. Students will build upon their previously acquired knowledge of how a small- or medium-sized business is formed and managed to learn to proactively improve organizational performance. This course requires students to learn new concepts as well as integrate prior course work and professional experiences.

Prerequisites & Corequisites: Prerequisites: Junior standing and (MGMT 2140 or MGMT 2500) and (FIN 2420 or FIN 3200) and MGMT 3350.

Credits: 3 hours

MGMT 4950 - Independent Study

Independent research on specialized management topics.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 4 hours

Restrictions: Restricted to majors across multiple departments. Please see advisor for specific program restrictions.

Notes: May be repeated for credit.

MGMT 5050 - Strategy for Buying and Operating a Small Business

The purpose of this course is to provide our MBA students with a experiential learning class around buying, running, and consulting with small businesses. The course follows established models and creates a practicum for students to meet the goal of finding a small business to purchase and building a strategy for that business. The class will also aim to help students learn how to assess the health of an industry, business, market, and quickly understand differences across various industries, and formulate and build strategies for business improvements, growth, and enduring profitability.

Prerequisites & Corequisites: Prerequisite: Instructor approval for undergraduates.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Manufacturing Engineering

ME 5350 - Applied Spectroscopy

Fundamentals of spectroscopy including rotational, vibrational and electronic transitions of molecular species, absorption and fluorescence spectra, lineshape profiles and broadening mechanisms. Description of spectroscopic techniques and their application for the measurement of relevant quantities such as concentration, velocity and temperature in practical systems, including internal combustion engines. Experimental hardware used for spectroscopic measurements.

Prerequisites & Corequisites: Prerequisite: ME 3350 with

a grade of "B" or better, or instructor approval.

Credits: 3 hours

Notes: Open to seniors or graduate students.

MFE 3600 - Computer Control of Manufacturing Operations

Introduction of concepts related to computer control of manufacturing operations. Brief coverage of analog/digital conversion, automation components, microprocessor and its applications, principles of classical control theory, NC/CNC systems, robotics, and programmable logic controllers (PLC). The classroom lectures are reinforced with a series of laboratory experiments.

Prerequisites & Corequisites: Prerequisite: ECE 2120

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

MFE 4200 - Advanced Manufacturing Processes

Manufacturing organization. Metal casting processes. Heat treating. Forming and shaping. Materials removal. Joining processes. Finishing processes. Design for assembly. Design for manufacturability. A three-hour laboratory is required.

Prerequisites & Corequisites: Prerequisite: ME 2570 and MFE 3300.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

MFE 4400 - Production Engineering

The quantitative and computer-based methods and techniques of planning and controlling manufacturing operations are presented. Topics included are product design and process selection, design of manufacturing facilities and jobs, aggregate planning, inventory systems, operations scheduling, and system improvement.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

MFE 4420 - Quality Assurance

The tools necessary to control and assure quality in the manufacturing environment are addressed. They include statistical process control, product design quality, manufacturing process quality systems, process capability, lot-by-lot sampling, gage reproducibility and repeatability, design of experiments, and quality improvement tools such as Pareto analysis, Ishikawa diagrams, and system flowcharting.

Prerequisites & Corequisites: Prerequisite: IEE 2610

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 to 0)

MFE 4440 - Simulation of Industrial Operations

Use of computer simulation as a modeling tool with emphasis on most current simulation languages and simulators is presented. Every week an industrial case study is introduced and, in a lab environment, the simulation model is developed. Statistical analysis of input data and simulation results are examined.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

MFE 4800 - Senior Design Project I

First of a two-semester sequence on engineering design in which students work in teams on approved design projects. A preliminary design and feasibility report are required at the end of this course. Project will be completed in MFE 4820.

Prerequisites & Corequisites: Prerequisites: Consent of instructor. Senior status.

Credits: 2 hours

Lecture Hours - Laboratory Hours: (2 - 0)

MFE 4820 - Senior Design Project II

Completion of the engineering design project started in Senior Design Project I. A formal written and oral presentation is required.

Prerequisites & Corequisites: Prerequisite: MFE 4800.

Credits: 2 hours

Lecture Hours - Laboratory Hours: (2 - 0)

Marketing

MKTG 2500 - Marketing Principles

The role of marketing in an organization is to build and maintain valuable relationships with customers by creating, delivering and communicating value through sound strategic planning. Students will learn the fundamentals of: understanding customer wants and needs; marketing research and analytics; segmentation and positioning strategies; product, pricing, distribution and promotion strategies; and the ethical and social issues that face contemporary marketers in the digital and global economy.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MKTG 2750 - Global Negotiation

This course is designed to be a "learning laboratory" for developing negotiation skills. The course will focus on the negotiation process and how individuals can understand and thus shape that process to achieve more desired outcomes. Negotiation will be explored with a global orientation so that students can understand the impact of culture and business climate on the negotiation process. The course will use multiple cases with students negotiating these cases to reinforce the concepts they learn.

Prerequisites & Corequisites: Prerequisite: Sophomore standing.

Credits: 3 hours

Restrictions: Restricted to majors in Leadership and Business Strategy.

MKTG 2900 - Introduction to Food and CPG Industries

An introductory course designed to provide an overview of the food and consumer package goods (CPG) industries.

The marketing functions performed by producers, manufacturers, wholesalers, and retailers are examined, along with consumer shopping, purchasing and consumption behavior.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MKTG 2910 - Retail Merchandising

This course is designed to acquaint students with merchandising principles and applications related to the marketing of food and consumer packaged goods (CPG). The art and science of maximizing customer satisfaction through pricing, assortment, promotion and presentation of products and services will be studied. Consumer and shopper demographics and lifestyles trends will be examined related to store location/design and the product and service offerings necessary.

Prerequisites & Corequisites: Prerequisite: Sophomore standing or higher.

Credits: 3 hours

MKTG 3330 - Sustainability Marketing

This course is an introduction to the role of sustainable marketing in the U.S. and global economy. Emphasis within this course is on how organizations create sustainable value through strategically driven marketing action. Topics include buyer & consumer behavior, market segmentation, product planning, service quality, promotion, pricing, and managing channel relationships.

Prerequisites & Corequisites: Prerequisite: Junior standing or instructor approval.

Credits: 3 hours

MKTG 3600 - Professional Selling

An introduction to the principles of selling. Includes study of selling in our present economy, analysis of the steps in the sales process and a videotaped sales demonstration.

Prerequisites & Corequisites: Prerequisite: MKTG 2500

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MKTG 3710 - Marketing Research

Understanding consumers in the digital and global marketplace is critical to a marketer's success. Marketers need reliable and valid information to make sound strategic marketing decisions. Students will learn and gain experience in the different methods marketers use to identify, gather, analyze, and communicate information about consumers and the global marketplace.

Prerequisites & Corequisites: Prerequisites: MKTG 2500 and (STAT 1600 or STAT 2160 or STAT 3660).

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MKTG 3720 - Sourcing and Purchasing

This course studies the integrative elements of sourcing decisions and their impact on the design and development of supply chains. The primary focus of the course is on the critical analysis of sourcing decision on the performance of operations, production and inventory control, and logistics, in terms of delivering a best-in-class customer experience. Topics include: spend analysis and commodity strategy development, strategic sourcing processes, early supplier involvement, price and cost management techniques, regression-based cost modeling, negotiation and contracting, supply chain risk profiling and supplier risk management, and supplier performance and relationship management.

Prerequisites & Corequisites: Prerequisite: MKTG 2500

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions

MKTG 3730 - Digital and Social Media Marketing

This course examines the strategic use of the Internet and other digital technologies in marketing in order to develop or enhance the overall customer experience. Topics in the course will include: basic website design, development and usability; search engine optimization (SEO); paid search marketing (PPC); web analytics; social media marketing; blogging; mobile marketing; and other emerging technologies.

Prerequisites & Corequisites: Prerequisite: MKTG 2500 or instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Marketing.

MKTG 3740 - Advertising and Promotion

A comprehensive survey of basic principles of advertising and promotion. The course will include the study of promotion media, practices and theories and the effects of advertising and promotion in the firm, the economy and society. Students will be introduced to the fundamentals of Integrated Marketing Communications (IMC).

Prerequisites & Corequisites: Prerequisite: MKTG 2500

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MKTG 3760 - Sales Management

Topics include the role of personal selling in the firm, determination of market and sales potential, recruiting, training, sales compensation, territories and quotas, motivation, and measuring selling effectiveness.

Prerequisites & Corequisites: Prerequisite: MKTG 2500

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MKTG 3780 - Marketing Analytics

The course introduces the principles and key metrics used to evaluate the most important and contemporary marketing

strategies and expenditures. Students will learn appropriate quantitative methods for assessing key performance indicators across all marketing mix variables (product, price, place and promotion), as well as larger market effectiveness measures such as share of hearts, minds and markets and customer profitability.

Prerequisites & Corequisites: Prerequisite: MKTG 2500 (MKTG 3710 is recommended and may be taken concurrently)

Credits: 3 hours

Restrictions: Restricted to advertising and promotion and marketing majors and minors; and majors in electronic business marketing, sales and business marketing, and food and consumer packaged goods.

MKTG 3800 - Sport Marketing

This course presents an overview of the marketing of sports at the professional and collegiate levels, as well as the use of sport sponsorships by commercial enterprises to help market products and services. Class projects emphasize original research into sport marketing topics, with collaboration from industry professionals.

Prerequisites & Corequisites: Prerequisites: MKTG 2500 and instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MKTG 3921 - Food and CPG Marketing Analytics

This course is designed to introduce students to applied techniques and tools for analyzing secondary data in the food and consumer packaged goods (CPG) industries. Students will learn analytics and metrics for analyzing and synthesizing data sources, such as large syndicated databases, textural data, and social media data. The emphasis will be on the accurate interpretation and effective communication of strategic solutions to address marketing problems, using data visualization techniques, in oral presentations and written reports.

Prerequisites & Corequisites: Prerequisite: MKTG 2910 (may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in Food and Consumer Package Goods Marketing or instructor approval.

MKTG 3930 - Food and CPG Sales

This course introduces selling principles employed within the food and consumer package goods industries. Multi-tier retail channel selling as well as Key Account headquarters selling and negotiation practices will be examined. Students apply fact-based selling methods utilizing syndicated market data, retail merchandising principles, and category management tools related to the selling process. Extensive role-playing, exercises, and real-world sales presentations to industry professionals relevant to the buying/selling process will be used.

Prerequisites & Corequisites: Prerequisites: MKTG 2910 (may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in Food and Consumer Package Goods Marketing.

MKTG 3960 - Survey of Food and CPG Industries

An intensive two-week survey of manufacturers, retailers, wholesalers and businesses related to the food and consumer package goods industries. Company visits include presentations by industry executives and tours of manufacturing, distribution, and company facilities. Students observe practices related to marketing, production, packaging, distribution, research and technology development. Written reports are required. Bus travel and overnight stays are necessary. A fee for transportation and housing is required.

Prerequisites & Corequisites: Prerequisite: Sophomore standing or instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors in Food and Consumer Package Goods Marketing.

MKTG 3970 - Food and CPG Internship

Under the direction of a faculty advisor, students seek and obtain a position offering full-time work experience related

to the food and consumer package goods industries. Students are expected to work a minimum of 150 hours for each internship credit hour received. Interns are required to submit periodic written reports, and an employer evaluation of their performance.

Prerequisites & Corequisites: Prerequisite: Approved application form, signed by a faculty advisor is necessary before registration is permitted.

Credits: 3 hours

Restrictions: Restricted to majors in Food and Consumer Package Goods Marketing.

Notes: Course may be repeated for credit up to two times for a maximum of 6 hours credit. Graded on a Credit/No Credit basis.

MKTG 4100 - Selling Skills Development

This course will expand the breadth and depth of the selling topics introduced in MKTG 3600 while including a significant number of experiential learning activities. Additionally, new selling contexts (e.g. team selling, selling to senior executives) will be incorporated. Topics include the basic communication and organizational skills required for success in personal selling. This course will include lectures, discussions, exercises and experiential learning activities such as role-plays. Course meetings (e.g. role-plays) outside of scheduled class time are required for this course.

Prerequisites & Corequisites: Prerequisite: MKTG 3600 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Sales and Business Marketing.

MKTG 4500 - Customer Relationship Management

Examines customer relationship management (CRM) and its application in marketing, sales, and service. Effective CRM strategies help companies align business process with customer centric strategies using people, technology and knowledge. Companies strive to use CRM to optimize the identification, acquisition, growth and retention of desired customers to gain competitive advantage and maximize profit. Anyone interested in working with customers and CRM technology will find this course beneficial. Emphasis

is given on both conceptual knowledge and hands-on learning using CRM software.

Prerequisites & Corequisites: Prerequisites: CIS 2700 and MKTG 2500.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MKTG 4600 - Advanced Selling Strategies

This course examines advanced methods of questioning, customer need analysis and problem finding, creative solution development, computer based sales planning, team selling, negotiation and elements of time and territory management. Exercises, extensive role playing and cases are used.

Prerequisites & Corequisites: Prerequisite: MKTG 4100

Credits: 3 hours

Restrictions: Restricted to Sales and Business Marketing majors only.

MKTG 4630 - Supply Chain Logistics

This course analyzes the integrative elements of a logistical system across supply chains. The primary focus is on critical analysis of the service and economic justification of supply chain designs. Topics include: Total landed cost, demand/supply integration, analysis of demand fulfillment, transportation service quality, transportation costing/pricing, inventory management and application of information technologies.

Prerequisites & Corequisites: Prerequisites: MKTG 2500 and either (BUS 3750 or EDMM 3260 or MGMT 2800).

Credits: 3 hours

Restrictions: Restricted to major/minors in Integrated Supply Management and majors in Sales and Business Marketing.

Notes: Students cannot receive credit for both MKTG 4630 and MKTG 4840.

MKTG 4700 - Business Marketing Strategy

An advanced course in planning and implementing business-to-business marketing strategies with an emphasis on segmenting markets, managing channel relationships and creating customer value through continuous improvement and re-engineering.

Prerequisites & Corequisites: Prerequisites: Senior standing; MKTG 3710, MKTG 3760, and FIN 3200.

Credits: 3 hours

Restrictions: Restricted to majors in Imaging/Printing, Marketing, and Sales and Business Marketing.

When Offered: Fall, Spring and Summer I

MKTG 4720 - Advertising Media Strategy

Let's connect. Advertising today is all about connecting with the consumer across print, broadcast, digital, mobile, and social networks. This course explores consumer media habits, audience measurement, creative strategies, and research to meet business objectives. Using media buying software, you will create and execute an innovative media plan for a global brand.

Prerequisites & Corequisites: Prerequisites: MKTG 3710 and MKTG 3740.

Credits: 3 hours

Restrictions: This course is restricted to Advertising and Promotion majors and minors only.

MKTG 4740 - Creative Strategy

Picture this. Learn the creative process from a business perspective. This course will focus on messaging strategies, and techniques for writing and designing ads for traditional and digital platforms. You will develop a personal branding project, and an online portfolio showcasing your work. A major component of this course is a collaborative project solving a marketing communication problem for an existing brand.

Prerequisites & Corequisites: Prerequisite: MKTG 3740

Credits: 3 hours

Restrictions: Restricted to majors/minors in Advertising and Promotion.

MKTG 4750 - International Marketing

An examination of the theories and principles of International Marketing. This course focuses on major concepts and dimensions of international marketing for small and large businesses. Emphasis on developing managerial frameworks within which global or multinational marketing programs can be planned, analyzed and assessed.

Prerequisites & Corequisites: Prerequisites: Junior standing and MKTG 2500.

Credits: 3 hours

Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MKTG 4770 - Consumer Behavior

Investigate, analyze and interpret the extensive body of research information on consumer behavior considering both the theoretical and practical implications.

Prerequisites & Corequisites: Prerequisites: MKTG 2500 and MKTG 3710 (3710 may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors/minors in Advertising or Marketing and majors in General Business.

MKTG 4780 - Special Topics in Marketing

Study of advanced topics within the marketing discipline. The course topic will be indicated in the student record.

Prerequisites & Corequisites: Prerequisites: MKTG 2500 and instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Marketing or majors in Sales and Business Marketing.

Notes: Repeatable for credit under different topics.

MKTG 4790 - Marketing Internship

Marketing internship experience under the supervision of participating employers. Term reports required. Employer must submit a written performance appraisal.

Prerequisites & Corequisites: Prerequisites: MKTG 2500, MKTG 3710, and instructor approval.

Credits: 1 to 3 hours

Restrictions: Restricted to majors/minors in Advertising and Promotion or Marketing; and majors in Food and Consumer Package Goods Marketing or Sales and Business Marketing.

Notes: Variable credit at the rate of approximately 100 hours of approved internship experience per credit hour. May be repeated for a maximum of 6 hours. Graded on a credit/no credit basis. Cannot be counted toward major requirements.

MKTG 4791 - Advanced Digital Marketing Strategies

This is an applied, capstone course that includes application of online and digital strategies and tactics to enhance an organization's overall marketing efforts. Students will critically assess the success or failure of a specific industry, client situation and/or multi-channel market effort to increase their knowledge of technology's disruptive impact on current business and marketing models.

Prerequisites & Corequisites: Prerequisites: CIS 2900, CIS 3900, MKTG 3710 and MKTG 3730.

Credits: 3 hours

MKTG 4810 - Integrated Marketing Communications Campaigns

This is it. The capstone course where you will have the opportunity to collaborate and create a complete IMC campaign using hands-on research to build media, creative, and promotional strategies to solve everyday business challenges. The work associated with this course will enhance career development skills and become a key component in your professional portfolio.

Prerequisites & Corequisites: Prerequisites: MKTG 4720, MKTG 4740 and MKTG 4770.

Credits: 3 hours

Restrictions: Restricted to majors in Advertising and Promotion.

MKTG 4820 - Advanced Sports Marketing

This course will challenge the advanced sports marketing student to plan, execute, and present marketing solutions for existing sports organizations. The projects will include secondary and/or primary research, strategic planning, and the creation of an innovative marketing plan. Emphasis will be placed on digital marketing and social media. Students will be expected to present findings/solutions as a significant portion of their deliverable(s) for this course.

Prerequisites & Corequisites: Prerequisites: MKTG 3800 and instructor approval.

Credits: 3 hours

MKTG 4840 - Marketing Logistics

An analysis of the movement and storage of finished products to support physical availability in markets. Emphasis on customer requirements and customer satisfaction, logistics process capability and optimization of total distribution costs.

Prerequisites & Corequisites: Prerequisites: MKTG 2500 and either (BUS 3750 or EDMM 3260 or MGMT 2800).

Credits: 3 hours

Restrictions: Restricted to majors/minors in Marketing and majors in Food and Consumer Package Goods Marketing or Sales and Business Marketing.

Notes: Students cannot receive credit for both MKTG 4630 and MKTG 4840.

MKTG 4860 - Marketing Strategy

Students in this course apply a variety of analytical and theoretical marketing tools to gauge how consumer and organizational behavior, competitive dynamics and market forces impact demand for a firm's products or services. Through decision-making exercises, case studies, computer simulations and/or team projects, students develop competence in making target market and marketing mix decisions and developing strategic marketing plans.

Prerequisites & Corequisites: Prerequisites: Senior standing, MKTG 3710, (MKTG 3740 or MKTG 3780), and FIN 3200.

Credits: 3 hours

Restrictions: Restricted to majors in Marketing.

MKTG 4880 - Applied Process Reengineering

This is an experiential learning course based on Deming's Plan-Do-Check-Act management cycle. Students use data-driven, structured problem-solving to develop and implement process innovations. The importance of process standardization to effective continuous improvement is demonstrated.

Prerequisites & Corequisites: Prerequisites: Senior standing or instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Integrated Supply Management.

Cross-Listed: This course is cross-listed with EDMM 4880. A student may not receive credit for both EDMM 4880 and MKTG 4880.

MKTG 4920 - Category Management

This course will examine the collaborative process between manufacturers and retailers to manage product categories to optimize shopper satisfaction. Fundamentals of the category management process will be examined including category, consumer and shopper insights, sales trends and the impact product assortment, price, promotion and shelf presentation have on optimizing product category performance over time. Successful completion of this course prepares the student for certification in category management.

Prerequisites & Corequisites: Prerequisite: MKTG 3921 (may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in Food and Consumer Package Goods Marketing.

MKTG 4940 - Food and CPG Marketing Issues and Strategies

This capstone course examines current issues and strategies relevant to the marketing of food and consumer package goods (CPG). The course provides an opportunity for students to learn and apply strategic marketing decision processes to establish, sustain or enhance an organization's competitive position. Current industry issues and targeted case study interaction with industry professionals provide

real-world insights and viewpoints. The use of new product projects, simulations, and/or company projects may be used to demonstrate the importance of relevant and strategic options and marketing tactics.

Prerequisites & Corequisites: Prerequisites: MKTG 3710 and MKTG 3921 (both may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in Food and Consumer Package Goods Marketing.

MKTG 4980 - Readings in Marketing

Directed individual study of bodies of knowledge not otherwise treated in departmental offerings.

Prerequisites & Corequisites: Prerequisite: Written approval of instructor.

Credits: 1 to 3 hours

Mathematics

MATH 1090 - Pre-Algebra

Designed to sharpen computational skills and strengthen analytical thinking. Students are encouraged to find patterns, make conjectures, and judge the validity of conjectures. Topics include integers, rational numbers, proportional reasoning, and geometry. Variables and problem solving are emphasized throughout the course.

Credits: 2 hours

Notes: This course is required of students who place into Math 1090; students who place into Math 1110 (Algebra II) or higher must request departmental approval to enroll. Contact the department office for information on placement. Credit for course will not apply to the number of credit hours needed for graduation from WMU. Tutoring is available for all Math 1090 students.

MATH 1100 - Algebra I

Designed to sharpen algebra skills and concepts, and strengthen analytical thinking. Topics include: arithmetic foundations of algebra, properties of real numbers, linear equations and inequalities, systems of linear equations expressions, equivalent linear expressions, and function sense. Variable and function sense are considered in terms

of four representations: verbal, graphical, symbolic and numerical. Students find patterns, make conjectures, and judge the validity of given conjectures.

Prerequisites & Corequisites: Prerequisite: MATH 1090 with a grade of "C" or better, or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism.

Credits: 3 hours

Notes: Credit for MATH 1100 will not be granted to anyone having already received credit with a grade of "C" or better in any of MATH 1110, 1160, 1180, 1220, or 2000 or equivalent transferable courses. A graphing calculator is required. Tutoring is available for all Math 1100 students.

MATH 1110 - Algebra II

Designed to sharpen algebra skills and concepts in a function-based setting. Topics include: linear functions, quadratic functions, rational functions, composing and decomposing functions, inverse functions, logarithmic and exponential functions. In addition, the course emphasizes symbol manipulation with reason and the importance of reading a textbook.

Prerequisites & Corequisites: Prerequisite: MATH 1100 with a grade of "C" or better, or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism.

Credits: 3 hours

Notes: Credit for MATH 1110 will not be granted to anyone having already received credit with a grade of "C" or better in any of MATH 1180, 1220, 2000 or equivalent transferable courses. A graphing calculator is required. Tutoring is available for all Math 1110 students.

MATH 1140 - Essential Quantitative Reasoning

This course is intended for students whose programs of study have no further mathematics requirements. Its purpose is to develop quantitative reasoning skills and an awareness of the use of mathematics to solve in the world around us. Areas of application may include: modeling real world situations graphically and symbolically, the mathematics of finance (investments, loans, etc.), and quantitative data collection and analysis. A graphing

calculator is required. This course satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category.

Prerequisites & Corequisites: Prerequisite: MATH 1100 with a grade of "C" or better, or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism.

Credits: 3 hours

MATH 1160 - Finite Mathematics with Applications

This course is designed to provide a background in finite mathematics and to continue the development of algebra skills. The following finite mathematics topics will be covered: linear equations and inequalities, mathematical models, solving a system of two linear equations, linear programming, difference/recursive equations, the mathematics of finance, sets, Venn diagrams, counting techniques, and an introduction to basic and conditional probability. The following algebraic topics will be reviewed: fractions, basic algebraic terminology and properties, exponents, scientific notation, solving equations and literal equations, and an introduction to summation and multiplication notations. A graphing calculator is required. Tutoring is available for all Math 1160 students. A graphing calculator is required. This course satisfies WMU Essential Studies Level 1: Foundations - Quantitative Literacy Category.

Prerequisites & Corequisites: Prerequisite: MATH 1100 (with a grade of "C" or better) or by placement into the course. Placement may be determined by completing at least 3 years of college preparatory mathematics, by ACT/SAT scores and/or by a Department of Mathematics placement mechanism.

Credits: 3 hours

MATH 1180 - Precalculus Mathematics

This course is designed to enhance analytical and graphical skills, and concepts necessary for Calculus. Topics covered include: algebraic, polynomial, rational, exponential, logarithmic, and trigonometric functions and equations, nonlinear inequalities, analytic trigonometry and some analytic geometry. Students will learn methods without and with the use of graphing calculators. Tutoring is available for all Math 1180 students. A graphing calculator is required. This course satisfies WMU Essential

Studies Level 1: Foundations - Quantitative Literacy Category.

Prerequisites & Corequisites: Prerequisite: MATH 1110 (with a grade of "C" or better) or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism.

Credits: 4 hours

MATH 1220 - Calculus I

The first of a two-semester sequence in differential and integral calculus. Topics include functions, limits, continuity, techniques and applications of differentiation, integration, trigonometric, logarithmic and exponential functions. Tutoring is available for all Math 1220 students. A graphing calculator is required. Students who take more than one of MATH 1220, MATH 1700, or MATH 2000 will receive only 4 hours of credit toward graduation. This course satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category.

Prerequisites & Corequisites: Prerequisite: MATH 1180 (with a grade of "C" or better) or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism.

Credits: 4 hours

MATH 1230 - Calculus II

A continuation of Calculus I. Techniques and applications of integration, trigonometric functions, sequences and series, indeterminate forms, improper integrals, applications to elementary differential equations.

Prerequisites & Corequisites: Prerequisite: MATH 1220 (recommended) or MATH 1700. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 4 hours

Notes: A graphing calculator is required.

MATH 1450 - Discrete Mathematical Structures

Sets, functions, relations, graphs, digraphs, trees, recursion, mathematical induction and other proof techniques,

counting techniques, Boolean Algebras and asymptotic analysis of algorithms. The relationship of these concepts with computer science will be emphasized.

Prerequisites & Corequisites: Prerequisites: MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710, and an introductory programming course. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

MATH 1500 - Number Concepts for Elementary/Middle School Teachers

This course provides a foundation in number concepts appropriate for elementary and middle school teachers. Topics include numeration systems, number theory, rational numbers, and integers. Emphasis is placed on conceptual understanding, problem solving, mental arithmetic, and computational estimation.

Prerequisites & Corequisites: Prerequisite: MATH 1100 with a grade of "C" or better, or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism.

Credits: 4 hours

Restrictions: This course is restricted to those whose curricula include either Elementary Education or Special Education.

Notes: A graphing calculator is required.

MATH 1510 - Geometry for Elementary/Middle School Teachers

This course explores the fundamental ideas of planar and spatial geometry. Content includes the analysis and classification of geometric figures; the study of geometric transformations; the concepts of tessellation, symmetry, congruence, and similarity; and an overview of measurement. The course also includes an introduction to the use of computers in the teaching and learning of informal geometry.

Prerequisites & Corequisites: Prerequisite: MATH 1500 with a grade of "C" or better.

Credits: 4 hours

Notes: A graphing calculator is required.

MATH 1520 - Early Mathematical Reasoning

Young children are naturally curious about how numbers work. In this course we will discuss ways that teachers can build off of that natural intuition to develop children's ability to count and represent their count, decompose and recompose numbers, and reason using numerical properties. We will also consider how children first identify and describe shapes and discuss ways that teachers can utilize hands-on, exploratory activities to foster the development of that thinking by encouraging them to characterize, sort, and classify shapes according to important attributes.

Prerequisites & Corequisites: Prerequisite: Math 1140 with a grade of "C" or better, or department approval.

Credits: 3 hours

Restrictions: Restricted to majors in Elementary Education.

MATH 1700 - Calculus I, Science and Engineering

The first of a two-semester sequence in differential and integral calculus which emphasizes applications and preparation for science and engineering (particularly physics). Vectors, functions, limits, continuity, techniques of differentiation, integration, and trigonometric, logarithmic and exponential functions. Students who take more than one of MATH 1220, 1700, or 2000 will receive only 4 hours of credit toward graduation. This course satisfies WMU Essential Studies Level 1: Foundations - Quantitative Literacy Category.

Prerequisites & Corequisites: Prerequisite: MATH 1180 (with a grade of "C" or better) or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism.

Credits: 4 hours

MATH 1710 - Calculus II, Science and Engineering

A continuation of MATH 1700, with further applications and preparation for science and engineering. Techniques of

integration, more on trigonometric functions, sequences and series, indeterminate forms, improper integrals, and more on elementary differential equations.

Prerequisites & Corequisites: Prerequisite: MATH 1700 (recommended) or (MATH 1220 and departmental approval). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 4 hours

MATH 2000 - Calculus with Applications

A terminal one semester course in calculus with emphasis on techniques and applications. Topics include functions, limits, differentiation, integration and applications. This course should not be elected by those students taking courses in the MATH 1220 to 1230 sequence. Students who take more than one of MATH 1220, 1700, or 2000 will receive only 4 hours of credit toward graduation. Tutoring is available for all Math 2000 students. A graphing calculator is required. This course satisfies WMU Essential Studies Level 1: Foundations - Quantitative Literacy Category.

Prerequisites & Corequisites: Prerequisite: MATH 1110 or Math 1180 or Math 1220 or Math 1230 or Math 1450 or Math 1700 or Math 1710, or by placement into the course. Placement may be determined by completing 1-1/2 years high school algebra and 1 year high school geometry, by ACT/SAT scores and/or by a Department of Mathematics placement mechanism. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 4 hours

MATH 2300 - Elementary Linear Algebra

Vectors and geometry in two and three dimensions, systems of linear equations, matrix algebra, linear transformations in R^2 and R^3 , generalizations to the vector spaces R^n , inner products, determinants. Some emphasis on proofs.

Prerequisites & Corequisites: Prerequisite: MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710 or MATH 2720 or MATH 3740. (MATH 1230 or MATH 1710 recommended.) A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 4 hours

MATH 2530 - Number and Computation I

In this course we will discuss ways that teachers can develop children's ability to reason numerically as they explore our number system. We will focus on developing our own procedures for addition and subtraction and making links between invented methods and conventional algorithms. The overall emphasis is placed on conceptual understanding through the use of hands-on activities as well as strategies to develop and assess children's understanding. Attention will be given to the affordances and limitations of different representations (e.g. base-ten blocks and number lines).

Prerequisites & Corequisites: Prerequisite: MATH 1520 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Elementary Education.

MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers

This course covers concepts of statistics and probability appropriate for elementary and middle school teachers. Topics include statistical techniques for organizing, summarizing, presenting, and interpreting data sampling techniques; simulation methods; counting techniques; and analytic methods in probability. Computers are used to reinforce major course ideas. A graphing calculator is required. This course satisfies WMU Essential Studies Level 1: Foundations - Quantitative Literacy Category.

Prerequisites & Corequisites: Prerequisite: MATH 1500 with a grade of "C" or better.

Credits: 4 hours

MATH 2720 - Multivariate Calculus and Matrix Algebra

Vectors and geometry in two and three dimensions, matrix algebra, determinants, vector differentiation, functions of several variables, partial differentiation, linear transformations, multiple integration, and change of variables. The computer algebra system Maple will be used to explore some of these topics.

Prerequisites & Corequisites: Prerequisite: MATH 1710 or MATH 1230. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 4 hours

Notes: A graphing calculator is required.

MATH 3140 - Mathematical Proofs

The prime objective of this course is to involve the students in the writing and presenting of mathematical proofs. The topics in this course will include logic, types of proof, sets, functions, relations, mathematical induction, proofs in an algebraic setting such as divisibility properties of the integers, proofs in an analytic setting such as limits and continuity of functions of one variable. Additional topics may include elementary cardinal number theory, paradoxes and simple geometric axiom systems.

Prerequisites & Corequisites: Prerequisites: (MATH 1230 or MATH 1710) and (MATH 2300 or MATH 3740). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

MATH 3300 - Modern Algebra I

This course introduces the abstract algebraic concepts of groups, rings, and fields, and shows how they relate to the problem of finding roots of polynomials. Topics include: Properties of the integers, congruences, the Euclidean algorithm, groups, subgroups, cosets, Lagrange's theorem, direct product, isomorphism, symmetric groups, rings, integral domains, polynomial rings, fields, field extensions, quotients of polynomial rings.

Prerequisites & Corequisites: Prerequisite: MATH 3140 with a grade of "C" or better.

Credits: 4 hours

MATH 3400 - Fundamental Concepts of Geometry

This course examines the axiomatic structures of Euclidean geometry and elementary non-Euclidean geometries. Transformational approaches to Euclidean geometry are also considered.

Prerequisites & Corequisites: Prerequisite: MATH 3140 with a grade of "C" or better.

Credits: 3 hours

MATH 3500 - Teaching of Middle School Mathematics

This course considers curriculum issues and trends in middle school mathematics focusing on methods and materials for teaching mathematics effectively to middle school students. Activity and laboratory approaches for teaching mathematics are emphasized.

Prerequisites & Corequisites: Prerequisite: MATH 3140 with a grade of "C" or better.

Credits: 3 hours

Notes: This class has four contact hours per week to accommodate student collaborations and field experiences in local schools.

MATH 3510 - Computing Technology in Secondary School Mathematics

This course introduces uses of computing technology to enhance and extend the learning of mathematical topics in grades 7 to 12. Emphasis is placed on the use of technology in problem solving and concept development.

Prerequisites & Corequisites: Prerequisite: Prior programming experience and MATH 3500 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to students pursuing a program leading to secondary mathematics teacher certification.

Notes: A graphing calculator is required. This course has four contact hours per week to accommodate student collaborations and use of specialized computer software.

MATH 3520 - Teaching of Elementary/Middle School Mathematics

This course covers curriculum and instructional issues in elementary school mathematics.

Prerequisites & Corequisites: Prerequisites: MATH 1510 and MATH 2650 with grades of "C" or better.

Credits: 3 hours

Restrictions: Restricted to the following major(s): Early

Childhood Education, Elementary Group Minors,
Elementary Professional Education, Special Education.

MATH 3740 - Differential Equations and Linear Algebra

Slope fields, first order differential equations and applications, linear differential equations, numerical methods, solution of systems of linear algebraic equations, eigenvalues and eigenvectors, systems of differential equations, and series solutions. The computer algebra system Maple will be used to explore some of these topics.

Prerequisites & Corequisites: Prerequisite: MATH 2720 with a grade of "C" or better.

Credits: 4 hours

MATH 4020 - Mathematical Modeling

This course is an introduction to mathematical modeling. The major goal of this course is to learn about the formulation and solution of mathematical problems from real world situations. Representing practical and scientific problems in mathematical terms may give a better understanding of the problem and may allow prediction of future events. Case studies will involve different applications and will use a variety of techniques. Computer programs will be used to analyze some problems. A writing project involving a mathematical model is required of all students.

Prerequisites & Corequisites: Prerequisite: MATH 3740 (with a grade of "C" or better) and working knowledge of a high-level mathematical computer package or knowledge of a computational computer language.

Credits: 3 hours

MATH 4050 - Financial Mathematics

This is an introductory course on financial mathematics primarily serving students with an applied mathematics, economics and finance major or an actuarial science minor. It illustrates how the concepts from calculus, and probability can help in establishing models to study interest theory, portfolio management and option pricing problems. This course will also benefit students from other disciplines in learning how to use methods in mathematics to study real world problems.

Prerequisites & Corequisites: Prerequisite: MATH 2720

(with a grade of "C" or better) or instructor approval.

Credits: 3 hours

MATH 4080 - Linear Programming

Linear programming and its applications. This course will cover basic theory and applications of linear programming. The topics will include convex geometry, the simplex algorithm, and duality. The applications may include problems in the areas of network optimization, the transportation problem, the assignment problem, the diet problem, cluster analysis, L1 fits, game theory, and scheduling.

Prerequisites & Corequisites: Prerequisite: MATH 2300 or MATH 3740. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

MATH 4300 - Modern Algebra II

This course continues MATH 330 by studying groups, rings, and fields in more generality and detail. Topics are chosen from: Group homomorphism, normal subgroups, quotient groups, the fundamental homomorphism theorem, groups acting on sets, Sylow's theorem, ring homomorphisms, ideals, quotient rings, Euclidean domains, principal ideal domains, and unique factorization domains.

Prerequisites & Corequisites: Prerequisite: MATH 3300 with a grade of "C" or better.

Credits: 3 hours

MATH 4400 - Graphs and Mathematical Models

Elements of graph theory, including the study of Eulerian graphs, Hamiltonian graphs, planar graphs, trees, digraphs, and the applications of graphs as models. Emphasis will be on proofs and proof techniques. Examples of other discrete models may be considered.

Prerequisites & Corequisites: Prerequisites: MATH 1450 or MATH 3140 or instructor approval. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

MATH 4500 - Teaching of Secondary School Mathematics

This course considers curriculum issues and trends in secondary school mathematics focusing on methods and materials for teaching mathematics effectively to secondary school students.

Prerequisites & Corequisites: Prerequisite: MATH 3510 and either (MATH 3300 or MATH 3400). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

MATH 4900 - Topics in Mathematics

The content of this course varies with the semester offered and with the instructor. The course is intended to introduce students to significant topics not ordinarily encountered and to present more variety in their undergraduate programs.

Prerequisites & Corequisites: Prerequisite: Approval of Department.

Credits: 3 hours

Notes: May be taken more than once with the approval of the student's advisor.

MATH 5070 - Numerical Analysis I

The analysis and use of numerical algorithms for the solution of nonlinear equations, systems of linear equations, interpolation, numerical differentiation and integration.

Prerequisites & Corequisites: Prerequisites: MATH 3740 (with a grade of "C" or better) and a computer programming language beyond Basic, e.g., Fortran or C.

Credits: 3 hours

Notes: Open to upper level and graduate students.

MATH 5100 - Applied Matrix Algebra

A second course in linear algebra with emphasis on linear systems, inner products, eigenvalues, eigenvectors, matrix decompositions, and their applications. Topics may include LU, QR and singular value decompositions, as well as symmetric, positive definite, and Hermitian matrices and the spectral theorem.

Prerequisites & Corequisites: Prerequisites: MATH 2300 or MATH 3740. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Notes: Open to upper level and graduate students.

MATH 5220 - Introduction to Topology

Topics to be chosen from: Topological spaces and continuous functions, metric spaces, connectivity, separation axioms, compactness, product and quotient spaces, paracompactness, and manifolds.

Prerequisites & Corequisites: Prerequisite: MATH 3300 or MATH 5700. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Notes: Open to upper level and graduate students.

MATH 5270 - Differential Geometry of Curves and Surfaces

An introduction to Riemannian Geometry with emphasis on curves and surfaces. Topics may include isometries, orientation, differential forms, curvature, metrics, and geodesics.

Prerequisites & Corequisites: Prerequisites: MATH 2720 and either (MATH 2300 or MATH 3740). MATH 3140 recommended. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Notes: Open to upper level and graduate students.

MATH 5300 - Linear Algebra

Properties of finite dimensional abstract vector spaces, linear transformations, and matrix algebra are studied.

Prerequisites & Corequisites: Prerequisite: MATH 3300 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

MATH 5501 - Teaching of Middle School Mathematics

This course considers curriculum issues and trends in middle school mathematics focusing on methods and materials for teaching mathematics effectively to middle school students. Activity and laboratory approaches for teaching mathematics are emphasized.

Prerequisites & Corequisites: Prerequisite: MATH 5540 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors in Elementary/Middle School Mathematics.

Notes: This class has four contact hours per week to accommodate student collaborations and field experiences in local schools. Open to upper level and graduate students.
When Offered: Fall, Spring

MATH 5511 - Computing Technology in Middle School Mathematics

This course introduces uses of computing technology to enhance and extend the learning of mathematical topics in middle grades through secondary school. Emphasis is placed on the use of technology in problem solving and concept development.

Prerequisites & Corequisites: Prerequisite: MATH 5501 and MATH 5550 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors in Elementary/Middle School Mathematics.

Notes: A graphing calculator is required. This course has four contact hours per week to accommodate student collaborations and use of specialized computer software. Open to upper level and graduate students.
When Offered: Fall, Spring

MATH 5531 - Number Systems and Proportional Reasoning for Middle Grades Teachers

This course provides an opportunity for middle school teachers to enhance their ability to reason proportionally

through explorations of linearity and right triangle trigonometry with a focus on inquiry and the use of digital tools. Attention will be given to multiple representations (e.g., verbal descriptions, table of values, graphs, and symbolic function rules) of the proportional relationships. Similarities and differences among the systems on integers, rational numbers, and real numbers will also be examined along with the historical development of these number systems.

Prerequisites & Corequisites: Prerequisites: MATH 1500, MATH 1510, MATH 2650, and MATH 3520 (MATH 3520 may be taken concurrently); with a grade of "B" or better in all prerequisites, or instructor approval.

Credits: 4 hours

Restrictions: Restricted to majors and minors in Elementary/Middle School Mathematics.

Notes: Open to upper level and graduate students.

MATH 5540 - Functions and Modeling for Middle Grades Teachers

This course provides an opportunity for middle school teachers to both deepen and expand their understanding of functions through the exploration of linear and exponential function families as well as power functions, polynomial functions, and common logarithmic functions. Attention will be given to multiple representations (e.g., verbal descriptions, tables of values, graphs, and symbolic function rules), to special characteristics of functions (e.g., patterns of change, intercepts, extrema, end behavior), and to modeling with functions. Digital tools will be used throughout the course to facilitate student learning.

Prerequisites & Corequisites: Prerequisites: MATH 3520 with a grade of "B" or better and MATH 5531 with a grade of "C" or better, or instructor approval.

Credits: 4 hours

Restrictions: Restricted to majors and minors in Elementary/Middle School Mathematics.

Notes: Open to upper level and graduate students.

MATH 5550 - Concepts of Calculus for Middle Grades Teachers

This course provides an opportunity for middle school teachers to extend their understanding of function and develop an understanding of the conceptual underpinnings of differential and integral calculus through inquiry and applied problem solving that makes extensive use of digital tools. Attention will be given to historical perspectives of calculus.

Prerequisites & Corequisites: Prerequisites: MATH 5540 with a grade of "C" or better or instructor approval.

Credits: 4 hours

Restrictions: Restricted to majors in Elementary/Middle School Mathematics.

Notes: May be taken in conjunction with MATH 5501. A graphing calculator is required. For specific model see the Mathematics department website. Open to upper level and graduate students.

MATH 5700 - Advanced Calculus I

Properties of real numbers, Cauchy sequences, series, limits, continuity, differentiation, Riemann integral, sequences and series of functions.

Prerequisites & Corequisites: Prerequisites: MATH 2720 and MATH 3140. MATH 3300 is recommended. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 4 hours

Notes: Open to upper level and graduate students.

MATH 5710 - Advanced Calculus II

Topology of n-dimensional space, continuity and differentiability of functions of one variable; Riemann-Stieltjes integral; convergence of sequences and series of functions; Fourier series; analysis of functions of several variables.

Prerequisites & Corequisites: Prerequisite: MATH 5700 (with a grade of "C" or better) or approval of advisor.

Credits: 3 hours

Notes: Open to upper level and graduate students.

MATH 5720 - Vector Calculus and Complex Variables

Functions of several variables, implicit and inverse functions, Jacobians, multiple integrals, Green's Theorem, divergence, curl, the Laplacian, Stokes' Theorem, analytic functions, Laurent expansions, residues, argument principle, and conformal mapping.

Prerequisites & Corequisites: Prerequisite: MATH 3740 with a grade of "C" or better.

Credits: 4 hours

Notes: Open to upper level and graduate students.

MATH 5740 - Advanced Differential Equations

Series solutions at ordinary and singular points of linear ordinary equations, Bessel and Legendre functions, self-adjoint boundary value problems, Fourier series, solution of partial differential equations by separation of variables.

Prerequisites & Corequisites: Prerequisite: MATH 3740 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

MATH 5800 - Number Theory

Diophantine equations, congruences, quadratic residues, and properties of number-theoretic functions.

Prerequisites & Corequisites: Prerequisite: MATH 3300 with a grade of "C" or better.

Credits: 3 hours

Notes: Open to upper level and graduate students.

MATH 5900 - In-Service Professional Development in Mathematics

This course develops specific professional skills related to the teaching and learning of pre-college mathematics. Final course outcomes have demonstrated applications to the mathematics classroom.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 3 hours

Notes: This course may be repeated for credit. Each offering of MATH 5900 will be given an appropriate subtitle which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. Credit hours may be applied to continuing teacher certification programs with approval of the Teacher Certification Office, but will not be applicable to a new endorsement in mathematics nor to any graduate program within the Department of Mathematics. Graded on a Credit/No Credit basis. Open to upper level and graduate students.

MATH 5990 - Independent Study in Mathematics

Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each particular student.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 6 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Medical Science

MDSC 2010 - Medical Terminology

The language of medicine-through an understanding of the Greek and Latin derivations and construction of medical terms, the student learns the vocabulary of the health-related professions.

Credits: 1 hour

MDSC 4300 - Cadaver Dissection Lab

This course will enable the student to develop basic cadaver dissection skills. Students will also assist/observe more advanced techniques including craniotomies and laminectomies. Students will gain appreciation for

dissection planes, muscular layering, and structural relationships by producing prosected specimens to be used for anatomical instruction in other courses.

Prerequisites & Corequisites: Prerequisite: BIOS 2110 with a grade of "B" or better.

Credits: 2 credits

Notes: May be repeated for credit. Graded on a Cred/No Credit basis.

MDSC 4390 - Pharmacology for Health Professionals

This is a medical pharmacology course designed to provide the interdisciplinary health services student with a foundation for understanding pharmacologic principles as they relate to human diseases. Students will review clinically relevant physiology and acquire a working knowledge of pharmacology. Emphasis will be on the cellular mechanisms of pharmacotherapeutic agents and the body's reaction to them.

Prerequisites & Corequisites: Prerequisites: BIOS 3500 and CHEM 3550, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

MDSC 4450 - Pathophysiology for the Health Professional

This is a medical pathophysiology course designed to provide the interdisciplinary health services student with a foundation for understanding the pathophysiology principles behind disease states. Using an organ system approach the students will review the pathophysiologic basis for disease states. Emphasis will be on the cellular and tissue level of each organ system.

Prerequisites & Corequisites: Prerequisite: BIOS 2400 or BIOS 3500, with a grade of "C" or better; and junior or senior status.

Credits: 3 hours

Mechanical Engineering

ME 2320 - Thermodynamics I

This course features the fundamental laws of classic thermodynamics including the First and Second Laws of Thermodynamics. Work, heat transfer, and energy are defined. Students learn to identify properties of pure substances using databases and equations of state. Definitions of ideal and non-ideal processes allow students to determine inefficiencies in thermodynamic systems, including power, refrigeration, and heat pump cycles. Applications are studied in relationship to fixed mass systems, control volumes, and thermodynamic cycles. Comparisons to alternate energy systems such as solar and wind energy are made. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Prerequisites & Corequisites: Prerequisites: MATH 1230 or 1710, PHYS 2050, PHYS 2060; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

When Offered: Fall, Spring, Summer I

ME 2500 - Materials Science for Engineers

First course in the science of engineering materials. Relationships between microscopic structure and the mechanical properties of metals, polymers, and ceramics. Effects of environment on material properties.

Prerequisites & Corequisites: Prerequisites: (ME 2615 or IME 1500 or EDMM 1500), CHEM 1100, CHEM 1110, and (MATH 1220 or 1700); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

When Offered: Fall, Spring, Summer II

ME 2560 - Statics

Forces and moments acting upon structural bodies under static loads. Concepts of vectors, free-body diagrams, shear and moment diagrams, centroids, moments of inertia and friction.

Prerequisites & Corequisites: Prerequisite: Either MATH 1230 or MATH 1710, PHYS 2050 and PHYS 2060; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

When Offered: Fall, Spring, Summer I

ME 2570 - Mechanics of Materials

Compression, tension, shear, torsion, and bending in structural members including stress distribution, deflection, buckling, and fatigue on engineering materials. Design and selection of simple machine members and a knowledge of design codes and standards are applied.

Prerequisites & Corequisites: Prerequisite: ME 2560 with a grade of "C" or better.

Credits: 3 hours

When Offered: Fall, Spring, Summer II

ME 2580 - Dynamics

Kinematics and kinetics of particles, rigid bodies in translation, rotation, and plane motion. Includes impulse-momentum and work-energy methods. Introduction to vibrations.

Prerequisites & Corequisites: Prerequisites: ME 2560, PHYS 2050, and PHYS 2060; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

When Offered: Fall, Spring, Summer I

ME 2615 - Introduction to Mechanical Engineering

Introduction to mechanical engineering systems, the design process and their connections to basic ideas of physics. The lectures will focus on visual experiences and demonstrations of mechanical systems, with the appropriately related physics explanations and mathematical relationships. The students will be involved in competitive design projects, experiencing teamwork, design process, testing and communication. This course satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communications Category.

Prerequisites & Corequisites: Prerequisites: MATH 1220 or MATH 1700 (may be taken concurrently); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

ME 3350 - Instrumentation

Principles of measurement, testing, and evaluation of mechanical and aerospace engineering systems. Experimental design. Estimation of error. Technical report preparation.

Prerequisites & Corequisites: Prerequisites: ME 2570, ME 3620, ECE 2100, and writing requirement; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

Lecture Hours - Laboratory Hours: (2 - 3)

When Offered: Fall, Spring, Summer I

ME 3560 - Fluid Mechanics

Analysis of fluid systems and problems. Incompressible and compressible fluids, turbulent and laminar flows, subsonic and supersonic flows are covered. Pipe systems, flow orifices, and open channels. (Credit may not be earned in both ME 3560 and EDMM 3840.)

Prerequisites & Corequisites: Prerequisites: ME 2580 and MATH 3740, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering, civil engineering, construction engineering or mechanical engineering.

When Offered: Fall, Spring, Summer I

ME 3580 - Mechanism Analysis

Analysis of displacement, velocity, and acceleration in mechanisms by analytical and graphical methods. Introduction to mechanism synthesis with computer applications.

Prerequisites & Corequisites: Prerequisite: ME 2580 and (CS 1022 or CS 1023 or CS 1200), with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

When Offered: Fall, Spring

ME 3600 - Control Systems

Theory and analysis of linear closed-loop control systems containing electronic, hydraulic, and mechanical components. Differential equations. Laplace transforms, Nyquist and Bode diagrams are covered.

Prerequisites & Corequisites: Prerequisites: ME 2580, MATH 3740 and ECE 2100; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

When Offered: Fall, Spring, Summer I

ME 3620 - Theory of Engineering Experimentation

Principles of experimental design using a statistical approach. Statistical analysis of experimental data with computer applications.

Prerequisites & Corequisites: Prerequisites: (MATH 1230 or MATH 1710) and (CS 1060 or CS 1022 or CS 1023 or CS 1110 or CS 1200), with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering, electrical engineering or mechanical engineering.

