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2002–2004 Academic Calendar

Fall Semester, 2002
September 2, Monday
Labor Day Recess
Advising Day; Classes Begin at 4:00 p.m.
November 15, Friday
Approved Theses, Projects, and Dissertations due in The Graduate College for December Graduation
November 15, Friday
Final Day to Apply for December 2002 Graduation*
November 27, Wednesday
Thanksgiving Recess Begins at Noon
December 2, Monday
Classes Resume
December 9–13
Final Examination Week
December 14, Saturday
Commencement

Spring Semester, 2003
January 6, Monday
Advising Day; Classes Begin at 4:00 p.m.
January 20, Monday
MLK Day Recess, Convocation, and Activities
February 14, Friday
Applications due for Fellowships and Associateships
February 28, Friday
Spirit Day
March 3, Monday
Semester Recess
March 10, Monday
Classes Resume
March 14, Friday
Final Day to Apply for April 2003 Graduation*
March 28, Friday
Approved Theses, Projects, and Dissertations due in The Graduate College for April Graduation
April 21–25
Final Examination Week
April 26, Saturday
Commencement

Summer I, 2003
May 5, Monday
Classes Begin
May 15, Thursday
Final Day to Apply for June 2003 Graduation*
May 30, Friday
Approved Theses, Projects, and Dissertations due in The Graduate College for June Graduation
May 26, Monday
Memorial Day Recess
June 25, Wednesday
Session Ends
June 28, Saturday
Commencement

Summer II, 2003
June 26, Thursday
Classes Begin
July 4, Friday
Independence Day Recess
July 18, Friday
Approved Theses, Projects, and Dissertations due in The Graduate College for August Graduation
July 15, Tuesday
Final Day to Apply for August 2003 Graduation*
August 15, Friday
Session Ends—No Commencement Exercises

Fall Semester, 2003
August 26, Thursday
Advising Day; Classes begin at 4:00 p.m.
September 1, Monday
Labor Day Recess
November 14, Friday
Approved Theses, Projects, and Dissertations due in The Graduate College for December Graduation
November 14, Friday
Final Day to Apply for December 2003 Graduation*
November 26, Wednesday
Thanksgiving Recess Begins at Noon
December 1, Monday
Classes Resume
December 8–12
Final Examination Week
December 13, Saturday
Commencement

Spring Semester, 2004
January 5, Monday
Advising Day; Classes Begin at 4:00 p.m.
January 19, Monday
MLK Day Recess, Convocation, and Activities
February 16, Monday
Applications due for Fellowships and Associateships
February 27, Friday
Spirit Day
March 1, Monday
Classes Resume
March 8, Monday
Semester Recess
March 15, Monday
Final Day to Apply for April 2004 Graduation*
March 26, Friday
Approved Theses, Projects, and Dissertations due in The Graduate College for April Graduation
April 19–23
Final Exam week
April 24, Saturday
Commencement

Summer I, 2004
May 3, Monday
Classes Begin
May 14, Friday
Final Day to Apply for June 2004 Graduation*
May 31, Monday
Memorial Day Recess
May 28, Friday
Approved Theses, Projects, and Dissertations due in The Graduate College for June Graduation
June 23, Wednesday
Session Ends
June 26, Saturday
Commencement

Summer II, 2004
June 24, Thursday
Classes Begin
July 5, Monday
Independence Day Recess
July 15, Thursday
Final Day to Apply for August 2004 Graduation*
July 16, Friday
Approved Theses, Projects, and Dissertations due in The Graduate College for August Graduation
August 13, Friday
Session Ends—No Commencement Exercises

*Graduation Fee and Application Deadline
Fall Semester Graduation (December)
$30.00 Application Deadline: December 1
Spring Semester Graduation (April)
$30.00 Application Deadline: March 1
Summer I Graduation (June)
$50.00 Application Deadline: June 1
Summer II Graduation (August)
$50.00 Application Deadline: July 1

NOTE: THIS ACADEMIC CALENDAR IS SUBJECT TO CHANGE WITHOUT NOTICE.
2002 – 2004
Graduate Catalog
Kalamazoo, Michigan

The provisions of this catalog, any other catalog, policy, rules, codes, guidelines, or information issued by the University (collectively "requirements") shall not be considered to be a contractual or otherwise binding obligation of the University. Changes in administration and instruction may be made after the publication date of this catalog. 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. The University reserves the right to change, delete, or add to requirements, procedures, and/or other provisions at any time without prior notice. Such changes may include, but not be limited to, modification or discontinuance of programs, as well as modification or discontinuance of specific courses. In the event such action is taken, students affected will be advised by their units of the options available to them to complete their degrees. The University will assist students in finding alternate ways to complete programs or course work. The University further reserves all rights regarding dismissals, suspensions, withdrawals, denials of requests or applications, cancellations or revocations of admissions, impositions of holds on records of students, and other administrative decisions, at all times.

Academic calendars are subject to change without notice.

Western Michigan University retains the right to rescind any WMU degree which was obtained improperly, including but not limited to, as a result of misrepresentations, incomplete or false information, and/or in violation of University requirements. Before making any final decision to rescind a degree, however, the University will afford the student with an opportunity to be heard in accordance with University requirements in effect at the time of the discovery of the alleged offense.

Becoming a student at Western Michigan University signifies the student's agreement to comply with all requirements of the University whenever approved.
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MISSION OF THE UNIVERSITY

MISSION

Western Michigan University is a student-centered research university, building intellectual inquiry, investigation, and discovery into all undergraduate, graduate, and professional programs. The University provides leadership in teaching, research, learning, and public service. Nationally recognized and internationally engaged, the University:

- Forges a responsive and ethical academic community
- Develops foundations for achievement in pluralistic societies
- Incorporates participation from diverse individuals in decision-making
- Contributes to technological and economic development
- Engenders an awareness and appreciation of the arts

GOALS

Western Michigan University's mission is characterized by its pursuit of the following institutional goals:

- To foster a safe, civil, and healthy University community
- To provide access to academic programs at reasonable cost and in multiple settings
- To strengthen interdisciplinary collaboration and international programs
- To increase diversity within the student body, faculty, and staff through institutional practices and programs
- To recognize excellence in the teaching, research, learning, creative work, scholarship, and service contributions of students, faculty, and staff
- To conduct ongoing assessment activities and engage in continuous improvement initiatives within the University
- To establish life-long relationships between alumni and the University
- To advance responsible environmental stewardship
- To support community and regional partnerships that elevate civic, cultural, social, and economic life

Approved by Western Michigan University's Board of Trustees, December 7, 2001
ADMISSIONS

ADMISSION PROCEDURES

A person planning to earn a degree or a graduate certificate beyond the baccalaureate needs to be admitted to the University as a degree program student, and a person planning to elect graduate courses only needs to be admitted to the University as a nondegree student. The admission procedures for U.S. citizens and non-U.S. citizens are different, however, as described immediately below. To avoid delay in the processing of an application, U.S. citizens and permanent residents should obtain information and application materials by mail from the Office of Admissions and Orientation, Western Michigan University, Kalamazoo, Michigan 49008-5120 OR by EMAIL (ask-wmu@wmich.edu) OR by completing the admission application available on the Western Michigan University web page (http://www.wmich.edu/admin/gradapp/).

Potential applicants on non-immigrant or temporary visas should request information and application materials by mail from the Office of International Student Services, A411 Ellsworth Hall, Western Michigan University, Kalamazoo, Michigan 49008-5246 OR by FAX (616 387-5899) or may download the materials from the Office's web page (http://www.wmich.edu/oiss).

Degree Program Applicant, U.S. Citizen or U.S. Permanent Resident

U.S. citizens who seek admission to a graduate degree program will follow the applicant-managed process described below.