When Offered: Fall, Spring

ME 3650 - Machine Design I

The application of engineering principles to the fundamental design of machine mechanisms and basic systems.

Prerequisites & Corequisites: Prerequisites: EDMM 1420, (ME 2615 or AE 2610), (ME 2500 or AE 2500), ME 2570, and ME 2580; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

Lecture Hours - Laboratory Hours: (2 - 3)

When Offered: Fall, Spring, Summer I

ME 3670 - Internal Combustion Engines I

Introduction to internal combustion engine systems and mechanical design. Consideration of factors affecting engine design using principles of engineering science. Analysis of common engine systems for reciprocating and continuous flow internal combustion engines.

Prerequisites & Corequisites: Prerequisites: MATH 2720, ME 2580 and ME 2320; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

Lecture Hours - Laboratory Hours: (2 - 3)

When Offered: Fall

ME 3990 - Cooperative Education

A cooperative education program involves a full-time, semester-long planned and supervised engineering work experience. A written report of the student's work activities is required and must be submitted to the Mechanical Engineering office.

Students electing the cooperative education plan may choose to have up to 3 credits of co-op experience apply to their program as Mechanical Engineering Group 1 elective. Students enrolled in this course will be classified as having full-time student status for the purpose of loan deferments and insurance eligibility. A detailed description of this process is available on the Mechanical and Aeronautical Engineering homepage.

Prerequisites & Corequisites: Prerequisite: Advisor approval.

Credits: 1 hour

Notes: May be repeated for credit. Graded on a Credit/No Credit basis.

ME 4310 - Heat Transfer

Steady state and transient conduction, radiation functions, radiation networks, natural and forced convection, design of heat exchangers, and computer applications.

Prerequisites & Corequisites: Prerequisites: ME 2320 and (ME 3560 or AE 3710), with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

When Offered: Fall, Spring, Summer II

ME 4320 - Thermodynamics II

Advanced topics including gas-vapor mixtures, combustion, and compressible flow.

Prerequisites & Corequisites: Prerequisites: (ME 2320 or CHEG 3200) and (ME 3560 or CHEG 3110), with a grade of "C" or better in all prerequisites. (ME 3560 or CHEG 3110 may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering chemical engineering or mechanical engineering.

When Offered: Fall, Spring

ME 4330 - Environmental Systems Design in Buildings

Theory of the conditioning of air, applications to the design of systems to control temperature, humidity, distribution, and ventilation. Computer simulation of buildings and systems.

Prerequisites & Corequisites: Prerequisites: (ME 4310 or CHEG 3120) and ME 4320, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering, chemical engineering: energy management, chemical engineering or mechanical engineering.

When Offered: Fall

ME 4390 - Design of Thermal Systems

Application of energy concepts to thermal fluid design problems. Open ended design projects in incompressible and compressible fluid flows, thermodynamics, heat transfer, power generation, alternate energy systems including computer simulations. Experimentation and theoretical analysis verification with data analysis and report preparation.

Prerequisites & Corequisites: Prerequisites: (ME 3350 and ME 4310) or (CHEG 2810, CHEG 3120 and IEE 2610); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering, chemical engineering or mechanical engineering.

Lecture Hours - Laboratory Hours: (2 - 3)

When Offered: Fall, Spring

ME 4530 - Machine Design II

The application of mechanical engineering concepts to the mechanical synthesis process. Computer-aided design, computer modeling, and optimization applied to the synthesis of a system.

Prerequisites & Corequisites: Prerequisite: ME 3650 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

Lecture Hours - Laboratory Hours: (2 - 3)

When Offered: Fall, Spring, Summer I

ME 4570 - Experimental Solid Mechanics

Principles and methods of mechanical testing, stress and strain analysis under monotonic and cyclic loading, fatigue behavior and fracture involving life prediction and prevention of failure. Experimentation and theory verification, including planning, testing, and data analysis with report preparation.

Prerequisites & Corequisites: Prerequisites: ME 3350 and (ME 3650 or AE 4630); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

Lecture Hours - Laboratory Hours: (2 - 3)

When Offered: Fall, Spring

ME 4650 - Vehicle Dynamics

Design of ground vehicle suspension and steering systems. Vehicle ride, handling and safety systems. Passive and active suspension control.

Prerequisites & Corequisites: Prerequisites: ME 3580, ME 3600, and ME 3650; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

When Offered: Spring

ME 4680 - Engine Design

Application of the knowledge of the mechanics, thermodynamics and fluid mechanics to the design of internal combustion engines to meet specific mission requirements. Optimization of the design using computer modeling and parametric studies.

Prerequisites & Corequisites: Prerequisites: ME 3560 and ME 3670; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

Lecture Hours - Laboratory Hours: (2 - 3)

When Offered: Spring

ME 4700 - Vehicle Structural Design

Structural design of surface and air vehicles to meet specific mission requirements. Design of structures with minimum weight and cost while maintaining structural integrity under the imposed loads.

Prerequisites & Corequisites: Prerequisites: ME 3580 and ME 3650; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

When Offered: Fall

ME 4710 - Motion and Control

Analysis and implementation of linear closed-loop motion control systems containing electrical, hydraulic, pneumatic and mechanical components. Analytical and experimental development of models for components and systems.

Prerequisites & Corequisites: Prerequisite: ME 3600 or ECE 3710, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Cross-Listed: This course is cross-listed with ECE 4710. A student may not receive credit for both ECE 4710 and ME 4710.

Lecture Hours - Laboratory Hours: (2 - 3)

When Offered: Fall

ME 4790 - Mechanical Engineering Project Planning

An introduction to the design process, including problem definition, decision making and project planning. Goal of the course is to develop a project proposal and work plan for a major design project.

Prerequisites & Corequisites: Prerequisites: ME 3350, ME 3600, ME 3650 and ME 4310. A grade of "C" or better is required in all prerequisites.

Credits: 1 hour

Restrictions: Restricted to majors in mechanical engineering.

When Offered: Fall, Spring, Summer I

ME 4800 - Mechanical Engineering Project

An engineering experience in completing an open-ended design project including synthesis, analysis, evaluation, and presentation. Classroom discussion subjects include legal, ethical and professional aspects of engineering practice. This course meets the student learning outcomes in the WMU Essential Studies Level 3 - Connections, Local and

National Perspectives Course Category. This course is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisite: ME 4790 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in mechanical engineering.

Lecture Hours - Laboratory Hours: (1 - 6)

When Offered: Fall, Spring

ME 4950 - Topics in Mechanical Engineering: Variable Topics

A specialized course dealing with some particular area of mechanical engineering not included in other course offerings.

Prerequisites & Corequisites: Prerequisite: Consent of department.

Credits: 1 to 4 hours

Notes: May be repeated for credit with a different topic up to six credits.

When Offered: Fall, Spring, Summer I, Summer II

ME 4990 - Independent Studies

An independent studies assignment available only by special arrangement with an instructor and approved by the department chair.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 6 hours

When Offered: Fall, Spring, Summer I, Summer II

ME 5200 - Orthopaedic Biomechanics

Current methods for analysis of biomechanical systems that include bone, tendon, ligament, cartilage, and other soft tissue. Mechanics that govern biomechanical systems including beam theory, anisotropic materials, viscoelasticity, and contact. Also prosthetics, orthotics, and other medical devices.

Prerequisites & Corequisites: Prerequisite: ME 3650 or AE 4630, with a grade of "B" or better in all prerequisites; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5300 - Theoretical and Computational Fluid Mechanics

The theory and numerical implementation of ideal flow, viscous effects, and exact solutions of Navier-Stokes equations. Special emphasis will be on comparison of analytical and computational methods applicable to one-dimensional and two-dimensional fluid flows. Familiarity with a scientific computer programming language is required.

Prerequisites & Corequisites: Prerequisites: AE 3710 or ME 3560, with a grade of "B" or better; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5360 - Experimental Methods in Fluid Mechanics

This course covers basic characteristics of turbulence, governing equations, and random data, probability and statistics related to turbulence, and experimental methods in fluid flow. Basics of Hot-Wire Anemometry, Laser Doppler Velocimetry, and Particle Image Velocimetry will be covered in detail. Experiments will be conducted to show the basics of these techniques.

Prerequisites & Corequisites: Prerequisites: ME 3350 and (ME 3560 or AE 3610), with a grade of "B" or better in all prerequisites; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5390 - Advanced Thermal Design

Theory and practical thermal system design using advanced computer-aided design tools with emphasis on modelling and optimization of modern thermal elements.

Prerequisites & Corequisites: Prerequisite: ME 4310 with a grade of "B" or better, or instructor approval.

Credits: 3 hours

Notes: Open to seniors or graduate students.

ME 5410 - Continuous System Modeling & Simulation

Principles and methods associated with simulating continuous dynamic systems in the mechanical and aerospace engineering disciplines. Linear and non-linear systems. Time and frequency domain analyses. Brief introduction to real-time simulation. Extensive use of current simulation software.

Prerequisites & Corequisites: Prerequisite: ME 3600 with a grade of "B" or better, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5430 - Mechanical Systems Control

Classical and modern control analysis and design methods for mechanical and aerospace systems; transfer function vs. state-space description, single-input-single-output (SISO) vs. multi-input-multi-output (MIMO) system, linear vs. nonlinear system, linearization, classical control design method, state-space design method, emphasis on ground and space vehicle dynamics and control problems, extensive use of commercial software package.

Prerequisites & Corequisites: Prerequisite: ME 3600 with a grade of "B" or better, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5450 - Computational Fluid Dynamics I

Basics of Computational Fluid Dynamics (CFD) including classification of partial differential equations, finite difference formulations, parabolic partial differential equation, stability analysis, elliptic equations, hyperbolic equations, scalar representation of the Navier-Stokes equations and grid generation. Familiarity with a scientific computer programming language is required.

Prerequisites & Corequisites: Prerequisites: AE 3710 or ME 3560, with a grade of "B" or better; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5500 - Modern Engineered Materials

Advanced course in both metallic and non-metallic engineering materials, including electronic and magnetic materials and biomaterials. Mechanical, physical and biocompatibility properties will be examined with relationship to materials composition, structure, and processing. Failure mechanisms and prevention will be examined. Open ended projects will be assigned.

Prerequisites & Corequisites: Prerequisites: (ME 2500 or AE 2500) and ECE 2100, with a grade of "B" or better in all prerequisites; or instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors in aerospace engineering or mechanical engineering.

Notes: Open to upper level and graduate students.

ME 5530 - Advanced Product Engineering

An engineering design project from concept to adoption. Static and dynamic analysis. Mechanical systems design and layout.

Prerequisites & Corequisites: Prerequisites: ME 3600 and ME 4530, with a grade of "B" or better in all prerequisites; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5550 - Intermediate Dynamics

Three dimensional kinematics and dynamics of rigid bodies; equations of motion; Lagrange's equations; work and energy; impulse and momentum; virtual work; stability; computer simulation; intro. to vibrations.

Prerequisites & Corequisites: Prerequisites: ME 2580 and MATH 3740, with a grade of "B" or better on all

prerequisites; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5580 - Mechanical Vibrations

A study of the oscillatory motion of physical systems with emphasis on the effects of vibrations on the performance and safety of mechanical systems.

Prerequisites & Corequisites: Prerequisites: ME 2580 and MATH 3740, with a grade of "B" or better on all prerequisites; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5600 - Engineering Analysis

Application of vector analysis and differential equations to the solution of complex engineering problems.

Prerequisites & Corequisites: Prerequisite: ME 3600 or equivalent, with a grade of "B" or better; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5610 - Finite Element Method

Development of finite element method for solution of one-, two-, and three-dimensional problems in heat transfer, fluid flow, structures and elasticity.

Prerequisites & Corequisites: Prerequisites: ME 2570, ME 3560, ME 4310, and MATH 3740 or equivalents, with a grade of "B" or better on all prerequisites; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5620 - Application of Numerical Methods in Engineering

Finite difference methods for initial value and boundary value problems; 2D finite differencing, boundary element methods applications to differential equations of heat transfer, fluid flow, and solid mechanics.

Prerequisites & Corequisites: Prerequisites: MATH 3740 and ME 3600, with a grade of "B" or better on all prerequisites; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5640 - Engineering Noise Control

Introduction to basic concepts of noise control. Nature of sound and its effects on our environment. Indoor and outdoor sound propagation. Noise standards and measurements. Case studies of real-world implementations of noise control engineering. Laboratory demonstrations.

Prerequisites & Corequisites: Prerequisites: ME 2580 and MATH 3740, with a grade of "B" or better on all prerequisites; or instructor approval.

Credits: 3 hours

Notes: This course meets for 2 lecture hours and 3 lab hours per week. Open to upper level and graduate students.

ME 5690 - Principles of Fatigue and Fracture

Basics of experimental techniques and modeling used in industry to study inelastic deformations, fatigue, and fracture of engineering materials and structures.

Prerequisites & Corequisites: Prerequisite: (ME 3650 or AE 4630) with a grade of "B" or better, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Cross-Listed: Cross-listed with CCE 5690. A student may not receive credit for both CCE 5690 and ME 5690.

ME 5710 - Gas Dynamics

Basic equations of compressible flow, isentropic relationships, and normal and oblique shock. Prandtl-Meyer expansion, Fanno Line, and Rayleigh Line flow. Applications to nozzles, diffusers, and supersonic wind

tunnels. Linearized flows, method of characteristics.

Prerequisites & Corequisites: Prerequisites: ME 4310 and ME 4320, with a grade of "B" or better in all prerequisites; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5720 - Advanced Thermodynamics

Topics including the conditions of equilibrium, process and thermodynamic engines, the extremum principle, Maxwell relations, stability of thermodynamic systems, phase transitions, chemical thermodynamics, irreversible thermodynamics, and an introduction to the statistical thermodynamics.

Prerequisites & Corequisites: Prerequisites: ME 4310 and ME 4320, with a grade of "B" or better in all prerequisites; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5730 - Materials Selection in Design

Material selection for resistance to both load and environment. Design parameters for material selection and various metal systems, corrosion, service failures, and mechanical behavior of engineering alloys at high and low temperatures.

Prerequisites & Corequisites: Prerequisite: ME 2500 with a grade of "B" or better, or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5750 - Tribology - Principles and Applications

Surface chemistry, topographical measurement and description, contact mechanics, wear mechanisms, lubrication and film formation, application to friction and wear situations in machine elements.

Prerequisites & Corequisites: Prerequisites: ME 3560 or AE 3610, with a grade of "B" or better in all prerequisites;

or instructor approval.

Credits: 3 hours

Restrictions: Restricted to students in Aerospace Engineering and Mechanical Engineering.

Notes: Open to upper level and graduate students.

ME 5770 - Fuel Cell and Alternative Energy

Fundamentals of fuel cells, working principles and types. Function of main components, basic chemistry and thermodynamics, electrochemistry. Alternative fuels and emerging energy technologies. Fuel cell and hydrogen era.

Prerequisites & Corequisites: Prerequisites: (ME 3670 or ME 4320) and ME 3560, with a grade of "B" or better in all prerequisites; or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (2-3)

ME 5850 - Mechatronics

A course in fundamentals of motion control, primarily as it is applied to robotics. Students will learn the basics of control systems as applied to multi-axis servo systems. Appropriate time will be devoted to develop a sound basis in the electro-mechanical discipline. This course is cross-listed as ECE 5850.

Prerequisites & Corequisites: Prerequisites: ECE 2100, ME 2580 and (ECE 3710 or ME 3600), with a grade of "B" or better in all prerequisites. A student may not receive credit for both ECE 5850 and ME 5850.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ME 5950 - Topics in Mechanical Engineering

A specialized course dealing with some particular area of Mechanical Engineering not included in other course offerings.

Prerequisites & Corequisites: Prerequisite: Consent of department.

Credits: 1 to 4 hours

Notes: May be repeated for credit with a different topic up to six total credits. Open to upper level and graduate students.

When Offered: Fall, Spring, Summer I

ME 5990 - Practical Training

Designed for Master's students who wish to pursue practical training in off-campus activities in industrial and/or other settings. To be eligible, students must be registered in the MAE department, must have completed at least 6 credits towards an advanced degree, must have had less than 6 months of prior industrial work experience in the US, and have approval of their faculty advisor and Graduate Programs Director or Department Chair. A maximum of 3 credits may be approved towards a graduate degree. Students enrolled will be classified as having full time status for the purpose of loan deferments and insurance eligibility.

Prerequisites & Corequisites: Prerequisite: Advisor or Departmental approval.

Credits: 1 - 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Medieval Studies

MDVL 1000 - The Middle Ages, Then and Now

Explore the Middle Ages (c. 500 through 1500) using popular culture, primary source documents, and performance to understand both the past itself and more recent uses of the past (such as films, novels, art, events, festivals, and ideologies from the 19th, 20th, and 21st centuries). This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

MDVL 2000 - Voices of the Middle Ages

An interdisciplinary course designed to let voices from the past speak to us. Readings include *Hrafnkel's Saga*, *the Song of Roland*, and *the Poem of the Cid*; collectively these

texts speak to us about relationships such as those between people of different religions, between spouses as well as between lords and their men; about values such as loyalty, honor, heroism, and faith; and about aspects of culture that we take for granted today, such as medicine, education, easy means of communication and travel. The course aims to teach students to read, hear, and respond to medieval voices. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Credits: 3 hours

MDVL 3000 - Topics in Medieval Studies

The course will focus on topics and themes related to the Middle Ages, considered broadly in terms of periodization and geography, as they are reflected in literary and historical texts, material culture, cinema, and other arts. It will emphasize critical thinking and the understanding of cultural production and differences.

Credits: 1 to 3 hours

Notes: May be repeated for credit with different content.

MDVL 5300 - Introduction to Medieval Studies

This seminar is meant to serve as a guide to the study of the Middle Ages in its multiple disciplines. It is also intended as an introduction to the considerable resources for study available at Western and in the greater Kalamazoo region, including institutions and individuals students should know.

Credits: 1 hour

Notes: Open to upper level and graduate students only. Undergraduate students must have instructor approval.

MDVL 5970 - Directed Study

Research on a selected topic in the field of Medieval Studies directed and supervised by a faculty member. Registration requires at least junior standing and approval by the Director of the Medieval Institute.

Prerequisites & Corequisites: Prerequisite: Approval application required.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Military Science and Leadership

MSL 1010 - Introduction to the Army and Critical Thinking

The purpose of this course is to introduce students to the personal challenges and competencies associated with effective leadership. Students are introduced to critical thinking and learn critical life skills including time management, goal setting, stress management and comprehensive fitness. Students are also introduced to the Army Values and Military Customs and Courtesies.

Credits: 1 hour

When Offered: Fall

MSL 1020 - Introduction to the Profession of Arms

The purpose of this course is to introduce students to the personal challenges and competencies that are critical for effective leadership. Students develop effective communication skills which are essential to effective leadership. In learning the basics of effective communications, students learn about the Army writing style and persuasive presentation techniques. Students also examine the Army Values and Warrior Ethos to better understand the Army Profession and what it means to be a professional in the U.S. Army.

Credits: 1 hour

When Offered: Spring

MSL 2010 - Leadership and Decision Making

This course explores the dimensions of creative and innovative tactical leadership strategies and styles by examining team dynamics and leadership theories that form the basis of the Army leadership framework culminating in a leadership capstone presentation. Focus is on continued development of the knowledge of leadership values and attributes through an understanding of critical thinking and the Army problem solving process. Case studies provide tangible context for application of troop leading procedures and the military orders process in the contemporary

operating environment (COE).

Credits: 2 hours

When Offered: Fall

MSL 2020 - Army Doctrine and Team Development

This course examines challenges of leading in complex contemporary operational environments with specific emphasis on the dimensions of cross-cultural challenges, and ethics and the Law of Land Warfare as applied to practical Army leadership tasks and situations. Cadets develop greater self-awareness as they assess their own leadership styles and practice communication and team building skills. Practical exercises give insight into the importance and practice of teamwork and tactics in real-world scenarios.

Credits: 2 hours

When Offered: Spring

MSL 2990 - Studies in Military Science and Leadership

An opportunity for students who have been unable to take the basic 1000- or 2000-level military science and leadership courses in sequence to obtain needed course work at more convenient times. Course content is adapted to meet the individual needs of the student.

Prerequisites & Corequisites: Prerequisite: Approval of department chair.

Credits: 1 to 3 hours

When Offered: Fall and Spring

MSL 3010 - Unit Training and the Warfighting Functions

This course is designed to challenge students mentally, physically and emotionally. Students will hone their basic Soldier Skills while given the opportunity to lead fellow students in the program. Students will be placed in leadership roles and presented with challenging scenarios and receive systematic and specific feedback on their leadership attributes and actions. Based on this feedback, as well as their own self-evaluations, students continue to develop their leadership and critical thinking abilities.

Students will learn the warfighting functions of the various branches in the United States Army. The focus is on developing students so they have the necessary skill set to effectively lead as future United States Army officers.

Prerequisites & Corequisites: Prerequisite: Approval of department chair.

Credits: 3 hours

When Offered: Fall

MSL 3020 - Applied Leadership in Small Unit Operations

This course is designed to challenge students mentally, physically and emotionally. Students are placed into situational leadership challenges to build awareness and skills in leading tactical operations up to platoon level. Students will receive systematic and specific feedback on their leadership attributes and actions. Based on this feedback, as well as their own self-evaluations, students continue to develop their leadership and critical thinking abilities. The focus is on developing students so they have the necessary skill set and decision-making ability to effectively lead as future United States Army officers.

Prerequisites & Corequisites: Prerequisite: Approval of department chair.

Credits: 3 hours

When Offered: Spring

MSL 4010 - Mission Command and the Army Profession

This course explores the dynamics of leading in the complex situations of current military operations. The course places significant emphasis on preparing students to become commissioned officers in the U.S. Army and for their first assignment as a U.S. Army Officer. It uses mission command case studies and scenarios to prepare students to face the complex ethical demands of serving as a commissioned officer in the United States Army.

Students:

- Explore military professional ethics, organizational ethics and ethical decision making processes
- Gain practical experience in Cadet battalion leadership roles and training management

- Begin their leadership self-development including civil military and media relations
- Prepare for the transition to a career as an Army Officer

The course transitions the focus of student learning from being developed, mentored and evaluated as a junior-level student to learning how to develop, mentor, and assess underclass students. Students will learn the duties and responsibilities of an Army staff officer and apply the Military Decision Making Process (MDMP), the Army Writing Style and the Army's Training Management and METL Development processes during weekly Training Meetings to plan, execute and assess battalion training events. Students will learn how to safely conduct this training by understanding and employing the Risk Management Process.

Prerequisites & Corequisites: Prerequisite: Approval of department chair.

Credits: 3 hours

When Offered: Fall

MSL 4020 - Mission Command and the Company Grade Officer

This course explores the dynamics of leading in the complex situations of current military operations. The course places significant emphasis on preparing students to become commissioned officers in the U.S. Army and for their first assignment as a U.S. Army Officer. It used mission command case studies and scenarios to prepare students to face the complex ethical demands of serving as a commissioned officer in the United States Army. Students:

- Identify leaders roles and responsibilities for enforcing Army policies and programs
- Explore the dynamics of building teams
- Examine the significance of organizational culture
- Gain practical experience in Cadet battalion leadership roles and training management
- Explore military professional ethics and ethical decision making processes
- Prepare for the transition to a career as an Army Officer

The course transitions the focus of student learning from being developed, mentored, and evaluated as a junior-level student to learning how to develop, mentor, and assess underclass students. Students will learn about Unified Land Operations and the Art of Command. Students continue to develop verbal and written communication skills through a

battle analysis case study and presentation. Students also learn counseling and influencing techniques. Students will also conduct weekly Training Meetings to plan, execute and assess battalion training events.

Prerequisites & Corequisites: Prerequisite: Approval of department chair.

Credits: 3 hours

When Offered: Spring

MSL 4990 - Advanced Studies in Military Science and Leadership

An opportunity for students who have been unable to take the advanced 3000- and 4000-level military science and leadership courses in sequence to obtain needed course work at more convenient times. Also, this course is available for students wishing to pursue special topics or an independent study in military science and leadership. Course content is adapted to meet the individual needs of the students.

Prerequisites & Corequisites: Prerequisite: Approval of department chair.

Credits: 1 to 4 hours

Notes: Topics may vary from semester to semester and students may repeat the course.

When Offered: Fall and Spring

Music

MUS 1000 - Applied Music

This level of applied music indicates private music study at a fundamental level. Credit earned may be applied to a Bachelor of Music degree only by special arrangement through the School of Music.

Credits: 1 to 2 hours

When Offered: Fall, Spring

MUS 1010 - Music Convocation

A series of special musical events required of music majors. Programs include lectures and recitals by faculty, selected students, and guest artists.

Credits: No Credit

Restrictions: Restricted to majors in music.

When Offered: Fall, Spring

MUS 1020 - Piano Class I

This is a beginning course for the development of piano playing skills for non-music majors/minors. The course will cover fundamentals of music reading, keyboard techniques, sight-reading, and harmonization.

Credits: 2 hours

When Offered: Fall, Spring

MUS 1030 - Piano Class II

A continuation of MUS 1020 Piano Class I. Because course goals do not align with other keyboard classes in the School of Music, the student will not be prepared to progress into other piano courses offered for music majors/minors.

Prerequisites & Corequisites: Prerequisite: MUS 1020 or instructor approval.

Credits: 2 hours

When Offered: Spring

MUS 1070 - University Choruses

The University Choruses are composed of students from all disciplines. These ensembles provide students with the fundamentals of artistic choral ensemble singing. As part of that education, performance experiences may include concerts and local tours. Repertoire includes a wide variety of multicultural literature. Examples of ensembles offered include Women's Chorus, Concert Choir, and Special Ensemble.

Prerequisites & Corequisites: Prerequisite: Audition or instructor approval.

Credits: 1 hour

Notes: Grand Chorus is a large ensemble which performs choral/orchestral compositions. Participation is required of members of the University Chorale, Collegiate Singers, and University Choruses, but membership is open to other

singers with the consent of the conductor.

Repeatable for credit.

When Offered: Fall, Spring

MUS 1080 - Collegiate Singers

A choral ensemble which develops general musicianship and provides training in choral singing. Performances are presented on campus and in the community.

Credits: 1 hour

Notes: Membership by audition. Grand Chorus is a large ensemble which performs choral/orchestral compositions. Participation is required of members of the University Chorale, Collegiate Singers, and University Choruses, but membership is open to other singers with the consent of the conductor.

When Offered: Fall, Spring

MUS 1090 - Marching Band

The University Marching Band is the major performing ensemble for Fall football activities. Positions are open to all students who play wind or percussion instruments. Music Education: Instrumental majors who play a wind or percussion instrument are required to take this course during two Fall semesters.

Credits: 1 hour

Notes: Membership is by audition.

When Offered: Fall

MUS 1100 - Concert Band

This ensemble will offer students the opportunity to explore concert band literature through rehearsals and performances. Eligibility for membership and part assignments are determined by audition for music majors. Non-majors and Music Education majors playing secondary instruments are welcome as well without a required audition.

Credits: 1 hour

MUS 1110 - University Orchestra

The orchestra is open to all students who have had a reasonable amount of orchestral experience. Many fine compositions are studied and played during the year, and

the orchestra joins with other campus organizations in joint programs. Instruments are available for the use of students.

Credits: 1 hour

Notes: Membership is by audition.

When Offered: Fall, Spring

MUS 1120 - University Chorale

An advanced choral ensemble which maintains a very active performance schedule on campus and in the community as well as throughout Michigan and surrounding states.

Credits: 1 hour

Notes: Membership by audition. Grand Chorus is a large ensemble which performs choral/orchestral compositions. Participation is required of members of the University Chorale, Collegiate Singers, and University Choruses, but membership is open to other singers with the consent of the conductor.

When Offered: Fall, Spring

MUS 1130 - Symphonic Band

The University Symphonic Band is dedicated to the performance of outstanding literature, including original works for band and orchestral transcriptions. An emphasis is placed on understanding the pieces performed from an aesthetic and stylistic basis as well as from a technical point of view. This ensemble maintains an active performance schedule on campus and in the community.

Credits: 1 hour

Notes: Membership is by audition.

MUS 1140 - Digital Media in Music

This course will provide instruction in important technologies needed by music majors to successfully complete coursework in their major and prepare for careers in music performance, composition, music education, and music therapy. Instruction will include the following technologies: the use of music notation software to compose and arrange musical scores, the use of digital audio and video editing software to create and edit multimedia, and the use of online portfolios to promote professional aptitude and achievement.

Credits: 1 hour

Restrictions: Restricted to majors in music (excluding Multimedia Arts Technology).

Notes: This course will fulfill the School of Music's computer literacy graduation requirement.

When Offered: Fall, Spring

MUS 1170 - Vocal Techniques for Music Educator

A course that develops the understanding of vocal hygiene and vocal production, as well as develop the ability to perform simple phrases with direct application of production principles. Application of vocal production principles will be made using the speaking voice in the classroom.

Prerequisites & Corequisites: Prerequisite: Music Education major.

Credits: 1 hour

MUS 1180 - Gold Company II

A vocal jazz and show entertainment ensemble which gives students the opportunity to develop their vocal skills while performing challenging contemporary choral literature. A small instrumental combo accompanies the ensemble, and choreography and specialty acts are included. The ensemble maintains an active performance schedule on campus and throughout the surrounding West Michigan area.

Credits: 1 hour

Notes: Membership is open to all students by audition.

When Offered: Fall, Spring

MUS 1190 - Gold Company

A select ensemble which specializes in Jazz Show Vocal Entertainment. Specialty acts and choreography are included. A small instrumental ensemble accompanies the group. A very active performance schedule is maintained on campus, in the community, in Michigan and out-of-state.

Credits: 1 hour

Notes: Membership is open to all University students by

audition.

When Offered: Fall, Spring

MUS 1200 - Keyboard Fundamentals

The course covers basic fundamentals of piano technique, sight-reading, transposition, improvisation, and simple harmonization of melodies using primary harmonies.

Prerequisites & Corequisites: Prerequisite: MUS 1600 or concurrent.

Credits: 1 hour

When Offered: Fall, Spring

MUS 1210 - Keyboard Fundamentals

A continuation of MUS 1200. The course of study includes major scales, sight-reading of simple pieces with two independent parts or melody with blocked and broken chord accompaniment, transposition, harmonization of melodies using primary and secondary harmonies, and improvisation using penta scales and specified chord progressions.

Prerequisites & Corequisites: Prerequisite: MUS 1200 with a grade of "C" or better, or instructor approval.

Credits: 1 hour

When Offered: Fall, Spring

MUS 1220 - Voice Class

A study of the fundamental processes of breath control and tone production, providing some individual instruction in preparing and singing standard song literature. The course is designed to benefit students interested in solo and choral singing.

Credits: 1 hour

When Offered: Fall, Spring

MUS 1240 - Guitar Class I

This class will enable the student with no previous experience to use the guitar as an accompanying instrument. The course will provide basic instruction in the fundamentals of music reading as well as the fundamentals of guitar. The student will be required to own or have

access to a Folk or Classical type guitar.

Credits: 2 hours

When Offered: Fall, Spring

MUS 1250 - Guitar Class II

This class is intended for the student who has completed Guitar Class I or the student with some guitar ability who wishes to further develop his/her skills. The course will enable the student to use the guitar as a solo or melody-playing instrument. Instructions will be provided on tablature and transposition as it applies to the guitar and on various techniques as used in both the Classical and Folk idioms for melody or single-note playing. The student will be required to own or have access to a Folk or Classical type guitar.

Prerequisites & Corequisites: Prerequisite: Completion of MUS 1240 or instructor approval.

Credits: 2 hours

When Offered: Spring

MUS 1260 - Fundamentals of Guitar

This class is for the music major or minor who has an ability to read music and a basic knowledge of harmony but who cannot already play the guitar. The class will focus on the use of guitar in the music education and music therapy professions and will cover the different styles of beginning guitar playing, including an overview of basic chords, barre chords and the various strumming and picking patterns. The student must own or have access to Folk or Classical type guitar.

Prerequisites & Corequisites: Prerequisite: MUS 1600

Credits: 1 hour

When Offered: Fall, Spring

MUS 1290 - String Class-Violin, Viola

A course in the fundamentals of pedagogy and performance for the violin and viola presented through materials commonly used in classes in the public schools.

Prerequisites & Corequisites: Prerequisite: Music Education major.

Credits: 1 hour

MUS 1300 - Percussion Class

Fundamentals of percussion instrument pedagogy and performance. The student is required to perform on the snare drum in an acceptable manner and to demonstrate a working knowledge of percussion instruments, including methods and materials, care and maintenance, and the function of the percussion section in a band or orchestra. For music majors only.

Credits: 1 hour

MUS 1420 - Oboe/Bassoon Class

Fundamentals of oboe and bassoon pedagogy and performance.

Credits: 1 hour

Restrictions: Restricted to majors in music (excluding Performance and Choral Ed).

MUS 1430 - Trumpet/Horn Class

Fundamentals of trumpet and horn pedagogy and performance.

Credits: 1 hour

Restrictions: Restricted to majors in music (excluding Performance and Choral Ed).

MUS 1440 - Trombone/Tuba Class

Fundamentals of trombone and tuba pedagogy and performance.

Credits: 1 hour

Restrictions: Restricted to majors in music (excluding Performance and Choral Ed).

MUS 1460 - Clarinet/Flute/Saxophone Class

Fundamentals of clarinet, flute and saxophone pedagogy and performance.

Credits: 1 hour

Restrictions: Restricted to majors in music (excluding Performance and Choral Ed).

MUS 1500 - Music Appreciation: Live Music

An introduction to musical concepts, styles, and literature through assigned readings, recorded listening examples, and live concert attendance that will stimulate musical perception, understanding and enjoyment. The on-campus version of this course in fall/spring semesters is linked to an evening concert series at WMU where attendance is required during class time (a schedule of the musical events required for that semester will be issued during the first week of the class). The fully-online version of this class requires concert attendance at live events that the student chooses in their own local area. This course does not require any previous music experience or the ability to read music. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category. This course may not be elected by music majors (except students pursuing the Multimedia Arts Technology - Music program).

Credits: 4 hours

When Offered: Fall, Spring, Summer

MUS 1510 - Jazz in America

An introduction to jazz music that examines its history, traditions, stylistic evolution, and the nature of jazz improvisation through the study of great masters of this art form and significant compositions/performances. The relationship of jazz to race relations and diversity in America is considered through the lives of selected artists. The evolution of early African-American musical forms (work songs, field hollers, prison songs, and the blues) are studied in their relation to the development of jazz in the early 20th century. This course does not require any previous music experience or the ability to read music. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category, but may not be elected by music majors (except students pursuing the Multimedia Arts Technology - Music program).

Credits: 4 hours

MUS 1520 - Rock Music: Genesis and Development

A study of rock and roll music since its inception in the mid-1950s. The impact of black rhythm and blues, jazz forms, country and western music, and radio and television upon early rock will be studied as well as further developments such as "do-wop", soul music, folk rock, psychedelic rock, jazz rock, the various English schools, arena rock, heavy metal, punk styles, new wave, grunge, and rap-influenced rock, to mention but a few. The course does not require any previous music experience or the ability to read music. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

When Offered: Fall, Spring, Summer I

MUS 1590 - Fundamentals of Music

A study of fundamentals, including notation, scales, intervals, basic chord construction, and the rhythmic/metric aspect of music.

Credits: 2 hours

When Offered: Fall, Spring

MUS 1595 - MTP Musicianship I

This class is the first in a two-part sequence of courses designed to encompass a study of basic music theory, keyboard fundamentals and aural skills to develop the singer's ability to understand music on the page and by ear and to hear music internally before it is performed aloud. Recognition of music patterns will result from the development of listening skills (dictation, error detection, musical memory) and performance skills.

Prerequisites & Corequisites: Prerequisite: MUS 1590 with a grade of "C" or better or departmental examination.

Credits: 2 hours

Restrictions: Restricted to majors in music theatre performance.

MUS 1600 - Basic Music I

A study of basic harmony in classical, jazz, and popular music including triads and seventh chords (and their inversions), melodic construction (including non-harmonic

tones).

Prerequisites & Corequisites: Prerequisite: MUS 1590 with a grade of "C" or better or departmental examination.

Credits: 3 hours

When Offered: Fall, Spring

MUS 1605 - Jazz Theory

A study of jazz music theory, including chord and scale construction and nomenclature; elementary principles of chord voicing and arrangements; chord/scale relationships; and blues, AABA and other song forms. Analysis of jazz solo transcription as well as basic keyboard skills will be emphasized, in addition to listening to great jazz recordings and attending jazz concerts.

Prerequisites & Corequisites: Prerequisite: MUS 1600 with a grade of "C" or better or instructor approval.

Credits: 2 hours

MUS 1610 - Basic Music II

A continuation of MUS 1600. Includes fundamental principles of counterpoint and part writing. Continues study of harmony with modulation and an introduction to chromatic harmony.

Prerequisites & Corequisites: Prerequisite: MUS 1600 with a grade of "C" or better.

Credits: 3 hours

When Offered: Fall, Spring

MUS 1620 - Aural Skills I

The first in a sequence of courses designed to develop a musician's "inner" ear: the ability to understand music by ear and to hear music internally before it is performed aloud. Recognition of music patterns will result from the development of listening skills (dictation, error detection, musical memory) and performance skills (sight reading, prepared performance, conducting and improvisation). This course concentrates on diatonic melodies, simple and compound meters, intervals, triads, and basic chord progressions.

Prerequisites & Corequisites: Prerequisite: MUS 1590

with a grade of "C" or better or departmental examination.

Credits: 1 hour

When Offered: Fall, Spring

MUS 1630 - Aural Skills II

A continuation of MUS 1620. This course develops sight-reading, dictation, error detection, and improvisation skills applied to more advanced diatonic melodies, subdivisions of simple and compound beats, and diatonic chord progressions. The final exam for this course requires each student to demonstrate aural proficiency in the areas of rhythm, harmony, and melody.

Prerequisites & Corequisites: Prerequisite: MUS 1620 with a grade of "C" or better.

Credits: 1 hour

When Offered: Fall, Spring

MUS 1700 - Introduction to Music History

This course introduces the music from the late seventeenth century to the early nineteenth century with an emphasis on perceptions of creative practice from these historical periods.

Prerequisites & Corequisites: Prerequisite: MUS 1600 with a grade of "C" or better, may be taken concurrently.

Credits: 2 hours

When Offered: Fall or Spring

MUS 1800 - Experiencing Music Education

Students will be introduced to the fundamental principles of music education. They will learn about music education philosophy, advocacy, and history. Students will be introduced to best teaching practices through classroom observations, and they will emulate these practices through hands-on teaching experiences. Participation in this course will inform the students' decisions to enter the field of music education.

Credits: 2 hours

Restrictions: Restricted to majors in music.

MUS 1900 - Accompanying

Supervised experience in accompanying vocal and instrumental music, both solo and ensemble.

Credits: 1 hour

When Offered: Fall

MUS 1940 - Introduction to Audio Engineering

This course will introduce the student to the fundamentals of audio engineering. The course begins with the basics of how sound propagates and how we perceive it, and moves on to examine the devices that are used to capture (microphones), route (consoles), store (analog and digital recording), manipulate (EQ, compression, reverb, etc.) and listen back (speakers) to recordings. The course requires no previous experience with audio engineering and is open to students from any major at the university. The instructor's assessment of each student's performance in this course will determine which students will be allowed to proceed to upper-level courses in audio engineering.

Credits: 2 hours

MUS 1945 - Intro to Sound Reinforcement

Students learn to understand and operate the basic equipment required for live sound reinforcement, in addition to learning basic acoustics.

Credits: 2 hours

When Offered: Fall

MUS 1950 - Digital Video Concepts

Students in this course will be introduced to technical aspects of digital video, including basic principles of digital images, storage formats, compositing, video compression, and media encoding. Student projects applying these principles will include exercises in image capturing, motion graphics, compositing, and video editing. The course is designed to approach these concepts from the perspective of students with music technology backgrounds, covering material in a manner commensurate with the technical expectations of a foundational course in a B.S. degree.

Credits: 2 hours

MUS 1995 - MTP Ensemble Vocal Technique

An ensemble taught vocal technique course. Introduction to the study of applied music for music theatre voice, focusing on breathing physiology of voice production, vocal styles and repertoire.

Credits: 2 hours

Restrictions: Restricted to majors in music theatre performance.

MUS 2000 - Applied Music

This level of applied music indicates "lower division" standing for music students who have been approved for this level through auditions or jury examinations.

Credits: 1 to 4 hours

Restrictions: Restricted to majors in music (excluding Multimedia Arts Technology).

When Offered: Fall, Spring

MUS 2030 - Wind Symphony

The University Wind Symphony is a select ensemble of outstanding undergraduate (and graduate) musicians who embrace the challenge of performing the finest in wind band literature and transcriptions in a variety of concert settings.

Credits: 1 hour

Notes: May be repeated for credit

MUS 2100 - Jazz Lab Band

The Jazz Lab Band affords students the opportunity to develop performance skills in contemporary and traditional big band jazz. Student compositions and arrangements are encouraged and are a regular part of Lab Band Concerts. The Ensemble performs regularly on campus and in the surrounding community.

Credits: 1 hour

Notes: Membership is by audition.

When Offered: Fall, Spring

MUS 2120 - Jazz Orchestra

The University Jazz Orchestra is a select ensemble which affords students the opportunity to perform outstanding literature in contemporary and traditional big band jazz. Special consideration is given to the rehearsal and performance of student compositions and arrangements. The ensemble performs regularly on and off campus.

Credits: 1 hour

Notes: Membership is by audition.

When Offered: Fall, Spring

MUS 2150 - Conducting

A course in the fundamentals of conducting, including beat patterns, various gestures for attack, release, phrasing, etc., use of the left hand, and score-reading. The student will be afforded a variety of experiences, i.e., conducting exercises for videotaping, conducting practice laboratories, etc.

Prerequisites & Corequisites: Prerequisites: MUS 1610, MUS 1630, and MUS 1700 all with a grade of "C" or better.

Credits: 1 hour

When Offered: Fall, Spring

MUS 2170 - Chamber Music With Conductor

Study and rehearsal of a broad spectrum of chamber music in ensembles of six to 24 performers conducted by faculty. Conducted chamber ensembles will meet from one to three hours per week.

Prerequisites & Corequisites: Instructor approval.

Credits: 1 hour

MUS 2180 - Chamber Music Without Conductor

Growth in artistry, technical skills, collaborative competence and knowledge of repertory through regular ensemble experiences. Ensembles should be varied both in size and nature.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 hour

When Offered: Fall, Spring

MUS 2200 - Keyboard Musicianship

A course primarily designed for those who need to develop more advanced practical skills at the piano. Students learn to play all major and natural minor scales, harmonization using secondary chords, transposition of band parts into concert key, improvisation on specified progressions and rhythms, and sight-reading of pieces with larger range.

Prerequisites & Corequisites: Prerequisite: MUS 1210 with a grade of "C" or better, or instructor approval.

Credits: 1 hour

When Offered: Fall, Spring

MUS 2210 - Keyboard Musicianship

A continuation of MUS 2200. Course emphasis is on adding all forms of minor scales to those previously learned, sight-reading 2 parts of SATB vocal scores, hymns and simple accompaniments, playing 3-part scores, harmonizing melodies using secondary dominants, and improvising accompaniments to specified melodies and to physical movement.

Prerequisites & Corequisites: Prerequisite: MUS 2200 with a grade of "C" or better, or instructor approval.

Credits: 1 hour

When Offered: Fall, Spring

MUS 2220 - Computer Music Design

This course focuses on the design and creation of laptop-based musical instruments for real-time performance. Prior knowledge of music theory (e.g., pitch and rhythm) or computer programming (e.g., classes, data types, control structures) is not required, but both will be utilized throughout the course. Students will analyze the components, processes, and interfaces of natural acoustic instruments; designing models for simulating these kinds of musical systems on a computer; and implementing these designs using a concurrent, time-based, procedural audio programming language. This course satisfies WMU Essential Studies Level 1: Foundations - Quantitative Literacy Category.

Credits: 3 hours

MUS 2240 - Electronic Music Techniques

Students will engage in creative work in a digital audio workstation (e.g., Pro Tools, Logic). Students will learn the necessary techniques to create music in various styles. Students complete projects incorporating digital audio sampling, editing, and arranging. Students also complete projects incorporating MIDI and software instruments.

Credits: 2 hours

MUS 2330 - Italian/English Diction

A phonetic approach to the pronunciation of these languages designed for singers and choral directors. The performance of the language utilizes the vocal literature of major composers in each language.

Credits: 1 hour

Restrictions: Restricted to Music Performance: Vocal majors or by instructor approval.

MUS 2340 - French/German Diction

A phonetic approach to the pronunciation of these languages designed for singers and choral directors. The performance of the language utilizes the vocal literature of major composers in each language.

Credits: 1 hour

Restrictions: Restricted to Music Performance: Vocal majors or by instructor approval.

MUS 2350 - International Phonetic Alphabet for Singers

The class exposes students to the purposes and uses of the International Phonetic Alphabet in solo and choral singing, and all of the common symbols used in the most frequently encountered sung languages, focusing particularly on English and Latin.

Credits: 1 hour

Restrictions: The class is restricted to entering voice studio students majoring in: Music Performance: Vocal, Music Ed: Choral/General-Sec, Music Therapy.

MUS 2400 - Music for the Classroom Teacher

Designed for elementary education students without regard to previous musical training. Students are prepared to use music functionally and developmentally in the elementary classroom through singing, through playing the piano and informal instruments, and through responding to music rhythmically. Creative aspects and values of music are emphasized, and materials are studied in relation to their future uses in the classroom.

Credits: 3 hours

When Offered: Fall, Spring

MUS 2480 - Teaching and Learning in Music

This course is designed to examine theories of learning as they relate to instruction in music settings. Students will learn to write outcome statements, plan and prepare learning activities to reach those outcomes, and to evaluate and assess the process used and outcomes. Diverse classrooms and differentiated instruction, classroom management, questioning techniques, conceptual hierarchies, sequencing techniques, and lesson planning will be discussed. Students will apply classroom content in required music-based experiences in educational and community-based settings.

Prerequisites & Corequisites: Prerequisite: MUS 1800 with a grade of "C" or better.

Credits: 3 hours

MUS 2590 - Aural Skills III

A continuation of MUS 1630. This course will stress the application of aural skills specific to vocal and instrumental students' disciplines. Course material will include the study of tonicization and modulation in tonal melodies and harmonic progressions; changing meter, syncopation, and irregular divisions of the beat in simple and compound time; two-part rhythmic and melodic dictation; and continued development of sight-reading, error detection, and improvisation skills.

Prerequisites & Corequisites: Prerequisite: MUS 1630 with a grade of "C" or better.

Credits: 1 hour

When Offered: Fall, Spring

MUS 2595 - MTP Musicianship II

This class is the second in a two-part sequence of courses designed to encompass a study of basic music theory, keyboard fundamentals and aural skills to develop the singer's ability to understand music on the page and by ear and to hear music internally before it is performed aloud. Recognition of music patterns will result from the development of listening skills (dictation, error detection, musical memory) and performance skills. Restricted to majors in music theatre performance.

Prerequisites & Corequisites: Prerequisite: MUS 1595 with a grade of "C" or better or departmental examination.

Credits: 2 hours

Restrictions: Restricted to majors in music theatre performance.

MUS 2600 - Basic Music III

A continuation of MUS 1610. Study of advanced chromatic harmony and 20th century harmonic, melodic, and rhythmic concepts by means of analysis and composition assignments.

Prerequisites & Corequisites: Prerequisite: MUS 1610 with a grade of "C" or better.

Credits: 3 hours

When Offered: Fall, Spring

MUS 2610 - Basic Music IV

A continuation of MUS 2600. A study of form, process, and style in various musical periods with an emphasis on analysis of complete works.

Prerequisites & Corequisites: Prerequisite: MUS 1610 with a grade of "B" or better or MUS 2600.

Credits: 3 hours

When Offered: Spring

MUS 2620 - Composition I

Beginning work in composition, with emphasis on the development of short works utilizing small instrumental combinations. Attention is given to melodic, rhythmic and

harmonic devices. Includes in-class performance of student compositions.

Prerequisites & Corequisites: Prerequisite: MUS 2600 with a grade of "C" or better, or MUS 2600 be taken concurrently, or instructor approval by portfolio review.

Credits: 2 hours

When Offered: Fall

MUS 2630 - Composition II

A continuation of MUS 2620. Emphasis on more extensively developed works. Includes in-class performance of student compositions.

Prerequisites & Corequisites: Prerequisite: MUS 2620 with a grade of "C" or better.

Credits: 2 hours

When Offered: Spring

MUS 2640 - Jazz Composition

The fundamental aspects of composition in the jazz idiom, including harmonic progression, melodic design and rhythmic formulation. Intensive study will be made of well-known standard tunes as well as classic jazz compositions. All periods will be studied so that the student will have a well-grounded familiarity with basic compositional idioms, including the blues, standard AABA song forms, modal forms and more complicated sectional forms. All compositions created in class will be performed by class members or by the appropriate ensemble outside of class.

Prerequisites & Corequisites: Prerequisites: MUS 1605 (or instructor consent), MUS 2600 (may be taken concurrently); with a grade of "C" or better in all prerequisites.

Credits: 2 hours

MUS 2650 - Aural Skills IV

A continuation of MUS 2590 and the final course in the 4-course aural skills sequence. This course focuses on advanced aural skills practices specific to different fields of study. This is a multiple-topic course. Topics may include, but are not limited to, advanced chromatic and contemporary aural skills, aural skills for jazz, aural skills

for improvisation, and aural skills for electronic music. Additional topics may be offered based on emerging interests in the field. The course title of each section will reflect the specific topic.

Prerequisites & Corequisites: Prerequisite: MUS 2590 with a grade of "C" or better.

Credits: 1 hour

Notes: May be repeated for credit.

When Offered: Spring

MUS 2700 - Music History I

A survey of music from late Antiquity through the Baroque era.

Prerequisites & Corequisites: Prerequisite: MUS 1700 with a grade of "C" or better.

Credits: 3 hours

When Offered: Fall

MUS 2710 - Music History II

A survey of the music from the Classic, Romantic, and Twentieth-Century eras.

Prerequisites & Corequisites: Prerequisite: MUS 1700 with a grade of "C" or better.

Credits: 3 hours

When Offered: Spring

MUS 2790 - Instruments of the Band and Orchestra

Students survey the string, woodwind, brass and percussion instruments commonly used in the band and orchestra. The major aim of the course is to make the student aware of the unique sound which characterizes each instrument and how that sound is produced. In developing perception and discrimination in this regard, the student investigates such things as the acoustical properties of the instruments, the correct formation of the embouchure for the brasses and woodwinds, the techniques of bowing string instruments, and the physical attributes required to perform successfully on certain instruments. All will learn the proper techniques for playing various percussion instruments commonly used

in the classroom and will be given the opportunity to explore one or more of the brasses and woodwinds.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 hour

When Offered: Spring

MUS 2800 - Instruments of the Music Classroom

Students will survey the instruments commonly used in the music classroom. All will learn the proper techniques for playing and teaching autoharp, ukulele, recorder, dulcimer, and others. Emphasis is placed on inclusion of these instruments in the music classroom.

Prerequisites & Corequisites: Prerequisite: Acceptance into Music Education curriculum.

Credits: 1 hour

When Offered: Fall

MUS 2810 - Introduction to Music Therapy

An orientation to the discipline of music therapy via classroom lectures, video tape presentations, and clinical observations. This course should be taken following or concurrent with PSY 1000.

Credits: 1 hour

When Offered: Fall

MUS 2890 - Music Therapy Activities for Children

This class will examine labels and categorizations involved in children populations, offer instruction in social-recreational instruments, allow for a more in-depth study of appropriate music materials and activities, and allow for experience in designing and implementing music therapy treatment procedures for individuals and groups. Class time will be primarily used for instruction with some selected help times to allow for more individualized instruction. Exams will be of a written, playing, and/or presentational format.

Prerequisites & Corequisites: Prerequisites: MUS 1260

and MUS 2810, or both may be taken concurrently.

Credits: 2 hours

When Offered: Fall

MUS 2900 - Music Therapy Activities for Adults

This class will examine labels and categorizations involved in adult populations, offer instruction in social-recreational instruments (e.g., guitar, ukulele, etc.), allow for a more in-depth study of appropriate music materials and activities and allow for experience in designing and implementing music therapy treatment procedures for individualized instruction. Exams will be of a written, playing and/or presentational format.

Prerequisites & Corequisites: Prerequisites: MUS 1260 and MUS 2810, or both may be taken concurrently.

Credits: 2 hours

When Offered: Spring

MUS 2940 - Multi-track Recording

This course will teach students the steps required to successfully complete a multi-track recording and mixing project. Students will learn the signal flow of the recording console and patch bay, how to set proper levels, how to record with a multi-track recording device, how to create headphone (cue) mixes, and other tasks necessary for basic multi-track recording projects. Students must plan and execute multiple recording sessions and create a final mix of the recorded tracks.

Prerequisites & Corequisites: Prerequisite: MUS 1940 with a grade of "B" or better.

Credits: 2 hours

MUS 2950 - Music Theatre Performance Workshop I

A workshop format utilizing exercises, scene rehearsals and performances in order to develop students' performing ability in musical theatre with particular emphasis on audition techniques. Content includes sound and motion exercises, routining of a song or aria, and projection and auditioning techniques.

Prerequisites & Corequisites: Prerequisites: THEA 1420, THEA 2900, MUS 1595, MUS 2595 (may be taken concurrently), and (DANC 1200, DANC 2200 or DANC 3200) (may be taken concurrently).

Credits: 3 hours

When Offered: Spring

MUS 3000 - Applied Music

This level of applied music indicates "upper division" standing in applied music and is used to designate junior- and senior-level applied music. A maximum of four credits per semester may be earned at this level.

Credits: 1 to 4 hours

Restrictions: Restricted to majors in music.

When Offered: Fall, Spring

MUS 3120 - Explorations in World Music

An introduction to the field of ethnomusicology, this course explores the transition of "traditional" and "folk" musics into newer forms of music expression, including "popular", "cosmopolitan" and "modern" music. Through an examination of socio-cultural contexts in North America, South America, Asia, the Middle East, and Sub-Saharan Africa, students investigate the relationship of music to history, religion and philosophy.

Credits: 3 hours

MUS 3170 - Opera Workshop

A production experience in the acting, singing, accompanying, and producing of musical theatre. The class is offered each semester and culminates in the performance of an opera or operatic scenes. Open to advanced singers, pianists, and persons interested in production techniques. Admission is by personal interview with the instructor.

Credits: 1 hour

When Offered: Fall, Spring

MUS 3200 - Advanced Keyboard Musicianship

Course emphasis is on the development of sight-reading and harmonization skills, introduction to four-part, open-score reading, modal improvisation, improvisation on specified progressions, and playing by ear.

Prerequisites & Corequisites: Prerequisite: MUS 2210 with a grade of "C" or better, or instructor approval.

Credits: 1 hour

When Offered: Fall

MUS 3210 - Advanced Keyboard Musicianship II

A course designed to continue development of keyboard skills necessary for music therapists and voice majors in performance and music education. The course content will include accompanying techniques, harmonization, playing by ear, transposition, improvisation, open-score reading and sight-reading, with frequent in-class student performances.

Prerequisites & Corequisites: Prerequisite: MUS 3200 with a grade of "C" or better or instructor approval.

Credits: 1 hour

When Offered: Spring

MUS 3240 - Effects Processing and Synthesis

This course will teach students the concepts necessary to apply effects processing and synthesis in generative audio projects. Students will learn the parameters and typical applications for filters and equalization, dynamics processing, delay and delay-based effects, distortion, pitch shifting, granular processes, and processes involving Fast Fourier Transforms. Students will learn the parameters and typical applications of low frequency oscillators, additive synthesis, subtractive synthesis, wave-shaping, and modulation processes.

Prerequisites & Corequisites: Prerequisite: MUS 2240 with a grade of "C" or better.

Credits: 2 hours

MUS 3300 - Choral Conducting and Literature

The fundamentals of choral conducting are presented, including patterns and rehearsal techniques. The study and selection of literature appropriate to various levels of junior and senior high school choirs is included.

Prerequisites & Corequisites: Prerequisites: MUS 2150 with a grade of "C" or better.

Credits: 2 hours

When Offered: Fall or Spring

MUS 3310 - Instrumental Conducting and Literature

Beginning methods for homogeneous and heterogeneous groups will be used with students acting as conductor-teachers and playing secondary instruments. Literature appropriate to various levels of junior and senior high school bands and orchestras will serve as materials for conducting with students performing on major instruments.

Prerequisites & Corequisites: Prerequisite: MUS 2150 with a grade of "C" or better.

Credits: 2 hours

When Offered: Fall, Spring

MUS 3360 - General Music Methods

A study and survey of sequential musical experiences in general music classes in grades K-8. The course will include education objectives, philosophical concepts, instructional methods and materials and various innovative approaches used in the general music class. Administration and implementation of the class will be examined. The course is especially designed to acquaint the student with various teaching techniques. Each student will have an opportunity to participate in general music classes in area schools one-half day a week.

Prerequisites & Corequisites: Prerequisite: MUS 2480 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in music education.

When Offered: Fall

MUS 3390 - Choral Techniques

A course which develops the principles of vocal pedagogy, diction, and improvisation as they apply to choral settings. Study will include the development of the child's and adolescent's voice, selecting and arranging appropriate music for those voices, the problem of vocal abuse, and the rationales behind group vocal warm-up practices.

Prerequisites & Corequisites: Prerequisites: MUS 2150 with a grade of "C" or better.

Credits: 2 hours

When Offered: Fall or Spring

MUS 3400 - Choral Methods

Extensive involvement with actual teaching of choral music in public schools is a central part of this course. Various philosophies of music education, music reading programs, and choral music education will be discussed. Students will focus on the development of aesthetic behaviors and performance objectives for choral ensembles. Administrative duties needed to implement and maintain a choral program will be identified. Advanced techniques for production of musicals and madrigal dinners, and the principles involved with developing show/jazz choirs will be examined. Job seeking and professional growth will be discussed.

Prerequisites & Corequisites: Prerequisite: MUS 3360 with a "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in music education.

When Offered: Fall

MUS 3440 - Instrumental Methods I

Students will apply various learning theories, behaviorist techniques, and cognitive learning skills to the instrumental music lesson. Administrative skills needed to implement and maintain an instrumental program will be developed. Field experiences in the schools will be central to this course. Elementary and middle school literature will be reviewed and studied. While this course will primarily focus on beginning and middle school instrumental music programs, marching band techniques and arranging will also be studied.

Prerequisites & Corequisites: Prerequisite: MUS 2480 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in music education.

When Offered: Fall

MUS 3470 - Instrumental Methods II

Advanced study of the materials and methods needed for successful teaching of instrumental music in the schools. Various philosophies of music education and curriculum development will be discussed. Extensive involvement with actual teaching of bands and orchestras in public schools is a central part of this course. Students will focus on the development of aesthetic behaviors and performance objectives for middle school/junior and senior high instrumental ensembles. Specialized ensemble techniques including jazz and chamber ensemble and solo and small ensemble contest and festival preparation in band and orchestra will be discussed. Literature for the various high school level ensembles will be reviewed and studied. In addition to administration and development of various types of instrumental ensembles, students will study chamber ensemble performance utilizing secondary instruments.

Prerequisites & Corequisites: Prerequisite: MUS 3440 with a "C" or better.

Credits: 3 hours

When Offered: Spring

MUS 3500 - American Music

A survey of 20th-Century music in the United States including a comprehensive look at roots, jazz, concert, and experimental art-music styles. Influences of earlier American traditions and from other continents will be traced. The relationships between America's diverse modern music and its complex society will be explored. The course does not require any previous music experience or the ability to read music. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 4 hours

When Offered: Fall, Spring

MUS 3520 - World Music in Theory and Practice

A study of the traditional and popular musics of China, Japan, Southeast Asia, India and the Middle East, as well as music transmitted orally, such as Native American, Australian Aborigine, African, and Micronesian musics. One or several cultures will be selected for close study to examine the customs and attitudes of a people through their music.

Credits: 4 hours

When Offered: Fall, Spring

MUS 3620 - Applied Music Composition

Original work in composition through private lessons accompanied by the study and analysis of current trends and creative concepts in contemporary music.

Prerequisites & Corequisites: Prerequisite: MUS 2630 or MUS 1000 (Composition), with a grade of "C" or better.

Credits: 2 to 4 hours

Notes: May be repeated for credit.

When Offered: Fall, Spring

MUS 3800 - Psychology of Music

Physical, psychological and physiological aspects of sound and systems of tonal relationships. The effects of music on the individual and the consideration of music as a form of communication; the nature and measurement of musicality; the nature of musical memory; the underlying bases for musical taste and for aesthetic experience in music with emphasis on cultural influences.

Prerequisites & Corequisites: Prerequisite: PSY 1000

Credits: 2 hours

When Offered: Fall

MUS 3810 - Research in the Psychology of Music

Development and employment of research methods and techniques applied to the psychology of music. Experimental projects will be required in areas dealing with music and/or musical behavior.

Prerequisites & Corequisites: Prerequisite: MUS 3800 with a grade of "C" or better.

Credits: 2 hours

When Offered: Spring

MUS 3811 - Your Brain on Music

An introduction to music neuroscience which explores one of the most exciting and relevant topics in current cognitive psychology and neuroscience. The effects of music on brain and behavior functioning will be addressed through both scientific and musical frames of reference. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

When Offered: Summer

MUS 3830 - Observation and Measurement in Music Therapy

Overview of techniques of behavior measurement and accountability paired with actual clinical observations.

Prerequisites & Corequisites: Prerequisite: MUS 2810 or concurrent. Reserve time for observation.

Credits: 1 hour

When Offered: Spring

MUS 3850 - Senior Seminar in Music Education

The primary focus of this course will be on the diversity of learners and differentiated instruction in music classrooms. The seminar format will provide senior students an opportunity for analysis, synthesis, and evaluation, in relation to prior practicum or observational experiences, and contemporary learning theories. An independent project combining observation and application will be an outcome of this course.

Prerequisites & Corequisites: Prerequisite: MUS 3400 or MUS 3470; with a grade of "C" or better.

Credits: 1 hour

Restrictions: Restricted to majors in music education.

MUS 3860 - Music Technology Concepts

This course explores principles of sound synthesis and audio sequencing. Additionally, the course investigates the use of microprocessors and sensors to effect the environmental control of music performance in real time.

Credits: 2 hours

Restrictions: Restricted to majors and minors in Multimedia Arts Technology-Music.

Notes: The course fulfills the University's computer literacy requirement.

When Offered: Fall, Spring

MUS 3940 - Advanced Recording I

Advanced Recording I is the third course in the sequence of classes in audio engineering in the School of Music. Students will spend several weeks learning a professional digital audio workstation and associated hardware in depth. Students will learn mono/stereo microphone techniques, in addition to advanced application of compression, reverb, and delay. Students are required to complete two recording/mixing projects.

Prerequisites & Corequisites: Prerequisite: MUS 2940 with a grade of "C" or better.

Credits: 2 hours

MUS 4240 - Audio Programming I

Students will learn the basics of programming algorithms to create musical outcomes in an object-oriented programming language. This course will focus on programming design to trigger pre-built synthesizers and samplers and provide an introduction to digital signals.

Prerequisites & Corequisites: Prerequisite: MUS 3240 with a grade of "C" or better.

Credits: 2 hours

MUS 4500 - Music Appreciation: The Symphony

This non-major survey looks at music for symphony orchestra from the listener's point of view. It focuses on the ways that musical materials, designs, instrumentation, compositional innovations, and cultural considerations have influenced the development of various styles and types of orchestral music since the mid-1700s. Attendance is required at selected live orchestral concerts in the Kalamazoo area. This course does not require any previous music experience or the ability to read music. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category. MUS 4500 may not be elected by graduate music majors, or undergraduate music majors except those in the MAT-Music degree program.

Credits: 3 hours

When Offered: Fall, Spring

MUS 4720 - Clinical Practicum in Music Therapy I

A practicum course to provide an opportunity for the music therapy student to apply music therapy principles with assigned individual/group clientele in the Music Therapy Clinic and/or affiliated community agencies. Students will develop and expand basic clinical foundations.

Prerequisites & Corequisites: Prerequisites: MUS 2810, MUS 2890, MUS 2900, and MUS 3830 with a grade of "C" or better. Reserve time for clinical participation.

Credits: 2 hours

When Offered: Fall, Spring, Summer

MUS 4730 - Clinical Practicum in Music Therapy II

A continuation of MUS 4720.

Prerequisites & Corequisites: Prerequisite: MUS 4720. Reserve time for clinical participation.

Credits: 2 hours

When Offered: Fall, Spring

MUS 4790 - Influence of Music on Behavior

Justification for the use of music to change human behaviors through analysis of historical evidence,

theoretical assumptions, and published research. Description of the therapeutic process with the intervention of music from assessment to community transfer.

Prerequisites & Corequisites: Prerequisite: MUS 4720. Reserve time for clinical participation. Liability insurance required.

Credits: 3 hours

When Offered: Fall

MUS 4800 - Music Therapy Methods and Materials

Study of phenomenological, cognitive, and behavioral orientation to treatment as applied to the music therapy setting. Review of contemporary issues affecting the clinical practice of music therapy.

Prerequisites & Corequisites: Prerequisite: MUS 4720. Reserve time for clinical participation. Liability insurance required.

Credits: 3 hours

When Offered: Spring

MUS 4810 - Music Therapy Internship

A music therapy internship involving in-depth, supervised clinical training at the professional level. The internship must be at an approved facility and consist of a minimum of 900 training hours. This is required by the American Music Therapy Association for board-certification as a music therapist. Students enrolled in this course will be classified as having full-time student status for the purpose of international student visas, loan deferments, and insurance eligibility.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 2 hours

Restrictions: This course is restricted to the following majors: Music Therapy (MUYJ) and Music Therapy (MUYM).

Notes: May be repeated for credit.

When Offered: Fall, Spring, Summer I, Summer II (Summer sessions when appropriate for financial aid)

MUS 4900 - Undergraduate Workshop in Special Problems

Designed for students interested in some special field of music not formally listed for instruction. All special problems must be approved by the Director of the School of Music, but may be under the direct guidance of any member of the Music faculty.

Credits: 1 to 3 hours

Notes: This course may be elected as many as three times.
When Offered: Fall, Spring

MUS 4940 - Advanced Recording II

Advanced Recording II is the fourth course in the sequence of audio engineering classes in the School of Music. The goal of the course is for students to learn how to combine their technical knowledge with assessments of client's goals and budgets, session planning, set-ups, etc., in order to deliver professional quality recording services. Students will also learn how to properly synchronize multiple audio recorders and how to appropriately prepare mixes for mastering or replication. Close listening skills will also be developed through demonstrations of microphone and pre-amp selection. Students are required to complete two recording projects.

Prerequisites & Corequisites: Prerequisite: MUS 3940 with a grade of "C" or better.

Credits: 2 hours

MUS 5000 - Applied Music

Private lessons for the graduate student in a non-major area of performance.

Credits: 1 - 2 hours

Restrictions: This course is restricted to graduate Music majors.

When Offered: Fall, Spring

MUS 5100 - Graduate Bands

The Graduate Bands are made up of outstanding graduate musicians who embrace the challenge of performing the finest in wind band literature and transcriptions in a variety of concert settings.

Credits: 1 hour

Notes: Membership by audition. Open to graduate students only.

MUS 5110 - University Orchestra

The orchestra is open to all students who have had a reasonable amount of orchestral experience. Many fine compositions are studied and played during the year, and the orchestra joins with other campus organizations in joint programs. Instruments are available for the use of students.

Credits: 1 hour

Notes: Membership is by audition. Open to upper level and graduate students.

When Offered: Fall, Spring

MUS 5120 - University Chorale

An advanced choral ensemble which maintains a very active performance schedule on campus and in the community as well as throughout Michigan and surrounding states.

Credits: 1 hour

Notes: Membership by audition. Open to upper level and graduate students.

When Offered: Fall, Spring

MUS 5130 - Jazz Orchestra

The University Jazz Orchestra is a select ensemble which affords students the opportunity to perform outstanding literature in contemporary and traditional big band jazz. Special consideration is given to the rehearsal and performance of student compositions and arrangements. The ensemble performs regularly on and off campus.

Credits: 1 hour

Notes: Membership is by audition. Open to upper level and graduate students.

When Offered: Fall, Spring

MUS 5140 - Instrumental Chamber Music

Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of

combinations, i.e., string quartets, woodwind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be granted only if a sufficient rehearsal/performance schedule warrants.

Credits: 1 hour

Notes: Open to upper level and graduate students.

MUS 5150 - Advanced Jazz Combo

The Advanced Jazz Combo is a select ensemble that affords students the opportunity to perform literature that is arranged and composed by ensemble members. Arranging, composition and improvisation skills are required. Frequent performances and touring are expected.

Credits: 1 hour

Notes: Audition required. Open to upper level and graduate students.

MUS 5160 - Music Theatre Practicum

A production experience in music theatre. Each semester culminates in an opera or musical comedy production. Open to singers, actors, accompanists, instrumentalists, and persons interested in production techniques. Admission by audition or permission of the instructor. May be repeated for credit.

Credits: 1 hour

Notes: Open to upper level and graduate students.

MUS 5170 - Collegium Musicum

Performance of early Western music. Open to all students of the University. Additional transcription, arranging, editing and conducting of early music is required of Music History majors.

Credits: 1 hour

Restrictions: Graduate students may count not more than two hours of this course for graduation.

Notes: Membership by audition. Open to upper level and graduate students.

When Offered: Fall, Spring

MUS 5190 - Gold Company

A select ensemble which specializes in Jazz Show Vocal Entertainment. Specialty acts and choreography are included. A small instrumental ensemble accompanies the group. A very active performance schedule is maintained on campus, in the community, in Michigan and out-of-state.

Credits: 1 hour

Notes: Membership is open to all University students by audition. Open to upper level and graduate students.

When Offered: Fall, Spring

MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra

KLOrk is a live performing ensemble using laptops and mobile devices as musical instruments. The course activities include the creation, rehearsal, and performance of original musical compositions and multimedia works.

Prerequisites & Corequisites: Prerequisite: MUS 2220 or instructor approval.

Credits: 1 hour

Notes: May be repeated for credit. Open to upper level and graduate students.

MUS 5240 - Audio Programming II

Students in this course will learn how to program and control synthesizers and effect processing units in an object-oriented programming language. This course will also provide an introduction to programming for visual projects.

Prerequisites & Corequisites: Prerequisite: MUS 4240 with a grade of "C" or better.

Credits: 2 hours

Notes: Open to upper level and graduate students.

When Offered: Spring

MUS 5300 - Advanced Choral Conducting

Supervised experience in conducting vocal ensembles. The student may be called upon to prepare an ensemble for public performance.

Prerequisites & Corequisites: Prerequisite: Audition

required.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5310 - Advanced Instrumental Conducting

Supervised experience in conducting instrumental groups. The student may be called upon to prepare an ensemble for public performance.

Prerequisites & Corequisites: Prerequisite: Audition required.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5550 - Jazz Arranging

Jazz Arranging is a study of the art of arranging for the jazz ensemble-both traditional and contemporary. The course will undertake a detailed study of instrument ranges, transpositions and sound potential, and will cover voicings, scoring practices, calligraphy and contemporary trends within the medium.

Prerequisites & Corequisites: Prerequisites: MUS 1605 (or instructor approval) and MUS 1610, with a grade of "C" or better required in each course.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5560 - Advanced Jazz Arranging

A study and application of the art of arranging for the jazz ensemble, studio orchestra, and show orchestra. The course will undertake a detailed study of scoring for winds, brass, strings, voices and percussion in relation to traditional and contemporary trends within the medium.

Prerequisites & Corequisites: Prerequisites: MUS 5550 and MUS 2640 or concurrently.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5580 - Jazz Improvisation I

A study and directed application of the fundamentals of jazz improvisation including basic chord and scale construction and recognition, harmonic function, chord-scale relationships and basic blues and popular song forms. All students will be required to develop aural and performance skills relative to those theory skills.

Prerequisites & Corequisites: Prerequisites: MUS 1605 (or instructor approval) and MUS 1610, with a grade of "C" or better needed in each class.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5590 - Jazz Improvisation II

A study and directed application of advanced techniques of jazz improvisation including chord extension, voicing, inversions and substitutions, chord function and progressions and complex scales and their applications. All students will be required to develop aural and performance skills relative to those theory skills.

Prerequisites & Corequisites: Prerequisites: MUS 5580 and MUS 2180 Jazz Ensemble or concurrently.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5600 - Counterpoint

A study of the contrapuntal techniques of the 18th, 19th and 20th centuries. Written assignments are closely correlated with the contrapuntal styles of significant composers.

Prerequisites & Corequisites: Prerequisite: MUS 1610 with grade of "C" or better.

Credits: 2 hours

Notes: Open to upper level and graduate students.

When Offered: Fall, Spring

MUS 5620 - Advanced Compositional Topics

This course will cover advanced techniques used by composers. Topics will vary and will be announced when

the course is offered.

Prerequisites & Corequisites: Prerequisite: Permission of instructor.

Credits: 2 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

MUS 5640 - Seminar in Electronic Music Composition

Students will create original music compositions or other generative art works involving digital media. This variable topic seminar will rotate between subjects which include effects processing and synthesis, interactive performance systems, and electronic music for multimedia projects. The instructor and enrolled students will meet weekly in order to examine electronic music techniques, discuss works in-progress, and present works related to relevant technical and aesthetic concepts.

Prerequisites & Corequisites: Prerequisite: MUS 2240 or instructor approval.

Credits: 2 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

When Offered: Fall, Spring

MUS 5645 - Audio for Video

Audio for Video focuses on generative and sound design projects for video games, film, other commercial projects, installation art, and sonic art. Aesthetic, conceptual, and technological topics in relationship to creating such projects will be discussed at the beginning of the semester. The remainder of the semester will focus on facilitating and discussing student projects.

Prerequisites & Corequisites: Prerequisites: MUS 1950 and MUS 2240, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Notes: Open to upper level and graduate students.

MUS 5650 - Topics in Music Theory

Advanced study of a specialized topic in music theory. Topics will vary as announced each semester and might include analytical methods, theory pedagogy, technological applications, musical genres, or composer studies.

Prerequisites & Corequisites: Prerequisite: MUS 2610, MUS 2650 and MUS 2710 with a grade of "C" or better in all prerequisites. Instructor approval required for non-music majors.

Credits: 2 to 3 hours

Notes: This course may be repeated for credit with different topics. Open to upper level and graduate students.

MUS 5655 - Special Topics in Multimedia Arts Technology

A variable topic course focusing on more advanced topics relevant to the intersections between the arts and technology. Potential topics include: Business aspects of being an independent generative artist, working in the video game industry, working in the film industry, and working in the recording industry; aesthetic, historic, theoretical, and conceptual issues surrounding art and technology; advanced concepts of acoustics, sound reinforcement, and specialized recording projects, such as recording a large acoustic ensemble. Specific, relevant technological topics can be covered in this course as needed; examples could include computer programming for audiovisual art (Processing/Jitter), sensors and parametric mapping for multimedia projects, and advanced video filters and audio effect processing for audiovisual art (AfterEffects).

Prerequisites & Corequisites: Prerequisites: MUS 1940, MUS 1945, MUS 1950, MUS 2220, and MUS 2240; with a grade of "C" or better in all prerequisites; or instructor approval.

Credits: 2 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

MUS 5670 - Orchestration

A study of the characteristics of instruments, and of arranging for the various individual choirs, for combinations of choirs, and for full orchestra.

Prerequisites & Corequisites: Prerequisite: MUS 2610.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5678 - MAT Capstone Project

The MAT capstone project is designed and completed by students with faculty oversight. The capstone project is an outgrowth of the candidate's course work and must be approved by the MAT faculty. The project will constitute a significant demonstration of skills with and application of multimedia arts technology. Projects will reflect each student's technology and artistic focus. The capstone project will provide the student with significant artifacts as part of their portfolio for potential employers or graduate school. Students will register for 2 credit hours each semester during their final year and are required to give a twenty-minute public presentation of the project.

Prerequisites & Corequisites: Prerequisites: Junior standing, MUS 1945, MUS 1950, MUS 2240, MUS 4240, MUS 4940, and MUS 5645; with a grade of "C" or better in all prerequisites. Mus 4240, MUS 4940, and MUS 5645 may be taken concurrently.

Credits: 2 hours

Restrictions: Restricted to majors in Multimedia Arts Technology - Music.

Notes: May be repeated for credit. Not open to graduate students.

MUS 5680 - Orchestration

A continuation of MUS 5670.

Prerequisites & Corequisites: Prerequisite: MUS 5670.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5720 - Baroque Music (1600-1750)

A survey of the choral and instrumental music of the Baroque masters such as J.S. Bach and G.F. Handel. Special attention to the development of style from monody through harmonic polyphony.

Prerequisites & Corequisites: Prerequisites: MUS 2700 and MUS 2710.

Credits: 3 hours

Notes: Open to upper level and graduate students.

MUS 5730 - Classical Music (1750-1800)

Examination of the chief works of Mozart and Haydn, with intensive study of symphonic form and the development of the classic opera.

Prerequisites & Corequisites: Prerequisites: MUS 2700 and MUS 2710.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5790 - Operatic Literature

A survey of opera from 1600 to the present.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5800 - Solo Literature

Solo literature for a specific medium (voice, piano, violin, etc.) will be studied from a theoretical, historical, and performance point of view. Topics to be announced. May be repeated for credit.

Prerequisites & Corequisites: Prerequisites: MUS 2700 and MUS 2710.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5810 - Choral Music Literature

A survey of choral music (mass, motet, anthem, cantata, oratorio) from the Renaissance through the Romantic period.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5820 - Wind Music Literature

A survey of windband ensembles and literature from the Renaissance period through the twentieth century.

Prerequisites & Corequisites: Prerequisites: MUS 2700 and MUS 2710.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5830 - Jazz History and Literature

A survey of the history of jazz including aspects of sociology and history as they relate to the art form of jazz. All periods in jazz history, from its earliest roots in Africa and the slave culture in the United States, up through the blues, dixieland, swing, bop, mainstream and the more eclectic period of jazz rock and free-form jazz will be explored. Important works will be examined from each period in order to grasp the essentials of a particular style.

Prerequisites & Corequisites: Prerequisite: MUS 5580 or department's consent.

Credits: 3 hours

Notes: Open to upper level and graduate students.

MUS 5840 - Topics in Musicology and Ethnomusicology

A study of the music of various people, places, eras, and/or events. Attention will focus on the current research methodology in the disciplines of musicology and ethnomusicology and may draw upon related fields (e.g., anthropology, theatre, cultural studies, women's studies, etc.). Topics will vary each semester and could include studies of world music and cultures, performance traditions, historical repertoires, musicians, gender roles, political and sociological structures.

Prerequisites & Corequisites: Prerequisite: MUS 2700 and MUS 2710 with grades of "C" or better, or instructor approval for non-majors.

Credits: 2 to 3 hours

Notes: May be repeated for credit with different topics. Open to upper level and graduate students.

MUS 5850 - Medieval Music

A survey of music in Western Europe from the end of Antiquity to the early fifteenth century. The major developments in style, theory, and notation will be explored within the context of the general cultural and political environment of the era. Problems of performance practice will receive special attention with emphasis on primary manuscript sources and scholarly performing editions.

Prerequisites & Corequisites: Prerequisites: MUS 2700 and MUS 2710.

Credits: 2 hours

Notes: Open to upper level and graduate students.

MUS 5870 - Contemporary Music

A survey of trends in European music and music of the Americans from about 1910 to the present day.

Credits: 3 hours

Notes: Open to upper level and graduate students.

MUS 5885 - Global Music Cultures

"World music" has alternately been used to describe the diversity of global music cultures; traditional musics of non-Western cultures; and commercial recordings of popular musics from around the globe. In this course, we will interrogate these definitions and the term's use from both a historical and contemporary perspective. This course will also serve as an introduction to the main music academic discipline related to studying global music cultures: ethnomusicology.

Prerequisites & Corequisites: Prerequisite: Junior standing.

Credits: 3 hours

Restrictions: Restricted to majors in Music, Bachelor of Musical Arts, Multi media Arts Technology - Music, Music Composition, Music Education major: Choral/General Emphasis, Music Education major: Instrumental Emphasis, Music Performance: Instrumental, Music Performance: Jazz Studies, Music Performance: Keyboard, Music Performance: Vocal, Music Therapy, and minors in Music.

Notes: Repeatable for credit. Open to upper level and graduate students.

MUS 5900 - Studies in Pedagogy

Topics to be announced. Selection will be made from the following: Keyboard Pedagogy, Vocal Pedagogy, String Pedagogy, Brass Pedagogy, Woodwind Pedagogy, Pedagogy of Teaching Theory, or similar topics. May be repeated for credit.

Prerequisites & Corequisites: Prerequisite: MUS 3000-level applied music or permission of instructor.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students.

MUS 5950 - Workshops in Music Education

Intensive, short term courses that address the instructional and pedagogical issues found in today's schools, as well as issues of specific concern for current teachers in the field of music. Topics will be from all areas of music education.

Prerequisites & Corequisites: Prerequisite: advisor's consent.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students.

MUS 5965 - Sound Reinforcement Practicum

Provides students hands-on experience with audio system setup (e.g., microphones, speakers, mixers), control, and live sound reinforcement at School of Music and/or other events.

Prerequisites & Corequisites: Prerequisite: MUS 1945 with a grade of "C" or better.

Credits: 2 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

MUS 5970 - Projects in Music

A program of independent study to provide the unusually qualified music student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the School of Music. The initiative for planning the project must come from the student and must be approved by the faculty member proposed to supervise the study.

Prerequisites & Corequisites: Prerequisite: Application approved by music advisor.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students.

When Offered: Fall, Spring

MUS 5990 - Projects in Recording Technology

An independent study allowing the unusually qualified student the opportunity to explore a topic or problem in recording technology.

Prerequisites & Corequisites: Prerequisite: MUS 4940 with a grade of "C" or better.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students.

When Offered: Fall, Spring

MUS 5995 - Special Topics in Music

Study of a specialized music or music-related topic. Examples could include topics in performance practice, entrepreneurship and multimedia production; thematic topics which are linked to special musical events or combine multiple sub-disciplines in music (e.g., history and theory); and interdisciplinary studies (e.g., music and communication, music and computer science, music and health sciences, etc.). Topics will vary and be announced each semester offered.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit with different topic or by instructor approval. Open to upper level and graduate students.

Nursing

NUR 2200 - Foundations of Nursing and Critical Thinking

This course socializes students to the profession of nursing. Theoretical foundations of the nursing process and critical

thinking are introduced.

Prerequisites & Corequisites: Prerequisite: BIOS 2320 (may be taken concurrently). Co-requisites: NUR 2210 and NUR 2220.

Credits: 3 hours

Restrictions: Restricted to majors in Nursing.

NUR 2210 - Nursing Therapeutics I

This course will introduce the beginning nursing student to principles and languages of common nursing interventions and actions in the care of the individual in a modularized format. Communication in nursing with written, oral, and therapeutic components, as well as use of nursing medical terminology will be covered.

Prerequisites & Corequisites: Prerequisite: BIOS 2320 (may be taken concurrently). Co-requisites: NUR 2200 and NUR 2220.

Credits: 5 hours

Restrictions: Restricted to majors in Nursing.

NUR 2220 - Health Assessment Throughout the Lifespan

This course introduces the nursing student to the concepts and skills related to health assessment. The course is designed to provide the student with an overview of the knowledge and skills needed to assess the health status of the individual throughout the lifespan. Practice experience will provide students the opportunity for skill acquisition in history taking, assessment and documentation of assessment findings, focused on the adult client. Expected level of proficiency upon completion is basic competency in assessment of healthy adults.

Prerequisites & Corequisites: Prerequisite: BIOS 2320 (may be taken concurrently). Co-requisites: NUR 2200 and NUR 2210.

Credits: 3 hours

Restrictions: Restricted to majors in Nursing.

NUR 2300 - Concepts of Health and Wellness in Nursing Practice

This course focuses on the foundations critical to working with clients in all settings. Students will learn the nurse's role in promoting health and preventing illness. Students will be introduced to basic epidemiology concepts and bio-statistical data as they begin to understand how the social context, culture, and demographics affect health and illness patterns.

Prerequisites & Corequisites: Prerequisites: NUR 2200, NUR 2210, NUR 2220, BIOS 2320, and NUR 3350 (NUR 3350 may be taken concurrently). Co-requisite: NUR 2310.

Credits: 4 hours

Restrictions: Restricted to majors in Nursing.

NUR 2310 - Nursing Care of the Older Adult

This course focuses on the care of the older adult. The course will provide students with content on the physical, mental, emotional, spiritual, and cultural needs of that population. Variations in the roles and abilities of older adults in the various stages of aging will be explored.

Prerequisites & Corequisites: Prerequisites: NUR 2200, NUR 2210, NUR 2220, BIOS 2320, and NUR 3350 (NUR 3350 may be taken concurrently). Co-requisite: NUR 2300.

Credits: 4 hours

Restrictions: Restricted to majors in Nursing.

NUR 2350 - Special Topics in Nursing

Emerging trends and issues in nursing are a reflection of the health care environment as it evolves. Each semester this course will focus on one of these issues or trends.

Credits: 1 to 4 hours

Notes: May be repeated for credit.

NUR 3060 - Nurses' Role in Facilitating Health and Self-Care I

This course credit is given in recognition of prior learning and successful passage of the NCLEX exam.

Prerequisites & Corequisites: Prerequisite: NUR 3400 with a grade of "C" or better.

Credits: 15 hours

Restrictions: Restricted to majors in Nursing.

NUR 3070 - Nurses' Role in Facilitating Health and Self-Care II

This course credit is given in recognition of prior learning and successful passage of the NCLEX exam.

Prerequisites & Corequisites: Prerequisite: NUR 3400 with a grade of "C" or better.

Credits: 15 hours

Restrictions: Restricted to majors in Nursing.

NUR 3200 - Nursing Care of the Childbearing Family

The concepts of health promotion and wellness are applied to childbearing families. This course focuses on nursing care of the childbearing family, which includes: reproductive health and health and wellness during the childbearing cycle.

Prerequisites & Corequisites: Prerequisites: NUR 2300, NUR 2310, NUR 3350, and STAT 3660 (may be taken concurrently). Co-requisite: NUR 3210.

Credits: 5 hours

Restrictions: Restricted to majors in Nursing.

NUR 3210 - Nursing Care of Children and Families

This course examines health promotion and wellness in children and adolescents as well as common childhood disease states. The effects of these conditions will be examined in the context of the family.

Prerequisites & Corequisites: Prerequisites: NUR 2300, NUR 2310, NUR 3350, and STAT 3660 (may be taken concurrently). Co-requisite: NUR 3200.

Credits: 5 hours

Restrictions: Restricted to majors in Nursing.

NUR 3220 - Health Care Ethics

This course is a didactic course that introduces students to principles and issues underlying and surrounding health care ethics. Content includes basic ethical theories, values, moral development, moral reasoning, and day-to-day ethical concerns. These concerns include, but are not limited to: genetics, end-of-life care and decision-making, moral reasoning, moral principles, research ethics, the interface between law and ethics, patient decision-making, rights, duties and obligations of the professional nurse and other health workers, professional codes and standards, and allocation of scarce resources. The course offers the learner an opportunity to develop, implement, and evaluate a variety of approaches to ethical concerns in the 21st century.

Prerequisites & Corequisites: Prerequisite: Minimum of 45 credit hours completed with a minimum grade of "C" in all courses.

Credits: 3 hours

NUR 3300 - Nursing Therapeutics II

This course addresses advanced concepts in nursing therapeutics and their application to the care of individuals with alterations in health status. Content includes advanced therapeutic nursing interventions including complementary modalities.

Prerequisites & Corequisites: Prerequisites: NUR 3200, NUR 3210, NUR 3220 (NUR 3220 may be taken concurrently), and STAT 3660. Co-requisites: NUR 3310 and NUR 3320.

Credits: 2 hours

Restrictions: Restricted to majors in Nursing.

NUR 3310 - Care of Adults with Alterations in Health Status

This course is an introduction to nursing care of adults with a focus on common health conditions within a culturally diverse global and societal context. Concepts of nutrition, pharmacology, and pathophysiology as they relate to these conditions are discussed. Holistic nursing interventions and relationship-based care are included.

Prerequisites & Corequisites: Prerequisites: NUR 3200, NUR 3210, NUR 3220 (NUR 3220 may be taken concurrently), and STAT 3660. Co-requisite: NUR 3320.

Credits: 6 hours

Restrictions: Restricted to majors in Nursing.

NUR 3320 - Nursing Research

This course is designed to provide a foundation for the use of research findings as a basis for practice. The course focuses on nursing research as it relates to the theoretical foundations of the discipline of nursing and to the development of a scientific basis for nursing practice. It prepares the learner to understand the language of science and the processes of scholarly inquiry. It also prepares the learner to read, interpret and evaluate selected nursing studies and appropriately determine the clinical relevance of study findings and their implications for practice. The primary goals of the course are to explore the impact of research upon the profession of nursing, and to examine the research process as it relates to the practice of nursing.

Prerequisites & Corequisites: Prerequisites: NUR 3200, NUR 3210, NUR 3220 and STAT 3660 (NUR 3220 may be taken concurrently). Co-requisites: NUR 3300 and NUR 3310.

Credits: 3 hours

Restrictions: Restricted to majors in Nursing.

NUR 3330 - Health Informatics

This course is designed to familiarize the undergraduate student with the present and potential impact of information and its systems on the allied health disciplines. Additionally, this course will explore informatics processes, tools, and systems in terms of providing solutions to health care stakeholders in education and practice. An emphasis is placed upon the student's role as a leader and advocate for change in this rapidly emerging field.

Prerequisites & Corequisites: Prerequisites: Minimum of 42 credit hours completed with a grade of "C" or better in all courses; and (CIS 1020 or CIS 1100 or CS 1000 or FCS 2250) with a grade of "C" or better, or permission of instructor.

Credits: 3 hours

NUR 3350 - Pharmacotherapeutics in Nursing

The course introduces the student to essentials of pharmacology including drug classifications, actions/interactions, purposes, dosages, and responses. Emphasis will be on application of therapeutic principles to clinical situations across the lifespan using evidence-based guidelines.

Prerequisites & Corequisites: Prerequisites: NUR 2200, NUR 2210, and NUR 2220; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Nursing.

Notes: May be repeated for credit.

NUR 3400 - Transition to Professional Nursing

This transition course introduces the associate degree or diploma nurse to Professional Practice. Theoretical foundations, concepts of evidence-based practice and critical thinking are introduced and applied.

Prerequisites & Corequisites: Prerequisite: Current Registered Nurse license in the state of Michigan and college level writing.

Credits: 3 hours

Restrictions: Restricted to majors in Nursing: RN-BSN Program.

NUR 3420 - Health Assessment Throughout the Lifespan-RN

Introduces the nursing student to the concepts and skills related to health assessment. The course is designed to provide the student with an overview of the knowledge and skills needed to assess the health status of the individual from infancy through old age. Emphasis is placed on the assessment of physical, developmental, psychosocial, cultural, and spiritual dimensions of the individual. Emphasis is also placed on assessing the functional abilities of an individual and distinguishing normal from abnormal findings. The practice experience will provide students the opportunity for skill acquisition in history-taking, assessment, and documentation of assessment findings, focused on the adult client. An overview of the variation of assessment skills related to the mother-to-be, newborn, child, and elderly will be discussed. The expected level of

proficiency is basic competency in assessment of the healthy adult.

Prerequisites & Corequisites: Prerequisite: Admission to the RN-BSN program.

Credits: 3 hours

NUR 3430 - Nursing Research-RN

This course is designed to provide a foundation for the use of research findings as a basis for nursing practice. The course focuses on nursing research as it relates to the theoretical foundations of the discipline of nursing and the development of a scientific basis for nursing practice. It prepares the learner to understand the language of science and the processes of scholarly inquiry. It also prepares the learner to read, interpret and evaluate selected nursing studies and appropriately determine the clinical (nursing) relevance of study findings and their implications for practice. The primary goals of the course are to explore the impact of research upon the profession of nursing, and to examine the research process as it relates to the practice of nursing.

Prerequisites & Corequisites: Prerequisites: STAT 3660, NUR 3330, NUR 3400, and NUR 3420; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Nursing: RN-BSN Program.

NUR 3550 - Perspectives in Women's Health

This course will provide a socio-cultural perspective on concepts and issues in women's individual and aggregate health. Course will include definitions of women's health, women's health concerns, and the influence of cultural, social, historical, and medical factors on women's health. Students will be introduced to the concepts of inter-relationship and translational research.

Credits: 3 hours

NUR 4200 - Psychiatric-Mental Health Nursing

This course focuses on the care of patients and families who experience acute and chronic psychiatric disorders. Emphasis is placed on promoting caring relationships and

respect for patients' dignity, integrity, and self-determination. Opportunities to participate in collaborative relationships between patients, families and health care team members will be provided.

Prerequisites & Corequisites: Prerequisites: NUR 3300, NUR 3310, and NUR 3320. Co-requisite: NUR 4210.

Credits: 5 hours

Restrictions: Restricted to majors in Nursing.

NUR 4210 - Nursing Care of Patients with Complex Conditions

This course examines the nursing care needs of adult patients and families with complex or critical conditions. Advanced assessment skills and evidence-based therapies will be applied and evaluated in a clinical setting.

Prerequisites & Corequisites: Prerequisites: NUR 3300, NUR 3310, and NUR 3320. Co-requisite: NUR 4200.

Credits: 6 hours

Restrictions: Restricted to majors in Nursing.

NUR 4300 - Special Topics in Nursing

Emerging trends and issues in nursing are a reflection of the health care environment as it evolves. Each semester this course will focus on one of these issues or trends.

Prerequisites & Corequisites: Prerequisite: Admission to the Professional Nursing curriculum.

Credits: 1 to 6 hours

Restrictions: Restricted to majors in Nursing: RN-BSN Program.

Notes: May be repeated for credit.

NUR 4310 - Community Based Nursing

This course focuses on nursing roles and interventions for vulnerable populations emphasizing primary, secondary and tertiary levels of prevention. Students will examine determinants of health, apply theories of health behavior change, and evaluate outcomes of care for a vulnerable population. Health policies and health economics and their effects on the delivery of health services will be discussed

from a local to global perspective. Nursing practice takes place in a variety of community settings.

Prerequisites & Corequisites: Prerequisites: NUR 4200 and NUR 4210. Co-requisite: NUR 4320.

Credits: 6 hours

Restrictions: Restricted to majors in Nursing.

NUR 4320 - Nursing Leadership & Management

This course introduces the leadership roles and management functions expected of a beginning professional nurse with an emphasis on patient safety and quality improvement.

Prerequisites & Corequisites: Prerequisites: NUR 4200 and NUR 4210. Co-requisite: NUR 4310.

Credits: 6 hours

Restrictions: Restricted to majors in Nursing.

NUR 4330 - Population Based Nursing-RN

This course focuses on nursing roles and interventions for vulnerable populations emphasizing primary, secondary, and tertiary levels of prevention. Students will examine determinants of health, apply theories of health behaviors change, and evaluate outcomes of care for a vulnerable population. Health policies and health economics and their effects on the delivery of health services will be discussed from local to global perspective. Nursing practice takes place in a variety of community settings.

Prerequisites & Corequisites: Prerequisite: NUR 3430 with a grade of "C" or better.

Credits: 6 hours

Restrictions: Restricted to majors in Nursing: RN-BSN Program.

NUR 4340 - Nursing Leadership and Management-RN

This course introduces the leadership roles and management functions expected of a professional nurse with an emphasis on patient safety and quality improvement. Students will submit a clinical project

applying the course content to a patient care setting.

Prerequisites & Corequisites: Prerequisite: NUR 3430 with a grade of "C" or better.

Credits: 6 hours

Restrictions: Restricted to majors in Nursing: RN-BSN Program.

NUR 5010 - Advanced Pathophysiology

This course focuses on pathophysiological processes across the lifespan and the development of clinical reasoning skills that distinguish the relationship between normal physiology and specific system alterations produced by injury and disease. Particular attention will be given to etiology, pathogenesis, and clinical manifestations of major health problems, taking into consideration developmental and environmental influences.

Prerequisites & Corequisites: Prerequisite: Students outside of nursing must secure instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors or master's in Nursing.

Notes: Open to upper level and graduate students.

NUR 5020 - Advanced Physical Assessment

This course focuses on the study of advanced clinical assessment and reasoning skills through the lifespan with emphasis on differentiating normal from abnormal findings in the domains of physical, psychosocial, behavioral, and genetic assessments. Students will practice age-appropriate developmental screening and deliver anticipatory guidance for health promotion and management in illness and disease prevention. Students refine and strengthen increasingly complex skills in listening, history taking, screening, documentation, and clinical reasoning. It is expected that students will provide fair, inclusive, and respectful treatment of all people, while self-monitoring for personal biases and stereotypes. Included in the course is at least 35 hours of clinical practice using an online interactive program.

Credits: 3 hours

Restrictions: Restricted to majors or master's in Nursing.

Notes: Open to upper level and graduate students.

NUR 5030 - Advanced Pharmacology

This course focuses on clinical uses and application of advanced pharmacology and pharmacotherapeutics for common disease conditions encountered across the lifespan and different care settings. Pharmacological mechanisms, drug interactions, side effects and contraindications are presented as a basis for clinical judgment and management of patients. Principles of altered pharmacodynamics relative to age, race, and ethnic groups are covered. Cost/benefit and legal aspects of pharmacological interventions are addressed.

Prerequisites & Corequisites: Prerequisite: Students outside of nursing must secure instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors or Master's in Nursing.

Notes: Open to upper level and graduate students.

NUR 5300 - Theoretical Foundations of Nursing Practice

This course focuses on the theoretical foundations of nursing practice. The relationship of nursing practice and relevant theories is considered within historical and social context. Students will develop the foundation of a personal philosophy of nursing and health care.

Prerequisites & Corequisites: Prerequisites: Admission to the Master of Science in Nursing program or instructor approval.

Credits: 3 hours

Notes: Open to graduate students only.

Occupational Therapy

OT 2000 - Human Functional Anatomy

This course involves a detailed study of the human neuro-musculo-skeletal anatomy of the head, neck, upper limbs, back, and lower limbs. Students will apply anatomical principles to analyze common physical activities which will include analyzing individual functional performance.

Prerequisites & Corequisites: Corequisite: OT 2010

Credits: 3 hours

OT 2010 - Human Functional Anatomy Lab

This course is a companion lab for OT 2000.

Prerequisites & Corequisites: Corequisite: OT 2000.

Credits: 1 hour

OT 2020 - Orientation to Occupational Therapy

This course is an orientation to the profession of occupational therapy. The course will include the history of the profession, current professional roles, issues and trends in the field.

Credits: 3 hours

OT 3360 - Independent Practicum

Participation in a health service or agency to provide experience with hospital procedure and an orientation to patient groups. A daily log is required. Student must submit a proposal for the course for departmental approval prior to registration.

Prerequisites & Corequisites: Prerequisite: OCTJ or OCTM.

Credits: 2 hours

OT 3700 - Occupational Therapy Process in Physical Dysfunction

Practice in selection, analysis, and intervention using occupations and therapeutic strategies appropriate to persons with physical disabilities. Selected knowledge bases, frames of reference, and practice models related to human occupations, occupational performance, and occupational adaptation in the human system and related contexts of age, life role, disability, and environment will be emphasized.

Prerequisites & Corequisites: Corequisites: OT 3740 and OT 3750 and OT 3760.

Credits: 3 hours

OT 3740 - Conditions in Occupational Therapy

This course will introduce issues in health and illness, as well as pathologic processes and their impact on the total individual. Selected conditions related to the following pathologic processes will be discussed: developmental, traumatic, degenerative, infectious, neoplastic, immunologic, metabolic, psychiatric, and circulatory/respiratory.

Prerequisites & Corequisites: Prerequisite: Admission to the professional Occupational Therapy program or instructor approval.

Credits: 3 hours

OT 3750 - Applied Neurology

An applied study of human neurologic function. Emphasis will be placed on the development of normal occupational performance and the conditions that affect occupation.

Prerequisites & Corequisites: Corequisites: OT 3700 and OT 3740 and OT 3760.

Credits: 4 hours

Notes: May be repeated for credit.

OT 3760 - Functional Assessment

This course develops competence in the use of professional assessments which measures the performance components that underlay human function, including neuro-muscular, neuro-motor, sensori-motor, and cognitive function.

Prerequisites & Corequisites: Corequisites: OT 3700 and OT 3740 and OT 3750.

Credits: 3 hours

OT 3810 - Occupational Therapy Practice I

Utilizing structured instruction and guided lab experiences, students will define and apply the occupational therapy process to health maintenance and rehabilitation. Students will consider the interrelationship between occupational therapy performance components, occupational performance areas, and performance contexts. Emphasis on birth to young adulthood.

Prerequisites & Corequisites: Prerequisites: OT 3700 and OT 3740 and OT 3750 with a grade of "C" or better. Corequisite: OT 3820 and OT 3830 and OT 3840.

Credits: 3 hours

Notes: Course may be repeated for credit.

OT 3820 - Occupational Therapy Practice II

Utilizing structured instruction and guided lab experiences, students will define and apply the occupational therapy process to health maintenance and rehabilitation. Students will consider the interrelationship between occupational therapy performance components, occupational performance areas, and performance contexts. Emphasis on middle and older adulthood.

Prerequisites & Corequisites: Prerequisites: OT 3700 and OT 3740 and OT 3750 with a grade of "C" or better. Corequisite: OT 3810 and OT 3830 and OT 3840.

Credits: 3 hours

Notes: Course may be repeated for credit.

OT 3830 - OT Practice Cases Through the Lifecourse

This course will provide students with an opportunity to develop self-directed learning skills through a series of client cases by researching information needed to evaluate and plan treatment for people receiving occupational therapy services. Students will participate in small groups to share learning issues and practice talking to patients, clients, family members and other professionals.

Prerequisites & Corequisites: Prerequisite: OT 3700 and OT 3740 and OT 3750 with a grade of "C" or better. Corequisite: OT 3810 and OT 3820 and OT 3840.

Credits: 3 hours

Notes: Course may be repeated for credit. Credit/No Credit only.