1. Request a Graduate Self-Managed Application from the Office of Admissions and Orientation. NOTE: Since most graduate programs require materials in addition to the Graduate Self-Managed Application, and since not all departments’ additional materials are included with the Graduate Self-Managed Application, applicants are advised to contact the relevant department office or program advisor for such materials. [Alternatively, access the web pages (http://www.wmich.edu/admi/gradapp/) of the Office of Admissions and Orientation and follow the instructions for completing the World Wide Web version of the admission application.]

2. Follow exactly the instructions for completion of the Graduate Self-Managed Application and submission of additional, departmental materials. The self-managed application process requires the applicant to take responsibility for gathering all required admission materials and submitting those materials to the appropriate offices before the published admission dates, as follows:

Materials to be submitted to the Office of Admissions and Orientation in the envelope provided:
The one white copy of the application form; the $25 non-refundable application fee, payable to Western Michigan University; one official transcript from every previous undergraduate and graduate institution attended (except WMU); and the self-addressed, stamped graduate admissions postcard. If also required for admission, have official entrance test scores (such as the GRE or GMAT) sent to the Office of Admissions and Orientation by the testing agency. Materials to be submitted directly to the graduate department in the envelope provided:
The two blue copies of the application form; one official transcript from every previous undergraduate and graduate institution attended (except WMU); the supplemental admission materials as required by department; the self-addressed, stamped department postcard; and any reference forms, if required by department instructions.

3. Applications for admission from U.S. citizens and permanent residents should be submitted no later than July 1 for the Fall Semester, November 1 for the Spring Semester, March 1 for the Summer I Session, and May 1 for the Summer II Session. Most programs, however, have earlier deadline dates, and not all programs admit students for all semesters or sessions. Applicants are advised, therefore, to read the program's admission requirements section in this catalog or consult the relevant program office or advisor to learn the application deadline date and other germane information for a specific program.

It is advisable, moreover, to apply for admission well before the application deadline, because admission to some programs may close early as openings are filled or because a program's complement of available assistantships and fellowships may be assigned as the earlier application deadlines for these awards pass. Also, some programs require the results of entrance examinations that are scheduled well in advance of the application deadlines, and some require interviews or other means of correspondence that necessitate more time between the receipt of the application and the admission decision.

Degree Program Applicant, Non-immigrant or Temporary Visa

Applicants on non-immigrant or temporary visas who seek admission to a graduate program will follow the steps described below.

1. Request an International Student Application Form from the Office of International Student Services. NOTE: Since most graduate programs require materials in addition to the International Student Application Form, and since not all departments’ additional materials are included with the International Student Application Form, applicants are advised to contact the relevant department office or program advisor for such materials. [Alternatively, access the web pages (http://www.wmich.edu/oiss) of the Office of International Student Services to download the application form and instructions for its completion and submission.]

2. Follow exactly the instructions describing the application procedure and submission of all supplemental materials, including the Statement of Finances form and documentation of proficiency in English. Statement of Finances: F-1 and J-1 potential or current visa holders must submit a Statement of Finances form and provide proof that they have sufficient financial resources to cover the educational and living expenses incurred by a typical non-resident graduate student.

Documentation of English Proficiency: When English is not the official language of the country in which the applicant was educated, the applicant is required to demonstrate proficiency in English. The following tests and scores are accepted at Western Michigan University as measures of English language proficiency. Some graduate programs require a higher score.

- Test of English as a Foreign Language (TOEFL). A score of 500 (173 CBT) is required for unrestricted enrollment. A score of 6.5 is required for restricted enrollment or 7.0 for unrestricted enrollment.
- General Certificate of Education Advanced Level Pass in English with grade of A, B, or C, from one of the five British-based examining boards only, is required for unrestricted enrollment. (part-time English study and part-time academics during the first semester) or 550 (213 CBT) for unrestricted enrollment.
- Michigan English Language Assessment Battery (MELAB). A score of 75 is required for unrestricted enrollment or 85 for unrestricted enrollment.
- International Baccalaureate (IB). A grade of 5 in English at the Higher Level is required for unrestricted enrollment. A grade of 7.0 for unrestricted enrollment.
- The College Board's English Language Proficiency Test (ELPT). A score of 950 is required for restricted enrollment or 965 for unrestricted enrollment.
- Successful completion of the advanced level and instructor recommendations from CELCIS, WMU's Career English Language Center for International Students.
Materials to be submitted to the Office of International Student Services: The International Student Application Form, a $35 non-refundable application fee payable to Western Michigan University, the Statement of Finances form and proof of sufficient financial resources; complete and official transcripts of post-secondary studies listing course titles and grades (mark sheets received each, as well as copies of diplomas, certificates, or degrees earned, translated into English; proof of English language proficiency (see acceptable scores of above); if also required for admission, have official entrance test scores (such as the GRE or GMAT) sent to WMU by the testing agency.

Materials to be submitted directly to the graduate department. If additional, supplemental materials are required by a department, these may also need to be submitted directly to that department. Request the department to provide these materials, and then complete and submit the materials exactly as their instructions require.

3. Applications for admission from non-U.S. citizens who do not have an Alien Registration Card or I-551 Immigrant Visa should be submitted no later than April 1 for the Fall Semester, August 1 for the Spring Semester, and January 1 for the Summer I or II Sessions. Many programs, however, have earlier deadline dates, and not all programs admit students for all semesters or sessions. Applicants are advised to read the program’s admission requirements section in this catalog or consult the relevant program office or advisor to learn the applicable deadline date and other information for a specific program.

It is advisable to apply well before the application deadline, because admission to some programs may close early as openings are filled or because a program’s complement of available assistantships and fellowships may be assigned as the earlier application deadlines for these awards pass. Also, some programs require the results of entrance examinations which are scheduled in advance of the application deadlines, and some require interviews or other means of correspondence that necessitate a good bit of time between the receipt of the application and the admission decision.

WMU Faculty Applicant
All Western Michigan University faculty and staff are eligible to apply for admission to master’s and specialist programs at the University. WMU faculty members holding tenured track appointments and all University staff are eligible to apply for admission to doctoral programs at Western, but only in the academic units where they are not employed. WMU faculty members holding explicitly temporary or term appointments may apply for admission to any doctoral program.

Nondegree Applicant, Graduate Certificate Program
An applicant with a bachelor’s degree who wishes to gain admission to a graduate certificate program should submit an application to the Office of Admissions and Orientation, along with a non-refundable application fee of $25, payable to Western Michigan University, and two official transcripts from each institution attended since high school, except Western Michigan University. Additional, supplemental admissions materials required by the certificate program may also need to be submitted directly to the certificate program office. Request the certificate program office to provide these materials, and then complete and submit the materials exactly as the instructions require.

Nondegree Applicant, Permission to Take Graduate Classes (PTG)
An applicant with a bachelor’s degree who wishes to enroll in graduate courses, but does not plan to pursue a degree program or is not eligible for admission to a degree program, may enroll in certain classes with Permission to Take Graduate Classes (PTG) status. This status also is granted to a non-visitor or visiting student from another university. PTG status does not constitute admission to a degree or certificate program, and the courses taken under this status may not apply to a particular degree or certificate program. To secure admission with this status, applicants should submit an application for admission to the Office of Admissions and Orientation, along with a non-refundable application fee of $25. Applicants who did not receive a degree from WMU must send proof of their undergraduate degree when submitting the application. The following credentials (photocopies are permissible) are acceptable as verification of the degree: transcript, diploma, teaching certificate, or letter from the registrar of the undergraduate institution.

ADMISSION REQUIREMENTS
All applicants are expected to meet the same academic standards required for admission consideration. The minimum academic requirements vary, however, by degree level, by discipline, and by admission type. For more specific information on each program, read the admission requirements section of the relevant program’s listing in this catalog or contact the program’s graduate advisor or the department office.