OT 3840 - OT Practice and Therapeutic Interaction Skills

This course teaches basic group and individual client-therapist interaction skills including: selecting a theory base, designing groups, writing group protocols, analyzing group activities, implementing specific group techniques, and evaluating progress of group members. Methods of establishing rapport, giving feedback, and employing

therapeutic use of self are emphasized.

Prerequisites & Corequisites: Prerequisites: OT 3700 and OT 3740 and OT 3750 with a grade of "C" or better. Corequisites: OT 3810 and OT 3820 and OT 3830.

Credits: 3 hours

Notes: Course may be repeated for credit.

OT 4360 - Independent Study in Occupational Therapy

Designed to allow outstanding students to work independently under faculty supervision. Consent of department chair.

Credits: 2 to 4 hours

OT 4540 - Special Topics in Occupational Therapy

This is a variable topic, variable credit course for consideration of current and emerging practice topics and special interest areas in occupational therapy. Specific topics and number of credit hours will be announced each time the course is scheduled.

Credits: 1 to 4 hours

Restrictions: Restricted to majors in Interdisciplinary Health Services: Occupational Therapy.

Notes: May be repeated for credit with different topics.

OT 4700 - Functioning of the Older Adult

The objective of this course is to provide understanding of the basic psychological and physiological changes characteristic of human aging and pathological conditions which have consequences for function and behavior.

Credits: 3 hours

When Offered: Fall, Winter

OT 4720 - Occupational Analysis and Adaptation

This course provides students with experience in activity analysis and adaptation. Breaking down activities into

subtasks for individuals with disabilities and then creating or providing adaptations or accommodations is a primary role. In addition, this course introduces students to basic technology related to adaptation for mobility, communication, splinting, vocation, and leisure.

Prerequisites & Corequisites: Prerequisites: OT 3810 and 3820.

Credits: 3 hours

OT 4750 - Occupational Therapy Practicum I

In this course, students will provide Occupational Therapy evaluation and treatment in a supervised community-based setting.

Prerequisites & Corequisites: Prerequisites: OT 3810 and 3820. Corequisite: OT 4720.

Credits: 4 hours

Notes: Graded on a Credit/No Credit basis.

OT 4790 - Occupational Therapy in Mental Health

This course explores current Occupational Therapy practice in mental health. Students will define Frames of Reference and their application to a variety of practice settings. Students will learn treatment techniques appropriate for groups and individuals.

Prerequisites & Corequisites: Prerequisites: OT 2020, 2250, 3700, 3740, 3750, and PSY 2500.

Credits: 3 hours

OT 4820 - Occupational Therapy Practicum II

This course is designed to provide in-depth clinical experience in order to develop skill in the utilization of assessment, the development of treatment plans, the implementation of treatment, and the evaluation of patient's progress related to the treatment plan.

Prerequisites & Corequisites: Prerequisites: OT 4720 and 4750.

Credits: 4 hours

Notes: Graded on a Credit/No Credit basis.

OT 5300 - Sensory Integration and The Child

Study of theoretical principles and their application to evaluation and treatment of the child with sensory integration dysfunction. Students will observe and participate in screening and evaluation of children, and they will design treatment plans for selected clients.

Prerequisites & Corequisites: Prerequisites: OT 4750 or concurrent; or OTR, RPT, or consent.

Credits: 3 hours

Notes: Open to upper level and graduate students.

OT 5730 - Therapeutic Use of Technology

This course explores how a professional goes about evaluating, designing, and adapting technology to improve people's participation in activities of their choice. The course also explores current commercially available technology and available community-based services for people with impairments and/or activity limitations.

Prerequisites & Corequisites: Prerequisites: Senior standing or permission of instructor.

Credits: 3 hours

Notes: Open to upper level and graduate students.

OT 5735 - Cognition and Visual Perception in Occupational Therapy

This course will include concepts of vision, visual perception and cognitive evaluation and treatment carried out by occupational therapists in the clinical setting. The course will explore interventions to improve occupations with consideration for client factors, performance skills and patterns, context and environment, and activity demands. Underlying anatomy and neuroanatomy will be revealed.

Prerequisites & Corequisites: Prerequisites: OT 3810, OT 3820, OT 3830, and OT 3840.

Credits: 3 hours

Notes: Open to upper level and graduate students.

OT 5800 - Advanced Clinical Application of OT Clinical Reasoning

This course will provide advanced knowledge of clinical evaluation tools and techniques. Students will be given additional training on the most commonly used and the state-of-the-art clinical evaluation tools. Advanced use of guidelines for practice and the integration of knowledge for clinical reasoning will be emphasized. Students will develop treatment plans for people with a variety of conditions and diagnoses. Evidence-based practice in OT will be used for analysis of evaluation tools and guidelines for practice.

Prerequisites & Corequisites: Prerequisite: OT 4750

Credits: 3 hours

Notes: Open to upper level and graduate students.

Paper Engineering, Chemical Engineering, and Imaging

PAPR 1000 - Introduction to Pulp and Paper Manufacture

A lecture-laboratory consideration of the fundamentals of paper manufacturing processes and equipment. Some time will also be spent on coating, printing and other uses of paper. The student will acquire a basic understanding of the nature and scope of the paper industry.

Prerequisites & Corequisites: Prerequisites: CHEM 1100 and CHEM 1110 (both may be taken concurrently). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (2 - 3)

PAPR 2040 - Stock Preparation and Papermaking

An advanced study of the processes involved in the formation, consolidation, and drying of a web of paper. Areas covered include refining, fourdrinier and multi-ply operation, pressing and drying. Internal and surface treatments of paper are discussed along with the effects of additives and fiber types. Analysis is made using chemical, physical, and engineering principles. Lectures are

augmented by laboratory exercises, pilot plant operation, and field trips.

Prerequisites & Corequisites: Prerequisite: PAPR 1000 or PAPR 1040, with grades of "C" or better. A minimum grade of "C" is required in PAPR prefixed prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

PAPR 2420 - Coating

A lecture-lab course dealing with the fundamentals of pigmented and functional coating of paper and board. Coating rheology, evaluation of coated paper, and the performance of paper in the graphic arts will also be covered.

Prerequisites & Corequisites: Prerequisite: PAPR 2040 or PAPR 2550 or GPS 2150. A minimum grade of "C" is required in GPS and PAPR prefixed prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

PAPR 2550 - Paper Physics Fundamentals

A lecture and laboratory study of wood fibers and their properties. Fundamentals of fiber and sheet strength properties are critically discussed, including the effect of paper-making operations. Both fracture and optical properties of paper are considered. Basics of paper testing and reclaimed fibers are also studied. The laboratory consists of fiber identification and a paper machine trial.

Prerequisites & Corequisites: Prerequisites: PAPR 2040, and (IEE 2610 or STAT 3640), with a grade of "C" or better in all prerequisites. (IEE 2610 or STAT 3640 may be taken concurrently.)

Credits: 4 hours

Restrictions: Restricted to majors in Chemical Engineering, Pre-Chemical Engineering, and Pre-Paper Engineering.

Lecture Hours - Laboratory Hours: (3 - 3)

PAPR 3030 - Pulping and Bleaching

Advanced study of the processes involved in the production of papermaking fibers. Wood anatomy, ultrastructure, and chemistry, wood yard operations, chemical, and high yield pulping, bleaching, alternate fiber sources, and pulping and bleaching chemistry. Process engineering perspective emphasizing mass and energy balances, process design and control. Lab work in wood characterization, pulping, and bleaching, and field trips.

Prerequisites & Corequisites: Prerequisites: CHEG 2960 and CHEM 3750. A minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

PAPR 3330 - Carbohydrate and Lignin Chemistry

Consideration of the chemistry of wood, pulp, and pulping by-products. Included topics are cellulose, lignin, accessory carbohydrates, extractives, and spent liquor utilization. Applied chemistry of pulping, bleaching processes, and basics of analytical chemistry of wood will be introduced. PAPR 3330 can be substituted by CHEM 3770.

Prerequisites & Corequisites: Prerequisite: PAPR 3030, a minimum grade of "C" and CHEM 3750 and CHEM 3760.

Credits: 3 hours

Lecture Hours - Laboratory Hours: (3 - 0)

PAPR 3510 - Water Quality and Microbiology

The physical, chemical, and biological characteristics of water. Topics stressed include hydrology, treatment of water, water quality, governmental regulations, evaluation, and the microbiology of water. (This is a non-laboratory course offered for adult education. Credit will not be earned in PAPR 3510 by paper science or paper engineering majors.)

Credits: 2 hours

Lecture Hours - Laboratory Hours: (2 - 0)

PAPR 3530 - Wastewater Treatment

A study of the fundamental principles, design considerations, and use of the unit processes and operations employed in waste water treatment. Physical, physicochemical, and biological treatments are considered. The lecture materials are augmented by laboratory experiments.

Prerequisites & Corequisites: Prerequisites: CHEG 2610 or CHEG 2611. A minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 4 hours

Restrictions: Restricted to majors in Chemical Engineering, Paper Engineering or Paper Science.

Notes: A student may not get credit for PAPR 3530 and PAPR 3531.

Lecture Hours - Laboratory Hours: (3 - 3)

PAPR 3531 - Wastewater Treatment Systems

A study of the fundamental principles, design considerations, and use of unit processes and operations employed in wastewater treatment. Physical, physicochemical, and biological treatments are considered.

Prerequisites & Corequisites: Prerequisites: CHEG 2610 or CHEG 2611. A minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 3 hours

Notes: A student may not get credit for PAPR 3530 and PAPR 3531.

Lecture Hours - Laboratory Hours: (3 - 0)

PAPR 4300 - Surface and Wet End Science

This course presents the important concepts of surface science, colloid chemistry and polymers. The concepts are illustrated by considering their application to operations in the paper industry. Subjects covered include surface tension, adsorption and wetting, colloids, foams and emulsions and wet end additives such as retention aids, strength resins, defoamers and drainage aids.

Prerequisites & Corequisites: Prerequisites: CHEM 3750 and CHEM 3760.

Credits: 3 hours

Notes: Will be offered as honors courses for interested

students.

Lecture Hours - Laboratory Hours: (3 - 0)

PAPR 4400 - Seminar

A seminar course using guest speakers, university staff and field trips to add depth and breadth to the background of students.

Prerequisites & Corequisites: Prerequisite: Junior standing.

Credits: 1 hour

PAPR 4600 - Plant Economics and Project Design

A lecture and laboratory consideration of Process synthesis and operability characteristics; dynamics of chemical process industries; project evaluation and review; optimization in design and selection of process and/or equipment alternatives; environmental, health, and safety in the design of chemical processes; basis for cost estimation. Oral and written reports of individual and team efforts.

Prerequisites & Corequisites: Prerequisites: CHEG 3120, CHEG 3300, and CHEG 3810 (CHEG 3810 may be taken concurrently). A minimum grade of "C" is required in CHEG and PAPR prefixed prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Paper Engineering or Paper Science.

Notes: Will be offered as honors courses for interested students.

Cross-Listed: PAPR 4600 is cross-listed with CHEG 4600. A student may not receive credit for both CHEG 4600 and PAPR 4600.

Lecture Hours - Laboratory Hours: (2 - 3)

PAPR 4850 - Research Design

Research selection, planning, design, and writing. A research problem selected in consultation with faculty. Student will define and analyze the problem; do a critical review of the literature; and propose a documented research program to increase understanding and knowledge about the problem. This course is approved as a writing-intensive course.

Prerequisites & Corequisites: Prerequisite: Senior standing in major.

Credits: 3 hours

PAPR 4870 - Senior Design Project

Application of chemical engineering to the solution of a complex, open-ended research problem selected in consultation with faculty. The project will involve feasibility analysis, design, and optimization of chemical processes. The project is the culmination of the curriculum and is a major design experience based on the knowledge and skills acquired in earlier coursework and will incorporate appropriate engineering standards and multiple realistic constraints. Emphasis will be on working in small design groups, submission of written report, and oral presentation. This course provides an introduction to the discipline of public management including the historical development of public administration, the relationship between politics and administration, conflicting public values, defining the public interest and the appropriate level of administrative discretion. The course also addresses matter of professionalism, the ASPA Code of Ethics, career planning for public service, and major sources of information for research. This course is approved as a writing-intensive course. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category. May be repeated for credit.

Prerequisites & Corequisites: Prerequisite: Senior standing and CHEG 4600, a minimum grade of "C" is required in CHEG prefixed prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Chemical Engineering or Paper Engineering

When Offered: Spring

PAPR 4990 - Independent Studies

Offers paper science and engineering and printing majors with good scholastic records a program of independent study in an area arranged in consultation with the instructor. One to three hours credit per semester, cumulative to six hours.

Prerequisites & Corequisites: Prerequisite: Permission of instructor.

Credits: 1 to 6 hours

PAPR 5000 - Introduction to Papermaking

Graduate students without sufficient background will learn paper science and paper engineering topics and laboratory techniques, including the basics of papermaking, paper properties, paper testing, and TAPPI standard testing procedures.

Prerequisites & Corequisites: Prerequisite: Enrollment by approval of PCI Graduate Advisor.

Credits: 1 hour

Notes: Open to graduate students only.

Lecture Hours - Laboratory Hours: (0 - 3)

When Offered: Fall

PAPR 5301 - Material Instrumental Analysis

Instrumental techniques for analysis of the physical and surface properties of materials used in the paper and printing industries. Training to operate instruments in preparation for graduate research, or for use in other graduate level courses, and development of laboratory measurement and computer usage skills.

Prerequisites & Corequisites: Prerequisite: One completed laboratory science course.

Credits: 2 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (1 - 3)

When Offered: Fall

PAPR 5501 - Advanced Paper Processes

Advanced course in the paper manufacturing process, including paper chemistry theory, stock preparation, converting, and the role of recycled fibers. Particular emphasis on types of paper products and their applications, the relationship of laboratory measurements to paper properties, and the effect of process variables on paper product performance.

Prerequisites & Corequisites: Prerequisite: PAPR 5000 or equivalent.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Lecture Hours - Laboratory Hours: (3 - 0)

When Offered: Every other Fall

Philosophy

PHIL 1100 - Inquiry, Argument, and Debate

An introduction to the speaking and listening skills important for university inquiry and learning. Focal points include the structure of sound arguments, well-reasoned and compelling speech, and the importance of persuasive presentations. Students will study and discuss classical texts about oratory and explore how modern digital resources can enhance research and contribute to persuasive presentations in all fields of study. This course satisfies WMU Essential Studies Level 1: Foundations – Oral and Digital Communication Category.

Credits: 3 hours

PHIL 2000 - Introduction to Philosophy

An introduction to the nature of philosophy by a consideration of major types of philosophical questions, such as the principles of rational belief, the existence of God, what is the good life, the nature of knowledge, the problem of truth and verification. Selected texts from representative philosophers are used to define the questions and to present typical answers. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 4 hours

PHIL 2010 - Contemporary Problems in Ethics

Introduces students to the philosophic study of morality through the examination of contemporary ethical issues. These may include questions such as: Can the government censor the internet posts of private citizens? Are we morally required to give to charity? Is physician assisted suicide permissible? This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 4 hours

PHIL 2200 - Critical Thinking

A systematic study of extended arguments aimed at helping students develop the skills necessary for understanding, analyzing, and evaluating argumentative rhetoric. Topics

included are argument identification and argument structure, definitions and disputes, deduction and induction, premise verification and informal fallacies. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

PHIL 2250 - Deductive Logic

A study of the rules and techniques of deductive reasoning, including truth tables and the propositional calculus. Applications to verbal reasoning and translation from ordinary language into the propositional calculus are emphasized. This course satisfies WMU Essential Studies Level 1: Foundations - Quantitative Literacy Category.

Credits: 3 hours

PHIL 2550 - Science, Technology, and Values

A critical examination of the interactions between science, technology and society. The social implications of science and technology will be examined by placing them within the larger context of society, politics, ethics and economics. Issues and problems generally recognized as societal concerns will be emphasized. The detailed analysis of a case study will include teaching of the relevant science and technology.

Credits: 3 hours

PHIL 3000 - Ancient and Medieval Philosophy

A study of the history of selected philosophical topics up to the sixteenth century. Great thinkers, such as Plato, Aristotle, Augustine, and Aquinas will be emphasized. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 4 hours

PHIL 3010 - History of Modern Philosophy

A survey of modern philosophy from the Renaissance through Kant, with particular attention to epistemological and metaphysical themes in the works of Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant.

Credits: 4 hours

PHIL 3030 - Existentialist Philosophies

A concentrated study of leading thinkers in modern philosophical existentialism: Kierkegaard, Nietzsche, Jaspers, Sartre, and Camus. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

PHIL 3110 - Political Philosophy

An examination of fundamental problems arising from political and social relationships. The main emphasis is on such political value concepts as liberty, equality, human rights and justice. Topics that might be considered include, but are not necessarily restricted to: the nature and basis of political authority and obligation; civil disobedience; tolerance and dissent; the aims of political institutions; law and morality. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

PHIL 3120 - Philosophy of Art

An analysis of the nature of art and esthetic experience, and its significance in human life. The course may cover all forms of art, or concentrate on a few, for instance, literature, drama and music. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

PHIL 3130 - Philosophy of Law

The nature of law and legal systems. Questions studied include: the relation between law and morality; theories of constitutional and statutory interpretation; basic rights including the rights to privacy and maximum liberty; the definition of criminality and the justification of punishment; excuses. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

PHIL 3140 - Philosophy and Public Affairs

A philosophical examination of principles and values underlying contemporary social issues. The course will focus on specific issues such as environmental concerns, animal rights, abortion, privacy, censorship, world hunger, economic justice, business ethics, violence, war, peace, and utopian ideals. Topics to be announced in the Schedule of Classes. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

PHIL 3150 - Race and Gender Issues

A philosophical examination of principles and values underlying contemporary social issues involving race, gender, and related concepts. Topics include: identity, equality/inequality, equity, harassment, prejudice, discrimination, affirmative action. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

PHIL 3160 - Ethics in Engineering and Technology

An examination of ethical issues in engineering. Topics include: engineering as a profession; codes of ethics; engineering in business, industry and government; responsibilities to employers, clients, and society; conflicts of interest; safety and risk; whistle blowing; environmental concerns; and choosing careers in engineering and technology. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

PHIL 3170 - Environmental Ethics

This course will be an examination of ethical issues related to the environment. The main focus will be on current issues such as global warming, population growth, sustainability, and non-human welfare. We will consider environmental impacts of social and political activities from a moral perspective, placing emphasis on the relationship between human needs and environmental responsibility. Selected moral theories and moral principles will be developed in application to problems and issues like

those mentioned above.

Credits: 3 hours

PHIL 3200 - Formal Logic

A study of formal deductive systems with a special emphasis on the first-order predicate calculus. Arguments expressed in everyday language are analyzed and translated into symbolic logic both to make meanings precise and explicit and to check the validity of arguments.

Credits: 4 hours

PHIL 3250 - Inductive and Scientific Reasoning

The study of scientific reasoning and scientific methods. The focus is on probable inference, which is distinct from demonstrative or necessary inference. The course covers reasoning from particular cases, reasoning from analogy, and the Bayesian inference. The course covers enough deductive logic to introduce the basic notions need from probability theory.

Credits: 3 hours

PHIL 3310 - Moral Philosophy

A study of some basic problems in moral philosophy. Special attention is given to the question of the relationship between the justification of actions, and motives, excuses, intentions, consequences. Contemporary works are emphasized.

Credits: 4 hours

PHIL 3320 - Theory of Knowledge

An examination of basic problems concerning knowledge and belief, discussing traditional approaches but stressing recent analyses. Possible topics: skepticism and certainty, knowing and believing, perception, memory, "a priori" vs. "a posteriori" knowledge, self-knowledge, knowledge of others.

Credits: 4 hours

PHIL 3330 - Metaphysics

A study of basic metaphysical questions, discussing traditional solutions but emphasizing recent approaches. Questions will be selected from such topics as: substances, qualities and relations, universals and particulars, identity, space and time, causation, mind and body, persons, free will. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 4 hours

PHIL 3340 - Biomedical Ethics

In this course, the ethical principles (respect for autonomy, non-maleficence, beneficence justice) and other ethical concerns (e.g. privacy, confidentiality, compassion, relationships among patients and professionals) are studied and applied to contemporary problems in medicine and biomedical research. These problems include genetic testing and therapy; organ transplantation; decision-making regarding treatment and care at the end of life; research involving human subjects; and treatment issues in the AIDS epidemic. Case study methods are used. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 4 hours

PHIL 3350 - Medical Humanities

Provides a philosophical exploration of the humanistic side of medicine and the related fields of health and illness, health care, death and dying, and so forth. Students will learn about how different disciplines within the humanities (art, history, literature, music etc.) study these topics. In so doing, students will focus their studies on fundamental elements of the human condition and also learn how this knowledge can help health providers and patients reach better outcomes. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

PHIL 3500 - Foundations of the Modern Worldview

The study of some basic ideas with which today's knowledgeable people make sense of their world and themselves. Topics may vary from term to term, but will include a philosophical study of the physical, biological or social sciences and some areas in the humanities that reflect

changes in values associated with the modern worldview.

Credits: 4 hours

PHIL 3550 - Philosophy of Science

A philosophical exploration of the basic concepts, methods, and aims of the natural sciences. The course explores issues such as confirmation, explanation, reduction, and the observation/theory dichotomy through philosophical analysis and case studies. The detailed analyses of historic and contemporary scientific practice will include teaching of the relevant science. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

PHIL 3710 - History and Philosophy of Science I

A philosophical and historical study of the growth of science from the Greeks to the Scientific Revolution. The course explores the development of science through primary source readings, with a particular focus on astronomy and dynamics, culminating with a close reading of Galileo's Dialogue Concerning the Two Chief World Systems and a study of the trial of Galileo.

Credits: 3 hours

PHIL 3720 - History and Philosophy of Science II

A philosophical and historical study of the development of modern science from Newton's Principia through the twentieth century. The course traces the development of multiple modern physical ideas such as the theory of light, thermodynamics, relativity, quantum theory, and chaos theory as well as the parallel developments in methodology in thinkers such as Bacon, Locke, Herschel, Poincare, Duhem, and Einstein.

Credits: 3 hours

PHIL 4100 - Professional Ethics

A philosophical examination of the foundations of ethics in the professions. Topics to be considered include the professions and professionalism, relationships between professional and ordinary ethics, social responsibilities of

the professions, professional/client relationships, regulation of the professions, and codes of ethics.

Credits: 3 hours

PHIL 4800 - Senior Seminar

A comprehensive and in depth examination of a central area or areas of philosophy. Topics may vary from term to term. The course may be about 1) the philosophy of one or more significant historical or 20th century thinkers; 2) a philosophical movement; or 3) a major philosophical issue that draws on a variety of sources.

Prerequisites & Corequisites: Prerequisites: Completion of 12 hours of philosophy, including either PHIL 3000 or 3010.

Credits: 4 hours

Notes: May be repeated for credit when topics vary.

PHIL 4980 - Independent Study

Independent study is for those students who have attained a degree of competence in philosophy and wish to embark upon a project to be carried out without the usual close guidance of the instructor in the classroom. Independent study may not be elected as a substitute for a regularly scheduled course.

Prerequisites & Corequisites: Prerequisite: Application and department approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit.

PHIL 5120 - Aesthetics

An investigation of the many philosophical issues which arise from the study of the arts and aesthetic experience. Topics include such issues as the ontology and identity of works of art, whether art can be defined so as to distinguish art from non-art, the status of aesthetic values, the relation of ethics to aesthetics, the status of feminist perspectives in the arts, and significance of the arts in human life

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 credit hours of philosophy.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PHIL 5200 - Philosophical Applications of Symbolic Logic

This course is designed to expose students to the range of philosophical applications of modern symbolic logic. Starting with the sentential and predicate calculi, the course explores various extensions which may include alethic model logic, deontic logic, tense logic, relevance logic and counterfactuals. In addition, the course will address salient issues in the philosophy of logic and may include an investigation of the logical paradoxes and/or the controversy surrounding quantified modal logic.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 credit hours of philosophy, including (PHIL 2250 or PHIL 3200).

Credits: 3 hours

Notes: Open to upper level and graduate students.

PHIL 5400 - Philosophy of Mind

A study of the philosophical problems surrounding our understanding of the nature of mind, mental states, and consciousness, and their relation to matter, and states of the brain and/or central nervous system. Possible topics include cognitive science, artificial intelligence, the relation of mind to body and/or behavior, teleological and mechanistic explanations of human behavior, the philosophical foundations of psychology, behaviorism, functionalism, the nature of intentionality, the concept of a person, the privacy of mental states, knowledge of other minds, and questions regarding free will and determinism.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 credit hours in Philosophy, including PHIL 3010.

Credits: 2 to 4 hours

Notes: Open to upper level and graduate students.

PHIL 5440 - Practical Ethics

This course will examine the relationships between ethical theory and practice, especially in the area of professional life. We will consider questions concerning moral imagination, deliberation, and justification, as well as how

principles and norms guide our complex activities. Case illustrations from various professions (e.g., medicine, laws, government, science, psychiatry, etc.) will be used to highlight some of these issues.

Prerequisites & Corequisites: Prerequisites: Junior standing and 12 credit hours of philosophy.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PHIL 5700 - Philosophical Topics

An examination of special philosophical topics. Topics to be listed in the Schedule of Classes.

Prerequisites & Corequisites: Prerequisite: Junior standing and 12 hours course work in philosophy. Specific course prerequisites may be stipulated for specific topics and substitutions for philosophy may be allowed. Usually at least one of PHIL 3000 or PHIL 3010 will be required.

Credits: 1 to 4 hours

Notes: May be repeated for credit, with advisor's approval, when topics vary. May be offered in an accelerated format. Open to upper level and graduate students.

PHIL 5980 - Readings in Philosophy

Research on some selected period or topic under supervision of a member of the Philosophy faculty.

Prerequisites & Corequisites: Prerequisite: Junior standing and 12 credit hours of philosophy.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Physics

PHYS 1000 - How Things Work

This is a course in the physics of everyday life employing a minimum of mathematics. It explores the principles of automobiles, ice skating, roller coasters, CD/DVD players, television receivers, electronic computers and other common devices and situations. The course emphasizes basic physical principles rather than details of operation.

The laboratory shows students how to ask questions and how to collect and analyze data. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Credits: 4 hours

PHYS 1020 - Energy and the Environment

This course is a study of the interplay of energy production and use, advances in technology, and their effects on the environment. Topics covered include energy fundamentals, fossil fuels, generation of electricity, solar and other renewable energy sources, nuclear energy, energy conservation, transportation, air pollution, and their global effects. The course is intended to give students the tools to think critically and make informed decisions about energy use in their daily lives. Mathematical skills at the level of introductory algebra are required. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category. This course may not be applied toward either a major or minor in Physics.

Prerequisites & Corequisites: Prerequisite: MATH 1100 or MATH 1110 or MATH 1140 or MATH 1160 or MATH 1180 or MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710 or MATH 2000, with a grade of "C" or better or equivalent; or ACT Math score in the range from 20 to 36 inclusive; or SAT Math score in the range from 490 to 800 inclusive.

Credits: 3 hours

PHYS 1030 - Sky and Solar System Laboratory

This is an astronomy laboratory course designed to illustrate and explore some of the topics covered in PHYS 1040 Introduction to the Sky and Solar System. This course should be taken concurrently with PHYS 1040, and students should satisfy the same prerequisites as PHYS 1040 before taking this course.

Credits: 1 hour

PHYS 1040 - Introduction to the Sky and Solar System

This is an introduction to the night sky and our solar system. The student will learn about the cycles of the Sun, Moon, planets, and constellations; the historical

development of astronomy; basic properties of light and telescopes; nature and properties of the planets and the Sun; asteroids, meteorites, and comets; and the origin and evolution of the solar system. Taken concurrently with PHYS 1030, this course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Prerequisites & Corequisites: Prerequisite: MATH 1100 or MATH 1110 or MATH 1140 or MATH 1160 or MATH 1180 or MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710 or MATH 2000, with a grade of "C" or better or equivalent; or ACT Math score in the range from 20 to 36 inclusive; or SAT Math score in the range from 490 to 800 inclusive.

Credits: 3 hours

PHYS 1050 - Stars and Galaxies Laboratory

This is an astronomy laboratory course designed to illustrate and explore some of the topics covered in PHYS 1060 Introduction to Stars and Galaxies. This course should be taken concurrently with PHYS 1060, and students should satisfy the same prerequisites as PHYS 1060 before taking this course.

Credits: 1 hour

PHYS 1060 - Introduction to Stars and Galaxies

This course introduces the student to the origin and evolution of stars, galaxies, and the universe. Topics covered include the basic properties of stars; the birth, life, and death of stars; stellar explosions; the origin of the elements; white dwarf stars, neutron stars, and black holes; the interstellar medium; structure and evolution of the Milky Way and other galaxies; and the origin and fate of the Universe. Taken concurrently with PHYS 1050, this course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Prerequisites & Corequisites: Prerequisite: MATH 1100 or MATH 1110 or MATH 1140 or MATH 1160 or MATH 1180 or MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710 or MATH 2000, with a grade of "C" or better or equivalent; or ACT Math score in the range from 20 to 36 inclusive; or SAT Math score in the range from 490 to 800 inclusive.

Credits: 3 hours

PHYS 1070 - Elementary Physics

This course surveys physics from mechanics to modern physics in one semester. It is designed for students in curricula requiring a one-semester course at the level of general college physics. A student may elect to take this course as preparation if he/she wishes an introduction to physics before taking PHYS 1130 or PHYS 2050. Taken concurrently with PHYS 1080, this course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Prerequisites & Corequisites: Prerequisite: MATH 1100 or MATH 1110 or MATH 1140 or MATH 1160 or MATH 1180 or MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710 or MATH 2000, with a grade of "C" or better or equivalent; or ACT Math score in the range from 20 to 36 inclusive; or SAT Math score in the range from 490 to 800 inclusive.

Credits: 4 hours

PHYS 1080 - Elementary Physics Laboratory

This is a laboratory course which includes exercises related to topics covered in PHYS 1070. This course should be taken concurrently with PHYS 1070, and students should satisfy the same prerequisites as PHYS 1070 before taking this course.

Credits: 1 hour

PHYS 1130 - General Physics I

A general college physics course in the principles and practical application of mechanics, sound, and heat. Recommended for students in curricula other than science and students desiring a non-calculus course in physics. Many schools of engineering will not accept PHYS 1130 for transfer credit. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category. A student can receive credit for only one of the following courses: PHYS 1130 or PHYS 2050.

Prerequisites & Corequisites: Prerequisite: MATH 1110 or MATH 1180 or MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710 or MATH 2000, with a grade of "C" or better or equivalent; or ACT Math score in the range from 25 to 36 inclusive; or SAT Math score in the range from 580 to 800 inclusive.

Credits: 4 hours

PHYS 1140 - General Physics I Laboratory

This is a laboratory course which includes exercises related to topics covered in PHYS 1130. This course should be taken concurrently with PHYS 1130, and students should satisfy the same prerequisites as PHYS 1130 before taking this course.

Credits: 1 hour

Notes: A student can receive credit for only one of the following courses: PHYS 1140 or PHYS 2060.

PHYS 1150 - General Physics II

This course follows PHYS 1130 and consists of studies in electricity, magnetism, light, and atomic and nuclear physics.

Prerequisites & Corequisites: Prerequisite: PHYS 1130 with a minimum grade of "C" or better.

Credits: 4 hours

Notes: A student can receive credit for only one of the following courses: PHYS 1150 or PHYS 2070.

PHYS 1160 - General Physics II Laboratory

This is a laboratory course which includes exercises related to topics covered in PHYS 1150. This course should be taken concurrently with PHYS 1150, and students should satisfy the same prerequisites as PHYS 1150 before taking this course.

Prerequisites & Corequisites: Prerequisite: PHYS 1130 or PHYS 2050 with a grade of "C" or better.

Credits: 1 hour

Notes: A student can receive credit for only one of the following: PHYS 1160 or PHYS 2080.

PHYS 1800 - Physics: Inquiry and Insights

The 'inquiry' aspect of this physics course means that you will explore natural phenomena for yourself in the lab, and develop scientific concepts and principles to explain the observed behavior - just as scientists do. The 'insights' aspect reflects our emphasis on conceptual understanding and physical insight. The course is comprised of Light, Waves and Mechanics. The focus throughout is on

fundamental physical principles and the ability to apply them in new situations, to explain, predict and solve problems. The approach promotes appreciation of the nature of science and builds confidence in how to learn and think in science.

Credits: 3 hours

PHYS 1905 - The Universe of Physics

In this seminar, students will be introduced to the universe of physics in a non-quantitative way. Over the course of the semester, we will present and discuss many aspects of physics as a field of science and as a career. Topics may include: the definition and scope of the field, its applications in other fields of science, current exciting areas of research and recent discoveries and breakthroughs, the variety of career opportunities at various degree levels, and the particular experiences and opportunities available to its majors. Course enrollment is open to all interested students.

Credits: 1 hour

PHYS 2050 - University Physics I

This is the first in a sequence of three calculus-based physics courses and deals with the laws of motion, work and energy. PHYS 2050 is intended for physics majors, engineering students, and future physics teachers. It is recommended for majors in other sciences. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category. A student can receive credit for only one of the following courses: PHYS 2050 or PHYS 1130.

Prerequisites & Corequisites: Prerequisite: (MATH 1700 or Math 1220) and (MATH 1710 or MATH 1230). MATH 1710 or MATH 1230 may be taken concurrently. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 4 hours

PHYS 2060 - University Physics I Laboratory

This is a laboratory course which includes exercises related to topics covered in PHYS 2050. This course should be taken concurrently with PHYS 2050, and students should satisfy the same prerequisites as PHYS 2050 before taking this course.

Credits: 1 hour

Notes: A student can receive credit for only one of the following courses: PHYS 2060 or PHYS 1140.

PHYS 2070 - University Physics II

This course follows PHYS 2050 and consists of studies in electricity, magnetism, and electromagnetic radiation.

Prerequisites & Corequisites: Prerequisites: PHYS 2050, and (MATH 1710 or MATH 1230). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 4 hours

Notes: A student can receive credit for only one of the following courses: PHYS 2070 or PHYS 1150.

PHYS 2080 - University Physics II Laboratory

This is a laboratory course which includes exercises related to topics covered in PHYS 2070. This course should be taken concurrently with PHYS 2070, and students should satisfy the same prerequisites as PHYS 2070 before taking this course.

Prerequisites & Corequisites: Prerequisite: PHYS 2050 with a grade of "C" or better.

Credits: 1 hour

Notes: A student can receive credit for only one of the following courses: PHYS 2080 or PHYS 1160.

PHYS 2500 - Waves and Optics

This course covers the basic properties of mechanical and electromagnetic waves including extensive laboratory experience. Topics include: waves and the wave equation, wave energy, sinusoidal waves, reflection and transmission, waves in two and three dimensions, refraction, geometrical optics, interference, diffraction, polarization and spectroscopy.

Prerequisites & Corequisites: Prerequisite: PHYS 2070 with a grade of "C" or better.

Credits: 3 hours

PHYS 3090 - Introductory Modern Physics

This course, with PHYS 2050/2060 and PHYS 2070/2080, completes the sequence making up the introductory courses in physics with calculus. Topics include special relativity, quantum physics, and atomic, nuclear, and solid state physics.

Prerequisites & Corequisites: Prerequisites: PHYS 2070 and (MATH 2300 or MATH 2720). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 4 hours

PHYS 3100 - Introductory Modern Physics Lab

This is a laboratory course which includes exercises related to topics covered in PHYS 3090. This course should be taken concurrently with PHYS 3090, and students should satisfy the same prerequisites as PHYS 3090 before taking this course.

Prerequisites & Corequisites: Prerequisites: PHYS 2060 and 2080 with a grade of "C" or better.

Credits: 1 hour

PHYS 3250 - Introduction to Astrophysics

This course is an introduction to modern astrophysics, and covers topics such as the properties of light and matter as relevant to astronomy; analysis of spectra; the properties, structure, and evolution of stars; binary stars; nucleosynthesis and supernovae; physics of white dwarf stars, neutron stars, and black holes; and basic cosmology.

Prerequisites & Corequisites: Prerequisite: PHYS 3090 (and PHYS 1060 recommended). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

PHYS 3300 - Thermodynamics

Classical equilibrium thermodynamics is developed from the macroscopic viewpoint. Postulates, empirically founded, are put forth and the consequences are developed and applied to systems of interest in physics and chemistry. Introductory kinetic theory with selected topics is also included, as is an introduction to quantum statistics.

Prerequisites & Corequisites: Prerequisite: PHYS 3090 with a grade of "C" or better.

Credits: 3 hours

PHYS 3420 - Electronics

This course deals with analyses of transistor and integrated circuits and includes practical experience in the laboratory. There are three lectures and one 3-hour laboratory per week.

Prerequisites & Corequisites: Prerequisite: PHYS 3100 with a grade of "C" or better.

Credits: 4 hours

Notes: A student cannot receive credit for both PHYS 3420 and ECE 2100.

PHYS 4200 - Analytical Mechanics

The topics studied include the dynamics of single particles and the motion of systems of interacting particles. Techniques of vector analysis are used frequently, and conservation laws are developed and applied. The Lagrangian formulation of mechanics is introduced.

Prerequisites & Corequisites: Prerequisites: PHYS 2070 and MATH 3740 (Math 3740 may be taken concurrently). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

PHYS 4220 - Teaching and Learning in Physics

This course is designed for future secondary school teachers of physics. Course content includes: physics problem solving and interactive and inquiry-based instruction. Students will also improve their understanding of physics topics relevant to the high school setting.

Prerequisites & Corequisites: Prerequisite: PHYS 2070 with a grade of "C" or better.

Credits: 4 hours

Notes: The 4 credit course meets 6 hours each week, including demonstrations/lab work relevant to instruction in a high school setting.

PHYS 4400 - Electromagnetism

This course provides an upper-level theoretical treatment of electromagnetic phenomena, using methods of vector calculus. Electro- and magneto-statics, induction, Maxwell's equations, and electromagnetic radiation are treated.

Prerequisites & Corequisites: Prerequisites: PHYS 3090 and MATH 5720 (MATH 5720 may be taken concurrently). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 4 hours

PHYS 4600 - Quantum Mechanics

This is a first course in quantum theory. It treats the historical basis of the quantum concept in the theory of cavity radiation and the photoelectric effect. Topics include the Schrodinger wave equation, hydrogenic atoms, two-electron atoms, angular momentum coupling, and perturbation theory.

Prerequisites & Corequisites: Prerequisites: PHYS 3090 and MATH 3740. A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

PHYS 4660 - Advanced Laboratory

The objectives of this course are to provide the student with experience in the use of laboratory equipment and with an understanding of several important physical phenomena. The student will perform experiments in these three areas: atomic, solid state, and nuclear physics. A portion of the semester may be devoted to studying a problem in depth. The course consists of two three-hour laboratory periods each week. This course requires the student to complete several assignments which will demonstrate skills in technical writing.

Prerequisites & Corequisites: Prerequisites: PHYS 3420 and PHYS 4600 (PHYS 4600 may be taken concurrently). A grade of "C" or better is required to satisfy any course prerequisite.

Credits: 3 hours

PHYS 4980 - Special Problems

In this course a student works on a laboratory project or a reading project under the direction of a faculty member.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit.

PHYS 5620 - Atomic and Molecular Physics

This course continues the study of the applications of quantum mechanics. Topics covered include the helium atom, multielectron atoms, the Raman, Zeeman, and Stark effects, stimulated emission, transition rates, selection rules, the diatomic molecule, and molecular physics.

Prerequisites & Corequisites: Prerequisite: PHYS 4600 or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students. This course is offered only to advanced physics majors. Department policy requires that undergraduates enrolling in these courses have successfully completed all prerequisite studies prior to enrollment. The department recommends that physics majors who plan to enter a graduate college complete two of the following courses: PHYS 5620, PHYS 5630, or PHYS 5640.

PHYS 5630 - Solid State Physics

After an initial study of symmetry and crystal structure, quantum mechanics is used to describe the cohesion of solids, x-ray and neutron diffraction, the elasticity of solids, lattice vibrations, and the thermal and electrical properties of solids, with particular emphasis on metals.

Prerequisites & Corequisites: Prerequisite: PHYS 4600 or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students. This course is offered only to advanced physics majors. Department policy requires that undergraduates enrolling in this course have successfully completed all prerequisite studies prior to enrollment. The department recommends that physics majors who plan to enter a graduate college complete two of the following courses: PHYS 5620, PHYS 5630, or PHYS 5640.

PHYS 5640 - Nuclear and Particle Physics

This course covers such topics as properties of nuclei, collision theory, nuclear reactions, nuclear models, fundamental interactions, and classification techniques used in particle physics. Discussions of experimental methods as well as theoretical treatments using quantum mechanics are included.

Prerequisites & Corequisites: Prerequisite: PHYS 4600 or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students. This course is offered only to advanced physics majors. Department policy requires that undergraduates enrolling in this course have successfully completed all prerequisite studies prior to enrollment. The department recommends that physics majors who plan to enter a graduate college complete two of the following courses: PHYS 5620, PHYS 5630, or PHYS 5640.

PHYS 5980 - Selected Topics

This course affords an opportunity for advanced students with good scholastic records in physics to pursue independently the study of some subject of interest to them.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students. This course is offered only to advanced physics majors. Department policy requires that undergraduates enrolling in this course have successfully completed all prerequisite studies prior to enrollment.

Political Science

PSCI 1050 - Critical Thinking About Politics

The application of critical thinking to the analysis of politics. The basic components of logical argumentation will be applied to the examination of a variety of political, social, economic and ideological issues. The course is designed to develop analytical reasoning and critical thinking skills necessary to process information about politics and policy so students can make decisions as informed citizens. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

PSCI 2000 - National Government

An introductory survey of American national government. This course introduces the basic principles and theories of American government, explores the political process, describes the structure, and illustrates its functions. Consideration is given to the relationships of government to the ethnic, religious, and cultural diversity of the American society. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

PSCI 2020 - State and Local Government

A study of the institutions, the problems and the politics of policy making at the state and local levels in the United States. Consideration is given to the changing relations of state and local government to the total framework of government in the United States.

Credits: 4 hours

PSCI 2400 - Comparative Politics

This course introduces students to the field of comparative politics, covering both its key substantive concepts and major theoretical and methodological approaches. The emphasis is on developing systematic comparisons of the political regimes, formal and informal institutions, political culture, and structure of power relations in different countries. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

PSCI 2500 - International Relations

A study of the nature of the international community and the forces which produce cooperation and conflict. Particular attention is given to analyzing power in terms of its acquisition and uses. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 4 hours

PSCI 2700 - Political Topics

A specifically focused course dealing with a political topic of general student interest. The course will be primarily substantive rather than theoretical to accommodate students with no previous training in political science. The topic will be announced in advance.

Credits: 1 to 3 hours

Notes: May be repeated for credit with a different topic.

PSCI 3000 - Urban Politics in the United States

A study of those factors having an impact on the governing of American cities, including social and economic conditions in the cities, the organization of local political systems, and the actions of the state and federal governments. The principal focus will be on the city as a center of economic problems and social tensions that are largely the product of ethnic and cultural diversity.

Credits: 3 hours

PSCI 3040 - Introduction to Public Policy

An introduction to the U.S. public policy process through the use of general models and case studies. Various inputs of power and influence are analyzed as proposals are considered in policy-making institutions. The roles of public officials, interest groups, lobbyists, opinion leaders, experts and others are analyzed. Evaluations of policies are made with respect to their perceived need, appropriateness and effectiveness. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

PSCI 3060 - Environmental Politics

An examination of the major legal, political, and bureaucratic forces influencing the development and implementation of environmental policy. Interactions between levels and units of government are analyzed. Effective modes of citizen participation and action, especially at the local level, are discussed throughout.

Credits: 4 hours

Cross-Listed: Cross-listed with ENVS 3400. A student

may not receive credit for both ENVS 3400 and PSCI 3060.

PSCI 3100 - Political Parties and Elections

A study of the nature of politics, the organization and function of political parties and elections, and the elective process in the U.S.

Credits: 3 hours

PSCI 3110 - American Politics and the Media

An examination and analysis of the basic features of the mass media and their relationship to American politics from both a political and historical perspective. Specific topics include the mass media as institutions in the American political system, media influence on politics, regulation of the media, private and concentrated ownership, and the growth of new media technologies such as cable, satellite and Internet.

Credits: 3 hours

PSCI 3140 - The Presidency

A study of the presidency, including the White House staff and cabinet, the institutional and policy leadership of the president, and the politics of presidential selection.

Credits: 3 hours

PSCI 3150 - The Politics of Congress

Examines the internal arrangements and the outside forces that impact upon the operations of the U.S. Congress. Emphasis is placed on explaining why Congress behaves as it does.

Credits: 3 hours

PSCI 3200 - The American Judicial Process

An introduction to the politics of the American judicial process. The course will examine the judicial function generally with particular attention on the decisional processes, process participants, state and federal court structures, recruitment and selection of judges, bases of judicial behavior, policy making, and impact of judicial decisions.

Credits: 4 hours

PSCI 3250 - Criminal Justice Policy

An examination of various judicial, legislative and executive policy decisions which govern the criminal justice processes. The course will include extensive discussion of the political dynamics of the policy making processes.

Credits: 3 hours

PSCI 3400 - European Politics

This course provides a general survey of the political systems of the major European democracies. After a brief introduction to the history of modern Europe, the course examines the political development, institutions, and policies of the European Union and its member nations.

Credits: 4 hours

PSCI 3410 - The Politics of Sub-Saharan Africa

A systematic survey of the social, economic and political characteristics of the area. Political culture, institutions and processes, including both traditional and modern forms, are examined in detail. Major political problems dealing with political development are analyzed.

Credits: 4 hours

PSCI 3440 - Russian and Central Asian Politics

Russia, a country encompassing eleven time zones, emerged from seven decades of Soviet Communism to pursue market economics and democratic transition. Central Asia, a sizable land mass in the heart of the Asian continent, has grown increasingly visible because of both its resources and its geo-strategic importance. This course will examine the emergence of these countries from communist authoritarianism and the institution, policies, and goals they have charted.

Credits: 4 hours

PSCI 3450 - Latin American Politics

An introduction to the development and current context of politics in Latin America. Focuses on the effects of historical, cultural, economic, and political-institutional forces on present-day Latin American politics. Issues examined include patterns of economic and political development, revolution, dictatorship, and democracy, the politics of race and religion, women's movements, and globalization.

Credits: 4 hours

PSCI 3460 - Women in Developing Countries

Women's socioeconomic and political role and status will be examined in relation to the impact of colonialism, forces of modernity, and developmental issues.

Credits: 4 hours

PSCI 3490 - Chinese Politics

An introduction to China's domestic politics, political institutions, and foreign policy. Topics include the organization of political power, the party-state, authoritarianism, major political events, politics of economic reforms, and foreign policy.

Credits: 3 hours

PSCI 3500 - American Foreign Policy

An analysis of the institutions and processes by which the American people and their government determine and seek to achieve the national interest of the United States in the international community.

Credits: 4 hours

PSCI 3510 - Terrorism and Political Violence

An examination of the roots, tactics and types of terrorism, including both insurgent and state terrorism. Students will investigate terrorism as both a national and transnational phenomenon and examine a variety of counter-terrorist strategies ranging from addressing root causes to military responses.

Credits: 3 hours

PSCI 3520 - International Conflict

An introduction to the causes of war and the conditions of peace. Topics include theories of conflict, levels of analysis, origins of war, and case study.

Credits: 3 hours

PSCI 3530 - Women and Politics

This course examines how women's political mobilization and access to power varies across countries and why these differences exist. Few aspects of political life are as consistent across countries as the numerical advantage men have over women in the halls of power. Students will study the institutional, cultural and economic sources and remedies to this inequality. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

PSCI 3600 - Ancient Political Thought

A survey of political philosophy as it developed in Classical Greece, Rome, Medieval Europe, the Reformation and the Renaissance. Emphasis placed on comparative analysis of political philosophies as they reflect the richly diverse sociocultural conditions of these periods.

Credits: 3 hours

PSCI 3610 - Modern Political Thought

A survey of political philosophy from the seventeenth century to the middle of the nineteenth. Emphasis upon the great individual philosophers of this period and the early development of the major ideological systems of the modern period: conservatism, liberalism and socialism.

Credits: 3 hours

PSCI 3620 - Contemporary Political Ideologies

A survey of influential political ideologies, focusing on their historical roots as well as their contemporary manifestations. Liberalism, conservatism, socialism, anarchism, fascism and feminism are among the ideologies surveyed.

Credits: 3 hours

PSCI 3630 - American Political Theory

An exposition and critical analysis of American political thought from the Puritans to the contemporary period, with primary emphasis on concepts of democracy, liberty, and property, and on varieties of liberalism and conservatism.

Credits: 3 hours

PSCI 3700 - Issues in Contemporary Politics

This course is designed for the study of contemporary political problems. It is intended to provide opportunity for the study of political phenomena normally beyond the scope of regular departmental offerings. Essentially the course relates the theory and principles of political science to practical politics. The course may be applied to the appropriate field distribution requirement. Topics will vary from semester to semester.

Credits: 3 to 4 hours

Notes: May be repeated for credit.

PSCI 3900 - Field Work in Political Science

An opportunity for students of Political Science or Public Administration to test theoretical and practical knowledge in an internship situation under the supervision of a faculty sponsor and a public or public-related official.

Prerequisites & Corequisites: Prerequisites: Students wishing to apply must have a minimum of fifteen hours in Political Science and department approval before registering. Approved application required.

Credits: 1 to 12 hours

Notes: May be repeated for credit. Graded on a Credit/No Credit basis.

PSCI 3910 - Internship Seminar

An undergraduate seminar taken in conjunction with Field Work in Political Science (PSCI 3900). An emphasis will be placed on readings that analyze the administrative realm and also focus on recent political, economic, and social developments. Interns also will discuss their field experiences.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 3 hours

PSCI 3950 - Data in Politics and Policy

This course provides an introduction to the basic computer skills and statistical methods employed by political scientists involved in empirical research; it provides students with the working ability to read, understand and correctly interpret empirical analyses which employ these methods; and it provides a better appreciation for political science as a science, i.e., the limitations and achievements inherent in the attempt to study political phenomenon through the process of quantification. Basic univariate and bivariate analyses with computer applications will be covered.

Prerequisites & Corequisites: Prerequisite: One of the following: MATH 1140, MATH 1160, MATH 1180, MATH 1500, MATH 1900, MATH 2000, STAT 1600 or STAT 3660.

Credits: 3 hours

PSCI 4050 - Public Policy and the Economy

This seminar focuses on the practices and institutions that make up the political economy of the United States. Topics include several of the following: measuring and monitoring economic performance; monetary policy and the Federal Reserve; taxes, spending and the national debt; trade policy; financial services regulation; the distribution of income and wealth; assessing the performance of public programs; and the condition of the public service. Writing, analysis and presentation skills are emphasized.

Prerequisites & Corequisites: Prerequisite: PSCI 3040 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

PSCI 4200 - Constitutional Law

Study of leading American constitutional principles as they have evolved through major decisions of the U.S. Supreme Court. Emphasis on judicial review, federalism, separation of powers, commerce and taxation. Course is designed to expose students to judicial cases so they understand the legal analyses employed by the Supreme Court within different political contexts.