Master’s Program Applicant
In addition to the minimum requirements for admission to a master’s program listed below, many academic programs ask applicants to submit supplemental materials such as letters of recommendation or an autobiography or personal statement describing the applicant’s academic interests and professional goals; to present scores on a specific GRE Subject Test; to schedule a personal interview with departmental faculty; to present evidence of having completed specific courses with specific grades or of having specific kinds of work or life experiences; or to hold certain degrees or certificates (such as a teaching certificate). For more specific information on each program, read the admission requirements section of the relevant program’s listing in this catalog or contact the program’s graduate advisor or the department office.

1. Bachelor’s degree from an accredited institution.
2. Two official transcripts from each institution attended since high school.
3. An overall grade point average of at least 3.0 in the last two years of undergraduate work.
4. Evidence of having met any additional admission requirements stipulated by the individual degree program.
5. Acceptance by the academic unit offering the master’s program and endorsement of the acceptance by the graduate dean.

Specialist Program Applicant
In addition to the minimum requirements for admission to a specialist program listed below, the University’s two Specialist in Education (Ed.S.) programs ask applicants to submit three letters of recommendation and an autobiography; to present evidence of having completed specific courses with specific grades or of having specific kinds of work or life experiences; to hold certain endorsements or certificates (such as a teaching certificate); and may require the applicant to schedule a personal interview with departmental faculty. For more specific information on each program, read the admission requirements section of the relevant program’s listing in this catalog or contact the program’s graduate advisor or the department office.

1. Bachelor’s degree from an accredited institution, indicated on an official transcript.
2. Two official transcripts from each institution attended since high school.
3. An overall grade point average of at least 3.0 for all graduate work undertaken beyond the bachelor’s degree.
4. Scores on the GRE General Test.
5. Evidence of having met any additional admission requirements stipulated by the individual specialist degree program.
6. Acceptance by the academic unit offering the specialist program and endorsement of the acceptance by the graduate dean.

Doctoral Program Applicant
In addition to the minimum requirements for admission to a doctoral program listed below, many of the University’s doctoral programs will ask applicants to submit supplemental materials such as letters of recommendation or an autobiography or personal statement describing the applicant’s academic interests and professional goals; to present scores on a specific GRE Subject Test; to schedule a personal interview with departmental faculty; to present evidence of having completed specific courses with specific grades or of having specific kinds of work or life experiences; or to hold certain degrees or certificates (such as a teaching certificate). For more specific information on each program, read the admission requirements section of the relevant program’s listing in this catalog or contact the program’s graduate advisor or the department office.

1. Bachelor’s degree from an accredited institution.
2. Two official transcripts from each institution attended since high school.
3. For students who have completed any hours of graduate work, an overall grade point average of at least 3.0 for all graduate work undertaken beyond the bachelor’s degree.
4. Scores on the GRE General Test.
5. Evidence of having met any additional admission requirements stipulated by the individual doctoral degree program.
6. Acceptance by the academic unit offering the doctoral program and endorsement of the acceptance by the graduate dean.

Additionally, doctoral students will be reviewed for eligibility to continue in the program at other stages—Applicancy and Candidacy—following their initial admission to a doctoral program.
degree program. At each of these stages the academic program unit will decide whether the student should be permitted to continue study toward the doctoral degree.

Applican

1. A student admitted with less than twenty hours of graduate study must request status as an applicant after completing two full semesters of graduate study at Western Michigan University or twenty semester hours of graduate work beyond those accumulated at the time of admission, whichever comes first. A student admitted with more than twenty hours of graduate study cannot request status as an applicant after completing one full semester of graduate work at Western Michigan University or forty semester hours of graduate work, whichever comes first. A student should present this request to the program advisor who will review the request for approval and record the decision on the student's program of study filed in the Registrar's Office.

2. Criteria for being awarded status as an applicant include:
   a. A degree program grade point average of at least 3.0 in all graduate work completed.
   b. Commitment to a specific degree program.
   c. Appointment of a doctoral dissertation committee.
   d. A decision by the unit that the student should be permitted to continue study toward a doctoral degree.

Candidacy

A candidate for a doctoral degree, prior to the session or semester in which the dissertation is defended, is required to have earned or completed satisfactorily the following and to have received approval by the academic program unit to continue study toward a doctoral degree:

1. A degree program grade point average of 3.0 or better.
2. Appointment of a doctoral dissertation committee and approval of the dissertation proposal by the committee.
3. All courses (excluding dissertation credit) and program requirements.
4. All research tool requirements.
5. Comprehensive examinations.
6. Residency requirement.

Nondegree Applicant, Graduate Certificate Program

Often an applicant will plan to pursue a graduate certificate program in conjunction with a graduate degree program. In such an instance, the applicant will need to meet the admission requirements for both the graduate degree program and the graduate certificate program. When the graduate certificate program is pursued alone, the applicant will need to meet the following, minimum admission requirements. Some graduate certificate programs may ask applicants to submit supplemental materials or to meet additional requirements. For more specific information on each certificate program, read the admission requirements section of the relevant program's listing in this catalog or contact the program's advisor.

1. Bachelor's degree from an accredited institution, indicated on an official transcript.
2. Two official transcripts from each institution attended since high school.
3. Evidence of having met any additional admission requirements stipulated by the individual graduate certificate program.
4. Acceptance by the academic unit offering the graduate certificate program and endorsement of the acceptance by the graduate dean.

ADMISSION TYPES, DEGREE STATUS

Regular Admission

Regular Admission is granted to the student who has a bachelor's degree with an acceptable academic record (minimum 3.0 grade point average in the final two years of undergraduate study), who has passed the required entrance examinations, and who has met the admission requirements of the program the student plans to pursue. Acceptance to a definite program of study leading to a degree or certificate program is dependent upon the endorsement of the department or unit in which the student plans to study and of the graduate dean. For further information see the admission requirements section of the relevant graduate program in this catalog.

Admission with Reservation

Admission with Reservation is granted to the student with a bachelor's degree who has fulfilled the general requirements for admission but may not have fulfilled the specific requirements of a particular program. Such admission is also granted to the student during the final semester or session of enrollment in an undergraduate program if the academic record is satisfactory.

Probationary Admission

Probationary Admission is granted to the student with a bachelor's degree and a somewhat less than satisfactory academic record or anyone having a bachelor's degree from a non-accredited college. A grade point average of at least 2.5 in the final two years of undergraduate study, as well as the approval of the department or unit in which the student plans to pursue graduate study, is required for probationary admission. A student admitted on probationary status may establish eligibility for regular admission to a degree or certificate program by completing the specified departmental prerequisites, by securing grades of "B" or better in each advisor-approved course in the first six to nine graduate credits, and by securing departmental approval. Students admitted on probation are not permitted to use in their degree program more than nine semester hours of credit earned as a probationary student.

Dual Undergraduate/Graduate Enrollment Admission

Dual enrollment admission (that is, admission to a master's program while yet enrolled in a baccalaureate program) may be granted to any WMU senior who has an acceptable academic record (with a grade point average of 3.0 or better for the two years prior to admission date) and who has no more than 15 credit hours remaining for completion of the bachelor's degree.

Once granted dual enrollment status, the student may enroll in a maximum of 12 credit hours of graduate coursework that has been approved by the appropriate departmental advisor in addition to those undergraduate courses required to complete the bachelor's degree.

Dual enrollment is permitted for the calendar year only, and no graduate credit earned in this way may be used to meet undergraduate requirements. If the bachelor's degree is not completed in the period of one calendar year, the student may not continue on dual enrollment.