Prerequisites & Corequisites: Prerequisite: Sophomore

status.

Credits: 3 hours

PSCI 4210 - Gender and Law

An analysis and description of the law and women (as well as other groups). Specific topics include coverture, the Equal Protection clause, the Civil Rights Act, affirmative action, sexual harassment and discrimination, Title IX and abortion. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

PSCI 4220 - Civil Rights and Liberties

Use selected Supreme Court rulings to enable students to understand how individual rights are protected under the U.S. Constitution, particularly based on due process and equal protection. Course is designed to expose students to cases on civil liberties so they understand the legal analyses employed within particular contexts by the judiciary. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: Sophomore status.

Credits: 3 hours

PSCI 4230 - The First Amendment

Course will use selected Supreme Court rulings to enable students to understand how individual rights guaranteed in the First Amendment, including the right to freedom of speech, press, and religion are protected under the U.S. Constitution. Course is designed to expose students to cases on the First Amendment so they understand the legal analyses employed within particular contexts by the judiciary.

Credits: 3 hours

PSCI 4240 - Environmental Law

Surveys the major federal statutes and regulatory schemes relating to environmental quality; analyzes and compares the contrasting approaches to regulation with focus on the interaction of Congress, the regulatory agencies, and the courts in defining and implementing environmental

mandates.

Credits: 3 hours

Notes: This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Cross-Listed: This course is cross-listed with ENVS 4150. A student may not receive credit for both ENVS 4150 and PSCI 4240.

PSCI 4400 - The European Union

This course introduces students to the history, institutions, and policies of the European Union (EU). It surveys European integration since 1945 and examines the structure and functioning of the major institutions of the EU. Selected EU policies, such as economic, monetary, and foreign policy, will be analyzed in case studies. The class concludes with a discussion of possible futures of the European Union and the importance of European political integration for global politics.

Credits: 3 hours

PSCI 4410 - Issues in International Politics

The variable topics course will treat an issue or theme central to the study of international and/or comparative politics. The actual topic of the course will be announced in the Schedule of Course Offerings. The issue will be cross-cultural and be examined on a global scale.

Credits: 3 hours

Notes: May be repeated for credit under different topics.

PSCI 4420 - Studies in International Politics

This variable topics course will be a case study of a single country or region that illustrates broader themes in the study of international and comparative politics. The actual case study (or studies) will be announced in the Schedule of Course Offerings.

Credits: 3 hours

Notes: May be repeated for credit when topics vary.

PSCI 4500 - Seminar in International and Comparative Politics

Designed to be a capstone to the concentration in International and Comparative Politics, this seminar will examine in detail a theme in cross-national or international politics.

Prerequisites & Corequisites: Prerequisites: PSCI 2400 and PSCI 2500; and at least one course in the 3400, 3500, or 4400 series.

Credits: 3 hours

PSCI 4920 - Political Science Honors Research

Honor students, with the guidance of a faculty advisor, conduct research and write the Honors Paper on a topic of individual interest.

Prerequisites & Corequisites: Prerequisite: Membership in the Political Science Department Honors Program and approved application required.

Credits: 2 to 3 hours

Notes: May be repeated for credit.

PSCI 4940 - Seminar in Political Science

An undergraduate seminar for Political Science majors. The topic of the seminar varies and will be announced in advance. At least one-third of the final grade will be determined on the basis of writing performance.

Prerequisites & Corequisites: Prerequisite: Twenty-one hours in Political Science courses.

Credits: 3 hours

Restrictions: Restricted to students majoring in Political Science.

Notes: May be repeated for credit under different topics.

PSCI 5060 - Topics in American Politics

A critical examination of selected issues facing national, state, or local government with emphasis upon contemporary theoretical and applied perspectives on the question.

Prerequisites & Corequisites: Prerequisites: Junior standing, PSCI 2000, either (PSCI 2400 or PSCI 2500), and

two additional courses in Political Science.

Credits: 3 to 4 hours

Notes: May be repeated for credit when topics vary. Open to upper level and graduate students.

PSCI 5320 - Administration in Developing Countries

This course compares public administration systems in a development context. It analyzes the role of the administrator in middle- and low-income countries, notably the administrator's varied responsibilities as a career public official, and as an agent of change. The course will cover administration of development projects in both rural and urban settings and discuss different strategies that have worked.

Prerequisites & Corequisites: Prerequisites: Junior standing, PSCI 2000, either (PSCI 2400 or PSCI 2500), and two additional courses in Political Science.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PSCI 5490 - Gender and Development

This course examines the role of gender in the development process. A theoretical and empirical perspective will be used to analyze gender inequalities in the developing world.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PSCI 5700 - Managing Challenges from Climate Change

This class addresses threats from human-driven climate change and political and management challenges arising from these threats. We begin with an overview of the basic science of climate change, scenarios for how it may unfold, its consequences and costs, and the institutional architecture for addressing its various challenges. The remainder of the class addresses challenges in three areas: (1) reducing greenhouse gas emissions and sequestering carbon from the atmosphere, (2) adapting to the effects of climate change, and (3) supporting climate change victims. In each area we explore the nature of the challenge and a

variety of practical solutions.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PSCI 5710 - Environmentally Sustainable Development

This course examines the historical development of the theory, practice, politics, economics/funding, challenges and opportunities to implementing sustainable development through the lens of a variety of disciplines (political ecology, political science, sustainability studies, development studies) and engagement with primary texts, international conventions/reports, and scholarly publications.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PSCI 5980 - Studies in Political Science

An opportunity for advanced students with good scholastic records to pursue independently the study of some subject of interest to them. Subjects are chosen and arrangements made to suit the needs of individual students.

Prerequisites & Corequisites: Prerequisite: Approved application, approval of department chairperson and instructor.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Public Health

PH 2310 - Public Health Needs and Issues

This course is designed to lay the foundation for public health and the settings in which it occurs. Professionalization of health education and the role delineation project in multiple settings will be identified. The Healthy People model will be the basis for identifying and prioritizing public health issues.

Credits: 3 hours

PH 2320 - Global and Environmental Health Issues

This course is designed to equip students with current issues related to global and environmental health. Public health emphasis will be placed on knowledge and skills needed to address contemporary and emerging issues in the global environment. Skills related to planning and managing environmental and global health education and promotion issues will be addressed.

Credits: 3 hours

PH 2340 - Introduction to Biostatistics in Public Health

This course will introduce concepts, theory and methods for describing, analyzing and interpreting statistical variation, characterizing measurement properties, and modeling relationships among variables. The emphasis is on the application of techniques used to organize, analyze, and interpret statistical data unique to health sciences.

Credits: 3 hours

PH 3300 - Special topics in Public Health

The focus of this course can vary depending on the special topic or issue being presented, including potential travel study opportunities.

Credits: 1 to 3 hours

Notes: May be repeated for credit.

PH 3310 - Planning Public Health Programs

This course deals with the analysis of principles of program planning in public health education and promotion. Planning models will be used to introduce principles and methods of assessment and data collection, goal and objective writing, and implementation strategy identification.

Prerequisites & Corequisites: Prerequisites: PH 2310 and PH 2320; with a grade of "C" or better required in all prerequisites.

Credits: 3 hours

PH 3320 - Applying Behavior Foundations in Public Health

The focus of this course is exploring the psychosocial determinants of behavioral risk factors that affect health and developing strategies for applying theories, models, and frameworks of health-related behavior within public health settings.

Prerequisites & Corequisites: Prerequisites: PSY 1000 and SOC 2000.

Credits: 3 hours

PH 3340 - Epidemiology

This course introduces students to the history and current uses of epidemiology and its vocabulary, principles, methods and applications. Descriptive and analytic study designs are reviewed and computer applications are introduced.

Prerequisites & Corequisites: Prerequisite: PH 2310 and PH 2340; with a minimum grade of "C" in all prerequisites.

Credits: 3 hours

PH 4300 - Independent Study in Public Health

Designed to provide an opportunity for qualified students to explore special projects in public health.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit.

PH 4310 - Implementing and Administering Public Health Programs

This course is designed to prepare students with skills necessary to implement and administer programs within the context of community and public health settings. Emphasis will be placed on intervention strategies, community building, marketing, and program administration.

Prerequisites & Corequisites: Prerequisites: PH 3310 and PH 3320, with a grade of "C" or better required in all

prerequisites.

Credits: 3 hours

PH 4320 - Public Health Intervention Strategies

This course will prepare students to develop, implement, and evaluate public health communication methods necessary to implement health education within public health programs and settings. Emphasis is placed on learning characteristics, educational material development, mass media interactions, social media applications, digital and technology applications, message development, social marketing and effective presentations. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisites: PH 3310 and PH 3320, with a grade of "C" or better required in all prerequisites.

Credits: 3 hours

PH 4330 - Advocating for Health Policies

This course is designed to focus on health policies and its definition and development, legislative structures and processes, and how to advocate for health related policies at the national, state, and local levels. Focus will be placed on establishing an advocacy plan that is both media and legislative in nature.

Prerequisites & Corequisites: Prerequisite: HSV 4780 with a grade of "C" or better.

Credits: 3 hours

PH 4410 - Evaluating Public Health Programs

Designed to develop assessment and evaluation skills in community and public health indicators. Focus will be on program evaluation models relevant for health education in the community. Measures of interest will include process, impact and outcome. Design operations for measuring program effect, with the associated threats and external validity, are discussed, and several basic statistical techniques are reviewed and examined in terms of their applicability to program evaluation.

Prerequisites & Corequisites: Prerequisites: PH 4310, PH

4320, and PH 4330; with a grade of "C" or better required in all prerequisites.

Credits: 3 hours

PH 4420 - Grant Writing in Public Health

Designed to prepare students with skills necessary to secure external grant funding through grant proposal writing. Emphasis is placed on grant sources and resources, the grant proposal process, grant management, and continued funding.

Prerequisites & Corequisites: Prerequisites: PH 4310, PH 4320 and PH 4330; with a grade of "C" or better required in all prerequisites.

Credits: 3 hours

PH 4910 - Public Health Capstone Proposal

This course introduces project proposal formation, development, and writing, resulting in the identification of an experiential capstone project.

Prerequisites & Corequisites: Prerequisites: PH 3310, PH 3320, and PH 3340; with a grade of "C" or better required in all prerequisites.

Credits: 1 hour

PH 4920 - Public Health Capstone Project

This course focuses on the implementation of the capstone proposal developed in PH 4910.

Prerequisites & Corequisites: Prerequisite: PH 4910, with a grade of "C" or better.

Credits: 2 hours

PH 4930 - Public Health Seminar

This course is designed to feature senior-level activities as a culmination of the skills and theory acquired in the public health curriculum as a means for preparing the candidate for a fulfilled professional career. Topics include credentialing exam preparation, professional conference engagement, portfolio development, job search and acquisition skills, leadership development, field experience placement, ethics, and professionalism.

Prerequisites & Corequisites: Prerequisites: PH 4310, PH 4320, and PH 4330; with a grade of "C" or better required in all prerequisites.

Credits: 3 hours

PH 4940 - Public Health Internship

Designed to prepare students with skills necessary to implement programs within the context of community and public health. Emphasis is placed on applying skills from the major responsibilities of a health education specialist, as defined by the National Commission on Health Education Credentialing.

Prerequisites & Corequisites: Prerequisites: PH 4410, PH 4420, PH 4920, and PH 4930, with a grade of "C" or better required in all prerequisites.

Credits: 3 hours

Psychology

PSY 1000 - General Psychology

An eclectic approach to a social and behavioral survey of major topics in psychology, including learning, motivation, intelligence, personality, mental illness, and social relations. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

When Offered: Fall, Spring

PSY 1100 - Operant Conditioning Laboratory

An introductory lab for Honors College Students taking PSY 1000. Students will participate in lab exercises that illustrate operant and respondent principles of behavior.

Prerequisites & Corequisites: Co-requisite: PSY 1000, Honors College Section.

Credits: 1 hour

PSY 1400 - Introduction to Behavior Analysis

Provides the foundation for many of the other courses in the Psychology major, by introducing students to the principles of conditioning and learning, and behavior analysis concepts that can be applied to clinical, counseling, school, experimental, child, sports, community, and industrial psychology, as well as autism, psychoses, anorexia, phobia, ethics, religion, gender, procrastination, sexual behavior, drug use, speech pathology, developmental disabilities, social work, special education, behavioral medicine, animal training, juvenile corrections, and everyday life. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 4 hours

PSY 1401 - Introductory Operant Conditioning Laboratory

This course is designed as a companion laboratory for students enrolled in PSY 1400. It is also intended for transfer students who have completed an equivalent of PSY 1400 at another institution. Students will participate in hands-on exercises to illustrate operant conditioning principles of behavior.

Prerequisites & Corequisites: Prerequisite: PSY 1400 (may be taken concurrently).

Credits: 1 hour

Notes: Restricted to majors and minors in psychology.
When Offered: Fall and Spring

PSY 1402 - Preliminary Autism Practicum

Supervised experience in the application of principles of behavior analysis to the behavioral and educational problems of children with developmental delays. Students serve as tutors in behavior change and training programs.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 3 hours

PSY 1403 - Autism Practicum

Supervised experience in the application of behavior analysis and behavior management principles to improve the social, academic and adaptive behavior of children diagnosed with developmental delays.

Prerequisites & Corequisites: Prerequisite: PSY 1400 and PSY 1402 (with a grade of "B" or higher in all prerequisites); or instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors and minors in psychology.

Notes: May be repeated for credit.

PSY 1600 - Child Psychology

An introduction to behavior principles in the analysis of complex behavior with an emphasis upon early childhood learning and the techniques for enhancing children's development. Topics include mental retardation, behavioral problems in childhood, emotional development and language learning.

Prerequisites & Corequisites: Prerequisite: PSY 1000 with a grade of "C" or better.

Credits: 3 hours

When Offered: Fall, Spring

PSY 2444 - Organizational Psychology

This course focuses on performance management and systems analysis techniques that are based on the principles of behavioral psychology. Environmental change strategies are emphasized. While the course focuses on behavioral applications in the work environment, other theoretical orientations are surveyed. Topics covered include measurement of employee performance, job analysis, process analysis, and consultation. Students will be able to choose specific organizational improvement opportunities in which to apply newly acquired Organizational Behavior Management skills and knowledge through hands-on simulated class exercises.

Credits: 3 hours

PSY 2500 - Abnormal Psychology

An introduction to the description, classification and interpretation of human behavior labeled by society as "abnormal" with an emphasis on the social variables and environmental conditions related to the acquisition and persistence of such behavior.

Prerequisites & Corequisites: Prerequisites: PSY 1000 with a grade of "C" or better.

Credits: 3 hours

When Offered: Fall, Spring

PSY 2517 - Applied Behavior Analysis in Autism and Developmental Disabilities

A survey of the behavioral approaches for working with individuals with autism and developmental disabilities. Topics will include historical background, diagnosis, assessment, and evidence-based interventions.

Credits: 3 hours

Restrictions: Restricted to majors in psychology.

PSY 3000 - Research Methods and Statistics

An introduction to quantitative methods and analytical techniques utilized in behavior research, including design of research, data analysis, and interpretation of inferential statistics. Major topics include selection of target behavior, generation of research questions, experimental variables, basic between-subject and within-subject designs, measures of central tendency and variability, frequency distributions and graphic presentations, the normal curve, probability theory, hypothesis testing, the t-test, and ANOVA.

Prerequisites & Corequisites: Prerequisites: PSY 1000, PSY 1400, and MATH 1090 (or equivalent) or current listed test scores in Banner or MATH 1100 or MATH 1140 or MATH 1160 or STAT 1600 or STAT 2160 or STAT 3660, with a grade of "C" or better in all prerequisites. (PSY 1400 may be taken concurrently.)

Credits: 3 hours

Restrictions: Restricted to majors in psychology.

When Offered: Fall, Spring

PSY 3240 - Abnormal Child Psychology

This is a course for psychology majors and minors. The course provides a topical survey of the area of abnormal child psychology. The lectures introduce description, classification, and treatment of behaviors considered "abnormal" or atypical for children and adolescents. Topics

include common childhood problems like ADHD, oppositional behavior, eating disorders, and depression

Prerequisites & Corequisites: Prerequisites: PSY 1000 and PSY 1600, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

PSY 3260 - Forensic Psychology

Course will provide an introductory overview of the field of forensic psychology. Forensic psychology is the overlap between the field of psychology and the legal profession. Areas of interest to the forensic psychologist include but are not limited to: expert witnesses' for child custody disputes, domestic violence, sexual assault, and insanity defenses; competency to stand trial evaluations, police officer selection and training, eyewitness testimony, sentencing recommendations, and jury consultation. Material will be covered through lecture and class discussions, guest lectures, and by viewing selected audio-visual materials. The material is intended to introduce the roles and responsibilities of a forensic psychologist.

Prerequisites & Corequisites: Prerequisites: PSY 1000 and PSY 2500.

Credits: 3 hours

PSY 3300 - Advanced Research Methods

An extended examination of advanced quantitative methods utilized in behavioral research. Topics include interobserver agreement, social validity, causal inference, quasi-experimental and experimental group designs, within-subject designs (e.g., reversal, multiple-baseline), and professional research formatting. A strong emphasis will be placed on writing research papers for professional audiences.

Prerequisites & Corequisites: Prerequisite: PSY 3000 with a grade of "B" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Psychology.

PSY 3444 - Advanced Organizational Behavior Management

This course introduces advanced topics in the field of organizational behavior management. Students will develop and refine their knowledge of OBM as it relates to the larger field of behavior analysis. Additionally, students will learn how to apply this discipline to nontraditional settings and how the research base could be expanded to grow the field. This will be a discussion-focused seminar course designed to prepare students for graduate study in OBM or other performance improvement related fields.

Prerequisites & Corequisites: Prerequisites: PSY 2444 or PSY 3440, with a grade of "C" or better.

Credits: 3 hours

PSY 3456 - Behavioral Approaches to Sustainability

An introduction to sustainability from a behavioral science perspective. Contributions made by psychologists to sustainability and the general well-being of the community will be emphasized. Major topics include behavioral change at the community level, community health & safety, recycling, conservation, and strategies for promoting community involvement. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Credits: 3 hours

When Offered: Fall, Spring of even years

PSY 3517 - Educational Psychology

This course will provide an overview of the applications of psychology in the field of education. Topics that will be addressed include an overview of the school system, educational theory, Response to Intervention (RtI), evidence-based educational programs and techniques (e.g., Direct Instruction, Precision Teaching), components of effective instruction, assessing for academic performance and learning difficulties, School Wide Positive Behavioral Interventions and Supports (SWPBIS), and classroom management strategies.

Prerequisites & Corequisites: Prerequisite: PSY 1400 with a grade of "B" or better.

Credits: 3 hours

PSY 3550 - Teaching Apprenticeship in Psychology

A laboratory course in the instructional methods of teaching psychology. May be repeated for credit, but does not fulfill major/minor requirements.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 to 4 hours

PSY 3600 - Advanced Concepts and Principles of Behavior Analysis

In this course students will learn advanced concepts and principles of behavior analysis derived from basic human and non-human research. Topics will include empirical and theoretical issues related to operant and respondent conditioning, stimulus control, schedules of reinforcement, choice and behavioral economics, motivational and emotional variables, evolutionary bases of behavior, applications of basic principles, and complex behavioral processes.

Prerequisites & Corequisites: Prerequisite: PSY 3300 with a grade of "B" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Behavioral Science.

PSY 3601 - Advanced Operant Conditioning Laboratory

This course is designed as an advanced laboratory course examining the application of operant conditioning procedures. Students will participate in advanced hands-on exercises to illustrate operant conditioning principles of behavior. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Scientific Literacy with Lab Category.

Prerequisites & Corequisites: Prerequisite: PSY 1401 and PSY 3600 (may be taken concurrently), with a grade of "B" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Behavioral Science.

PSY 3621 - Self-Management

Provides supervised practice in the application of behavioral self-management strategies to improve

performance in academic, health or social aspects of a student's life.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 1 hour

Notes: May be repeated for credit.

PSY 3655 - Behaviorism and Psychology

Familiarize students with B.F. Skinner's conceptual model of behavior known as "behaviorism". Students will learn about recent advances and refinements in this conceptual model. Students will also contrast this conceptual model with other conceptual models (E.G., cognitive psychology, trait based psychology) as applied to important psychology concepts such as perception, language and thinking, self-control, private events, feelings and emotions.

Prerequisites & Corequisites: Prerequisite: PSY 1400

Credits: 3 hours

Restrictions: Restricted to majors in Psychology, Behavioral Science and General Psychology; or instructor approval.

When Offered: Fall

PSY 3720 - Behavioral Neuroscience

An introduction to physiology and its relationship to behavior, including brain behavior interactions, behaviorally induced chemical changes and behavioral changes induced by chemical alterations.

Prerequisites & Corequisites: Prerequisites: PSY 3000 with a grade of "C" or better. A previous course in biology or chemistry is helpful but not required.

Credits: 3 hours

Restrictions: Restricted to majors in psychology or instructor approval.

Notes: May be taken concurrently with PSY 3780.

PSY 3780 - Behavioral Neuroscience Research Practicum

An intermediate laboratory and companion to PSY 372 emphasizing the acquisition of laboratory techniques, surgical skills and research methodology in physiological psychology and brain behavior interactions. Laboratory procedures, research methodology, data analysis and professional writing are stressed.

Prerequisites & Corequisites: Prerequisite: PSY 3720 with a grade of "C" or better (may be taken concurrently).

Credits: 3 hours

PSY 3844 - Professional and Career Development

Course will familiarize students with tools and techniques that will aid them in career development and professional success in psychology (and other related fields). Major topics include career specializations in psychology, active exploration of career and educational options, professional resume and portfolio creation, steps for connecting with employers and other professionals, proper interviewing etiquette, the development of self-regulatory skills, successful goal setting, comprehensive strategies for self-change, and problem-solving obstacles. Course coverage is designed to assist the student in achieving their immediate goals for academic success while in college, and will ultimately prepare them for achieving their long-term goals for securing employment or attending graduate school after graduation.

Prerequisites & Corequisites: Prerequisite: PSY 1000 with a grade of "B" or better (may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to majors in psychology, or instructor approval.

When Offered: Fall and Spring

PSY 3960 - Topical Studies in Psychology

A course on selected topics in psychology. Topics may include basic science and applied aspects of the discipline.

Prerequisites & Corequisites: Prerequisite: PSY 1000 and instructor approval.

Credits: 1 to 3 hours

Notes: May be repeated for credit.

PSY 3970 - Practicum in Psychology

Supervised experience at a community based mental health site as announced in the Schedule of Course Offerings or as approved by the undergraduate advisor. Corresponding seminar sessions provide structure and integration of the experience with other practicum experience.

Prerequisites & Corequisites: Prerequisites: Application and department approval; see undergraduate advisor.

Credits: 1 to 5 hours

Notes: This course may be repeated for credit with different experiences.

PSY 3980 - Independent Study

This course provides the undergraduate student with the opportunity for independent reading and/or research under the direction of a Department staff member. Written permission must be obtained on forms available in the department office.

Prerequisites & Corequisites: Prerequisites: Application and department approval; see UG advisor.

Credits: 1 to 5 hours

Notes: May be repeated for credit up to 12 hours.

PSY 3990 - Research Apprenticeship: Psychology

A laboratory course in the methods of conducting psychological research.

Prerequisites & Corequisites: Prerequisite: PSY 1000 with a grade of "C" or better and instructor approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit, but does not fulfill major/minor requirements.

PSY 4010 - Graduate School Preparation

This course provides supervised guidance in researching and selecting Psychology Graduate Training Programs. Students will receive coaching on preparing application materials, meeting application deadlines, preparing vitas and resumes and personal statements, and studying for

advanced tests such as the Graduate Record Exam (GRE).

Prerequisites & Corequisites: Prerequisite: Junior standing.

Credits: 1 hour

PSY 4240 - The Psychology of Human Sexuality

This is a course for non-majors and for minors in Psychology only. It cannot be applied towards the requirements for the Psychology major. The course provides a topical survey of the area of human sexual functioning. Lectures are supplemented by directed discussions, invited guest presenters, and exercises designed to prompt students to explore their own assumptions and experiences with this aspect of human behavior. Topics include sex, sexuality, and reproduction.

Prerequisites & Corequisites: Prerequisites: PSY 1000 and PSY 2500.

Credits: 3 hours

Restrictions: Restricted to non-majors only.

PSY 4280 - Psychology of Aging

This is a course for psychology majors and minors. The course provides a topical survey of the area of human aging. Lectures are supplemented by course projects, invited speakers, and homework exercises that are designed to increase student familiarity with social, physical, and psychological issues associated with human aging. Topics include physical health, mental health, and dementia.

Prerequisites & Corequisites: Prerequisites: PSY 1000, PSY 1600, and PSY 2500.

Credits: 3 hours

Restrictions: Restricted to declared major or minor in psychology.

PSY 4526 - Human Drug Use and Abuse

This course provides a general overview of basic pharmacological principles, discusses the behavioral and physiological mechanisms of action of several classes of medicinal and recreational drugs, and surveys the factors thought to contribute to responsible and irresponsible drug

intake. Although human drug use and abuse will be the primary focus of the course, non-human research findings will be emphasized where appropriate.

Prerequisites & Corequisites: Prerequisite: PSY 3000 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Open to upperclass students only. Restricted to majors in General Psychology or Behavioral Science.

Cross-Listed: Cross-listed with PSY 5260. A student may not receive credit for both PSY 4526 and PSY 5260.

PSY 4574 - Cross Cultural Psychology

This course is designed to introduce the psychology major to the general area and basic concepts of Cross Cultural Psychology. Through readings and lectures, the students will become familiar with the role culture plays in various indigenous psychologies including those commonly found in Western, Japanese, Chinese, Arabic, and African cultures. This course is specifically not a course in American ethnicity. It will instead explore a variety of world cultures in search of an understanding of how human behavior is interpreted according to cultural tenets that are unique to a region's history and evolution. The course will also examine the importance, especially in contemporary Western society, of professional psychologists developing more than casual familiarity with predominant indigenous psychologies. The plight of persons undergoing increasingly forced and voluntary migration in today's world provides one foundation for exploring the need for such understanding. The course will prepare the student to read and interpret the psychological literature from several cultures, to conduct library research addressing the influence of culture on the interpretation of human behavior, and to appreciate the importance of cultural considerations in the wide variety of psychological specialties.

Prerequisites & Corequisites: Prerequisite: PSY 3000 with a grade of "C" or better, or instructor approval.

Credits: 3 hours

Restrictions: Open to upperclass students only. Restricted to majors in General Psychology or Behavioral Science.

Cross-Listed: Cross-listed with PSY 5740. A student may not receive credit for both PSY 4574 and PSY 5740.

PSY 4595 - History of Psychology

The historical and philosophical foundations of contemporary American psychology.

Prerequisites & Corequisites: Prerequisite: PSY 3000 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Open to upperclass students only. Restricted to majors in General Psychology or Behavioral Science.

Cross-Listed: Cross-listed with PSY 5950. A student may not receive credit for both PSY 4595 and PSY 5950.

PSY 4600 - Survey of Behavior Analysis Research

An overview of diverse topics of behavior analysis research and applications. Topics include; clinical psychology, child psychology, behavioral medicine, environmental quality, developmental disability, education and geriatrics.

Prerequisites & Corequisites: Prerequisites: PSY 3600 with a grade of "B" or better.

Credits: 3 hours

Restrictions: Restricted to majors in psychology: behavioral science.

PSY 4630 - Health Psychology

A behavior analysis approach to the management of behaviors directly and indirectly affecting health. Emphasis will be placed on out-patient, public health applications and preventive approaches in health maintenance. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Personal Wellness Category.

Prerequisites & Corequisites: Prerequisites: PSY 1000 and PSY 1600.

Credits: 3 hours

Restrictions: Restricted to majors or minors in psychology; or instructor approval.

PSY 4990 - Honors Projects in Psychology

Independent study and research projects completed under the supervision of a faculty member and coordinated with the Department Honors Program. The course requires completion of a project, including a written report and oral presentation of the project.

Prerequisites & Corequisites: Prerequisite: Overall GPA of 3.0 or higher and instructor approval.

Credits: 1 to 5 hours

Notes: See Undergraduate catalog for requirements for graduation with Honors in Psychology. Course may be repeated for up to 9 hours.

PSY 5100 - Advanced General Psychology

Readings, lecture and discussion designed to introduce non-majors in psychology to modern behavior theory. Emphasis will be upon human behavior, both normal and abnormal, with a significant portion of the course devoted to the higher cognitive processes.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PSY 5170 - Psychology in the Schools

Provides an overview of psychology in the schools, with an emphasis on interventions for children or adolescents presenting difficulties with learning or behavior. This course will provide an overview of how to design, implement, and evaluate interventions in schools for individual and groups of children. An overview of the role of the school psychologist will be provided.

Credits: 3 hours

Restrictions: Restricted to majors in Pre-Psychology, General Psychology or Behavioral Science; masters or doctoral students in psychology; or instructor approval.

Notes: Open to upper level and graduate students.

When Offered: Fall

PSY 5240 - Human Sexuality

In this course students will learn about the range of human sexual behaviors. Topics covered will include anatomical and physiological functioning as well as psychological aspects of sexual behavior. Class time will involve lectures, discussions, in-class activities, videos, and guest speakers. The course is not intended to provide therapy training.

Credits: 3 hours

Restrictions: Restricted to majors in Pre-Psychology, General Psychology or Behavioral Science; masters or doctoral students in psychology; or instructor approval.

Notes: Open to upper level and graduate students.

When Offered: Fall

PSY 5260 - Human Drug Use and Abuse

This course provides a general overview of basic pharmacological principles, discusses the behavioral and physiological mechanisms of action of several classes of medicinal and recreational drugs, and surveys the factors thought to contribute to responsible and irresponsible drug intake. Although human drug use and abuse will be the primary focus of the course, non-human research findings will be emphasized where appropriate.

Prerequisites & Corequisites: Prerequisite: PSY 3300

Credits: 3 hours

Restrictions: Restricted to masters or doctoral students in psychology.

Notes: Open to upper level and graduate students.

Cross-Listed: Cross-listed with PSY 4526. A student may not receive credit for both PSY 4526 and PSY 5260.

PSY 5400 - Psychology of Safety

The purpose of this course is to teach students about current research and trends in the psychology of safety. Students review, critically analyze and discuss current trends in safety research, including behavior-based safety, injury/illness prevention and other relevant topics. Students receive training in the application of behavioral principles to solve specific safety problems in organizations through changing behavior and improving performance.

Prerequisites & Corequisites: Prerequisite: PSY 3440 with a grade of "B" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Pre-Psychology or Behavioral Science; masters or doctoral students in psychology; or instructor approval.

Notes: Open to upper level and graduate students.

PSY 5470 - Practicum: Organizational Performance Improvement

Training in the application of principles of behavior to solve specific organizational problems through changing behavior and improving performance. Students conduct a performance improvement project in a local organization and empirically evaluate the results. The practicum site is obtained by the student, and with the assistance of the instructor. Practicum students meet as a group frequently with the instructor to discuss and troubleshoot the projects.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PSY 5610 - Introduction to Clinical Psychology

This course addresses the subdiscipline of clinical psychology in a manner that provides the psychology major with useful information regarding it as a potential specialty. In addition to coverage of contemporary professional activity engaged in by specialists in this field, like practice and research, it addresses career development issues such as selecting graduate schools, training models used by universities and private schools, internship training, licensure and the types of degrees granted. It is a course appropriate for mid to upper level undergraduates and graduate students who are returning to study after having been away from the field for some time.

Prerequisites & Corequisites: Prerequisite: PSY 3300 or instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors in Pre-Psychology, General Psychology or Behavioral Science; masters or doctoral students in psychology.

Notes: Open to upper level and graduate students.

PSY 5740 - Cross Cultural Psychology

This course is designed to introduce the psychology major to the general area and basic concepts of Cross Cultural Psychology. Through readings and lectures, the students will become familiar with the role culture plays in various indigenous psychologies including those commonly found in Western, Japanese, Chinese, Arabic, and African cultures. This course is specifically not a course in American ethnicity. It will instead explore a variety of world cultures in search of an understanding of how human behavior is interpreted according to cultural tenets that are unique to a region's history and evolution. The course will also examine the importance, especially in contemporary Western society, of professional psychologists developing more than casual familiarity with predominant indigenous psychologies. The plight of persons undergoing increasingly forced and voluntary migration in today's world provides one foundation for exploring the need for such understanding. The course will prepare the student to read and interpret the psychological literature from several cultures, to conduct library research addressing the influence of culture on the interpretation of human behavior, and to appreciate the importance of cultural considerations in the wide variety of psychological specialties.

Prerequisites & Corequisites: Prerequisite: PSY 3300 or instructor approval.

Credits: 3 hours

Restrictions: Restricted to masters or doctoral students in psychology; or instructor approval.

Notes: Open to upper level and graduate students.

Cross-Listed: Cross-listed with PSY 4574. A student may not receive credit for both PSY 4575 and PSY 5740.

PSY 5950 - History of Psychology

The historical and philosophical foundations of contemporary American psychology.

Prerequisites & Corequisites: Prerequisite: PSY 3300 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to masters or doctoral students in psychology; or instructor approval.

Notes: Open to upper level and graduate students.

Cross-Listed: Cross-listed with PSY 4595. A student may not receive credit for both PSY 4595 and PSY 5950.

PSY 5970 - Topical Studies in Psychology

A survey and discussion of selected research topics of current interest. Topics may include both basic science and applied aspects of the discipline.

Prerequisites & Corequisites: Prerequisite: Junior standing, PSY 3600 (Concepts and Principles of Behavior Analysis), and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis.

Credits: 1 to 4 hours

Restrictions: Restricted to Psychology majors.

Notes: Course may be repeated for credit although the total number of credits may be limited by the degree program. Students should consult the program advisor. Open to Upperclass and Graduate students.

PSY 5980 - Special Projects in Psychology

This course provides the graduate student with the opportunity for independent reading and/or research under the direction of a faculty member.

Prerequisites & Corequisites: Prerequisite: Application and instructor approval.

Credits: 1 to 5 hours

Notes: May be repeated for credit, although the total number of hours in a degree program may not exceed 5 hours. Open to upper level and graduate students.

PSY 5990 - Practicum in Psychology

In-depth training in the application of the principles of behavior to a specific and restricted problem area in the discipline. The practicum application is often identified by the location of the research site or professional service agency published in the Schedule of Course Offerings. Each hour of credit requires 100 clock hours.

Prerequisites & Corequisites: Prerequisite: PSY 3300 with a grade of "C" or better and instructor approval.

Credits: 1 to 4 hours

Restrictions: Restricted to majors in General Psychology or Behavioral Science; masters or doctoral students in psychology.

Notes: May be repeated for credit, although number of credits may be limited by program requirements. Open to upper level and graduate students.

Public Affairs and Administration

PADM 2000 - Introduction to Public and Nonprofit Service

This course provides an overview of the concept of public and nonprofit service and its relevance to the idea of "common good" in economy, polity, and society. It examines the historical and philosophical foundations of public and nonprofit service and their applications in policy and program development, public and nonprofit organizations, leadership, ethics, and decision-making. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

PADM 3000 - Foundations of Nonprofit Management

This course examines the nature and major trends of the nonprofit sector in the broader context of shifting the structure and role of governance both in the US and internationally. The course deepens the theoretical and practical understanding of the nature of the nonprofit sector and the way in which nonprofit organizations operate for "common good." The courses will explore the legitimacy and authority of the nonprofit sector to address collective problems inviting both management and policy practitioners for greater clarity in the intersection between managerial practices, public-private partnerships, and relationship building with the public sector and the dynamics of governance. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: PADM 2000 with a grade of "C" or better.

Credits: 3 hours

PADM 3210 - Nonprofit Leadership Student Association I

This is a practicum for students who are pursuing the credential from the Nonprofit Leadership Alliance (NLA) entitled, Certified Nonprofit Professional (CNP). This course allows students to run their own registered student association in a similar fashion to a nonprofit organization. The course focuses on business sponsorships and a celebration event and fulfills six of the competencies prescribed by the Nonprofit Leadership Alliance (NLA): communication, marketing, and public relations; governance, leadership and advocacy; legal and ethical decision making; financial resource development and management; personal and professional development; and cultural competency and diversity.

Credits: 1 hour

Notes: May be repeated for credit. Graded on a Credit/No Credit basis.

PADM 3220 - Nonprofit Leadership Student Association II

This is a practicum for students who are pursuing the credential from the Nonprofit Leadership Alliance (NLA) entitled, Certified Nonprofit Professional (CNP). This course allows students to run their own registered student association in a similar fashion to a nonprofit organization. The course focuses primarily on fundraising and fulfills four competencies prescribed by the Nonprofit Leadership Alliance (NLA): communication, marketing, and public relations; financial resource development and management; personal and professional development; and governance, leadership and advocacy.

Credits: 1 hour

Notes: May be repeated for credit. Graded on a Credit/No Credit basis.

PADM 3230 - Technology Applications for the Nonprofit Sector

This course introduces technological developments and innovations with specific application in the nonprofit sector. Software applications may include Microsoft Office, Customer Relationship Management (CRM), Donor Management suites, accounting suites, and evaluation dashboard tools.

Credits: 1 hour

PADM 3500 - Public Management for Democracy

This course provides an introduction to the discipline of public management including the historical development of public administration, the relationship between politics and administration, conflicting public values, defining the public interest and the appropriate level of administrative discretion. The course also addresses matter of professionalism, the ASPA Code of Ethics, career planning for public service, and major sources of information for research. This course satisfies WMU Essential Studies Level 3: Connections – Local and National Perspectives Category.

Prerequisites & Corequisites: Prerequisite: PADM 2000 with a grade of "C" or better.

Credits: 3 hours

PADM 4100 - Internship in Public and Nonprofit Administration

The goal of the internship is to provide students with professional work experience that will afford realistic exposure to public and nonprofit administration. The internship also allows students to complete their core competencies for the Certified Nonprofit Professional from the Nonprofit Leadership Alliance.

Prerequisites & Corequisites: Prerequisites: Department approval.

Credits: 1 to 8 hours

Notes: Ideally, the internship will coincide with PADM 4000. May be repeated for credit. This course is graded on a Credit/No Credit basis.

PADM 4500 - Human Resource Administration

This course covers the policies, practices, and issues of managing the key human resource functions in the public and nonprofit sectors. Theoretical and practical challenges of human resource management are highlighted, with particular emphases on such topics as the historical and modern political and legal context, human resources planning, recruitment, and retention, training and

development, compensation, information systems, and employee and volunteer relations.

Credits: 3 hours

PADM 4600 - Introduction to Public Budgeting

This course is a practical study of the concepts and techniques used to develop budgets and manage public funds from a management perspective. Topics include, but are not limited to, budgeting and revenue forecasting, accounting standards and practices, financial analysis and reporting, investments and debt, tax administration, and intergovernmental fiscal transfers. Examples will focus on public sector applications with an emphasis on the different levels, forms, and functions of government.

Prerequisites & Corequisites: Prerequisite: ECON 2010 with a grade of "C" or better.

Credits: 3 hours

PADM 4650 - Budgeting and Accounting for the Nonprofit Sector

This course focuses on a practical study of concepts and techniques used to budget and manage nonprofit funds. Topics include, but are not limited to, revenue projections, impact of tax policies on nonprofit contributors, the process for developing operating budgets, accounting and financial reporting standards, and financial analysis techniques, internal controls, board oversight, and external auditors. Examples will focus on applications in the nonprofit sector with an emphasis on a variety of situations and organizations.

Prerequisites & Corequisites: Prerequisite: ECON 2010 with a grade of "C" or better.

Credits: 3 hours

PADM 4700 - Program Design, Implementation, and Evaluation

This course examines the theoretical logic and application of decision-making in the planning and design, implementation, and evaluation phases of public and nonprofit programs. Topics include, but are not limited to, the logic and process or program planning and design, implementation approaches and modalities, evaluation of processes, results, and outcomes. The course integrates

knowledge and skills in different areas including research methods, statistics, proposal writing, budget planning, project management, and program evaluation.

Prerequisites & Corequisites: Prerequisite: PADM 3000 or PADM 3500, with a grade of "C" or better.

Credits: 3 hours

PADM 4950 - Public and Nonprofit Administration Capstone

This capstone course provides students in Public and Nonprofit Administration with hands-on, service learning experience. Students will draw upon the different content areas of the program in solving problems and making decisions with careful attention to the relevant social, economic, environmental, and political contexts.

Prerequisites & Corequisites: Prerequisites: Senior standing and department approval.

Credits: 3 hours

PADM 5810 - Social Entrepreneurship and Innovation

Social entrepreneurs create sustainable, social impact by funding, developing, and implementing innovative solutions to social, cultural, and/or environmental problems. This course uses case studies to illuminate how social entrepreneurs identify opportunities, and plan and implement innovative, social change. Students will be empowered to develop their own creative solutions to societal issues. Topics may include, but are not limited to, an introduction to the terminology and history of social entrepreneurship, concepts of sustainable development, the role of Millennium Development Goals, human-centered design, systems thinking, triple bottom line, theory of change, developing social business models, and creating sustainable funding streams.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PADM 5820 - International Public Financial Management

Over the past two decades, organizations ranging from the Government Finance Officers Association (GFOA) to the International Monetary Fund (IMF) have promulgated a

variety of innovations in public financial management (PFM). Practitioners of PFM now recognize that they are not only involved in the budgetary process. They also contribute to broader concerns regarding public service provision and long-term financial sustainability. As an interdisciplinary field, PFM is uniquely situated to address such concerns, and innovations vary considerably across levels of government and countries. To help future practitioners and researchers, this course will review the fundamentals of PFM and examine its recent innovations in developed and developing countries. The course will cover key reports and guidelines from organizations such as the GFOA, IMF, and the World Bank as well as case studies of individual countries. Students will read and interpret budgets across different countries and levels of government. Additionally, students will learn how to apply different innovations in PFM developed over the past two decades such as: multi-year budgeting and forecasting, fiscal policies and institutions, the use of technology to achieve efficiency and effectiveness, and civic engagement in the budget process.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PADM 5825 - Managing Community Growth and Development

This course provides public or non-profit managers who are responsible for developing economic and community growth plans an extensive review of the planning and design of local economic growth strategies that enhance and sustain the quality and environment of the local community. Students will examine policies, programs, local leadership, and techniques related to economic development, business attraction and retention, land use, growth management, housing, public facilities and infrastructure, and environmental preservation. The course also examines the economic, demographic, spatial, and political forces driving urban, suburban, and rural change as well as the impact on community sustainability. A significant part of this course is the examination of a local community and conducting a group assessment related to the course objectives.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PADM 5830 - Grant Writing

Securing grants and contracts is an important skill to support the financial sustainability of public and nonprofit organizations. This course introduces students to proactive grant writing. Topics include identification of funding opportunities, building relationships with funders, and developing successful grant-funded programs and proposals. Students will be guided through the grant writing process, develop fund-able programs and associated evaluation, management, and budget plans. Assessments may include critical reflections on available funding program, the development of complete written grant applications, peer review of proposals, and funding pitches among others.

Prerequisites & Corequisites: Prerequisite:

Undergraduates with junior or senior status and 12 hours of course work in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or the program director.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PADM 5840 - Nonprofit Marketing and Development

The nonprofit sector embraces the concepts and strategies of marketing and development in order to promote its service mission and social capital. This course introduces the study and practices of nonprofit advancement including communication, marketing, public relations, and program development. The specific concepts and tools covered in this course include branding, public relations, competitive analysis, target markets, use of social media, and communications strategy through the development of deliverable products and a comprehensive marketing strategy. Material developed in this class will be based upon a new or existing program in a real nonprofit organization.

Prerequisites & Corequisites: Prerequisite:

Undergraduates with junior or senior status and 12 hours of course work in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or the program director.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PADM 5860 - Social Policy Administration

Social policies encompass laws, regulations, and programs aimed at improving individual well-being. Administered in such areas as education, healthcare, and social welfare, the government uses social policies to provide and/or finance social programs and redistribute resources in order to address the needs arising from life-cycle event, economic transformations, or natural disasters. This course surveys the vast literature on the way social insurance, social assistance, and labor market policies have been used to address current or future social problems. Topics include the economic, political, and normative aspects of social policies, demographic, economic, and environmental changes and their impacts on policy choices; the major social insurance and social assistance programs in the United States; and international comparisons on social policy designs and administration.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PADM 5870 - Fund Raising for Nonprofit Organizations

This practicum enables students to develop fund raising and fund management skills. Emphasis is on understanding the various forms of fund raising, such as the annual fund; special events; deferred giving, major gifts; special project campaigns; corporate/foundation gifts; and direct mail. Students will also be provided with a working knowledge of permanent endowment funds. Students will learn to assess the fund raising readiness of organizations and develop fund raising plans unique to their organizations.

Prerequisites & Corequisites: Prerequisite:

Undergraduates with junior or senior status and 12 hours of course work in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or the program director.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PADM 5880 - Culture, Diversity, and Social Equity

This course examines the intersection of cultural norms, practices, and diversity with the processes and outcomes of interaction at public and nonprofit organizations. Defined broadly to include such factors as age, class, culture, disability, ethnicity, economic status, gender, immigration

status, political ideology, race, religion, and sexual orientation, this course applies diversity to differentiate people's understanding and experiences of social processes and outcomes and assess how they are impacted by history, culture, policies, and institutions. It explores the types and sources of power, social constructions, processes, identities, and conflicts and how the work and social space is influenced by micro- and macro-level forces. Through readings, videos, discussions, and interactive assignments, the course aims to increase our knowledge of the inequities and their consequences for different communities and individuals. The goal is to broaden the understanding of how one's place in society affects the person's behavior and experiences in terms of social and organizational practices and outcomes.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PADM 5890 - Strategic Planning and Performance Measurement

Strategic planning is an essential management function intended to shape and guide public and nonprofit organizations by delineating priorities, goals and objectives, intended beneficiaries, resource demands, activities, and intended outcomes, as well as monitoring mechanisms that enable and facilitate successful implementation of the strategic plan. This course covers the essential steps in formulating strategic plans for public or nonprofit organizations within their broader political and financial environment. The course also emphasizes the development of performance measurement systems to support effective implementation of the strategy. Students will learn about needs assessments, program planning and design, the development of logic models, and performance measurement.

Credits: 3 hours

Notes: Open to upper level and graduate students.

PADM 5980 - Readings in Public Administration

This course offers a program of independent study to provide well qualified MPA candidates with an opportunity to explore in depth a topic or problem of interest under the guidance of a faculty member. Planning a topic for investigation is the joint responsibility of the candidate and supervising faculty. Approval is contingent upon the merits

of the proposal. Approval of both the supervising faculty member and the School Director is required prior to enrolling in this course.

Prerequisites & Corequisites: Prerequisite: Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or the program director.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

PADM 5990 - Topics in Public Administration

This changing topics course deals with particular issues of interest and concern to students of public affairs and administration. Since content varies, students are advised to read course descriptions distributed by the School prior to enrollment. The course may vary in the number of credit hours awarded and may last more or less than a semester's or session's length.

Prerequisites & Corequisites: Prerequisite: Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or the program director.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Russian

RUSS 1000 - Basic Russian I

Fundamentals of Russian with emphasis on oral proficiency.

Credits: 4 hours

RUSS 1010 - Basic Russian II

Continuation of RUSS 1000.

Prerequisites & Corequisites: Prerequisite: RUSS 1000 or equivalent.

Credits: 4 hours

RUSS 2000 - Intermediate Russian I

Level two Russian. Review and furthering of oral and reading skills based upon increasingly advanced oral and written exercises.

Prerequisites & Corequisites: Prerequisite: RUSS 1010 or equivalent.

Credits: 4 hours

RUSS 2010 - Intermediate Russian II

Continuation of RUSS 2000 with a focus on development of spoken and written expression in the Russian language through readings and discussion of civilization and cultural materials.

Prerequisites & Corequisites: Prerequisite: RUSS 2000 or equivalent.

Credits: 4 hours

RUSS 3170 - Russian Conversation

The course includes exercises to develop ease and accuracy in the use of everyday Russian. Emphasis on oral aspects of the language.

Prerequisites & Corequisites: Prerequisite: RUSS 2010 or equivalent.

Credits: 4 hours

RUSS 4760 - Foreign Study - non WMU

Student participation in pre-approved program of study abroad that is not through Western Michigan University.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor or chairperson.

Credits: 1 to 16 hours

Notes: Repeatable for credit up to 32 credit hours.

RUSS 4770 - Foreign Study

Student participation in departmentally approved program of study abroad.

Prerequisites & Corequisites: Prerequisite: Prior approval of departmental advisor and chairperson.

Credits: 1 to 16 hours

Notes: Repeatable for credit up to 32 credit hours.

When Offered: (Fall-Winter 1 to 16 hours) Spring-Summer 1 to 8 hours

RUSS 5020 - Russian for Graduate Study

Russian instruction for graduate students enrolled in a degree program who need knowledge of Russian for their field of study. Students will sit in appropriate level course for their learning.

Prerequisites & Corequisites: Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures.

Credits: 3 to 4 hours

Notes: May be repeated for credit. May not be taken by undergraduate students in any field.

Science Education

SCI 3090 - Explorations in Earth Science

This course explores natural phenomena in order to develop an understanding of key earth and space science concepts and scientific practices appropriate for teaching children in grades K-6. Topics include astronomy, geology, weather and climate, natural hazards, climate change, human impacts on the environment, and sustainability. Through engaging in hands-on lab activities, small and whole group discussions, oral and digital presentations, and written assignments, students learn to apply core earth and space science ideas to global problems and explain interesting aspects of our natural world. A local field trip may be required. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Prerequisites & Corequisites: Prerequisites: SCI 2070 and SCI 2080.

Credits: 3 hours

SCI 4040 - Teaching of Secondary Science

This course addresses the topics of teaching and learning of science at the secondary level. It is designed for those in secondary education who intend to be certified to teach the earth, life, or physical sciences (physics and chemistry) and focuses on the issue of how students learn science concepts and problem-solving skills in meaningful ways. The course develops models of effective instructional strategies designed to promote student learning and understanding of science concepts and processes. Practical methods for demonstrating, using models, planning laboratory experiences, managing science equipment, and safety concerns are developed and discussed. Students also work in discipline-specific groups to address issues unique to that area of science and the science classroom.

Prerequisites & Corequisites: Prerequisites: 15 hours of science in a certifiable science discipline and ED 4060 or CTE 5130 or HPHE 4120 or HPHE 4470 (any prerequisite may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to Secondary Education majors/minors in Biology, Chemistry, Earth Science, or Physics.

SCI 5600 - Science for School Science Education

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of science. The course is designed and taught to address the needs of K-12 teachers.

Credits: 3 hours

Notes: This is a variable topics course and may be repeated for credit if different topics are involved. Open to upper level and graduate students.

SCI 5700 - Biology for School Science

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of biology. The course is designed and taught to address the needs of K-12 teachers.

Credits: 3 hours

Notes: This is a variable topics course and may be repeated for credit if different topics are involved. Open to upper level and graduate students.

SCI 5800 - Chemistry for School Teachers

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of chemistry. The course is designed and taught to address the needs of K-12 teachers.

Credits: 3 hours

Notes: This is a variable topics course and may be repeated for credit if different topics are involved. Open to upper level and graduate students.

SCI 5850 - Physics for School Science

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of physics. The course is designed and taught to address the needs of K-12 teachers.