A student must request dual enrollment status on the application for admission to a master's degree program; however, official entry is not immediate. Graduate credits earned accumulate but the official entry date must follow the semesters or sessions of dual enrollment status and the completion of the bachelor's degree.

ADMISSION TYPES, NONDEGREE STATUS

Permission to Take Graduate Classes (PTG)

Permission to Take Graduate Classes (PTG) is granted to a student with a bachelor's degree who wishes to enroll in certain courses, but does not plan to pursue a program leading to a graduate degree, or is not eligible for degree admission. This status also is granted to a guest or visiting student from another university. PTG status does not constitute admission to a degree or certificate program, and the courses taken under this status might not apply to a particular degree or certificate program. For the student eligible for admission, a maximum of nine credits taken under PTG status may be considered in a degree program if the student should later decide to apply for admission to a degree program and if an advisor and the graduate dean approve the credit. PTG status is not available to students with dual enrollment.

Senior Citizen (SCOPE) Program

The Senior Citizens' Opportunity Program in Education (SCOPE) Program offers persons sixty-two years of age or older the opportunity to register for one regularly scheduled class each semester/session tuition free. Participants will be assessed all special class fees. Special contract courses, such as Distance Learning, are not available tuition free. Enrollment in courses is on a seat available basis and participants may not register for credit.

Anyone interested in participating in the SCOPE program should contact the Office of Admission and Orientation and request an application form. Regular, degree-seeking admission is not extended to participants of SCOPE. Questions regarding SCOPE participation should be directed to the Registrar's Office (387-4310). For additional information regarding dates and deadlines for registration of courses for SCOPE participants, consult the Schedule of Course Offerings.

Michigan Intercollegiate Graduate Studies (MIGS)

The MIGS admissions category is a guest scholar program which one highly qualified graduate students of Michigan institutions offering graduate degree programs to take advantage of unique educational opportunities on the campuses of the other institutions. Any graduate student in good standing in a master's, specialist, or doctoral program at a participating institution is eligible to participate in the MIGS program. (Western Michigan University participates in this program.) The student's good standing at the host institution affords the opportunity to study at the host institution, providing the proposed program of study is approved by the departmental officers.
and the MIGS liaison officers at both the home and host institutions. The officers of the home institution determine whether the experiences sought are unique or not available at the home institution; the officers of the host institution determine whether space and other necessary resources are available at the host institution. This type of enrollment is limited to one term for master's or specialist degree students, or two terms for doctoral degree students. For further information, contact a graduate advisor or the MIGS liaison officer in The Graduate College.

**ACADEMIC FORGIVENESS**

Students who are readmitted into graduate study will not have grades and credit hours count in the computation of their grade point average that were earned more than seven years prior to their new entrance date. In such cases, the transcript will read, "Grades and credit hours earned more than seven years prior to current entrance date were not included in the computation of the grade point average."

**ACTIVE ADMISSION STATUS**

An applicant admitted to a graduate degree or graduate certificate program or to Permission to Take Graduate Classes (PTG) status retains Active Admission Status for two years from the time of admission, as well as for one year from the date of the last enrollment as a graduate student at Western Michigan University. If a student never enrolls during the two years following the effective admission date, the student's admission status is canceled and thereafter the student must submit an entirely new application and be formally admitted again before registration may occur. An enrolled student who has not registered for more than one year must complete and have approved a Readmission Application before registration may occur.
TUITION

Student tuition fees are assessed on a credit hour basis. Fees per credit hour for 2002-2003 are listed below. (Tuition fees are subject to change by the Board of Trustees.)

Resident* Graduate Student, On-Campus: $205.00
Non-Resident Graduate Student, On-Campus: $503.46
All Graduate Students in courses offered by Extended University Programs, $265.00

*Resident: See the Resident Classification section directly below for definition.