Credits: 3 hours

Notes: This is a variable topics course and may be repeated for credit if different topics are involved. Open to upper level and graduate students.

SCI 5900 - Earth Sciences for School Science Education

This course will involve participants in several activities especially designed to help them achieve and understanding of some of the important concepts of earth science. The course is designed and taught to address the needs of K-12 teachers.

Credits: 3 hours

Notes: This is a variable topics course and may be repeated for credit if different topics are involved. Open to upper level and graduate students.

SCI 5980 - Readings in Science

To be used by students seeking work in topics not otherwise available. The student is limited to not more than four hours in all reading courses and work must be completed under a member of the graduate faculty.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Social Work

SWRK 1000 - Introduction to Social Services

This course is approved for the WMU Essential Studies curriculum, Level 1 - Inquiry and Engagement: Critical Thinking in the Arts and Humanities. In addition to the foci noted above, this course will also assist the student to increase their foundational knowledge of the social sciences, and to develop creative and critical thinking skills. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

SWRK 2100 - Introduction to Social Work: Advocates for Social Justice

This course introduces students to the social work profession: its code of ethics, value base, and commitment to social justice advocacy. The course examines the evolution of social work as a profession, acquaints students with contemporary social work roles and fields of practice, and examines the profession's responsibilities in the delivery of social work services to diverse populations in the public and private sectors. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

SWRK 3000 - Social Welfare as a Social Institution

This course analyzes social welfare as a response to social problems and human needs. It examines the social, economic, political, and philosophical forces that have led to the historic development and institutionalization of social welfare. It encourages students to develop a critical perspective on social welfare policies and programs and stresses an understanding of the impact of age, race, gender, sexual orientation, and social class upon social policy and service delivery.

Prerequisites & Corequisites: Prerequisite: Completion of a minimum of 25 credit hours.

Credits: 3 hours

SWRK 3200 - Social Work Interviewing and Assessment

This course seeks to provide students with professional interviewing skills, and enhanced understanding of verbal and non-verbal communication listening skills, and an awareness and understanding of diverse issues related to the interviewing process. The person-in-environment perspective will be utilized throughout this course. Students will develop beginning proficiency as generalist social work practitioners when interviewing clients and other professionals who may work in an interdisciplinary setting. Various approaches to practice will be introduced including observation and rapport development within the context of strengths-based social work practice. Students will begin to develop knowledge and proficiency in how to translate interview information into a bio-psycho-social assessment. Students will also learn introductory skills relating to the problem-solving model, particularly engagement and problem identification. Students are expected to demonstrate increased insight into their own behaviors, values, beliefs, and attitudes as they relate to professional social work practice.

Prerequisites & Corequisites: Prerequisites: SWRK 2100

Credits: 3 hours

SWRK 3330 - Introduction to Culture, Ethnicity, and Institutionalized Inequality in Social Work Practice

This course focuses upon ethnic/racial groups who are among social welfare consumers and social work clientele. Individual and institutional racism are examined. Racial/cultural characteristics and group strengths, needs, priorities, and experiences in the context of social welfare and social work are also explored. The course reviews implications of ethnic factors for social work practice, social policy, and social work education. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Prerequisites & Corequisites: Prerequisites: SOC 2000 and SWRK 2100. Corequisite: SWRK 3200.

Credits: 3 hours

SWRK 3500 - Human Behavior and the Social Environment

This course provides the student with a basic understanding of human behavior related to human development, ego psychology, learning theory, and family social and cultural dynamics. The course examines socialization and its influence on human behavior; identifies significant physical, mental, emotional, social, and cultural factors which affect client systems. The social and cultural factors examined include such things as social class, race, gender, age, sexual orientation.

Prerequisites & Corequisites: Prerequisites: SWRK 2100, OT 2000, PSY 1000, SOC 2000, and completion of 55 credit hours. Prerequisites with concurrency: PSY 3000 or SOC 2830 or STAT 1600 or STAT 3660. Junior standing.

Credits: 3 hours

SWRK 3510 - Social Work Concepts in Group, Community and Organizational Behavior

This course introduces the student to human behavior as it relates to small group process, formal organizations, and community dynamics. Students are introduced to selected systems concepts. The interplay of various forces which affect the development of social groups, organizations, and communities, and the effects of such interdependent systems on the client system are examined. The impact of race, sex, and age is considered in relation to groups, organizations, and communities.

Prerequisites & Corequisites: Prerequisites: SWRK 2100, SWRK 3200, SWRK 3330, and SWRK 3500 and completion of 55 credit hours. Corequisites: SWRK 3650 and SWRK 4000.

Credits: 3 hours

Restrictions: This course is restricted to Social Work majors.

SWRK 3650 - Social Work Research Methods

Social Work 3650 is a research methods course that emphasizes the generation and appraisal of knowledge used in social work. The aim is for students to obtain knowledge and skills in research methods and data analysis approaches that are essential to effective and accountable social work

practice. The course provides students with a working understanding of theoretical and practical issues inherent in the research process, particularly as it relates to professional practice. The course focuses on giving students a strong foundation of research knowledge and skill necessary for knowledge building in the social sciences arena. This course presents students with ideas, techniques, and procedures basic to evidence-based decision making. It provides students with a balance of lecture material and interactive activities, which include discussion, homework assignments, experiential exercises, and computer assignments.

Prerequisites & Corequisites: Prerequisite: ENGL 1050 and SWRK 3500. Corequisites: SWRK 3510 and 4000.

Credits: 3 hours

Restrictions: This course is restricted to Social Work majors only.

SWRK 4000 - Social Work Practice with Individuals and Families

The problem-solving process serves as the basis of intervention strategies for this course. Students will learn practice theories and intervention strategies for use with individuals and families. Emphasizing the generalist intervention model, students learn social work roles including advocate, facilitator, case manager, and broker. Students will be expected to demonstrate an ability to formulate case plans including intake, assessment, plan of service, evaluation of intervention, and termination of services. Methods of practice evaluation are presented, including single-system design.

Prerequisites & Corequisites: Prerequisites: SWRK 3500 with a grade of "C" or better. Corequisites: SWRK 3510 and SWRK 3650.

Credits: 3 hours

Restrictions: This course is restricted to Social Work majors.

SWRK 4010 - The Problem Solving Process with Task Groups and Organizations

This course introduces the subject of assessment and intervention with task groups and organizations as a central concern of social work. We will examine the systemic relationship between task groups and organizations and the

role of the worker in task groups and organizations. This course also addresses human diversity and empowerment within task groups.

Prerequisites & Corequisites: Prerequisites: Senior standing and SWRK 4000 with a grade of "C" or better. Corequisites: SWRK 4020.

Credits: 3 hours

Restrictions: This course is restricted to Social Work majors.

SWRK 4020 - Social Work Policy

This is the second course of the undergraduate social welfare sequence. Its purpose is to introduce the subject area of social welfare policy as a central concern of social work. The goals of the course are to help the student identify evolving socio-cultural and economic bases of social welfare in America, to gain understanding of the substance of particular social policy areas, and to learn to approach the study of social welfare policy within the context of analytic frameworks. It pays attention to the impact of social policy on human service organizations analyzing the effects of specific policies on workers and clients. SWRK 4020 places primary focus on the content of social welfare policy.

Prerequisites & Corequisites: Prerequisites: SWRK 4000, ECON 2010, PSCI 2000 and completion of a minimum of 87 credit hours.

Credits: 3 hours

Restrictions: This course is restricted to Social Work majors.

SWRK 4100 - BSW Field Education I

This course is designed to integrate classroom learning into the application of foundational social work practice in field placements or internships. The BSW field experience emphasizes generalist social work practice at the micro, mezzo, and macro levels. Placements are in organizations offering direct social work practice experiences with some combination of individuals, families, groups, organizations, and communities. Learning experiences are consistent with the foundation curriculum objectives, and the learning contract. Field education is the signature pedagogy of social work education, and demonstrates the integration of social work knowledge, values, and skills into social work practice. SWRK 4100 course is the first in a two-course

sequence taken as a capstone of the BSW coursework; the second course is SWRK 4110.

Prerequisites & Corequisites: Prerequisites: Senior standing and SWRK 4000 with a grade of "C" or better.

Credits: 4 hours

Restrictions: This course is restricted to Social Work majors.

SWRK 4110 - BSW Field Education II

This course is designed to integrate classroom learning into the application of foundational social work practice in field placements or internships. The BSW field experience emphasizes generalist social work practice at the micro, mezzo, and macro levels. Placements are in organizations offering direct social work practice experiences with some combination of individuals, families, groups, organizations, and communities. Learning experiences are consistent with the foundation curriculum objectives, and learning contract. Field education is the signature pedagogy of social work education, and demonstrates the integration of social work knowledge, values, and skills into social work practice. SWRK 4110 course is the second in a two-course sequence taken as a capstone of the BSW coursework; the first course is SWRK 4100.

Prerequisites & Corequisites: Prerequisites: Senior standing, SWRK 4010, SWRK 4020, SWRK 4100 and SWRK 4600 (SWRK 4600 may be taken concurrently).

Credits: 4 hours

Restrictions: This course is restricted to Social Work majors.

SWRK 4130 - Social Policy and Service Delivery in Selected Problem Areas

Intensive study in selected field of service specialization and social problem areas. Attention is focused on learning about the major social policy issues associated with the service or problem area. Specific topics will be announced each semester.

Credits: 3 hours

SWRK 4230 - Ethics in Substance Abuse Treatment

The goal of this course is to lead students from an initial understanding of personal value based decision making into a concept of professional/public value based decision making, resulting eventually into the application of a model that is employed in the substance abuse field. In addition, this course will specifically address ethical and legal issues, as well as professional standards that are to be adhered to while working with this population.

Credits: 3 hours

SWRK 4600 - Social Work with Communities

This is the third in a three-part sequence in generalist social work practice. Social workers have a rich heritage in advocating for social justice. This course involves an examination of major theoretical and conceptual tenets of community practice from a social work perspective. Students will learn practice methods for community organizing, advocacy, community development, and other community practice skills. It also involves a practical integration of theoretical and conceptual knowledge of community practice through assignments which focus on communities that are available through field placements or other arrangements. Students will learn about community practice, social work's historical and contemporary emphasis on "empowerment" and person-environment interface.

Prerequisites & Corequisites: Prerequisites: SWRK 4010, SWRK 4020, SWRK 4100 (all prerequisites may be taken concurrently) and completion of a minimum of 87 credit hours.

Credits: 3 hours

SWRK 4650 - Special Studies in Social Welfare Practice

Study of selected topics related to the theory and practice of social welfare activities and endeavors. Focus will be on roles of human service workers and methodologies utilized in these roles in a range of social welfare areas. Specific topics will be announced.

Prerequisites & Corequisites: Prerequisite: Consent of instructor.

Credits: 3 hours

Restrictions: May be repeated for credit.

SWRK 5970 - Teaching Apprenticeship in Selected Social Work Curriculum Areas

This course focuses on the development of educational skills for social workers through faculty-directed participation in teaching activities in a selected social work course. Specific learning objectives and expectations for apprentices are arranged with participating faculty. This course may be taken a second time (1-4 credits, or a maximum of 8 total toward degree) by a student who wishes to increase teaching skills through applied practice in another social work area.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students.

SWRK 5980 - Readings in Social Work

This course offers advanced students with good scholastic records an independent program of study, arranged in consultation with the instructor. One to four credit hours per semester.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students.

Sociology

SOC 2000 - Principles of Sociology

An introduction to, and survey of, the discipline of Sociology and its major fields of study. A scientific study and analysis of human behavior and interaction, our social nature and the social world (groups, cultures, religions, institutions, communities and societies) in which we live. Selected concepts, theories and research findings pertaining to social life at both the national and international level are presented and explored. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

When Offered: Fall, Spring

SOC 2100 - Modern Social Problems

The course aims to develop a theoretical framework for understanding selected social problems in American society in such areas as: intergroup conflict, race, poverty, juvenile delinquency and crime, population changes, ecological change, immigration, and mass communication. Problems selected for emphasis may vary with the instructor. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

When Offered: Fall, Spring

SOC 2600 - Introduction to Criminal Justice Studies

This course provides an overview of the American criminal justice system and its responses to crime. The course employs a broad-based interdisciplinary perspective to introduce students to the process, role issues, and areas of concern for the system's three major components; police, courts and corrections. A grade of "C" or better in this course is required to be counted as the prerequisite towards the Criminal Justice Studies major requirement.

Credits: 3 hours

SOC 2610 - Law Enforcement Certification - Variable Topics

The following topics allow Criminal Justice majors to become certifiable as police officers: safety and first aid; police physical skills; criminal investigation; firearms; traffic; patrol procedures; precision driving; and police practical problems.

Prerequisites & Corequisites: Prerequisite: Approval of Criminal Justice Program advisor.

Credits: 1 to 8 hours

Notes: May be repeated for credit.

When Offered: Fall, Spring

SOC 2820 - Methods of Data Collection

This course is an introduction to the quantitative and qualitative methods of data collection in the social sciences. Major topics include ethical issues in social research, library usage and report style, problem formulation, measurement, causation, sampling, survey research, and

field research and other observational techniques.

Credits: 3 hours

When Offered: Fall, Spring

SOC 2830 - Methods of Data Analysis

This course is an examination of data analysis methods in the sociology and criminal justice. Major topics include frequency distributions, data visualization in charts and graphs, measures of central tendency and dispersion, hypothesis testing of means and proportions, cross-tabulation, and bivariate regression and correlation. Computer applications are emphasized.

Prerequisites & Corequisites: Prerequisite: SOC 2820

Credits: 4 hours

When Offered: Fall, Spring

SOC 3000 - Sociological Theory

A study of major theoretical viewpoints in contemporary sociology. The course is oriented toward the understanding, application, and extension of these major perspectives.

Prerequisites & Corequisites: Prerequisite: SOC 2000

Credits: 3 hours

When Offered: Fall, Spring

SOC 3040 - Nonwestern World

This course uses the evolution of modes of production as a key to gaining a meaningful understanding of the cultures of Africa and Asia. Its conceptual framework is the ageless struggle of humankind to (1) come to terms with nature (cultural evolution), (2) come to terms with one another (social evolution), and (3) raise consciousness (the evolution of "universalizing" values). This enables the student to compare and contrast African, Asian, and "Western" cultures; to analyze the impact of these cultures on one another; and to understand the "indivisible nature of the human condition".

Credits: 4 hours

When Offered: Fall, Spring

SOC 3050 - Sociology of Religion

An overview of major theoretical perspectives and empirical studies of the sociology of religion. The course comparative explores the interplay of religion and society across faiths, cultures, civilizations, historical epochs, and countries. It offers comparative perspectives on religions' role in the formation of social identities, cultures, and social institutions in the context of modern societies and globalization.

Prerequisites & Corequisites: Prerequisite: SOC 2000

Credits: 3 hours

SOC 3140 - Ethnic Relations

A study of race and ethnic relations, stressing a global perspective on social relations among varied peoples at different levels of development, and in different parts of the world.

Credits: 3 hours

When Offered: Fall, Spring

SOC 3150 - Sociology of Deviance

This course will examine *deviance* - broadly conceived - from a sociological perspective. We will explore various classical and contemporary theories of deviance, and discuss the methodological practices, challenges, and opportunities that social deviance - as a difficult "site" of research - entails. We will investigate the interactional basis of deviance and the ways in which it is rooted in social psychological process. This will include examination of how people acquire and manage deviant and stigmatized identities, and the social organization of deviant behaviors, lifestyles, relationships, and careers. Issues of definition, social power, and the structure of deviant acts will be covered, along with other related analytical approaches. We will incorporate a number of cross-cultural comparisons of deviance, but will maintain a primary focus on the United States. A broad range of deviant behaviors will be examined, from individual self-injury, to the subcultural dynamics of drug use, to formal organizational and state-corporate criminality. Given the nature and subject matter of this course, some discussions will evoke strong feelings and/or disagreements, but the class is designed to foster respectful and enthusiastic discussion and debate, and to encourage students to effectively learn the material and apply the concepts to everyday life.

Credits: 3 hours

SOC 3160 - Women and Justice

This course is designed to critically review, discuss, and assess the role and treatment of women in U.S. society, particularly within the criminal justice process. It addresses women as offenders, as victims and as workers in the criminal justice system. Students will examine and analyze the dynamics of a changing society, law, and criminal justice system and the intersection of gender, race, and class. Emphasis will be placed on violence against women as a social problem. Additionally, violence against women will be discussed as a contributing factor to women's offending and participation in the criminal justice process. A grade of "C" or better in this course is required to be counted towards the Criminal Justice Studies major requirement.

Prerequisites & Corequisites: Prerequisite: SOC 3620 and SOC 3690 (may be taken concurrently), with a grade of "C" or better in all prerequisites; or instructor approval.

Credits: 3 hours

SOC 3200 - Introduction to Social Psychology

An introduction to social psychological theory and research, covering the interaction of individuals and the relationships of individuals to groups. Includes such topics as social influence, attitudes, socialization, and personality.

Credits: 3 hours

When Offered: Fall, Spring

SOC 3210 - Behavior and Meaning

This course is an introduction to how human behavior and thought is framed by social institutions and cultural practices. Topics may include early socialization, examining the verbal and non-verbal codes for understanding the world, variations in gender roles, expectations and performance, how race and ethnicity influence identity, the damaged self and the impacts of global processes. Emphasis will be placed on a comparative perspective.

Credits: 3 hours

Restrictions: Restricted to majors/minors in sociology or social psychology.

SOC 3340 - East Asia and the World

An introduction to East Asian societies, focusing on international relations, conflict and cooperation, and the role of the United States.

Credits: 3 hours

SOC 3350 - Sociology of Contemporary Latin American

Examines the social, historical, cultural, political, and economic processes affecting the lives of contemporary Latin Americans. Topics may include sustainable development, indigenous rights, social movements, gender relations, ethnic conflict, and tourism. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Credits: 3 hours

SOC 3620 - Criminology

This course provides an introduction to the study of crime and criminal behavior through the systematic examination of criminal theories and causes of crime. A grade of "C" or better in this course is required to be counted towards the Criminal Justice Studies major requirement.

Credits: 3 hours

SOC 3630 - Courts and Society

This course examines the judicial apparatus in the United States and the exercise of direction by criminal justice workers. Approaching the subject from a sociological perspective, key members of the courtroom work-group are considered, such as judges, prosecutors, defense attorneys, and jurors, and their contributions to judicial process are scrutinized, especially within the informal mechanism of plea bargaining and the formal trial process. Particular attention is devoted to how social groups are defined by race, class, gender, and age are treated by these judicial actors. A grade of "C" or better in this course is required to be counted towards the Criminal Justice Studies major requirement.

Prerequisites & Corequisites: Prerequisite: SOC 3620

Credits: 3 hours

SOC 3640 - Policing and Society

Policing and Society is a sociological examination of policing structures and processes, especially in the United States. The course covers the history and functions of policing such as crime-fighting, peacekeeping and community service, new "evidence-based" practices, the process of becoming a police officer, and women and minorities in policing. Controversial topics are also examined, including police-minority relations, uses of force, ethics, corruption, and the policing subculture. Additional topics may include war on drugs, federal law enforcement, and the policing of terrorism. Upon completing the course, students should be able to critically assess and have an understanding of the complexities of police actions in society. A grade of "C" or better in this course is required to be counted towards the Criminal Justice Studies major requirement.

Prerequisites & Corequisites: Prerequisite: SOC 3620

Credits: 3 hours

SOC 3650 - Punishment and Society

An overview of the correctional process as a function of the criminal justice system in contemporary society. A broad perspective is employed based on existing criminological theory and accumulated knowledge of the social, political, and economic influences on the phenomenon of crime and delinquency. The uses of institutional placements, intermediate sanctions, and community-based programming to fulfill the formal and informal goals of corrections are critically assessed.

Prerequisites & Corequisites: Prerequisite: SOC 3620

Credits: 3 hours

SOC 3680 - Race, Ethnicity, and Justice

This course addresses the multicultural dynamics that effect the definition(s) and distribution of justice in the United States. The primary focus is the differential treatment of African Americans, American Indians, Latinos, and Asian Americans throughout the major institutions of society, particularly the legal institution. A critical analysis of the social, political, and economic forces that support the current social structure will direct the inquiry.

Prerequisites & Corequisites: Prerequisites: SOC 3620 or instructor approval.

Credits: 3 hours

SOC 3690 - Critical Issues in Criminal Justice

This course is an examination of the criminal justice system and process with an emphasis on problems and trends. This course provides an analytical overview of justice and its response to the needs of society. It emphasizes the development of critical thinking skills and their application to justice-related problems. Each professor selects a particular course focus based on their areas of teaching and research expertise.

Prerequisites & Corequisites: Prerequisite: SOC 3620 with a grade of "C" or better.

Credits: 3 hours

SOC 4110 - Climate Change and Society

This course analyzes the social structural causes of global warming, the human consequences of the climate crisis, the social and cultural factors that shape how society understands climate change and the proposed social and political responses to these global threats. The course also explores climate change denial and other social and ideological conflicts that are rife in many of these areas of concern.

Prerequisites & Corequisites: Prerequisite: Junior standing and instructor approval.

Credits: 3 hours

Cross-Listed: Cross-listed with ENVS 4110. A student may not receive credit for both ENVS 4110 and SOC 4110.

SOC 4120 - Child Abuse

This course is an examination of child abuse in American society. Medical, psychological, educational, psychiatric, legal, and treatment perspectives are combined in a social analysis. The origins, family context, nature, extent, and social consequences of child abuse are discussed. Currently practiced social and legal solutions are presented, as well as possible social change required to respond to this phenomenon.

Credits: 3 hours

When Offered: Fall, Spring

SOC 4340 - Social Justice and Service Learning

This course for advanced students combines classroom instruction and service learning experience in the community. The course focuses on contemporary social problems and how these problems may hinder equity and social justice. Students will examine community resources, programs, and agencies presently used to assist marginalized groups who are in disadvantageous positions in society because of their gender, race, ethnicity, sexuality, religion or legal status. Students will take knowledge and skills gained in the classroom and engage in ongoing service partnerships with community agencies. Students will gain valuable work experience and a better understanding of the dynamics of social inequity.

Credits: 3 hours

Restrictions: Restricted to undergraduates only.

SOC 4370 - Environmental Justice

This course explores the emergence of environmental justice movements and how risks and benefits associated with economic production are socially distributed. Pursued as a seminar, this course will consider groundbreaking and provocative essays and research on topics such as the concept of environmental justice, the origins, features, and achievements of environmental justice movements, the distribution of environmental justice, especially along class, race and ethnic, sex and gender, and global dimensions, substantive instances of environmental justice centered on food, waste, health, climate, and migration, and the connections between local and global in matters of environmental justice. A grade of "C" or better in this course is required to be counted towards the Criminal Justice Studies major requirement.

Prerequisites & Corequisites: Prerequisites: SOC 3620, SOC 3690, or instructor approval. A grade of "C" or better is required for all prerequisites.

Credits: 3 hours

SOC 4400 - Corporate and Governmental Crime

An examination of the crimes committed by business corporations and government agencies. The course describes the nature, extent, and costs of these organizational crimes, explains the structural and organizational force which give rise to such crimes and analyzes the problem of controlling organizational offenders. The course also examines the political process whereby corporations and governments come to be defined as deviant or criminal.

Prerequisites & Corequisites: Prerequisites: SOC 3620 or instructor approval.

Credits: 3 hours

SOC 4420 - Technology and Society

This course explores various topics relating to the connections between technology and society and modern issues and debates surrounding technology and its uses. The perspective in examining these topics is interdisciplinary, incorporating sociology, criminology, political science, and computer science. Emphasis is on critical analysis of the approaches taken to technology by individuals, groups, corporations, and governments.

Credits: 3 hours

SOC 4440 - Technologies and Controversies in Criminal Justice

This course explores various topics relating to the modern controversies in criminal justice, especially those involving the application of technology to the criminal justice system. The perspective in examining these topics is interdisciplinary, incorporating sociology, criminology, political science, and computer science. Emphasis is on critical analysis of the arguments in the debates surrounding criminal justice technology and controversies.

Credits: 3 hours

SOC 4460 - Surveillance and Society

The goal of this course is to study the idea and practice of surveillance so that its role in the production and maintenance of social order is clarified. While this course will be concerned with the sociological literature on surveillance, it will also be interdisciplinary with reading material taken from the fields of art, criminology, philosophy, media studies, public health, history, and more. In the first several weeks an examination of the central

concepts and theories of surveillance will be the primary occupation of the course. Next, tension between privacy and publicity will be inspected. The second half of the course will investigate areas in which surveillance finds practical application such as deviance/social control, medicine/welfare, self-monitoring, and border control. This course will proceed as a seminar. A grade of "C" or better in this course is required to be counted towards the Criminal Justice Studies major requirement.

Prerequisites & Corequisites: Prerequisites: SOC 3620, SOC 3690, or instructor approval. A grade of "C" or better is required for all prerequisites.

Credits: 3 hours

SOC 4480 - Media, Crime, and Society

This course examines the relationship between media and crime in the United States and other societies. Attention is directed toward an understanding of what media are as well as how one might develop media literacy skills. Central theoretical accounts about the relationship between media and crime are explored such as social construction, moral panic, and cultural criminology. Current research into the relationship between media and crime is examined in a host of domains important to the criminological project, including law and policy making, law breaking and victimization, policing, courts, and punishment. A grade of "C" or better in this course is required to be counted towards the Criminal Justice Studies major requirement.

Prerequisites & Corequisites: Prerequisites: SOC 3620; SOC 3690 or writing-intensive course in one's major or curriculum; or instructor approval. A minimum grade of "C" is needed in all prerequisites.

Credits: 3 hours

SOC 4520 - Drugs and Society

This course examines recreational and mind/mood-altering drug use and societal responses to it. We will be concerned with both prohibited substances such as heroin as well as regulated substances such as alcohol, tobacco and prescribed therapeutic drugs (including cannabis and opioid). This is a sociology course, so while we will consider the bio-psychological effects of drugs, our primary interests will be in the historical, cultural and normative dimensions of drug use and mis-use, drugs as a social problem and the uses of law and policy to regulate it, and the sociocultural connections between drug use and social life overall. We will also examine treatment and prevention

issues, especially as these have evolved over the decades and in response to scientific research and debates. Although our primary focus is on the United States, global trends and influences are also considered. Lecture and discussion, with student input expected through papers or projects. A grade of "C" or better in this course is required to be counted towards the Criminal Justice Studies major requirement.

Prerequisites & Corequisites: Prerequisites: SOC 3620, SOC 3690, or instructor approval. A grade of "C" or better is required for all prerequisites.

Credits: 3 hours

SOC 4540 - Juvenile Delinquency and Justice

This course covers the juvenile justice system and the delinquent behaviors with which the system is concerned. Specifically, extent, causative factors, theories, methods of treatment, and programs of prevention and control are covered. A grade of "C" or better in this course is required to be counted towards the Criminal Justice Studies major requirement.

Prerequisites & Corequisites: Prerequisites: SOC 3620, SOC 3690, or instructor approval. A grade of "C" or better is required for all prerequisites.

Credits: 3 hours

SOC 4660 - Advanced Criminology

This is the capstone course for the criminal justice major. The course examines the intersection of criminological theory, public policies on crime, and political ideology. A number of important crime control policies are analyzed. Students are asked to examine the political philosophy and theoretical ideas which underlie these policies, the research evidence on their effectiveness, and their political implications.

Prerequisites & Corequisites: Prerequisites: SOC 2820, (SOC 2830 or STAT 2830), SOC 3620, SOC 3630, SOC 3640 and SOC 3650.

Credits: 3 hours

When Offered: Fall, Spring

SOC 4670 - Community Policing

Study of the role of the police in the community by looking at the public's perceptions, knowledge, and expectations, and the police's responsibilities in community relations. This course stresses the practical application of knowledge to contemporary issues facing police such as the use of deadly force, police performance, neighborhood patrols, politics of law enforcement, minority relations, victimless crime, and the resolution of police/community differences.

Prerequisites & Corequisites: Prerequisites: SOC 3620, SOC 3690, or instructor approval. A grade of "C" or better is required for all prerequisites.

Credits: 3 hours

SOC 4750 - Applied Research in Criminal Justice

A specialized course dealing with applied research in criminal justice, criminology, deviance, or sociology. The topic will vary by semester and by instructor to focus on a specific problem, project, or area of study. A grade of "C" or better in this course is required to be counted towards the Criminal Justice Studies major requirement.

Credits: 3 hours

Notes: May be repeated for credit.

SOC 4800 - Advanced Sociology

This is the capstone course for Sociology majors. It locates the various theories and methods used in sociology to examine the social world in which we live. The students are expected to critically examine the social world in which we live, the theoretical underpinnings, and the relevant research evidence dealing with several illustrations of social institutions and social processes.

Prerequisites & Corequisites: Prerequisites: SOC 2820, (SOC 2830 or STAT 2830), SOC 3000, SOC 3200 and department approval.

Credits: 3 hours

When Offered: Fall, Spring

SOC 4920 - The Family as a Social Institution

The family viewed in historical and cross-cultural perspectives. A structural-functional analysis of the family institution and the relationship between the social structure

of society and the family system. Emphasis is placed on change and comparative analysis.

Prerequisites & Corequisites: Prerequisite: SOC 2000

Credits: 3 hours

SOC 4930 - Family Violence

The family, as a social institution, is a common place for interpersonal victimization. This course examines the ways people are harmed by family members from childhood through old age. Topics will include child abuse and neglect, sibling abuse and bullying, intimate partner violence/domestic violence, and elder abuse and neglect.

Prerequisites & Corequisites: Prerequisites: SOC 3620, SOC 3690, or instructor approval. A grade of "C" or better is required for all prerequisites.

Credits: 3 hours

SOC 4950 - Special Topics in Sociology or Criminal Justice: Variable Topics

A specialized course dealing, each time it is scheduled, with some particular aspect of sociology or criminal justice not usually included in other course offerings.

Prerequisites & Corequisites: Prerequisite: SOC 2000

Credits: 1 to 3 hours

Notes: May be repeated for credit with a different topic.

SOC 5200 - Studies in Social Psychology: Variable Topics

Further analysis of selected topics in social psychology not intensively covered in other courses. Specific topic will be designated in the course title when scheduled.

Prerequisites & Corequisites: Prerequisite: SOC 3200 and nine hours of other upper-level (3000- or 4000-level) sociology courses.

Credits: 3 hours

Notes: May be repeated for credit with a different topic. Open to upper level and graduate students.

SOC 5235 - Self and Social Identities

SOC 4960 - Criminal Justice Studies Internship

The Criminal Justice Studies Internship provides the student with the unique opportunity to apply academic learning to real world situations. The internship offers field service training with a public or private criminal justice related agency at the state or local level. Internships must be arranged with the internship supervisor in the regular academic semester prior to enrolling for credit.

Prerequisites & Corequisites: Prerequisite: Approved application.

Credits: 1 to 6 hours

Notes: May be repeated for credit. No more than 6 hours total will be approved.

When Offered: Fall, Spring, and Summer I and II.

SOC 4980 - Sociology Internship

Opportunity is provided for supervised experiences in local organizations or activities in such areas as criminal justice, gerontology, and urban studies.

Prerequisites & Corequisites: Prerequisite: Approved application.

Credits: 2 to 8 hours

Notes: May be repeated for credit.

When Offered: Fall, Spring

This course discusses how micro-level identities and interactions illustrate macro-level social inequalities. Students will learn how varied structural and contextual factors affect individuals' perceptions of themselves, their behaviors, their interactions with others, and how they are perceived in society based on their structural positions such as gender, class, race, nationality, religion, and mental illness.

Prerequisites & Corequisites: Prerequisites: SOC 3200 with a grade of "B" or higher and nine hours of upper-level (3000-4000) sociology courses.

Credits: 3 hours

Notes: Open to upper level and graduate students.

SOC 5420 - Medicine, Culture and Society

This course explores theoretical and practical issues in how to approach the study of illness and medical system. This is an interdisciplinary and internationally focused class that will examine the classic literature that grounds the study of medicine and society as well as recent theoretical literature that demonstrates the breadth of approaches today. The class focuses on an examination of the work of interdisciplinary medical social scientists with several thematic topics including medicalization, the history of health disparities, the structure of health systems and global marketing of health products and the consequences of medical interventions. Our focus is on qualitative research that theoretically explores the ways in which cultural and social knowledge (including class, race and gender) influences health, illness and health outcomes.

Prerequisites & Corequisites: Prerequisite: Junior standing or 9 hours of upper-level (3000, 4000) classes and an overall GPA of 3.0.

Credits: 3 hours

Notes: Open to upper level and graduate students.

SOC 5620 - Victimology

Victimology involves the study of victims (of crime or otherwise), offenders, and society. This course is intended to familiarize students with the concerns of and about victims of harm. The focus will be on the impact of victimization (physically, psychologically, etc.), as well as the ways our culture responds to it. This will include a critical examination of victim-offender relationships, the dynamics of various types of victimization, as well as social and institutional responses. A grade of "C" or better in this course is required to be counted towards the Criminal Justice Studies major requirement.

Prerequisites & Corequisites: Prerequisites: SOC 3620, SOC 3690, or instructor approval. A grade of "C" or better is required for all prerequisites.

Credits: 3 hours

Restrictions: A grade of "C" or better in this course is required to be counted towards the Criminal Justice Studies major requirement.

Notes: Open to upper level and graduate students.

SOC 5900 - Variable Topics in Sociology

An examination of a selected topic in the field of sociology. The focus of the course may be theoretical, methodological, or substantive. Possible topics could include feminist theory, sampling and survey design, poverty, and cultural studies.

Prerequisites & Corequisites: Prerequisites: SOC 2000 and nine hours of other upper-level (3000- or 4000-level) sociology courses.

Credits: 3 hours

Notes: May be repeated for credit with a different topic. Open to upper level and graduate students.

SOC 5980 - Directed Individual Study

A program of independent study (reading or research) to provide the unusually qualified sociology student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the department. The initiative for planning the topic for investigation must come from the student. Approval is contingent upon the merit of the proposal. Two or three hours credit per semester, cumulative to six hours. Enrollment beyond the first semester may be either for the same topic or for a new topic.

Prerequisites & Corequisites: Prerequisite: Approval of instructor and the department chairperson.

Credits: 2 to 6 hours

Notes: Open to upper level and graduate students.

Spanish

SPAN 1000 - Basic Spanish I

Fundamentals of Spanish. A four-skills approach (speaking, listening, reading, writing) with emphasis on communication.

Credits: 4 hours

When Offered: Fall, Spring, Summer I, Summer II

SPAN 1010 - Basic Spanish II

As the continuation of Spanish 1000, Spanish 1010 presupposes an elementary knowledge of vocabulary and basic grammatical structures in the language. The course

fosters the further development of all four language skills (i.e., listening, speaking, reading, and writing) as well as basic knowledge about Spanish-speaking cultures. Students will engage in uncomplicated communicative tasks in straightforward social situations by using short messages. They will engage in tasks such as giving personal information, expressing preferences, immediate needs, naming basic objects, as well as a number of common activities. Students will learn major features of the Spanish culture, analyzing connections between products, practices and perspectives. They will distinguish and describe intercultural differences and continuities as they relate to enduring and vital social questions. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Prerequisites & Corequisites: Prerequisite: SPAN 1000 or equivalent.

Credits: 4 hours

When Offered: Fall, Spring, Summer I, Summer II

SPAN 2000 - Intermediate Spanish I

As the continuation of Spanish 1010, Spanish 2000 presupposes an elementary knowledge of vocabulary and basic grammatical structures in the language. The course fosters the further development of all four language skills (i.e., listening, speaking, reading, and writing) as well as in-depth knowledge about Spanish-speaking cultures. The students will engage in communicative tasks in a variety of social situations by using complex messages. They will engage in tasks such as giving personal information, expressing preferences, and describing past and future events. The students will learn major features of the Spanish-speaking cultures, analyzing connections between products, practices and perspectives. They will distinguish and describe intercultural differences and continuities as they relate to enduring and vital social questions. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Prerequisites & Corequisites: Prerequisite: SPAN 1010 or equivalent.

Credits: 4 hours

When Offered: Fall, Spring, Summer I or Summer II

SPAN 2010 - Intermediate Spanish II

As the continuation of Spanish 2000, Spanish 2010 presupposes an intermediate knowledge of vocabulary and grammatical structures in Spanish. The course further develops all four language skills (i.e., listening, speaking, reading, and writing) as well as nuanced knowledge about Spanish-speaking cultures. The students will engage in both familiar and more formal communicative tasks in a variety of social situations. They will perform tasks such as expressing preferences, describing past and future events discussing hypothetical situations, and giving suggestions. The students will learn major features of the Spanish-speaking cultures, analyzing connections between products, practices and perspectives. They will distinguish and describe intercultural differences and continuities as they relate to enduring and vital social questions. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – World Language and Culture Category.

Prerequisites & Corequisites: Prerequisite: SPAN 2000 or equivalent.

Credits: 4 hours

When Offered: Fall, Spring

SPAN 3080 - Spanish for Heritage Speakers

For students who have grown up in a Spanish-speaking environment and understand and speak Spanish but have had limited or no formal study of the language. Attention is given to all four language skills (listening, speaking, reading, and writing); however, the main focus is on reading and writing.

Prerequisites & Corequisites: Prerequisite: Departmental placement or instructor approval.

Credits: 3 hours

When Offered: Fall

SPAN 3160 - Spanish Composition

Emphasis upon increasing the student's command of written Spanish.

Prerequisites & Corequisites: Prerequisite: SPAN 2010 or equivalent.

Credits: 3 hours

When Offered: Fall, Spring

SPAN 3170 - Spanish Conversation

Emphasis upon increasing the student's command of spoken Spanish.

Prerequisites & Corequisites: Prerequisite: SPAN 2010 or equivalent.

Credits: 3 hours

When Offered: Fall, Spring

SPAN 3180 - Spanish for the Professions

A practical course focused on career-specific Spanish vocabulary, language skills, and content for a variety of professions. Attention is placed on using Spanish in the global economy and understanding the work values and practices of Hispanic cultures and communities.

Prerequisites & Corequisites: Prerequisites: SPAN 3160 and SPAN 3170, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

SPAN 3210 - Life and Culture of Hispanics in U.S.

A study of the life and culture of people of Hispanic origin who live in the United States. This course will examine the establishment and development in the U.S. of the culture of large groups of Hispanics, such as those of Cuban, Mexican, and Puerto Rican origin, as well as numerous others. Attention will be given to current manifestations of Hispanic culture in the arts, the media, education, and public life.

Prerequisites & Corequisites: Prerequisites: SPAN 3160 and SPAN 3170.

Credits: 3 hours

When Offered: Fall, Spring

SPAN 3220 - Life and Culture of Spain

A study of Spanish civilization in terms of its geography, history and art, and how these factors illuminate the character and tradition of the Spanish people. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Prerequisites & Corequisites: Prerequisites: SPAN 3160 and SPAN 3170.

Credits: 3 hours

When Offered: Fall, Spring

SPAN 3230 - Life and Culture of Spanish America

A study of Spanish-American life and culture based on ethnic, historical, social, religious and literary considerations. This course develops and provides familiarity with the diverse cultural and historical features of Spanish America. All the history, literature, cinema, and music covered in this class will grant students the opportunity to develop an understanding of and respect for the rich cultural differences of Spanish America. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Prerequisites & Corequisites: Prerequisites: SPAN 3160 and SPAN 3170.

Credits: 3 hours

When Offered: Fall, Spring

SPAN 3240 - Introduction to the Study of Spanish Linguistics

The Linguistic Society of America defines linguistics as the science of language, and linguists as scientists who apply the scientific method to questions about the nature and function of language. This course is a general survey of the different fields of Spanish linguistics, both theoretical (e.g., phonetics/phonology, syntax, and semantics) and applied (e.g., pragmatics, discourse analysis, sociolinguistics, and bilingualism). It introduces students to basic concepts of linguistics as a science as well as to the scientific method as it is applied to the field of linguistics. Throughout the course, students are introduced to language analysis by making research questions, constructing hypotheses, applying diagnostics, analyzing data and drawing conclusions. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Prerequisites & Corequisites: Prerequisites: SPAN 3160 and SPAN 3170.

Credits: 3 hours

SPAN 3250 - Introduction to the Study of Spanish Literature

An appreciation of Spanish literature through reading and critical interpretation of selected works of various literary types. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Prerequisites & Corequisites: Prerequisites: SPAN 3160 and SPAN 3170, or equivalent.

Credits: 3 hours

SPAN 4100 - Studies in Hispanic Culture

An intensive study of various aspects of Spanish and Spanish American culture. Emphasis is on cultural understanding as an avenue to increased proficiency in the Spanish language.

Prerequisites & Corequisites: Prerequisites: SPAN 3160, SPAN 3170, and two of the following: SPAN 3210, SPAN 3220, SPAN 3230, SPAN 3240 or SPAN 3250.

Credits: 3 hours

Notes: Since specific topics will vary each semester, this course may be repeated for credit.

SPAN 4200 - Spanish Study Abroad - Global Perspectives

An intensive on-site study of various aspects of Spanish or Spanish American culture. Emphasis is on cultural understanding, increased proficiency in the Spanish language, and awareness of diversity and inclusion in a globalized world. This course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category.

Prerequisites & Corequisites: Prerequisite: Departmental approval.

Credits: 3 hours

Restrictions: Restricted to majors and minors in Spanish.

SPAN 4400 - Internship or Service with Spanish

An opportunity for students to utilize and improve their Spanish language skills in an internship or volunteer work in business, schools, government, hospitals, churches, and various types of service organizations.

Prerequisites & Corequisites: Prerequisites: Student must have completed a minimum of 15 hours of Spanish in courses at the 3000-level or above; students also must have approval of instructor before registering.

Credits: 2 to 3 hours

SPAN 4520 - Advanced Spanish Grammar and Composition

An advanced study of the intricacies and problems of Spanish grammar, syntax, and style with attention to improving written expression in Spanish at an advanced level.

Prerequisites & Corequisites: Prerequisites: SPAN 3160, SPAN 3170, and one of the following: SPAN 3210, SPAN 3220, SPAN 3230, SPAN 3240 or SPAN 3250.

Credits: 3 hours

SPAN 4530 - Advanced Spanish Conversation

Intensive practice to reinforce and expand the basic oral communication skills and to develop flexible and idiomatic oral expression.

Prerequisites & Corequisites: Prerequisites: SPAN 3160, SPAN 3170, and one of the following: SPAN 3210, SPAN 3220, SPAN 3230, SPAN 3240 or SPAN 3250.

Credits: 3 hours

SPAN 4550 - Conversation for the Professions

Intensive practice to reinforce and expand basic oral communication skills and develop flexible and idiomatic oral expression. Topics vary to focus on professional fields (such as health care, business, or criminal justice) and cover the vocabulary, topics, and situations specific to those fields.

Prerequisites & Corequisites: Prerequisites: SPAN 3160 and SPAN 3170 with a minimum grade of "C" or

departmental approval, and one of the following: SPAN 3210, SPAN 3220, SPAN 3230, SPAN 3240 or SPAN 3250.

Credits: 3 hours

Notes: May be repeated for credit.

SPAN 4760 - Foreign Study - Non WMU Student

Student participation in pre-approved program of study abroad that is not through Western Michigan University.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 16 hours

Notes: Repeatable for credit up to 32 credit hours.

When Offered: Fall/Spring (1-16 hours); Summer I/II (1-8 hours)

SPAN 4770 - Foreign Study

Student participation in a departmentally approved program of study abroad.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 16 hours

Notes: Repeatable for credit up to 32 credit hours.

When Offered: (Fall-Winter 1 to 16 hours) Spring-Summer 1 to 8 hours

SPAN 5020 - Spanish for Graduate Study

Spanish instruction for graduate students enrolled in a degree program who need knowledge of Spanish for their field of study. Students will sit in appropriate level course for learning.

Prerequisites & Corequisites: Prerequisites: Approval of department of student's graduate program and approval of Department of Spanish.

Credits: 3 to 4 hours

Restrictions: May not be taken by undergraduate students in any field nor by graduate students of Spanish.

Notes: May be repeated for credit.

SPAN 5260 - Survey of Spanish Literature to the 18th Century

A survey of Spanish literature from its origin to, and including, the seventeenth century.

Prerequisites & Corequisites: Prerequisites: SPAN 3160, SPAN 3170 and SPAN 3250.

Credits: 3 hours

Notes: Open to upper level and graduate students.

SPAN 5270 - Survey of Spanish Literature from the 18th Century to the Present

A survey of Spanish literature from the eighteenth century to the present.

Prerequisites & Corequisites: Prerequisites: SPAN 3160, SPAN 3170 and SPAN 3250.

Credits: 3 hours

Notes: Open to upper level and graduate students.

SPAN 5280 - Survey of Spanish American Literature to Modernismo

A survey of Spanish American literature from its origin to the era of *Modernismo* (late 19th century).

Prerequisites & Corequisites: Prerequisites: SPAN 3160, SPAN 3170 and SPAN 3250.

Credits: 3 hours

Notes: Open to upper level and graduate students.

SPAN 5290 - Survey of Spanish American Literature from Modernismo to the Present

A survey of Spanish American literature from late 19th century to the present.

Prerequisites & Corequisites: Prerequisites: SPAN 3160, SPAN 3170 and SPAN 3250.

Credits: 3 hours

Notes: Open to upper level and graduate students.

SPAN 5400 - Studies in Spanish Linguistics

Topics vary according to area and will be announced. Each of these courses carries separate credit, although all are listed under 5400. Topics include: Old Spanish - Evolution of the Spanish language from Latin. Spanish Language and Contemporary Society - The relationship between the Spanish language and modern Spanish culture. Spanish Word Formation - The creation of nouns, verbs, and adjectives in Spanish. Spanish Sound Systems - The organization of sound patterns and stress in Spanish. Spanish Dialectology - Differences in Spanish pronunciation, vocabulary, and grammar in different regions of the Spanish-speaking world. Spanish in Contact - How exposure to other languages affects the Spanish spoken by bilinguals. Structure of Spanish Language - Word order and principles of grammatical organization in Spanish.

Prerequisites & Corequisites: Prerequisites: SPAN 3160, SPAN 3170 and SPAN 3240.

Credits: 3 hours

Notes: May be repeated for credit when topics vary. Open to upper level and graduate students.

SPAN 5500 - Independent Study in Spanish

Directed, individual study of a specific topic in a Spanish literary or linguistic area.

Prerequisites & Corequisites: Prerequisite: One of the following: SPAN 5260, SPAN 5270, SPAN 5280, SPAN 5290 or SPAN 5600; and department approval.

Credits: 1 to 3 hours

Restrictions: Not open to minors.

Notes: May be repeated for credit. Open to upper level and graduate students.

SPAN 5570 - Modern Language Instruction I

This course informs prospective teachers about the principles and practices of modern language instruction.

Students study second language acquisition theory and approaches to teaching the four skills of listening, speaking, reading, and writing as well as grammar and culture.

Prerequisites & Corequisites: Prerequisites: One semester abroad in a Spanish-speaking country or a minimum score of Advanced Low on the OPI exam, and a minimum GPA of 3.0 in Spanish courses for the major, and prior approval of the instructor before registering.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall, Spring

SPAN 5600 - Studies in Spanish Literatures

Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 5600. Thus, a student may take any or all of the offerings at various times. Representative topics which may be treated in this area include: Modern Spanish Women Writers; Modern Spanish Theatre; Modern Spanish-American Theatre; Fable and Fantasy in Early Spain; Spanish-American Literature and Film; Humor in Spanish Theatre; Sex, Lies, and Manuscripts in the Spanish Middle Ages; The Spanish-American Short Story; Spanish Short Story and Poetry; Literature of the Spanish Civil War.

Prerequisites & Corequisites: Prerequisite: SPAN 3160, SPAN 3170 and SPAN 3250.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Special Education

SPED 3150 - Introduction to Early Childhood Special Education

This course will introduce information about children with special needs from age's birth through eight. Content will include laws specific to the education of young children with disabilities, discussion of early developmental milestones, the impact of early development on later functioning, the role of the family in early intervention, and recommended practices for assessment of and intervention with young children with disabilities.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 hour

Restrictions: Restricted to majors in Special Education: Mentally Impaired, Special Education: Learning Disabilities, and Special Education: Emotionally Impaired.

SPED 3300 - Foundations of Special Education

What makes special education special? This course provides an overview of special education, describing current best practices and their historical foundations. Topics include learning and behavioral characteristics of students with disabilities, major legislation and policies, Council for Exceptional Children (CCE) ethical principles, the over-representation of underrepresented groups, and the roles, rights and responsibilities of students, parents, teachers, and school administrators. Program requires a grade of "CB" or better.

Prerequisites & Corequisites: Prerequisite: Department approval and concurrent enrollment with SPED 3380 and SPED 3310.

Credits: 3 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities/Emotional impairments and Learning Disabilities/Cognitive Impairments.

When Offered: Fall

SPED 3310 - Field Experience in Special Education I: Effective Instruction

This field experience exposes students to diverse classroom settings. Students will observe and practice explicit instructional skills, including gaining attention, pacing, offering specific praise, and providing corrective feedback. Students will observe and apply information and skills gained in co-requisite courses.

Prerequisites & Corequisites: Prerequisites: Department approval and concurrent enrollment in SPED 3300 and SPED 3380.

Credits: 3 hour

Restrictions: Restricted to majors in Special Education:

Learning Disabilities/Emotional Impairments.

Notes: Graded on a credit/no credit basis.

When Offered: Fall

SPED 3380 - Prevention and Intervention Techniques for Establishing Positive School Environments

This course provides an overview of applied behavior analysis and their application in schools for establishing positive classrooms and facilitating positive student behavior. Topics include basic classroom management strategies, positive teacher-student relationships, classroom rules, procedures, consequences, prevention of problem behavior through effective teaching, specific intervention techniques, functional assessments to develop behavior plans and medications. Program requires a grade of "CB" or better.

Prerequisites & Corequisites: Prerequisite: Department approval and concurrent enrollment with SPED 3300 and SPED 3310.

Credits: 3 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.

When Offered: Fall

SPED 3390 - Collaboration and Communication in Special Education

This course will provide an introduction to collaboration and communication skills needed by special educators as they work with other professionals and parents.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 3 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities and Special Education: Exceptional Child.

SPED 3700 - Introduction to Emotional Impairments

This course provides an introduction to the field of emotional impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined.

Prerequisites & Corequisites: Prerequisites: Department approval and concurrent enrollment in SPED 3710 and SPED 3750.

Credits: 3 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities & Emotional Impairments; and Special Education: Emotionally Impaired.

SPED 3710 - Field Experience in Emotional Impairments

This field experience provides students with an opportunity to work 6 hours per week (in two, three-hour blocks) in an elementary, middle, or high school classroom with learners with emotional impairments. It is intended to build upon experiences from SPED 3310 and allow students to more fully participate in classroom teaching activities.

Prerequisites & Corequisites: Prerequisites: Department approval and concurrent enrollment in SPED 3700 and 3750.

Credits: 3 hour

Restrictions: Restricted to majors in Special Education and Elementary Education: Learning Disabilities and Emotional Impairments.

Notes: Graded on a credit/no credit basis.

When Offered: Spring

SPED 3750 - Strategic Interventions for Social and Academic Behaviors

This course focuses on the development and delivery of evidence-based practices to meet the instructional and curricular goals of students with documented behavioral and/or learning problems within one-to-one, small group, or large group settings. Program requires a grade of "CB" or better.

Prerequisites & Corequisites: Prerequisites: SPED 3300 and SPED 3310 and SPED 3380; Corequisites: Department approval and concurrent enrollment in SPED 4350, SPED 4800 and SPED 4810.

Credits: 3 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.

When Offered: Fall

SPED 3960 - Topical Studies in Special Education

A course on a variety of selected topics in the field of special education. Each offering of SPED 3960 will be given an appropriate subtitle which will be listed on the student's official transcript.

Credits: 1 to 3 hours

Notes: May be repeated for credit.

SPED 4040 - Field Experience in Special Education II: Data-Based Decision Making and Effective Instruction

This field experience provides students with practice in individualized decision-making and instruction in the Common Core area of English Language Arts, and Content Areas in K-5 setting. Individualized instruction plans emphasize explicit modeling and efficient guided practice to assure acquisition and fluency through maintenance and generalization. Students will observe and apply information and skills gained in co-requisite courses.

Prerequisites & Corequisites: Prerequisites: Department approval and concurrent enrollment in SPED 4330 and SPED 4340.

Credits: 3 hour

Restrictions: Restricted to majors in Special Education: Learning Disabilities/Emotional Impairment.

Notes: Graded on a credit/no credit basis.

When Offered: Spring

SPED 4100 - Seminar in Special Education: Learning Disabilities and Emotional Impairments

This seminar is taken concurrently with SPED 4750 and is open for only special education undergraduate students

who have completed all of their special education professional sequence requirements. It will consist of weekly meetings to discuss issues related to their full-time intern teaching (SPED 4750).

Prerequisites & Corequisites: Prerequisite: Department approval. Corequisite: SPED 4750 and SPED 4760.

Credits: 2 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities and Emotional Impairments.

SPED 4270 - Learners with Disabilities in Elementary and Middle School Programs

This course is designed for prospective and practicing elementary and middle school teachers. Emphasis is placed on meeting the needs of learners with disabilities in elementary and middle school programs. Required curriculum adaptation and modification as well as identification and development of resources and services for these learners are stressed. Program requires a grade of "CB" or better. May repeat course one time only.

Credits: 3 hours

Restrictions: Restricted to majors in Early Childhood; Elementary and Pre-Elementary Professional; Elementary Group Minors; Physical Education: Exceptional Child; and Speech Pathology and Audiology.

Notes: Not acceptable for Special Education majors.

SPED 4290 - Learners with Disabilities in Secondary Education Programs

This course is designed for prospective and practicing secondary education teachers. Emphasis is placed on meeting the needs of learners with disabilities in general education secondary programs. Required curriculum adaptation and modification as well as identification and development of resources and services for these learners are stressed. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisites: ED 3000 and ED 4060 (may be taken concurrently), with a grade of "CB" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to Secondary Education majors in Biology, Chemistry, English, Earth Science, French, Geography, German, History, Latin, Math, Physics, Political Science, Social Studies, Spanish; and Elementary Education majors in French, German; and Health Education: School majors; and Speech Pathology and Audiology majors.

Notes: Not acceptable for Special Education majors.

When Offered: Fall, Spring

SPED 4330 - Assessment and Data-Based Decision Making in Special Education

The purpose of this course is to introduce students to assessment within a multi-tiered system of support emphasizing progress monitoring and data-based decision making for screening, classification, instructional planning, and evaluation. Topics will include principles of measurements, informal and formal assessment procedures, use and limitations of assessments, legal and ethical issues in assessments, and using technology to conduct assessments. Program requires a grade of "CB" or better.

Prerequisites & Corequisites: Prerequisites: Department approval and concurrent enrollment in SPED 4040 and SPED 4340.

Credits: 3 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.

When Offered: Spring

SPED 4340 - Evidence-Based Instruction I: Focus on K-5 Foundations of Reading, Written Language, and Content Areas

This course will focus on theories and research that form the basis of curriculum development and instructional practices within the Common Core of English Language Arts, and Content Areas for K-5 learners including students with high incidence disabilities and those students academically at-risk. The course will emphasize application of ethical principles and practices in planning and delivering explicit differentiated instruction using universal design for learning (UDL) principles, evidence-based instructional strategies, collaborative strategies, assistive technology, and development of self-determination skills within the context of assigned professional learning communities that ensure access to general education

curriculum for students with high incidence disabilities and those academically at risk. Program requires a grade of "CB" or better.

Prerequisites & Corequisites: Prerequisites: Department approval and concurrent enrollment in SPED 4040 and SPED 4330.

Credits: 3 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.

When Offered: Spring

SPED 4350 - Evidence-Based Instruction II: Focus on 6-12 Language Arts, Math, Science and Social Studies

This course will focus on theories and research that form the basis of the Common Core in the areas of language arts, mathematics, science and social studies. The course will emphasize application of ethical principles and practices in planning and delivering differentiated instruction using universal design for learning (UDL) principles, evidence-based instructional strategies, collaborative strategies, assistive technology, and development of self-determination skills within the context of assigned professional learning communities that ensure access to general education curriculum for students with high incidence disabilities and those academically at risk leading to successful transition beyond high school. Program requires a grade of "CB" or better.

Prerequisites & Corequisites: Prerequisites: Department approval and concurrent enrollment in SPED 4800 and SPED 4810.

Credits: 3 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.

When Offered: Fall

SPED 4750 - Intern Teaching in Special Education: Emotional Impairments

This intern teaching experience is open only for special education undergraduate students who have completed all of their special education professional sequence requirements. It will consist of full-time intern teaching in

an appropriate educational setting serving students with disabilities. Students will participate in all phases of the school program to which they are assigned.

Prerequisites & Corequisites: Prerequisites: Department approval and concurrent enrollment in SPED 4100 LD and EI and SPED 4760.

Credits: 6 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.

Notes: Credit/No Credit only.

When Offered: Fall, Spring

SPED 4760 - Intern Teaching in Special Education: Learning Disabilities

This intern teaching experience is taken concurrently with SPED 4100 and SPED 5725 and is open only for special education undergraduate students who have completed all of their special education professional sequence requirements. It will consist of full-time intern teaching in an appropriate educational setting serving students with disabilities. Students will participate in all phases of the school program to which they are assigned.

Prerequisites & Corequisites: Prerequisites: Department approval and concurrent enrollment in SPED 4100 and SPED 5725.

Credits: 6 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.

Notes: Credit/No Credit only.

When Offered: Fall, Spring

SPED 4800 - Development and Characteristics of High Incidence Disabilities

This course provides an overview of the etiology, development and characteristics of students with high incidence disabilities including learning disabilities. Various direct and indirect service options that facilitate the success of all students as they access general curriculum will be emphasized. Additionally, this course covers the laws that affect students with learning disabilities, history, assessment, medical aspects, teaching of young children and adolescents, and teaching strategies for pre-academic

learning, oral language, reading, writing, mathematics, and social-emotional development. Current topics relevant to the education of students with high incidence disabilities including learning disabilities (i.e., response to intervention, collaboration, co-teaching, UDL, and technology integration) will be explored as well as the identification of research-based instructional practices. Program requires a grade of "CB" or better.

Prerequisites & Corequisites: Prerequisites: Department approval and concurrent enrollment in SPED 4350 and SPED 4810.

Credits: 3 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.

When Offered: Fall

SPED 4810 - Field Experience in Special Education III: Strategic Interventions for Learners with High Incidence Disabilities

The field experience emphasizes the use of data-based decision making and functional assessment to design, implement, and evaluate interventions that address the academic or social behaviors of learners. Students will observe and apply information and skills gained in co-requisite courses.

Prerequisites & Corequisites: Prerequisites: Department approval and concurrent enrollment in SPED 4350 and SPED 4800.

Credits: 3 hour

Restrictions: Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.

Notes: Graded on a credit/non-credit basis.

When Offered: Fall

SPED 4850 - Education of Learners with Learning Disabilities

This course examines several theoretical perspectives which attempt to explain why students with learning disabilities fail to learn. Within each perspective, the application of selected theories to the Clinical Teaching Model is addressed. Emphasis is placed on the validity of interventions derived from each theory.

Prerequisites & Corequisites: Prerequisites: Department approval and concurrent enrollment in SPED 4800 and SPED 4810.

Credits: 3 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities.

SPED 5000 - Topical Issues in Educating Learners with Disabilities

This course provides a survey or in-depth coverage of current issues directly related to the education of learners with disabilities.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 4 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities; Special Education: Cognitively Impaired; and Special Education: Emotionally Impaired.

Notes: The course may be repeated for credit. Open to upper level and graduate students.

SPED 5040 - Teaching Practicum in Special Education

This course provides the student with a structured assignment working with a learner who is at-risk or has a disability. It is intended to enable the students to demonstrate skills in assessment and prescription and in the implementation and evaluation of a tutorial plan of instruction for a specific learner in a mainstreamed or self-contained setting.

Prerequisites & Corequisites: Prerequisites: SPED 5300 and SPED 5330; and concurrent enrollment in SPED 5340.

Credits: 1 to 2 hours

Restrictions: Restricted to graduate students only.

Notes: Graded on a Credit/No Credit basis.

SPED 5070 - Seminar in Special Education: Focus on Emotional Impairments

This seminar provides a review of key concepts in the field of emotional impairments with emphasis on content from the Michigan Test for Teacher Certification and the PRAXIS tests in emotional impairments or severe behavior disorders.

Credits: 2 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

SPED 5080 - Seminar in Special Education: Focus on Learning Disabilities

This seminar provides a review of key concepts in the field of learning disabilities with emphasis on content from the Michigan Test for Teacher Certification and the PRAXIS tests in learning disabilities.

Credits: 2 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

SPED 5300 - Introduction to Special Education

This course introduces students to the characteristics and needs of learners with sensory, physical, cognitive, emotional, and learning disabilities. Students develop an understanding of the psychological, sociological, philosophical, legal, and educational aspects of each type of disability.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

SPED 5330 - Introduction to Assessment and Data-Based Decision Making in Special Education

This course introduces students to assessment within a multi-tiered system of support emphasizing progress monitoring and data-based decision making for screening, classification, instructional planning, and evaluation. Topics will include principles of measurement, informal and formal assessment procedures, use and limitations of

assessments, legal and ethical issues in assessments, and using technology to conduct assessments. Program requires a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to graduate students only.

SPED 5340 - Evidence Based Interventions I: Foundations of Reading, Written Language and Content Areas

This course will focus on theories and research that form the basis of curriculum development and instructional practices within the Common Core of English Language Arts, and Content Areas for K5 learners including students with high incidence disabilities and those students academically at-risk. The course will emphasize application of ethical principles and practices in planning and delivering explicit differentiated instruction using universal design for learning (UDL) principles, evidence-based instructional strategies, collaborative strategies, assistive technology, and development of self-determination skills that ensure access to general education curriculum for students with high incidence disabilities and those academically at risk.

Credits: 3 hours

Notes: Open to upper level and graduate students.

SPED 5400 - Introduction to Cognitive Impairments

This course provides an introduction to the field of cognitive impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined.

Prerequisites & Corequisites: Corequisite: SPED 5450

Credits: 3 hours

Notes: Open to upper level and graduate students.

SPED 5450 - Education of Learners with Mild and Moderate Cognitive Impairments

This course focuses on understanding the ways in which teachers organize curriculum and implement assessment and instruction to ensure maximum learning for students

with mild and moderate cognitive impairments.

Prerequisites & Corequisites: Corequisite: SPED 5400

Credits: 3 hours

Notes: Open to upper level and graduate students.

SPED 5700 - Introduction to Emotional Impairments

This course provides an introduction to the field of emotional impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined.

Prerequisites & Corequisites: Corequisite: SPED 5750

Credits: 3 hours

Notes: Open to upper level and graduate students.

SPED 5725 - Preventing Problem Behavior through Effective Teaching

This course is an advanced skill-building experience designed to scaffold university book-learned knowledge into effective classroom behavior management and teaching practice. The course is taught using a format focused on the development of problem solving and behavior intervention skills within a reflective teacher model. Course content will be directly related to problems and challenges experienced by class participants within their own elementary, middle, or high school classrooms. Emphasis in this seminar is on the direct application of behavioral principles and techniques to increase, decrease, and maintain academic and social behaviors within a public school classroom. The format of the class will be project based with each student completing and implementing Functional Behavior Assessment leading to an individual Positive Behavior Support Plan for either social/emotional or academic behavior.

Prerequisites & Corequisites: Corequisites: SPED 4100 and SPED 4760.

Credits: 3 hours

Restrictions: Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.

Notes: Open to upper level and graduate students.

SPED 5750 - Education of Learners with Emotional Impairments

This course focuses on understanding the ways in which teachers organize curriculum and implement assessment and instruction to ensure maximum learning for students with emotional impairments.

Prerequisites & Corequisites: Corequisite: SPED 5700

Credits: 3 hours

Notes: Open to upper level and graduate students.

SPED 5800 - Introduction to Learning Disabilities

This course provides an introduction to the field of learning disabilities. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined.

Credits: 3 hours

Notes: Open to upper level and graduate students.

SPED 5850 - Advanced Theory and Practice with Learning Disabilities

Explores theories of learning disabilities, including an in-depth examination of controversies in the field. Also, examines issues and practices relating to the instruction of students with learning disabilities, including assessment and identification of learning disabilities, and intervention options.

Prerequisites & Corequisites: Prerequisite: SPED 5800

Credits: 3 hours

Notes: Open to upper level and graduate students.

SPED 5980 - Readings in Special Education

This course is designed for advanced students interested in independent study. Topics chosen must be approved by the instructor and the department chairperson.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 1 to 4 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

SPED 5990 - Topics in Special Education

This course provides a survey or in-depth coverage of topics directly related to the education of learners with disabilities.

Prerequisites & Corequisites: Prerequisite: Departmental approval.

Credits: 1 to 3 hours

Notes: This course may be repeated for credit. Open to upper level and graduate students.

Speech, Language and Hearing Sciences

SLHS 2000 - Communication Disorders and Sciences

This introductory course encourages intellectual growth by providing a broad overview of the acoustical, anatomical, biological, emotional, linguistic, physiological, and psychosocial bases of human communication and the ways in which it may be disordered. The impact of scientific investigation, technology, education, economics, health and rehabilitation on communication disorders will be addressed. Individual and societal variables related to communication and its disorders, the challenges of medical and technological advancements, and the quantitative tools used in assessment and rehabilitation will be stressed. Personal responsibility for recognizing potential harm or risk factors for hearing and communication challenges is addressed and students are given ways to solve real world problems related to hearing and communication. Prevalence of those living with a communication disability in the United States is estimated to be 40 million people. Therefore, students engage with content meant to deepen their knowledge about communication disorders and differences, learn about the impact culture has on interpersonal communication and during the assessment, intervention, and advocacy processes. Content works to increase their personal awareness of difference and

disability in the general population with respect to how they will behave and interact with others in day to day communication and when engaged as professionals in their chosen discipline in a variety of workplaces. Personal experiences of those living with communication differences and disorders enrich student perspectives related to inclusion, decision-making, acceptance, appropriate supports, and advocacy across many topics covered in the course. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

SLHS 2001 - Honors Seminar in Communication Sciences and Disorders

This discussion section is a supplement to the lecture portion of SLHS 2000. The honors discussion is designed to give students hands-on experiences through clinical observation, exposure to use of clinical instruments, and learning about research opportunities in the fields of audiology and speech-language pathology, specifically active research at WMU.

Prerequisites & Corequisites: Corequisite: SPPA or SLHS 2000

Credits: 1 hour

Restrictions: Restricted to students in the Lee Honors College.

Notes: Graded on a Credit/No Credit basis.

SLHS 2030 - Normal Language Acquisition

A study of normal language acquisition as a basis for investigating disordered language. The course involves a survey of the stages of language acquisition and a consideration of mechanisms of language acquisition.

Prerequisites & Corequisites: Prerequisites: SPPA or SLHS 2000, with a grade of "C" or better.

Credits: 3 hours

SLHS 2040 - Phonetics

A study of human speech sounds as a basis for understanding speech production and speech perception. Means of symbolizing speech sounds are provided to

prepare the student for accurate transcription of speech behavior. Enrollment in a lab section is required.

Prerequisites & Corequisites: Prerequisites: SPPA or SLHS 2000, with a grade of "C" or better.
Corequisite: SLHS 2030.

Credits: 3 hours

SLHS 2041 - Phonetics Laboratory

Exercises and practice in phonetic transcription.

Prerequisites & Corequisites: Prerequisite: LANG 2500 or BIOS 1120 or BIOS 1600 or BIOS 2110. A minimum grade of "C" is required for any prerequisite.
Corequisite: SLHS 2040

Credits: 1 hour

SLHS 2050 - Speech Anatomy and Physiology

A study of respiration and phonation, with emphasis on their function in speech production and speech perception. The course includes a detailed study of the structures, physiology, and neurology.

Prerequisites & Corequisites: Corequisite: SLHS 2060

Credits: 3 hours

SLHS 2051 - Speech Anatomy and Physiology Lab

Study of speech anatomy and physiology in a cadaver laboratory.

Prerequisites & Corequisites: Prerequisite: BIOS 1120 or Bios 160 or BIOS 2110; with a grade of "C" or better in any prerequisite.
Corequisite: SLHS 2050

Credits: 1 hour

Restrictions: Restricted to majors in Speech Pathology and Audiology or Speech, Language & Hearing Sciences.

SLHS 2060 - Hearing Science

A study of the structure and function of the hearing system, as related to communicative processes. The course includes a consideration of theories of speech perception.

Corequisite: SPPA 2050.

Prerequisites & Corequisites: Corequisite: SLHS 2050

Credits: 3 hours

SLHS 2070 - Clinical Laboratory

This course introduces the student to the academic, clinical, and personal aspects of the professions of speech and language pathology and audiology, and it requires participation in structured observation of clinical activities.

Prerequisites & Corequisites: Corequisite: SLHS 2030 and SLHS 2040.

Credits: 3 hours

SLHS 2071 - Clinic Observation

This course provides students with supervised clinical observation of a graduate clinician providing speech-language-hearing services for an individual who demonstrates a communication disorder, delay or difference. Each student will be assigned to observe one therapy client for the semester, with two 50-minute therapy sessions held each week of the clinical semester. Over the course of the semester, the student will observe at least 15 hours of treatment for a communication disorder, delay or difference. At the end of this semester of observation each student should have accumulated the 25 observation hours required for professional certification of a speech-language pathologist or audiologist by the American Speech-Language-Hearing Association (ASHA). Each student should have earned 10 hours in SPPA 2070 or SLHS 2070.

Prerequisites & Corequisites: Prerequisites: SPPA or SLHS 2030, SPPA or SLHS 2040, SPPA or SLHS 2041, and SPPA or SLHS 2070; with a minimum grade of "C" required in all prerequisites.

Credits: 2 hours

Restrictions: Restricted to majors in Speech Pathology and Audiology or Speech, Language & Hearing Sciences.

SLHS 2080 - Introduction to Audiology

An introduction to the measurement of hearing and the field of audiology. The course includes an introduction to aural pathologies.

Credits: 3 hours

When Offered: Fall

SLHS 2970 - Special Topics in Speech Pathology and Audiology

This is a variable topics, variable credit undergraduate level course for consideration of current and special interests in communication sciences.

Credits: 1 to 4 hours

Notes: Specific topics and number of credit hours will be announced each time the course is scheduled. May be repeated for credit.

SLHS 3510 - Phonemic Disorders

A detailed study of the nature of phonemic disorders; orientation to clinical management.

Prerequisites & Corequisites: Prerequisite: SPPA or SLHS 2040.

Credits: 2 hours

SLHS 3540 - Language Disorders in Children

A detailed study of the nature of communication problems associated with congenital or acquired impairment of language function in children; orientation to clinical management.

Prerequisites & Corequisites: Prerequisite: SPPA or SLHS 2030.

Credits: 3 hours

SLHS 4000 - Practicum in Speech Pathology and Audiology I

Clinical experience in the management of speech, language, and/or hearing disorders. Prior departmental approval required.

Credits: 2 hours

SLHS 4010 - Practicum in Speech Pathology and Audiology II

Clinical experience in the management of speech, language, and/or hearing disorders.

Prerequisites & Corequisites: Prerequisite: SPPA or SLHS 4000.

Credits: 2 hours

SLHS 4500 - Clinical Apprenticeship

This course provides students with a supervised clinical apprenticeship, working with a graduate student clinician. Services will be provided to an individual who demonstrates a communication disorder, delay, or difference. In the speech-language clinic, a student apprentice will be assigned to a graduate student clinician and one therapy client for the semester, with two 50-minute therapy sessions held each week of the clinical semester. In the audiology clinic, the student apprentice will be assigned to a graduate student clinician who will be providing a range of audiological services to a range of clients. Students are encouraged to review the Practicum Manual for detailed information about clinical practicum.

Prerequisites & Corequisites: Prerequisites: SPPA or SLHS 2030, SPPA or SLHS 2040, SPPA or SLHS 2041, SPPA or SLHS 2050, SPPA or SLHS 2051, SPPA or SLHS 2060, SPPA or SLHS 2070, SPPA or SLHS 3510, and SPPA or SLHS 3540. A minimum grade of "C" is required in all prerequisites. Department approval, junior standing and a minimum GPA of 3.5 in the Speech Pathology and Audiology major.

Credits: 2 hours

Restrictions: Restrictions: Restricted to majors in Audiology, or Speech Pathology and Audiology, or Speech, Language & Hearing Sciences.

SLHS 4560 - Rehabilitative Audiology

Principles and clinical management of communication problems associated with auditory impairment.

Prerequisites & Corequisites: Prerequisite: SPPA or SLHS 3580.

Credits: 3 hours

SLHS 4590 - Neuroscience for Communication Sciences and Disorders

This course offers a focused understanding of neuroscience and neuroanatomy, with a particular emphasis on hearing, speech, language and swallowing functions. This course is approved as a writing-intensive course.

Credits: 3 hours

SLHS 5010 - Principles of Speech Science

Overview of the anatomy, physics, biology, physiology, and psychology of human speech production and speech perception. This course is intended to focus not only on well-established concepts in speech science, but also on the many research areas in which our understanding is incomplete.

Prerequisites & Corequisites: Prerequisite: Department approval.

Credits: 3 hours

Restrictions: Restricted to majors in Speech Pathology and Audiology, majors in Speech, Language & Hearing Sciences, masters in Speech Pathology and Audiology, or masters in Speech-Language Pathology.

Notes: Open to upper level and graduate students.

SLHS 5530 - Stuttering and Other Fluency Disorders

Theories and therapies applicable to the understanding and clinical management of stuttering are studied in depth.

Credits: 2 hours

Restrictions: Restricted to majors in Speech Pathology and Audiology, majors in Speech, Language & Hearing Sciences, masters in Speech Pathology and Audiology, or masters in Speech-Language Pathology.

Notes: Open to upper level and graduate students.

SLHS 5800 - Psychoacoustics

A study of the principles, theories, and methods which provide the bases for hearing measurement in clinical and experimental settings. Topics include quantification, measurement and analysis of acoustic signals and subjective responses to those signals.

Prerequisites & Corequisites: Prerequisite: Departmental

approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

SLHS 5801 - Pediatric Audiology

This course deals with the identification, measurement, and management of hearing impairment in infants and young children.

Prerequisites & Corequisites: Prerequisite: SPPA or SLHS 2060 and SPPA or SLHS 3580, or department approval.

Credits: 3 hours

Restrictions: Restricted to majors in Speech, Language & Hearing Science.

Notes: Open to upper level and graduate students.

SLHS 5950 - Language Development and Disorders for Educators

This course provides the student preparing to be a classroom or special education teacher with information about the nature of spoken and written language, its development, conditions associated with language disorders, and the principles and methods of assessment and treatment for children, from infancy through adolescence, with specific language needs. Not applicable toward the master's degree in Speech-Language Pathology.

Credits: 2 hours

Notes: Open to upper level and graduate students.

SLHS 5970 - Topics in Speech Pathology and Audiology

Selected topics in speech pathology and audiology are systematically explored through lectures, laboratory experiences, and student projects. Possible areas of study are: instrumentation in audiology, manual communication, electrophysiologic audiometry, computer applications to speech pathology and audiology, augmentative communication, and contemporary professional issues.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students.

SLHS 5980 - Research Experience in Speech, Language and Hearing Sciences

An elective course, arranged on an individual basis, to provide students the opportunity to pursue research experiences and interests within areas of speech, language and hearing sciences.

Credits: 1 to 4 hours

Notes: Graded on a Credit/No Credit basis. Open to upper level and graduate students.

Statistics

STAT 1600 - Discovery with Data

A general introduction to data analysis with an emphasis on critical thinking. Topics include: data collection, sampling and experimentation, measurement issues, descriptive statistics, statistical graphics, normal distribution, cross-classified data, correlation and association, formal statistical inferences, and resampling methods. This class will also involve group projects. Examples and problems will often relate to current global issues - educational, economical, environmental, political, etc. Statistical software will also be used to help students to focus more on the understanding and critical thinking and inference rather than just the mechanics of the procedures. This course satisfies WMU Essential Studies Level 1: Foundations – Quantitative Literacy Category.

Credits: 3 hours

STAT 2160 - Business Statistics

An applications-oriented study of statistical concepts and techniques. The course focuses on the student as a user of statistics who needs a minimal understanding of mathematical theory and formula derivation. Major topics of study are statistical description, central tendency, dispersion, distributional shapes, sampling, confidence levels, probability, comparison tests, association tests, and regression analysis. The objectives of the course are to develop the skill to apply these concepts in conjunction with computer usage and make appropriate decisions regarding actual business problems. All STAT 2160 students are expected to take the final exam on the assigned

mass exam day. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Prerequisites & Corequisites: Prerequisite: MATH 1160 or MATH 1180 or MATH 1220 or MATH 1230 or MATH 2000; with a grade of "C" or better.

Credits: 3 hours

STAT 2600 - Data Analysis Using R

Students will obtain a solid introduction to R as a functional programming language and will be able to use R to effectively compute statistical and graphical procedures. Topics covered: R basics, R Environment, probability and distributions, descriptive statistics and graphics, one-sample tests, two-sample tests, one-way ANOVA, tabular data, correlation, simple and multiple linear regression, and logistic regression. This course satisfies WMU Essential Studies Level 1: Foundations - Quantitative Literacy Category.

Prerequisites & Corequisites: Prerequisites: MATH 1100 with a grade of "C" or better.

Credits: 4 hours

STAT 2630 - Introduction to Mathematical Statistics Using R

Univariate distribution theory is presented for discrete and continuous random variables. Models that are widely used in applications are discussed. The method of Monte Carlo is discussed for random generation of variates. Inference (point estimation, confidence intervals, and testing) based on likelihood theory and bootstrap is studied. Students will use software R throughout the course, including the writing of R functions.

Prerequisites & Corequisites: Prerequisites: MATH 1220 and STAT 2600.

Credits: 3 hours

STAT 2830 - Methods of Data Analysis

This course is an examination of data analytic methods in the social sciences. Major topics include frequency distributions, graphic presentation of data, measures of central tendency and variability, cross-tabulation, sampling distributions, statistical inference by confidence intervals

and significance tests, bivariate regression and correlation.

Prerequisites & Corequisites: Prerequisites: MATH 1100 and SOC 2820, with grades of "C" or better.

Credits: 3 hours

Notes: Students can receive credit for only one of: STAT 2160, STAT 2600, STAT 2830, STAT 3640, STAT 3660 or SOC 2830.

STAT 3620 - Probability

General probability spaces, conditional probability, independence, random variables, distributions of discrete and continuous random variables, expectation, moment generating function, joint distributions, conditional distributions, and transformations. Special probability models, including binomial, Poisson, gamma, beta, normal, t, and F. Convergence in probability and distribution and the Central Limit Theorem.

Prerequisites & Corequisites: Prerequisite: MATH 1230 or MATH 1710 with a grade of "C" or better.

Credits: 4 hours

STAT 3640 - Foundations of Data Analysis

This course treats both the theory and applications of statistics. Topics include: random variables and probability distributions, the central limit theorem, sampling distributions, point and interval estimation, hypothesis testing, analysis of variance, correlation and regression.

Prerequisites & Corequisites: Prerequisite: MATH 1230 or MATH 1710 with a grade of "C" or better.

Credits: 4 hours

STAT 3660 - Data Analysis for Biosciences

An introduction to statistics for students in the biological and related sciences with an emphasis on the basic concepts and explanations of why things work. The focus is on quantitative reasoning and statistical thinking for making decisions and conjectures. This numerical art will be illustrated with a wide range of interesting problems. Topics include descriptive statistics like means, medians, standard deviation, percentiles; correlation and regression - interpretation and prediction problems; the normal and binomial distributions; law of averages; sampling

variability and standard errors; inferential statistics to - confidence intervals and tests of hypotheses for one- and two-sample problems. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Prerequisites & Corequisites: Prerequisite: MATH 1100 or MATH 1110 with a grade of "C" or better; or the equivalent or satisfactory score on the departmental placement exam.

Credits: 4 hours

STAT 4640 - Introduction to Statistical Computing

This course provides an introduction to the use of statistical computer software in the MINITAB and SAS packages. The statistical graphics capabilities of SASGRAPH and MINITAB will also be included. The following topics may be emphasized: data entry; editing; production of statistical summaries in the form of tables, graphs, charts, and plots for report writing purposes; data management methods for large survey-type data sets. The latter topic may include: subset analysis, updating, and missing data methods. Attention may also be given to the statistical topics of: correlation and regression analysis; one and two sample problems; and analysis of variance.

Prerequisites & Corequisites: Prerequisite: An introductory statistics course.

Credits: 3 hours

STAT 4810 - Communicating Statistical Results

The emphasis of the class will be the reporting of statistical analysis so that all relevant information is conveyed, avoiding the use of jargon and enhancing the text with the use of informative tables or graphics. Examples of statistical reports will be examined and discussed. Students will be assigned projects involving data gathering and analysis. Written and oral reports on the methodology used and the results of the analysis will be required of each student. Student reports will then be discussed and critiqued by the class for content and clarity of writing as well as appropriateness of the methodology used.

Prerequisites & Corequisites: Prerequisites: STAT 2600, STAT 3620, STAT 3640, STAT 4620, STAT 4640, STAT 5680, with a grade of "C" or better in all prerequisites; and

approval of instructor.

Credits: 3 hours

STAT 5610 - Applied Multivariate Statistical Methods

An applied treatment of multivariate procedures is presented. Classical procedures such as Hotelling's T-squared methods are discussed for the one and two sample problems and MANOVA for standard designs. Topics that will be accentuated are principal components, discriminant analysis, cluster analysis, and factor analysis. Emphasis will be on graphical methods and applications.

Prerequisites & Corequisites: Prerequisites: An introductory course in statistics such as STAT 2600 or STAT 3640 and a course in linear algebra.

Credits: 3 hours

Notes: Open to upper level and graduate students.

STAT 5630 - Sample Survey Methods

This course consists of a broad overview of the techniques of survey data collection and analysis and contains a minimum of theory. Topics may include: simple random, stratified, systematic, single-stage cluster, and two-stage cluster sampling; ratio and regression estimation; subpopulation analyses; problems of nonresponse; surveys of sensitive issues; minimization of survey costs; sample size determination. Real surveys are discussed and actual survey data are analyzed.

Prerequisites & Corequisites: Prerequisite: An introductory statistics course such as STAT 2600 or STAT 3640 and instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

STAT 5660 - Nonparametric Statistical Methods

This course presents a broad overview of statistical methods commonly referred to as nonparametric or distribution-free methods. Topics include: inferences for proportions, contingency tables, goodness of fit problems, estimation and hypothesis testing based on ranking methods, measures of rank correlation, efficiency.

Emphasis will be on the application of nonparametric statistical methods to data from many different applied fields.

Prerequisites & Corequisites: Prerequisite: An introductory statistics course such as STAT 2600 or STAT 3640.

Credits: 3 hours

Notes: Open to upper level and graduate students.

STAT 5670 - Statistical Design and Analysis of Experiments

A course in experimental design and the analysis of variance with particular emphasis on industrial experiments. Topics include: complete randomized, randomized complete block; Latin square, and split-plot designs; orthogonal contrasts and polynomials; multiple comparisons; factorial arrangement of treatments; confounding; fractional replication. The course is molded around the complete analysis of good applied problems.

Prerequisites & Corequisites: Prerequisite: An introductory statistics course such as STAT 2600 or STAT 3640.

Credits: 3 hours

Notes: Open to upper level and graduate students.

STAT 5680 - Regression Analysis

An applied course in regression analysis; simple and multiple linear regression; resolution of fit of a model, including residual analysis, precision of estimation, and tests of general hypotheses; model building; step-wise regression; use of indicator variables; non-linear regression.

Prerequisites & Corequisites: Prerequisite: An introductory statistics course such as STAT 2600 or STAT 3640.

Credits: 3 hours

Notes: Open to upper level and graduate students.

STAT 5820 - Time Series Analysis

The development and practical use of seasonal and non-seasonal ARIMA (Autoregressive Integrated Moving

Average) Box-Jenkins time series models is presented. Identification of correct time series models, estimation of model parameters, and diagnostic checks of identified models will be covered. The uses of these models for forecasting future trends and assessing interventions will be examined. Extensive data analysis using SAS, MINITAB, and Splus/R statistical packages are included. Topics include: regression time series models, autocorrelation, partial autocorrelation, Yule-Walker equations, differencing, stationarity, autocorrelation models, moving average models, seasonality, invertibility, and Box-Pierce tests.

Prerequisites & Corequisites: Prerequisites: STAT 3640 and STAT 5680.

Credits: 3 hours

Notes: Open to upper level and graduate students.

STAT 5850 - Applied Data Mining

Data mining can be described as the process of building models. For the development of models, the applied data mining course aims to go far beyond the classical statistical methods, such as linear regression. This course provides an applied overview to such modern non-linear methods as generalized additive models, decision trees, boosting, bagging and support vector machines as well as more classical linear approaches such as logistic regression, linear discriminant analysis, K-means clustering and nearest neighbors. Extensive data analyses are done using statistical programming R.

Prerequisites & Corequisites: Prerequisite: STAT 5680 or STAT 6620 or instructor approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

STAT 5860 - Computer Based Data Analysis

Computer intensive statistical methods are discussed for a variety of statistical problems, including location problems, linear and nonlinear models, mixed models, and generalized linear models (glms). These analyses include bootstrapping and other resampling techniques, computational maximum likelihood procedures, and robust procedures. The course uses simulation procedures for various probability models. The software language R is used.

Prerequisites & Corequisites: Prerequisites: (STAT 2600 or STAT 3640) and STAT 5680, with a grade of "B" or better in any prerequisite, or instructor's approval.

Credits: 3 hours

Notes: Open to upper level and graduate students.

STAT 5870 - Big Data Analysis Using Python

This course has three main goals: (i) students learn basic statistical programming in Python; (ii) students learn to use Python as a tool to effectively store, manipulate, and gain insight from data; (iii) students learn parallel and distributed computing with Python. The usefulness of Python for data science stems mainly from the large and active ecosystem of third-party packages. Therefore, students will also learn how to use popular packages: NumPy, Pandas, Scipy, Matplotlib, and Scikit-Learn.

Prerequisites & Corequisites: Prerequisite: STAT 5850 or CS 5821, with a grade of "B" or better or instructor approval and a suitable laptop.

Credits: 3 hours

Notes: Open to upper level and graduate students.

STAT 5990 - Independent Study in Statistics

Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each particular student.

Prerequisites & Corequisites: Prerequisite: Approval of chairperson of department.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

Teaching English Learners

TEL 5150 - Introduction to ESL/Bilingual Education

This introductory course is designed to engage practicing teachers in learning about the history, theories, and

principles related to English as a second language and bilingual education. Theories of language learning, and various historical approaches to language teaching form a foundation for principled practice.

Credits: 3 hours

Notes: Open to upper level and graduate students.

When Offered: Fall

TEL 5200 - Linguistic Principles for ESL and Bilingual Education

This course raises students' awareness of how human language is organized and learned so that they will be better able to understand what and how students gain proficiency in the languages they are learning. Emphasis is placed on the major components of language (phonology, morphology, lexicon, syntax, etc.) and recognizing how they are realized as children and adults learn a language.

Credits: 3 hours

Notes: Open to upper level and graduate students.

Teaching, Learning, and Educational Studies

ED 2300 - The Nature of Creativity

This course explores the nature of creativity - its processes, its products, its characteristics, its values, and its relationship to human beings and society. Growth in aesthetic sensitivity, personal interaction, self-confidence, and ability to solve problems creatively are the objectives of this course. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

ED 2500 - Human Development: Applications in Education

This course traces the psychological and social development of human beings from conception through adolescence, with specific emphasis on applications in the field of education. Consideration is given to those factors which facilitate or inhibit normal progress in the areas of physical, emotional, social, intellectual, and moral development. Attention is also given to the development of

the self-concept for purpose of helping students to become more aware of themselves and of their relationships with others. Students are required to observe human beings at different stages of development in a variety of cultural settings.

Credits: 3 hours

Restrictions: Restricted to majors in Education, and Speech Pathology and Audiology.

When Offered: Fall, Spring, Summer I

ED 2900 - K-8 Teaching as a Profession

This course is designed around four inter-related purposes: First, pre-education students explore their suitability and interest in teaching grades K-8, including developing and applying fundamental skills of reading and academic writing. Second, it engages students in fieldwork to examine the profession and activities of teaching with children in grades K-8. Third, the course explores the interface between K-8 schooling and the social, political, and cultural concepts and issues in education. Fourth, it introduces the Elementary Education program at WMU, emphasizing program expectations that include students' passion for teaching and learning, development of academic skills and knowledge, and critical dispositions necessary to become an exceptional teacher.

Credits: 3 hours

When Offered: Fall and Spring

ED 3000 - Adolescent Development and School Learning

This course examines adolescence as a contemporary socio-anthropological phenomenon. Students will trace the bio-psycho-social development of adolescents with emphasis on the analysis of cognitive and motivational theories related to school learning. Special consideration will be given to opportunities for self-reflection as well as examining the needs of diverse learners. This course involves a field experience in a youth-serving setting. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: ES 2000 with a grade of "CB" or better, and admission to Secondary Education program.

Credits: 3 hours

ED 3090 - Assessment and Instruction in Early Childhood Inclusive Education

This course will develop an understanding of how children learn from age's birth through 9 years. Students will use formal and informal assessment information, child development theory and knowledge of children's cultural and family backgrounds to develop individualized learning goals for diverse learners. Requires 3 hours per week participation in the classroom. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: (ED 2500 or FCS 2140) and (ED 2900 or FCS 1010), with a grade of "CB" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors/minors in child and family development, or early childhood.

When Offered: Fall, Spring

ED 3100 - Educational Psychology of Childhood

Students in this course will develop an understanding of how children learn, from birth through early adolescence. Emphasis will be placed on major learning theories, on the growth of positive self-concepts, and on the cognition of these age levels. Students will examine the effects of cultural and gender differences and of discrimination on learning. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: ED 2500 and ED 2900; with a grade of "CB" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Elementary Professional, Special Education: Learning Disabilities, and Speech Pathology and Audiology.

When Offered: Fall, Spring

ED 3200 - Clinical Experiences in Secondary Education

This course will provide opportunities for teacher candidates to mentor and tutor secondary education

students in after-school programs offered in local public schools. Teacher candidates will spend two to three hours per week in the after-school setting. Candidates will be expected to demonstrate professional dispositions, professional competencies around interaction with youth, and effective communication strategies. There is a weekly seminar that will encourage candidates to reflect on their experiences and will provide support for the development of professional identity and knowledge. In addition, the seminar will further candidates' understanding of academic service learning and essential education models, as well as research on after-school time and positive youth development.

Prerequisites & Corequisites: Prerequisite: ES 2000 with a grade of "CB" or better (may be taken concurrently).

Credits: 3 hours

Notes: May repeat course one time only.

ED 3500 - Young Children, Their Families, and Their Society

Students in this course will study the effects of family, peer group, and society on the development of young children. Emphasis will be placed on family styles and child-rearing practices and their effects on learning and other behavior. Family constellations, the learning of sex roles, the effects of divorce, and similar phenomena will be studied. Consideration will be given to the effect of cultural and subcultural differences on early childhood development and students will look at the contemporary American scene as it affects young children. Program requires a grade of "CB" or better. May repeat course one time only.

Credits: 3 hours

Restrictions: Restricted to majors/minors in child and family development, or early childhood professional education.

When Offered: Fall, Spring, Summer I

ED 3690 - Early Childhood Classroom Organization and Management

Students will examine and apply recent research on effective classroom management, concentrating on such variables as time on task; appropriate choice of group structures and direct instruction; the management of time, space, and materials; and the analysis of classroom

interactions. Students will design, implement, and evaluate an integrated curriculum and will learn management principles designed to minimize "discipline problems." Micro-teaching experiences and a supervised teaching practicum will give each student the opportunity to apply research on effective teaching and to become an effective classroom manager. Emphasis will be placed on organization and management in early childhood classrooms and on appropriate learning experiences for young children. Requires a minimum of one (1) day per week participation in a classroom. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisites: ED 3090 with a grade of "CB" or better.

Credits: 3 hours

Restrictions: Restricted to majors/minors in child and family development, or early childhood professional education.

When Offered: Fall, Spring

ED 3710 - Elementary Classroom Organization and Management

Students will examine and apply recent research on effective classroom management, concentrating on such variables as time on task; appropriate choice of group structures and direct instruction; the management of time, space, and materials; and the analysis of classroom interactions. Students will design, implement, and evaluate an integrated curriculum and will learn management principles designed to minimize "discipline problems." Micro-teaching experiences and a supervised teaching practicum will give each student the opportunity to apply research on effective teaching and to become an effective classroom manager. Requires a minimum of two (2) full days per week participation in a classroom. Includes a weekly two-hour seminar at the school to which the student is assigned. Seminar focuses on building relationships with students, responding effectively to students from diverse cultural backgrounds, accommodating students with special needs, effective record keeping, and problem-solving in daily teaching situations. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: ED 3090 or ED 3100, with a grade of "CB" or better in all prerequisites. Corequisite: ED 4500.

Credits: 3 hours

Restrictions: Restricted to majors in Early Childhood Professional Education, Elementary Professional Education, Physical Education: Teacher/Coach, Special Education and Elementary Education: Learning Disabilities and Emotional Impairments, K-12; and minors in Early Childhood Professional Education, Elementary Integrated Science, Elementary Language Arts.

When Offered: Fall, Spring

ED 3980 - Special Studies in Education

With variable topics and variable credit, this course is designed for undergraduates who, by virtue of their special interest or concerns, find it desirable to pursue in greater depth topics or problems related to children's educational development. The course will be offered under the following conditions: (1) that a written outline of the offering be approved by the Department Chairperson, and (2) that prior arrangement be made with a faculty member. The course offers variable credit from one through six semester hours. Students may repeat the course so long as topics differ. Each offering of 3980: Special Studies in Education, will be given an appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of ED 3980 may be applied toward meeting professional program requirements.

Credits: 1 to 6 hours

ED 4010 - Teaching Elementary School Science

This course is designed to introduce students to an inquiry-based sampling of the elementary school science program. Emphasis will be given to the exploration of science concepts, techniques, philosophies, and teaching strategies that form current "best practices" for the elementary and middle school science classroom. The course will introduce pre-service teachers to effective methods for helping children to understand fundamental science concepts while they simultaneously develop an interest in and an appreciation for science. A constructivist approach to learning will form the foundation for all aspects of this course. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisites: ED 3090 or ED 3100 and all science courses, with a grade of "CB" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Education.

When Offered: Fall, Spring, Summer I

ED 4060 - Instructional Design and Methodology in Secondary Education

This course is designed to prepare students to face the challenges of planning, implementing, and assessing instruction. Emphasis is placed on developing differentiated unit and lesson plans that consider the needs of all learners, as well as instructional tasks that will engage learners. Finally, students will examine the assessment process, with attention to designing appropriate assessment strategies. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: ES 2000 and ED 3000, with a grade of "CB" or better in all prerequisites. Corequisite: ED 4065.

Credits: 3 hours

Restrictions: Restricted to majors in Secondary Education.

When Offered: Fall, Spring

ED 4065 - Secondary Teaching Methods Pre-Internship

This course is the first of two clinical field experiences for pre-service teachers in the secondary education program. Teacher candidates will enroll in one credit of ED 4065 concurrent with ED 4060. This field experience is a supervised placement in a middle or high school setting with a mentor teacher. Candidates will spend a minimum of 70 hours in the schools. Discussions within ED 4060 are designed to further the candidates' practical understanding and knowledge about teaching and learning, and to support the development of a professional identity through self-reflection. May repeat course one time only.

Prerequisites & Corequisites: Prerequisites: ES 2000 and ED 3000, with a grade of "CB" or better in any prerequisite. Corequisite: ED 4060.

Credits: 1 hour

Restrictions: Restricted to majors in Secondary Education.

Notes: Graded on a Credit/No Credit basis.

ED 4070 - Teaching Elementary Social Studies

This course is designed to help students understand the role of social studies in the elementary school; gain insight into important considerations in the selection of content, skills, and attitudes; and discover how to guide and assess the learning of children in this field. Planning social studies experiences and ways of working with individuals, groups, and the total class will be emphasized. Multicultural and non-sexist content and strategies will be emphasized. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisites: ED 3090 or ED 3100 with a grade of "CB" in any prerequisite; and twelve (12) hours of social science courses.

Credits: 3 hours

Restrictions: Restricted to majors/minors in Education.

When Offered: Fall, Spring, Summer I

ED 4085 - Organizing Learning Environments

This course is designed for teacher candidates to examine the organization of classroom environments in terms of effective interaction, instruction, and learning. Students will engage in a critical examination of classroom climate and management, interpersonal relationships as motivational context, and the social context of education. The course focuses on proactive planning and facilitation of instruction to promote an effective and supportive learning environment. Teacher candidates examine how mindfulness practice can promote a healthy learning environment for both teachers and students. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: ES 2000, ED 3000, ED 4060, and ED 4065; with a grade of "CB" or better in all prerequisites. Corequisite: Ed 4086.

Credits: 3 hours

When Offered: Fall and Spring

ED 4086 - Classroom Environments Pre-Internship

This course is the second of two clinical field experiences for pre-service teachers in the secondary education program. This field experience is a supervised placement in a middle or high school setting with a mentor teacher. The focus of this pre-internship is classroom organization and the learning environment. Candidates will spend a minimum of 70 hours in the schools. Discussions within ED 4085 are designed to further the candidates' practical understanding and knowledge about establishing and organizing the classroom environment, and to support the development of a professional identity through self-reflection. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: ES 2000, ED 3000, ED 4060, and ED 4065; with a grade of "CB" or better in all prerequisites.
Corequisite: ED 4085.

Credits: 1 hour

Notes: Graded on a Credit/No Credit basis.

ED 4090 - Seminar in Early Childhood Education

The seminar will be directly related to the students' early childhood education classroom experiences; it will further the students' practical understanding of research on effective teaching and effective schools, help to refine techniques of effective classroom management and curriculum design and enhance students' sense of their own teaching style. The seminar will build the students' self-image as professionals as they are encouraged to take professional responsibility and to practice professional ethics. Must be taken concurrently with ED 4700. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: ED 3690 with a grade of "CB" or better. Corequisite: ED 4700.

Credits: 1 hour

Restrictions: Restricted to majors/minors in child and family development, or early childhood professional education.

When Offered: Fall, Spring, Summer I, Summer II

ED 4100 - Seminar in Education

The seminar will be directly related to the students' classroom experiences; it will further the students' practical understanding of research on effective teaching and effective schools, help to refine their techniques of effective classroom management and curriculum design, and enhance the students' sense of their own teaching style. The seminar will build the students' self-images as professionals as they are encouraged to take professional responsibility and to practice professional ethics. It is in the seminar that the ongoing Teaching Portfolio will be completed and reviewed by a faculty committee. Must be taken concurrently with ED 4700 or ED 4710 or ED 4750, depending on program. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisites: ED 4700 or ED 4710 or ED 4750, depending on program (may be taken concurrently).

Credits: 1 to 2 hours

Restrictions: Restricted to majors/minors in education.

When Offered: Fall, Spring

ED 4200 - Clinical Rotations in Secondary Education

This course will place the teacher candidate in structured educational clinical rotations under the supervision of qualified mentor teachers. Teacher candidates will spend two hours per week in the field. Rotations will focus on the complex processes that encompass teaching and learning; focusing on effective practices to meet the needs of all students. Students will be expected to demonstrate a variety of professional dispositions, and develop competence in classroom observation skills and effective communication strategies. This course is paired with a weekly seminar designed to further the candidates' practical understanding and knowledge about teaching and learning in diverse educational settings, and to support the development of a professional identity through self-reflection. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: ES 2000 with a grade of "CB" or better.

Credits: 3 hours

Restrictions: Restricted to juniors and seniors only.

ED 4300 - Creativity in the Elementary Classroom

An exploration of the contents, processes and achievements of dance, music, theatre, and visual arts and their application as a primary media for communication, inquiry, and insight among elementary students. Emphasis is placed on development of arts literacy, the teacher as problem-solver and creative artist, and the integration of creative processes and structures in elementary school curriculum and instruction that encourages creative problem solving in children. Program requires a grade of "CB" or better. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: LS 3780 with a grade of "CB" or better and completion of six (6) credit hours in fine arts.

Credits: 3 hours

Restrictions: Restricted to majors/minors in education.

When Offered: Fall, Spring, Summer I

ED 4500 - Pre-Internship in Elementary Education

This capstone course, required of all students in the Elementary Professional Education minor, will afford students classroom teaching and observation experiences on a regular basis. In addition to the required pre-internship of two half-days per week, students will meet in a seminar with their faculty supervisor. May repeat course one time only.

Prerequisites & Corequisites: Prerequisites: LS 3780, ED 4010, ED 4300, ED 4070, and MATH 3520; with a grade of "CB" or better in all prerequisites. Any/all of these may be taken concurrently.
Corequisite: ED 3710

Credits: 3 hours

Restrictions: Restricted to majors in Early Childhood Professional Education, Elementary Professional Education, Physical Education: Teacher/Coach, Special Education and Elementary Education: Learning Disabilities and Emotional Impairments, K-12; and minors in Early Childhood Professional Education, Elementary Integrated Science, Elementary Language Arts.

Notes: Graded on a Credit/No Credit basis.

When Offered: Fall, Spring

ED 4700 - Intern Teaching: Early Childhood

Only for seniors who have been admitted to teacher education. This internship is required a semester or session prior to the full semester internship. This experience consists of five half-days per week in a fall or spring semester or five full days per week in a summer session in a pre-kindergarten program. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during University course work. They will participate in all phases of the early childhood program where they are assigned. May repeat course one time only.

Prerequisites & Corequisites: Prerequisites: ED 3690 with a grade of "CB" or better. Corequisite: ED 4090.

Credits: 5 hours

Restrictions: Restricted to majors/minors in child and family development, or early childhood professional education.

Notes: Graded on a Credit/No Credit basis.

When Offered: Fall, Spring, Summer I, Summer II

ED 4710 - Intern Teaching: Elementary/Middle School

Only for seniors who have been admitted to teacher education and completed all their professional studies courses. This will be the final field experience consisting of five days per week in an educational setting. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during their University course work. They will participate in all phases of the school program where they are assigned. May repeat course one time only.

Prerequisites & Corequisites: Prerequisites: All other courses and program requirements must be completed prior to Intern Teaching. Corequisite: ED 4100.

Credits: 5, 8, or 10 hours

Restrictions: Restricted to majors/minors in education.

Notes: Graded on a Credit/No Credit basis.

When Offered: Fall, Spring

ED 4750 - Intern Teaching: Middle School/Secondary

Students devote a minimum of five days per week for one semester to intern teaching. They are expected to have experience in both the curricular and extracurricular programs of the school in which they teach. May repeat course one time only.

Prerequisites & Corequisites: Prerequisite: All other courses and program requirements must be completed prior to intern teaching with an overall GPA of 2.75 and a grade of "CB" or above in all professional education coursework. Corequisite: ED 4100.

Credits: 5 or 10 hours

Restrictions: Restricted to majors in secondary education.

Notes: Graded on a Credit/No Credit basis.

When Offered: Fall, Spring

ED 5020 - Curriculum Workshop

Opportunity provided for teachers, supervisors, and administrators in selected school systems to develop programs of curriculum improvement. This may include short-term offerings to resolve a particular curricular problem, as well as long-range curriculum studies. A wide variety of resources is used for instructional purposes, including several specialists, library and laboratory facilities, field trips, audiovisual materials, and the like. Each offering of 5020: Curriculum Workshop, will be given an appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of ED 5020 may be applied toward a Master's degree.

Credits: 1 to 6 hours

Notes: Open to upper level and graduate students.

ED 5310 - Adolescent Learning and Development

This course examines theories of psychology related to adolescent development and learning in the context of contemporary public secondary schools. Students will discuss cognition, motivation, and self-regulated learning as well as Bio-psycho-social theories of human development. The intersection of identity development and socio-emotional development will also be explored relative

to the period of adolescence. Program requires a grade of "CB" or better.

Prerequisites & Corequisites: Prerequisites: Admission to Certificate in Secondary Education.

Corequisites: ED 5200 and ED 5450, with a grade of "CB" or better.

Credits: 3 hours

Notes: Open to graduate students only.

ED 5450 - Curriculum and Assessment in Secondary Education

This course is designed to prepare teacher candidates to face the challenges of planning, implementing, and assessing instruction. Emphasis is placed on developing differentiated unit and lesson plans that consider the needs of all learners, as well as instructional tasks that will engage learners. Finally, teacher candidates will examine the assessment process, designing and embedding appropriate formative and summative assessment strategies to improve the teaching and learning cycles. Program requires a grade of "CB" or better.

Prerequisites & Corequisites: Corequisites: ED 5310 and ES 5200.

Credits: 2 hours

Restrictions: Restricted to graduate students accepted into the Post-Baccalaureate Program for Initial Certification in Secondary Education.

Notes: May repeat course one time only. Open to graduate students only.

ED 5750 - Administration of Child Development Centers

Presentation of trends in child care regulations and/or requirements, and knowledge of administrative materials and duties in providing optimum growth for young children. Includes management, planning, and organizing child development centers. Program requires a grade of "CB" or better. May repeat course one time only.

Credits: 3 hours

Restrictions: Open to upper level and graduate students.

Notes: Restricted to majors/minors in early childhood professional education.

Cross-Listed: FCS 5750

When Offered: Fall, Spring, Summer I

ED 5950 - Experiential Education and Place-Based Learning

This course is an invitation to the world of experiential education and place-based learning. In context of current policies and practices in American education, it explores the benefit of "learning by doing," and the potential of "schools without walls. This course is informed by philosophical conceptions, psychological perspectives, and best pedagogical practices, and is designed for aspiring educators and youth development professionals.

Credits: 3 hours

Notes: Open to upper level and graduate students.

ED 5980 - Selected Reading in Education

Designed for highly qualified students who wish to study in-depth some aspect of their field of specialization under the supervision of a member of the departmental staff.

Prerequisites & Corequisites: Prerequisite: Written consent of departmental advisor and instructor.

Credits: 1 to 4 hours

Notes: Open to upper level and graduate students.

Theatre

THEA 1000 - Playing with Fire: Love, Politics & Entertainment

Students will explore theatre's impact on contemporary culture, learn how theatre works, and discover why theatre matters. Students WILL attend theatre performances and have opportunities to participate in University Theatre. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

When Offered: Fall, Spring

THEA 1050 - African-Americans in Theatre and Media

A survey/lecture course from a African-American perspective examining the activities and developments of African-American life as evidenced through theatre, television, and film. Its emphasis is on history, philosophy, dramatic creations, criticism, and concerns. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

When Offered: Fall, Spring

THEA 1150 - Introduction to Theatre Production

An introductory course intended to develop the students' understanding of production practices and applications as it pertains to University Theatre productions.

Credits: 1 hour

Restrictions: Restricted to majors in Theatre.

THEA 1200 - Stagecraft I

A beginning course in technical production including familiarization with theatrical equipment and materials; the planning and construction of basic stage scenery, costumes, and properties; the fundamentals of stage lighting; and laboratory work on University Theatre Productions.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Fall, Spring

THEA 1300 - Period Styles of Design

A survey of historical periods and design styles as they are applied to the theatre. The study will include an examination of architecture, costumes, furniture, interiors, lighting, ornament and stage scenery.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Fall

THEA 1310 - Theatrical Drafting

A methods course for beginning students in lighting, costume, scenic design, and technical production providing instruction and practice in the special techniques of drafting for the theatre.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Spring

THEA 1330 - Introduction to Theatre Design

A course that introduces the student to design for the theatre in the areas of scenery, costumes, lighting, sound and projection as unique forms of artistic expression in a collaborative environment. This course will include laboratory work on Department of Theatre productions.

Credits: 3 hours

Restrictions: Restricted to Majors in Theatre: Acting, Theatre: Design and Technical Production, Theatre: Stage Management, and minors in Theatre.

THEA 1410 - Introduction to Acting

An initial approach to the study of dramatic action using scripted and unscripted material, basic acting exercises and improvisational techniques. Emphasis is placed upon use of the imagination, creating ensemble and creative risk-taking while cultivating self-awareness and the ability to critique objectively and nonjudgmentally.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Fall

THEA 1420 - Acting I: Action and Personalization

Study and practice of scene-work from a basic Stanislavski point of view.

Prerequisites & Corequisites: Prerequisite: THEA 1410 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Spring

THEA 1450 - Beginning Acting

This is an introduction to the practice of acting aimed at the non-Theatre major. The course emphasizes self-awareness, minimizing personal idiosyncrasies, and developing creative capacity for authentic performance. The course also introduces students to professional standards for evaluating performance, to practical application of techniques in warming up, improvisation, textual and character analysis, and to basic acting vocabulary. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

THEA 1700 - Script Analysis

The study of selected plays from the standpoint of the theatre artist. Emphasis on thorough examination of the play script preparatory to production. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Fall, Spring

THEA 1810 - Stage Management

This is a foundation course in the principles, practices, and applications of Stage Management in both educational and professional theatre. Basic and advanced techniques of the stage manager are presented, including the prompt book, production book, audition, rehearsal, performance, and post-production procedures. In addition, stage management forms and formats will be studied to strengthen communication and organizational skills. The course will include production management projects involving the creation of an eight-play repertory season, a production schedule, a production master calendar, a production budget broken into a chart of accounts, a production staff breakdown wherein the student suggests the staff necessary to create the season, and a production salary budget.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Every year.

THEA 1900 - Summer Theatre

Theatre majors may receive credit for participating in a full season of summer theatre in the performance or production areas. Students must submit a summer theatre application to the Department Chair.

Prerequisites & Corequisites: Prerequisite: Application approved by Department Chair.

Credits: 1 to 3 hours

Restrictions: Restricted to majors in Theatre.

Notes: Repeatable for credit up to six hours.

When Offered: Fall, Spring, Summer I, Summer II

THEA 2200 - Stagecraft II

A course in technical production including the planning and construction of complex stage scenery, costumes and properties; scenery painting; lighting technology; and laboratory work on University Theatre productions.

Prerequisites & Corequisites: Prerequisites: THEA 1200 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Spring

THEA 2300 - Stage Makeup

Study and practice of the basic principles and techniques of stage makeup.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

THEA 2301 - Computer-Aided Theatre Design

An introduction to the application of computer hardware and software to design for the theatre, including instruction and practice in CAD, color imaging, and 3-D modeling.

Prerequisites & Corequisites: Prerequisites: THEA 1300 and THEA 1310, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Fall

THEA 2311 - Theatrical Rendering

A methods course for students in scenic, costume, and lighting design providing instruction and practice in various mediums and styles of rendering used by theatrical designers.

Prerequisites & Corequisites: Prerequisite: THEA 1310 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Spring

THEA 2320 - Scenic Design

A course in scenography covering the design of stage settings and properties expressed through color renderings and/or the scenic models, and including further development of skills in drafting for the theatre.

Prerequisites & Corequisites: Prerequisites: THEA 1200 and 1700, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Fall, Spring

THEA 2330 - Costume Design

A course in the design of theatrical costumes and accessories expressed through color rendering and including an overview of the history of the costume.

Prerequisites & Corequisites: Prerequisites: THEA 1200 and THEA 1700, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Fall, Spring

THEA 2410 - Voice and Movement I

Development and training of the actor's vocal and physical instrument for theatrical performance.

Prerequisites & Corequisites: Prerequisites: THEA 1410 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre Performance and Acting.

When Offered: Fall

THEA 2420 - Voice and Movement II

Continued development of the actor's vocal and physical instrument for theatrical performance.

Prerequisites & Corequisites: Prerequisites: THEA 2410 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Spring

THEA 2450 - Acting II: Character and Action

Integration of theories and practices of Introduction to Acting and Acting I with an emphasis upon character development in the process of scene study.

Prerequisites & Corequisites: Prerequisites: THEA 1410 and THEA 1420, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Fall

THEA 2460 - Acting III: Character, Action, Language

Integration of character development and scene study with an emphasis upon classical texts or other intensive language-oriented texts.

Prerequisites & Corequisites: Prerequisites: THEA 2410 and THEA 2450, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Spring

THEA 2600 - Arts Management

A survey of procedures for Arts Management, including ticket office accounting, promotion, marketing, funding and audience development.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Spring (even years)

THEA 2700 - Script Analysis for Production

This course will build on skills learned in Script Analysis THEA 1700. The class is focused on developing script analysis skills directly applicable to work in theatre production. Students will work in a collaborative model in various creative capacities on theoretical productions.

Prerequisites & Corequisites: Prerequisite: THEA 1700 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors and minors in Theatre.

THEA 2720 - Musical Theatre History and Script Analysis I

An historical overview of the development of musical theatre from its earliest beginnings to 1943. Respective scripts will be analyzed within their historical context.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Fall (odd years)

THEA 2900 - Theatre Practicum

Supervised experience in various areas of theatre in the University Theatre program. May be repeated for credit up to a maximum of eight semester hours (only six of which can apply toward major and three toward minor).

Credits: 1 to 8 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Fall, Spring, Summer I, Summer II

THEA 3200 - Stagecraft III

This course is a continuation of Stagecraft II with special emphasis on problem-solving and new technology. This course will involve individualized projects and laboratory work on University Theatre productions.

Prerequisites & Corequisites: Prerequisite: THEA 2200 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in theatre.

When Offered: Spring

THEA 3320 - Lighting and Sound Design

A course in the design of theatrical lighting and sound and in the practical application of those designs to the stage.

Prerequisites & Corequisites: Prerequisites: THEA 1200 and 1700, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in theatre.

When Offered: Fall, Spring

THEA 3330 - Advanced Design

A course for advanced students in the design of scenery, costumes, properties, lighting and/or sound; the professional drafting of those designs for technical production.

Prerequisites & Corequisites: Prerequisites: THEA 1300, THEA 1310, and one of the following: (THEA 2320, 2330 or 3320); with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Fall (even years)

THEA 3430 - Elements of Performance

This course will afford an opportunity for students to study a variety of elements of and approaches to performance through a series of rotating topics.

Credits: 1 hour

Restrictions: Restricted to majors in Theatre.

Notes: May be repeated for credit.

THEA 3440 - Acting IV: Advanced Scene Study

This class will focus on strengthening the foundation of the actors' skills through intensive scene study that will mimic some of the professional expectations of the industry. This class will focus on scene turnover challenging the actor to work quickly and efficiently on homework, active choices and defining conflict.

Prerequisites & Corequisites: Prerequisite: THEA 2460 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre: Acting.

When Offered: Fall

THEA 3450 - Contemporary Approaches to Acting

Study and practice of contemporary approaches to acting with focus on performance of 20th-century, non-realistic plays.

Prerequisites & Corequisites: Prerequisites: THEA 2460 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Spring

THEA 3470 - Voice and Movement Lab

An advanced course in voice and movement with an emphasis on the individual needs of the student actor. This course provides the students with an opportunity to investigate special topics in voice and movement training and to receive individual and small group tutorials.

Prerequisites & Corequisites: Prerequisites: THEA 2410 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Acting and Music Theatre Performance.

Notes: This course is repeatable for credit under a different topic.

When Offered: Fall, Spring

THEA 3510 - Directing I

Functions of the play director as teacher, interpreter, coordinator, and collaborator. Focus is upon principles and problems of directing on the proscenium stage.

Prerequisites & Corequisites: Prerequisites: THEA 1410, and (THEA 1700 or MUS 2950), and junior standing; with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

When Offered: Fall, Spring

THEA 3520 - Directing II

A continuation of THEA 3510. Focus is upon the principles and problems of directing for the non-proscenium stage and expansion of directorial approaches to production. Students prepare and direct scenes and one short play using non-proscenium staging.

Prerequisites & Corequisites: Prerequisite: THEA 3510 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in theatre.

When Offered: Spring

THEA 3600 - Technology in the Arts

This class will explore the ongoing relationship between the fine arts and technology, with an emphasis on recent practices and emerging technologies. Students will learn how musicians, theatre artists, choreographers, and visual artists have taken advantage of technology to meet their needs, and how technology has influenced and inspired them to explore new creative territory. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Science and Technology Category.

Credits: 3 hours

THEA 3700 - Theatre History I

Survey of theatre history from the beginnings to 1642. Playwrights, acting styles, theatre production, theatre architecture, and audience taste are studied.

Prerequisites & Corequisites: Prerequisite: College-level writing course (ENGL 1050, BCM 1420, or IEE 1020).

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

Notes: This course is approved as a writing-intensive course..

When Offered: Fall

THEA 3710 - Theatre History II

Survey of theatre history from 1642 to the 20th century. Playwrights, acting styles, theatre production, theatre architecture and audience taste are studied.

Prerequisites & Corequisites: Prerequisite: THEA 3700 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

Notes: This course is approved as a writing-intensive course.

When Offered: Spring

THEA 3720 - Contemporary Musical Theatre History and Script Analysis: Oklahoma! to Hamilton

A historical overview of the development of musical theatre from 1943 to the present to advance study and understanding of contemporary history, social trends, and issues contextualized through the art form of musical theatre. Representative scripts will be analyzed within their historical context. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Artistic Theory and Practice Category.

Credits: 3 hours

Restrictions: Restricted to majors in theatre.

When Offered: Fall (even years)

THEA 3810 - Stage Management Production - Mainstage

Methods of stage management, including rehearsal coordination, prompt book preparation and director/cast/crew relationships from preproduction through performance on The Department of Theatre's Mainstage productions. Students are assigned as stage managers on the Mainstage productions.

Prerequisites & Corequisites: Prerequisite: Instructor approval.

Credits: 3 hours

Restrictions: Restricted to majors in theatre.

Notes: May be repeated for credit.

When Offered: Every semester

THEA 3820 - Job Preparation, Self Promotion and Branding

This course offers career preparation for theatre professionals. Portfolio preparation will follow the United States Institute for Theatre Technology's standards and standards employed by Actors' Equity Association LORT theatres and U/RTA and ACTF for Stage Managers. Standards and subjects include: organization, resume, interview/audition procedures, personal marketing and presentation, dress and decorum, job applications, and networking. The course will include general management and producing projects that involve the creation of production budgets and grant writing.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre.

THEA 3900 - Professional Theatre Internship

Advanced theatre majors may receive credit for participating in the Professional Theatre Internship Program with professional theatres. Students must submit an internship application to the department's Internship Coordinator. The Internship Coordinator will determine the number of credit hours to be awarded.

Credits: 2 to 6 hours

Restrictions: Restricted to majors in Theatre.

Notes: This course may be repeated for a maximum of six credit hours.

When Offered: Fall, Spring, Summer I, Summer II

THEA 3910 - Performance Practicum

Performance Practicum is designed to provide acting students the opportunity for rigorous, supervised work on university theatre productions. Each student is required to complete two semesters of this course before graduation.

Prerequisites & Corequisites: Prerequisites: THEA 1420 with a grade of "C" or better and instructor approval.

Credits: 2 hours

Restrictions: Restricted to majors in theatre.

THEA 4000 - Special Topics in Theatre

An investigation of topics of special interest related to theatre. Repeatable for credit under a different title. Examples of topics for study may include: dialects, mime,

puppetry, script writing, advanced directing, theatre administration, touring theatre, advanced improvisation, stage management, and technical direction.

Credits: 1 to 3 hours

Restrictions: Restricted to majors in Theatre.

THEA 4330 - Portfolio Preparation

Instruction and practice in the preparation and presentation of the theatrical designer's and/or technician's resume and portfolio with emphasis on applications for professional theatre internships, apprenticeships, employment, and/or graduate schools.

Prerequisites & Corequisites: Prerequisites: THEA 2301, and two of the following: (THEA 2320, THEA 2330, THEA 3320); with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in theatre.

When Offered: Every other Fall

THEA 4410 - Professional Preparation for Stage

This course focuses on the study and practice of auditioning for the stage. Emphasis is on monologue preparation, callbacks, cold reading, and preparation for entering the industry in a professional manner.

Prerequisites & Corequisites: Prerequisite: THEA 2460 with a grade of "C" or better and senior standing.

Credits: 3 hours

Restrictions: Restricted to majors in Theatre: Acting.

When Offered: Fall

THEA 4430 - Acting for the Camera

The study and practice of principles of acting as applied to film and television.

Prerequisites & Corequisites: Prerequisite: THEA 2460 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in theatre.

When Offered: Spring

THEA 4440 - New Play Project

Focuses on the collaborative process of mounting original works. Students will directly collaborate with playwrights from the English Department's graduate and undergraduate playwriting program and stage their original work for the first time. Attention is paid to not only the dramaturgical needs of this process, but to the challenge of staging and creating original characters. All productions have a final performance for a live audience.

Prerequisites & Corequisites: Prerequisite: THEA 1420 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in theatre.

Notes: May be repeated for credit.

THEA 4450 - Professional Preparation for Film and Television

A lecture/lab/discussion aimed at arming the actor with the knowledge and skills necessary to transition into the business side of the film and television industry. This course will also advance the artist's skills through assimilated exercises, e.g., agent interviews, casting director pre-reads, TV/film/commercial/voice-over auditions and more.

Prerequisites & Corequisites: Prerequisites: THEA 2450 and THEA 2460, with a grade of "C" or better in all prerequisites.

Credits: 3 hours

Restrictions: Restricted to majors in Music Theatre Performance: BFA and Theatre: Acting.

THEA 4700 - Development of Theatre Art

A survey of the development of twentieth century theatre art and its relationship to concurrent developments in other arts and world politics.

Prerequisites & Corequisites: Prerequisite: THEA 3710 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in theatre.

When Offered: Fall

THEA 4900 - Individualized Study in Theatre

Designed to enable upper division theatre majors, or students in special programs, to initiate, plan and execute projects in particular aspects of theatre. Must be planned in collaboration with a member of the theatre faculty who will act as supervising teacher. Students can register for 1 to 3 credits for each project—repeatable for credit. Projects may involve study and research in an area of special interest, special performances or other creative activities.

Prerequisites & Corequisites: Prerequisite: Approval of departmental advisor and departmental chair.

Credits: 1 to 6 hours

Restrictions: Restricted to majors in theatre.

THEA 4950 - Music Theatre Performance Workshop III

Students will participate in rehearsal and performance of staged readings from a broad spectrum of music theatre repertoire. Readings will incorporate technique and skills from the prior two semesters of MTP Workshop coursework. Readings will be performed before a public or invited audience. Students will be directed and evaluated by a faculty team from Theatre, Music and Dance.

Prerequisites & Corequisites: Prerequisite: DANC 4950 with a grade of "C" or better.

Credits: 3 hours

Restrictions: Restricted to majors in Music Theatre Performance.

When Offered: Spring

THEA 4990 - Music Theatre Showcase

The purpose of this course is to prepare students who will soon graduate in Music Theatre Performance to be

competitive as they face auditioning for the professional industry they will be entering. The focus of the course is to select and prepare musical audition material. Students will have the opportunity to rehearse and receive staging, vocal, and interpretation coaching on up to three songs, as well as direction and choreography for an ensemble number. In addition, the course will include discussion of the nature of the professional music theatre industry and what is expected of artists entering the field. The small section size will allow students to address their individual needs and issues and receive ample coaching and attention.

Prerequisites & Corequisites: Prerequisites: Senior standing.

Credits: 1 hour

Restrictions: This course is restricted to majors in music theatre performance.

When Offered: Fall

University

UNIV 1010 - Freshman Seminar

This course is designed to assist students to encounter experientially, intellectually, and emotionally the various avenues of learning, and to foster the academic, personal, social, and career development of each student. The activities and assignments of the course aid students in the development of an intellectual awareness and provide the skills and self-management required for a successful transition from high school to the University. The course is intended to excite students about learning and living in the new and challenging world of Western Michigan University. For freshmen only.

Credits: 1 to 3 hours

UNIV 1020 - Career Exploration and Development

This course is designed to help students through the career development process by assessing and developing skills in self-awareness, career awareness, decision-making, and planning. It will include activities to identify and explore the following areas: values, interests, career information, decision-making, university resources, and the world of work. Assignments will involve taking career assessments, written exercises, networking, resume development and career research.

Credits: 1 hour

UNIV 1030 - Special Topics within Academic Success

UNIV 1030 is open only through instructor or department approval. The department overseeing UNIV 1030 will be the Center for Academic Success Programs. Courses will vary by topic and be chosen based on student need. The goals of the course will range from academic preparation for special populations, academic improvement, career exploration and skill building.

Credits: 1 to 3 hours

When Offered: Fall and Spring

UNIV 1040 - Success At WMU

Success at WMU is a student to student peer mentoring program. Students participate in a learning community that meets regularly and engage in curricular and co-curricular activities that manage the academic, professional and social transition to college.

Credits: 0 hours

Workforce Education and Development

WFED 1980 - Career Exploration and Self-Evaluation

This course will assist students in evaluating their current transferable work skills as well as the various career options they may want to pursue upon program completion. Additionally, this course will provide the student with an opportunity to learn and apply three highly marketing employability skills: critical thinking, problem solving, and organization.

Credits: 1 hour

WFED 1990 - Employability Skills

This course will prepare students for employment after graduation by providing students with effective job search and interview strategies. In addition, students will develop a career portfolio highlighting the various technical and

transferable skills they possess.

Credits: 1 hour

WFED 3050 - Career and Employability Skills

Intensive investigation of career and employability skills in Workforce Education and Development. Included are the concepts required to develop skills and behaviors that will prepare students for the world of work. This course is approved as a writing-intensive course.

Credits: 3 hours

Restrictions: Restricted to students who have been admitted to the professional level of a Workforce Education and Development major or a Workforce Education and Development minor.

WFED 3480 - Student Assessment and Management

This course is designed to prepare students for the responsibilities of classroom instruction. Emphasis is placed on student classroom management, assessment, and evaluation strategies. Requires a minimum of one (1) day per week participating in a classroom.

Prerequisites & Corequisites: Prerequisites: WFED 5130 (may be taken concurrently) and WFED 5420 (may be taken concurrently).

Credits: 3 hours

Restrictions: Restricted to students who have been admitted to the professional level of a Workforce Education and Development major.

Notes: May be taken concurrently with ED 3050.

WFED 4010 - Adult Teaching and Learning Strategies

Review and application of the principles of adult education and teaching methods in Workforce Education and Development programs and settings. Emphasis is placed on practicing specific teaching strategies in class.

Credits: 3 hours

Restrictions: Restricted to junior standing or above.

WFED 4020 - Career Assessment and Development

Review and application of the career development process for adults in Workforce Education and Development programs and settings. The focus is on helping people with career decisions including assessing needs and navigating databases.

Credits: 3 hours

Restrictions: Restricted to junior standing or above.

WFED 4030 - Training Systems in Organizations

Overview of the role and function of training systems in Workforce Education and Development programs and settings. Emphasis is placed on needs analysis, instructional design, facilitation, and evaluation.

Credits: 3 hours

Restrictions: Restricted to junior standing or above.

WFED 4100 - Seminar in Education

The seminar will be directly related to the student intern's teaching experiences within the field of career and technical education. The seminar will further the student's practical understanding of important facets of the art and science of teaching including creating a productive learning environment, advancing student learning in subject matter areas and workplace readiness while improving teaching practice through professional development and outreach with business, professional, family, and community partners. The seminar will be designed to develop reflective practitioners through the use of discussion, learning journals, and the development of a professional teaching portfolio. Must be taken concurrently with WFED 4750.

Prerequisites & Corequisites: Corequisite: WFED 4750

Credits: 2 hours

WFED 4750 - Intern Teaching in Workforce Education and Development

This course represents the final field experience of the student's curriculum during which an application of all knowledge and skills acquired is facilitated. Through the

experiences provided in this course, students develop the skills and knowledge necessary for certification as a career and technical education teacher in the state of Michigan. Must be taken concurrently with WFED 4100.

Prerequisites & Corequisites: Corequisite: WFED 4100

Credits: 10 hours

Notes: Graded on a Credit/No Credit basis.

WFED 5010 - Topics in International Workforce Education and Development

This course provides an overview of Workforce Education and Development systems around the world with a special focus on one country. Students will identify and analyze the characteristics of each system as well as the benefits/advantages compared to the United States. This course is typically offered as a short term study abroad experience, although it may be offered in traditional and online formats.

Credits: 3 hours

Notes: Open to upper level and graduate students.

WFED 5100 - Special Populations in Workforce Education and Development

Special populations enrolled in workforce education programs and the identification of appropriate teaching strategies, materials, and support services for effective teaching and learning.

Credits: 3 hours

Restrictions: Restricted to students who have been admitted to the professional level of a Workforce Education and Development major; students in the Workforce Education and Development minor; students in the Workforce Education, Development, and Leadership master's; or students in the Organizational Change Leadership master's.

Notes: Open to upper level and graduate students.

WFED 5120 - Principles of Workforce Education and Development

Explanation, identification, investigation of the history, philosophy, principles, programs, and services in

workforce education.

Credits: 3 hours

Restrictions: Restricted to students who have been admitted to the professional level of a Workforce Education and Development major; students in the Workforce Education and Development minor; students in the Workforce Education, Development, and Leadership master's; or students in the Organizational Change Leadership master's.

Notes: Open to upper level and graduate students.

WFED 5121 - Career Exploration in Workforce Development

This course will provide students with an introductory field experience in workforce education and development. Each student will be placed in a non-profit organization, business, or government agency that focuses on workforce development. Students will spend a minimum of 72 hours at their placement site. In addition to performing tasks under the direction of a site supervisor, students will job-shadow at least two professionals in workforce development. Students will also create a portfolio that demonstrates their work and volunteer experiences in workforce education and development.

Prerequisites & Corequisites: Prerequisites: WFED 5120, WFED 4010 and WFED 4020 (WFED 4010 and WFED 4020 may be taken concurrently).

Credits: 3 hours

Notes: Open to upper level and graduate students.

WFED 5130 - Teaching Methods in Workforce Education and Development

Analysis and methods of organizing instruction in workforce education. Included is a review of instructional theory and practice in workforce education, the development of lesson plans, the selection and use of instructional methods, and the presentation of content using various methods of delivery.

Credits: 3 hours

Restrictions: Restricted to students who have been admitted to the professional level of a Workforce Education and Development major; students in the Workforce

Education and Development minor; students in the Workforce Education, Development, and Leadership master's; or students in the Organizational Change Leadership master's.

Notes: Open to upper level and graduate students.

WFED 5140 - Workshop in Workforce Education and Development

Investigation, research, and development of a particular topic or area of interest for workforce education. (Students may enroll for more than one topic, but in each topic only once, to a maximum of three credit hours.)

Prerequisites & Corequisites: Prerequisite: Vocational Certification or consent.

Credits: 1 to 3 hours

Notes: Open to upper level and graduate students.

WFED 5150 - Grant Writing for Workforce Education and Development

Analysis of the grant writing process, including the identification of a sponsor, development of an idea and plan, and completion of a proposal.

Credits: 3 hours

Notes: Open to upper level and graduate students.

WFED 5420 - Curriculum Development in Workforce Education and Development

Principles of analyzing, selecting, and arranging curriculum for instructional purposes in workforce education.

Credits: 3 hours

Restrictions: Restricted to students who have been admitted to the professional level of a Workforce Education and Development major; students in the Workforce Education and Development minor; students in the Workforce Education, Development, and Leadership master's; or students in the Organizational Change Leadership master's.

Notes: Open to upper level and graduate students.

WFED 5430 - Work-site Based Education Programs

Study of work-site based education programs, including the organization and establishment of training programs, supervision of trainees on the job, and development of individual training plans and programs. Emphasis on establishing working relationships between school, business, and the community, including cooperative education, work experience, apprenticeship, work-study, and work exploration programs for Workforce Education.

Credits: 3 hours

Notes: Open to upper level and graduate students.

WFED 5750 - Internship in Workforce Development and Leadership

This course will provide students with a capstone internship experience in workforce education and development. Each student will be placed in a non-profit organization, business, or government agency focusing on adult training, career assessment and development, or workforce development systems. Students will spend a minimum of 12 hours per week at their placement site per three credits. Students will also create a professional portfolio that demonstrates their expertise in workforce education and development.

Prerequisites & Corequisites: Prerequisites: WFED 5121, WFED 4010, WFED 4020, WFED 5120, WFED 5130 and WFED 5420; with a minimum grade of "B" in all prerequisites. All prerequisites except WFED 5121 may be taken concurrently.

Credits: 3 to 9 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

World Languages and Literatures

LANG 1000 - Basic Foreign Languages I

Study of a language not regularly offered in the department. Fundamentals of the particular language with emphasis on specific skills, as appropriate for that language.

Credits: 4 hours

LANG 1010 - Basic Foreign Languages II

Continuation of LANG 1000.

Prerequisites & Corequisites: Prerequisite: LANG 1000 or equivalent in the same language.

Credits: 4 hours

LANG 1750 - Intercultural Odyssey

This course is an introduction to creative and critical thinking in an intercultural context. It will use literature and film from outside of the U.S. to stimulate intellectual curiosity, critical thinking, and cross-cultural understanding while engaging students in examining themes central to the human experience. The themes may vary along with the texts under consideration but will include ways that different societies have reflected upon and shaped individual identity, self-expression, and the struggle for survival. This course satisfies WMU Essential Studies Level 1: Foundations – Inquiry and Engagement: Critical Thinking in the Arts and Humanities Category.

Credits: 3 hours

LANG 2500 - The Nature of Language

A broad introduction to the nature and development of language in human society and to the interdisciplinary aspects of current studies of language and language behavior. Student cannot complete both LANG 1050 and LANG 2050 for credit. This course satisfies WMU Essential Studies Level 2: Exploration and Discovery – Societies and Cultures Category.

Credits: 3 hours

LANG 3750 - Global Issues through Literature and Film

This course is an examination of large, real-world problems and issues as seen through the lens of literature (both text and film) of a non-US society. It will involve skills including close reading, critical thinking, synthesizing different viewpoints, and basic research to explore questions that are important to humanity and that reach beyond the classroom. In doing so, the course will have students approach the subject matter from multiple perspectives, interpret information, comprehend complexity, listen to contrasting viewpoints, synthesize information, and express clear, reasoned opinions. This

course satisfies WMU Essential Studies Level 3: Connections – Global Perspectives Category. May be repeated for credit.

Credits: 3 hours

LANG 3800 - Topics in World Languages

An exploration of literacy, linguistic, or cultural topics related to world languages.

Credits: 1 to 4 hours

Notes: May be repeated for credit under different topics.

LANG 4040 - East and West Literary Relations

Introduces students to the most important literary and cultural ties existing between the East and the West. It provides critical tools for reading literature and culture in a global context. The course will draw upon a selection of texts from diverse periods and cultures, including non-Western traditions.

Credits: 3 hours

LANG 5250 - The Practice and Theory of Literary Translation

The course examines the essential role of translation in our world of increasing globalization. Students must translate one extended text of their own choosing from any language into English. Meanwhile, readings and discussion will focus on the nuts and bolts of translation, plus the relationship between translation, literary canonization, nationalism, post-colonialism, and national representation.

Prerequisites & Corequisites: Prerequisites: One 3000-

level foreign language course or instructor approval.

Credits: 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

LANG 5500 - Independent Study in Classics

Directed, individual study of a specific topic related to Classical languages, literature, and/or culture.

Prerequisites & Corequisites: Prerequisite: Completion of four courses or equivalent in Classics; minimum grade point average of 3.0 in the major; departmental approval required.

Credits: 1 to 3 hours

Notes: May be repeated for credit. Open to upper level and graduate students.

LANG 5800 - Foreign Language for Special Purposes

The study of or practice in a specialized area in the field of language and culture such as court interpreting, medical or engineering terminology, or public school administration. The content of this course may vary from semester to semester.

Prerequisites & Corequisites: Prerequisite: Completion of four courses in area of specialization; departmental approval required.

Credits: 1 to 12 hours

Notes: May be repeated for credit, provided the subject matter differs. Open to upper level and graduate students.

Glossary of Terms

Academic advisor

A faculty or professional staff member trained to help students select courses and plan programs.

Academic dismissal

Dismissal from a college or program for not maintaining the required grade point average (GPA). Dismissal indicates that a student is no longer a member of the University community.

Academic forgiveness

WMU undergraduate students who have not earned a degree and have not attended the University for at least four years, and have reapplied to the University, may apply for academic forgiveness through the Office of the Registrar. Students who are granted academic forgiveness may have work still applicable to their program counted toward graduation requirements, but grades will not be calculated in their grade point average. The WMU grade point average will be calculated from a minimum of 12 graded hours of work attempted **after** the reentry date. All other University regulations apply.

Academic standing

The academic standing of a student is determined by the student's grade point average (GPA). All undergraduate students must have a 2.0 or better grade point average to maintain "good standing". A "warning" will be issued to a student whose GPA falls below a 2.0 in any semester or session even though the overall GPA is 2.0 or better. A student will be placed on "probation" if the overall GPA falls below 2.0. The student will be placed on "extended probation" following a semester on probation if the student's GPA for the enrollment period is 2.0 or above but the overall GPA is still below 2.0. The student will be placed on "final probation" following a semester on extended probation if the student's GPA for the enrollment period is 2.0 or above but the overall GPA is still below 2.0. Students will receive a "dismissal" notice if they are on probation or extended probation and fail to achieve at least a 2.0 GPA for the enrollment period.

Advanced placement

Credit granted for examination programs or for transfer work.

Audit

Registering for and attending class(es) regularly without being held responsible for the work required for credit. Not eligible to sit for examinations. No credit hours are earned and full tuition must be paid. The grade "AU" appears on the record.

Bachelor's degree

A degree granted after completing a specified amount of academic study beyond the completion of high school and fulfilling all graduation requirements.

Board

A term used for the meal plan (as in, room and board) at the University.

Capstone course or experience

A culminating holistic experience designed to review and more broadly understand the major issues, themes, theories, and research findings of the student's discipline, often to enable the student to examine the relationship of the discipline to other areas.

Center

An organizational unit formed for purposes of linkage and visibility, focused on a theme, issue, or set of skills. A center will frequently be interdisciplinary in nature. A center does not offer degree programs but may, on rare occasions, offer a course or courses.

Class or credit hour load

The number of credit hours carried by a student each semester or session. A first semester freshman may not enroll for more than eighteen hours of work except by special permission, which is seldom granted unless the curriculum demands it. This regulation applies to total credit for work taken by extension or in some other institution, in addition to credit earned in residence at Western. The normal maximum load for the Summer I or Summer II session is nine hours.

Class standing

A classification based on the number of credit hours earned which indicates the level of a student:

- Freshman: A student credited with 0—25 hours inclusive.
- Sophomore: A student credited with 26—55 hours inclusive.
- Junior: A student credited with 56—87 hours inclusive.
- Senior: A student credited with 88 or more hours.

Co-Curricular Learning

Co-curricular learning takes place outside formal academic studies. It is similar to volunteerism, but includes structured reflection. (See Experiential Learning)

Cognate

A course, or courses, related in some way to courses in a major. Cognates may be, and often are, courses outside the department of the degree program.

College

An administrative division of the University housing one or more academic departments or schools.

College-level writing requirement

A lower-division writing requirement for all students. On the basis of test scores a basic writing course may be required as a prerequisite.

Concentration

A concentration (or option or emphasis) is a thematically coherent block of courses that are more similar to one another than to others in the degree program. A concentration has a title and constitutes a significant percentage (e.g., 10%) of courses in the degree program. Concentrations (or options or emphases) may be recorded on the student transcript.

Continuing education unit (CEU)

Recognition for participation in a non-credit program or workshop.

Coordinate major

A major—often interdisciplinary—that must be taken in conjunction with another major.

Corequisite

A course that must be taken at the same time as another course. See also **Prerequisite** below.

Course numbering system

The course numbering system is limited to four digits. Undergraduate courses are numbered from 1000 through 4999. Graduate courses are numbered 6000 through 7999. Courses numbered 5000 through 5999 are for graduate and advanced undergraduate students.

Course Numbers	Levels
0000-0089	Non-credit courses
0090-0099	Terminal courses that may not be applied toward degree programs
1000-1999	Courses primarily for first-year students
2000-2999	Courses primarily for sophomores
3000-3999	Courses primarily for juniors and seniors

4000-4999	Courses primarily for seniors
5000-5999	Courses for graduate students and advanced undergraduate students
6000-6999	Courses for graduate students only
7000-7999	Graduate seminars, theses, independent research, etc.

Credit/No Credit

A method used to evaluate performance in courses which is separate from the grade point system. Course grade does not affect GPA. "Credit" is earned for grades of "C" or better; grades of "DC" or below earn "No Credit."

Students may elect for Credit/No Credit any course approved for WMU Essential Studies or General Physical Education credit, as well as other courses not counting toward their major or specified in their curriculum as defined in this undergraduate catalog.

Credit hour

One hour of classroom (50 minutes) or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester hour of credit; or at least an equivalent amount of work for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours. See also "semester hour."

Credit load

The total number of credits for which a student registers during a semester or session.

Cross-Listed Courses

Cross-listed courses are two or more courses offered by different departments, which share the same content and student experiences. Cross-listed courses are considered equivalent courses and a student may only receive credit for the most recent enrollment.

Curriculum

A complete program of studies, as defined by a college, leading to a baccalaureate (undergraduate) degree.

Deadline

The date by which certain information must be received by any given office or unit.

Dean's list

A public announcement at the end of fall and spring semesters, and the summer sessions, listing students who have achieved a grade point average of 3.50 in at least twelve semester hours of course work during fall and spring semesters, and at least six semester hours of work during Summer I or Summer II.

Degree student

A student who has been admitted to a degree category and is seeking a bachelor's, master's, or doctoral degree in a planned course of study.

Drop

An official procedure for withdrawing from individual classes without removing registration from all classes. The deadline for the last day to drop a course without academic penalty (grade of "W" is on the transcript) is noted each semester or session on the Registrar's website. Students who do not follow the official procedure when dropping a class will earn the grade of "X" for that course; the "X" grade carries no honor points and affects the GPA in the same manner as an "E" or failing grade. See also "late drop."

Elective

A course which will count as credit toward a degree but is not a specific program requirement.

Emphasis

A designated group of courses within a major program.

Experiential Learning

Western Michigan University defines "experiential learning" as that which "informs many methodologies, in which educators purposefully engage with students in direct experience and focused reflection in order to increase knowledge, develop skills, clarify values, and develop people's capacity to contribute to their communities" [Association for Experiential Education and United Nations Educational, Scientific and Cultural Organization (UNESCO)]. Experiential leaning includes, but is not limited to:

Service Learning: Service learning is a mutually beneficial endeavor in which course learning objectives are met by addressing community-identified needs--putting academics into practice.

Co-Curricular Learning: Co-curricular learning takes place outside formal academic studies. It is similar to volunteerism, but includes structured reflection.

Volunteerism: Refers to work done without financial remuneration in order to give back to the community and may be completed by individual students or organized group activities. It may be done on a voluntary basis or as required for an academic course, program or other campus organization.

Family Educational Rights and Privacy Act (FERPA)

This act limits information which can be disclosed about individual students' records without their written permission to general Directory information (name, address, telephone number, curriculum, and major field of study). All requests for information beyond Directory information should be referred to the Registrar's Office.

Field experience, practicum, work experience, co-op

Field experience: Actual practice, often away from the college campus, in a practical or service situation. In a teacher education program, it is usually conducted in schools.

Practicum: 1) A course of instruction aimed at closely relating the study of theory and practical experience, both usually carried on simultaneously; 2) an academic exercise consisting of study and practical work; and 3) supervised experience in counseling or a similar activity through such procedures as role-playing, recorded interviews, abstraction, analysis, and supervisory evaluation with interviewing techniques.

Work experience, co-op, or internship: A sponsored learning experience in an occupational area for persons preparing for full-time employment, conducted in connection with a course of study, where the students spend a part of their time on an actual job in a school, business, or industry.

Cooperative education: A program for persons enrolled in a school that provides for parallel or alternating study in school with a job in industry or business, the two experiences being so planned and supervised cooperatively by the school and the employer that each contributes definitely to the students' development in their chosen occupation.

Cooperative program: An organizational pattern of instruction which involves regularly scheduled employment and which gives students an opportunity to apply classroom learning.

Full-time student

An undergraduate student who enrolls for twelve credit hours during Fall or Spring or for six credit hours during Summer I or Summer II. The University does allow full-time status to some co-op and intern classes, when it is the only class allowed a student during a semester or session. University Housing has its own regulations on the definition of hours needed to be eligible for housing contracts. Students should contact the University Housing Office for this information. The above definitions are Western Michigan University regulations and may or may not be accepted by other agencies.

Gate course

A course in fundamentals in which a student must achieve a grade of "C" or "Credit" in order to qualify for enrollment in upper division courses of a curriculum.

Good standing

A designation that signifies that a student is eligible to continue, to return, or to transfer elsewhere. It implies good academic standing; that is, an overall GPA of 2.00 or better.

Grade point

The numerical value given to letter grades. For example an "A" is equivalent to 4 points per semester hour, a "BA" to 3.5 points, a "B" to 3 points and so on. No points are earned for an "E" grade. Also referred to as "honor points."

Grade point average (GPA)

A student's scholastic average computed by dividing total grade or honor points by total credit hours attempted.

Graduation audit

A formal, required evaluation of the student's academic record and program of study to determine the student's eligibility for graduation. The audit, initiated by a student's application for graduation, determines whether all University, degree, and program requirements have been met satisfactorily.

Deadlines for all degree recipients to apply for graduation are October 1 for Spring graduation, February 1 Summer I, Summer II and Fall graduation.

Students who change a graduation date need to complete a new application for graduation. No fee for the change is required. The Registrar's Office will not change a student's graduation date unless the student submits this new application for graduation.

Grant

Financial assistance awarded to a student which does not have to be repaid; usually based on need.

Guest student

A degree student from another college who is taking courses at Western Michigan University for one semester. The credits earned are usually transferred back to the student's home institution. A guest student may also wish to enroll in WMU courses for reasons other than seeking a degree. Guest student status does not constitute admission to a degree or certificate program.

Hold

A barrier placed on a student's ability to register for classes as a result of an unfulfilled monetary obligation or other action by the University.

Honors

Designation indicated on the college degree and transcript to reflect outstanding scholarship. Honors are conferred upon graduating students who have displayed a high level of performance during their university career. Recipients of honors receive their degrees:

Cum laude when their grade point average is 3.50 to 3.69, inclusive

Magna cum laude when their grade point average is 3.70 to 3.89, inclusive

Summa cum laude when their grade point average is 3.90 to 4.00, inclusive

To be eligible for honors, students must have earned at least fifty semester hours of course work at Western Michigan University which was graded by a letter grade and computed into the final cumulative grade point average.

Honors College (Lee Honors College)

An academic administrative unit of the University whose mission is to design and foster curricular and co-curricular programs for the academically-talented student.

Honors courses

Special courses offered by Western's Lee Honors College designed to pose intellectual challenge and give personal attention to particularly able students.

Incomplete

A temporary course grade ("I") granted only if a student is temporarily unable to complete course requirements because of unusual circumstances beyond the control of the student.

Independent studies or readings courses

Independent studies or readings courses are courses in which a contract is developed between a faculty member and a student to complete research in, or readings on, a specific topic. The student is responsible for proposing the topic and contacting the appropriate faculty member.

Independent study

A course of study undertaken outside the classroom by a student under the supervision of one or more faculty members.

Institute

An organizational unit similar in nature to a center, as defined above, but which is degree-granting. Typically an institute will be interdisciplinary. Course work for a degree offered through an institute may include some offered by the institute itself but will be primarily comprised of courses in various disciplines/departments already in existence.

Intellectual skills requirements

The requirement that all students demonstrate entry-level competency in reading, writing, and mathematics by test or course.

Interdisciplinary

Designating a combination of subject matter from two or more disciplines within a course or program.

Internship

Work in a firm or agency related to a student's major program and/or career plans. Usually involves earning college credit and may involve receiving payment.

Late drop

An official procedure for withdrawing from individual classes without removing registration from all classes that takes place after the last day to drop a course without academic penalty.

Loan

Financial assistance to students which must be repaid. Low interest loans are available and financial need may or may not be a factor.

Lower division

Courses at the 1000-2000 level; freshman or sophomore standing.

Major

A concentration of related courses totaling a minimum of 24 semester hours of credit.

Michigan residence requirements

The requirements for identifying or establishing permanent residence in Michigan for tuition assessment purposes.

Minor

A concentration of courses totaling a minimum of 15 semester hours of credit.

Multi-topic or "umbrella" course

A variable topic course that focuses on a current or a special interest in a specific field or academic area. The course may be repeated for credit with different topics.

Non-degree student

A student who has been admitted as a guest student or is not currently seeking a bachelor's degree.

Part-time student

An undergraduate student who takes fewer than twelve hours during a semester or fewer than six hours during a session.

Portfolio

A collection of work (e.g., paintings, writings, etc.) which may be used to demonstrate competency in an academic area.

Prerequisite

A requirement, usually the completion of another course, which must be met before a student may register for a course.

Prerequisite with concurrency

A requirement, usually the completion of another course, which may be taken at the same time as the course it is a prerequisite for.

Readmission

An enrollment procedure administered by the Office of Admissions that is followed by a student who was previously enrolled in good standing at Western Michigan University but who has not been enrolled for one year or more.

Re-entry

An enrollment procedure followed by a student who was previously enrolled in good standing at Western Michigan University but whose attendance was interrupted for two consecutive semesters, including the summer session.

Registration

The process of enrolling in and paying tuition and fees for courses each semester or session. For a full explanation of the registration procedures and regulations, consult the Registrar's website.

Reinstatement

An appeal procedure for a student who has been dismissed. Consult your college advising office to begin the procedure. Readmission must be sought in the area of intended study.

Residence requirement

The requirement that a minimum of 30 semester hour of course work for the bachelor's degree be completed at Western Michigan University. In addition, 10 of the last 30 credits must be completed at WMU.

Scholarship

Financial assistance to students awarded on the basis of academic achievement. Financial need may or may not be a factor.

School

A single-discipline unit which has an identification in the public mind beyond that of a department. Schools may have significant subdivisions such that students will apply for admission and take degrees through the subdivision rather than through the central unit as a whole.

Semester

A unit of time, 15 weeks long, in the academic calendar.

Semester hour

One hour of classroom (50 minutes) or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester hour of credit; or at least an equivalent amount of work for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours. See also "credit hour."

Senior institution

An institution of higher learning offering baccalaureate programs. Western Michigan University is a public senior institution; a minimum of sixty hours toward the bachelor's degree must be completed at a senior institution.

Service Learning

Service learning is a mutually beneficial endeavor in which course learning objectives are met by addressing community-identified needs--putting academics into practice. (See Experiential Learning)

Session

A unit of time, 7-1/2: weeks long, in the academic calendar.

Short-Term Military Obligation

Any sequential or non-sequential absence may total no more than 15% of scheduled class meeting time. Military orders must provide the student's name, start and end date of the absence, military organization's name, and must be signed.

Student employment

Part-time jobs made available to students with financial need through federally-funded programs (Work-Study) and to students without need through the Student Employment Office.

Teachable major/minor

A state-approved major/minor program for teacher certification at the secondary and/or elementary level.

Three-quarter time student

Three-quarter time undergraduate students are defined as taking nine to eleven hours during a semester and five hours during a session.

Transcript

A copy of a student's permanent academic record at a particular institution.

Transfer credit

Credit earned at another accredited institution and accepted towards a Western Michigan University degree. Grades earned at another institution do not transfer and hence do not affect the WMU GPA.

Transfer credit evaluation

An official statement which indicates the number and type of transfer credits awarded.

Tuition

The amount of money which must be paid for courses based on the number of credits for which the student registers.

Unit definitions

Center: An organizational unit formed for purposes of linkage and visibility, focused on a theme, issue, or set of skills. A center will frequently be interdisciplinary in nature. A center does not offer degree programs but may, on rare occasions, offer a course or courses.

Institute: An organizational unit similar in nature to a center, as defined above, but which is degree-granting. Typically an institute will be interdisciplinary. Course work for a degree offered through an institute may include some offered by the institute itself but will be primarily comprised of courses in various disciplines/departments already in existence.

School: A single-discipline organizational unit which has an identification in the public mind beyond that of a department. Schools may have significant subdivisions such that students will apply for admission and take degrees through the subdivision rather than through the central unit as a whole.

Unit of credit

The unit of credit is the semester hour; the number of semester hours credit given for a course generally indicates the number of periods a class meets each week.

Upper level

Classification of students with 56 or more semester hours of credit earned towards a bachelor's degree; courses at the 3000, 4000, and 5000 levels.

Volunteerism

Refers to work done without financial remuneration in order to give back to the community and may be completed by individual students or organized group activities. It may be done on a voluntary basis or as required for an academic course, program or other campus organization. (See Experiential Learning)

Withdrawal

An official procedure for withdrawing from the University for at least the remainder of the current semester or longer. The deadline for the last day to withdraw from all courses without academic penalty (grade of "W" is on the transcript) is noted each semester or session on the Registrar's website. Students who do not follow the official procedure when withdrawing from the University will earn the grade of "X" for all courses; the "X" grade carries no honor points and affects the GPA in the same manner as an "E" or failing grade.

WMUx

Graduate courses and programs offered in the Regional Locations of Battle Creek, Benton Harbor/St. Joseph, Grand Rapids, Lansing, Metro Detroit, Traverse City, or elsewhere away from the Kalamazoo campus.

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