REPRESENTATION

A student enrolling at WMU for the first time shall be classified as an in-state or out-of-state student for tuition-paying purposes. It is the student's responsibility to read the Residency Policy (see the section of this catalog entitled Student Rights and Responsibilities) and to register under the proper residency classification. Students are encouraged to contact the Office of the Assistant Vice President for Business if they have questions regarding their residency classification or need assistance.

Any student who previously attended WMU as a non-resident student and reapplies for admission will continue to be classified as a non-resident student until an Application for Resident Classification for University Admission and/or Fee Purposes is filed and approved.

The admissions office performs the initial screening for in-state/out-of-state residency classification. If a student indicates Michigan residence on the admissions application and the admissions office questions the status, the student will be classified as a non-resident student. The fact that the student's claim to residency for tuition-paying purposes is questioned does not necessarily mean that the student will be ineligible. It simply means that the student's circumstances must be documented by completing an Application for Resident Classification for University Admission and/or Fee Purposes.

A student who has an out-of-state classification at the time of admission but claims eligibility for resident classification, must file an Application for Resident Classification for University Admission and/or Fee Purposes for an official determination of status. If any of the following circumstances apply:

- The student is living out of the State of Michigan at the time of application to the University
- Either parent is living out of the state of Michigan (applies if the student is 24 years of age or younger and is a dependent student)
- The student has attended or graduated from an out-of-state high school and has been involved in educational pursuits for the majority of time since graduate from high school
- The student has had out-of-state employment or domicile within the last 3 years

(Please Note: The above list is not exhaustive.)

Before a student is granted residency status for admissions and/or fee purposes, the University will require the student to have continuously resided in Michigan for one year immediately preceding the first day of classes of the term in which the student is applying for in-state classification. If the student presents clear and convincing evidence which demonstrates the establishment of a Michigan domicile, the student will be eligible for in-state classification.

Establishing a Michigan Domicile

The following circumstances and activities which may demonstrate Michigan domicile, though not conclusive or exhaustive, may lend support to a claim to eligibility for in-state classification. This is not an exhaustive list:

- In the case of a dependent student, at least one parent domiciled in Michigan, as demonstrated by the parent's permanent employment, establishment of a household and record of year-round presence in Michigan.
- Student employed in Michigan in a full-time, permanent job, provided that the student's spouse's employment is the primary purpose for the student's presence in Michigan.
- Student's spouse employed in Michigan in a full-time, permanent job, provided that the student's presence in Michigan.
- Student's spouse employed in Michigan in a full-time, permanent job, provided that the student's spouse's employment is the primary purpose for the student's presence in Michigan.
- Other circumstances and activities listed below are temporary or indeterminate domicile in Michigan.
- In the case of a dependent student, at least one parent domiciled in Michigan, as demonstrated by the parent's permanent employment, establishment of a household and severance of out-of-state ties.
- Student employed in Michigan in a full-time, permanent job, provided that the student's presence in Michigan.
- Student's spouse employed in Michigan in a full-time, permanent job, provided that the student's spouse's employment is the primary purpose for the student's presence in Michigan.
- Other circumstances and activities listed below are temporary or indeterminate domicile in Michigan.

The following circumstances and activities listed below are temporary or indeterminate and, in and of themselves, do not demonstrate domicile in Michigan:

- Enrollment in a Michigan high school, community college or university
- Employment in Michigan that is temporary or short-term
- Employment in Michigan in a position normally held by a student
- Military assignment in Michigan
- Payment of Michigan income or property taxes
- Ownership of property in Michigan
- Presence of relative in Michigan (other than parent(s) for dependent student)
- Possession of a Michigan driver's license or voter's registration
- A student's statement of intent to be domiciled in Michigan

In cases where it is determined that a student has not demonstrated establishment of domicile in Michigan as defined by this policy, the University will require the student to document one year of continuous physical presence in the state. The year to be documented will be the 12 consecutive months immediately preceding the first day of classes of the semester/session in which the student is requesting residency.

In documenting the year of continuous presence in Michigan, the student will be expected to show actual physical presence by means of enrollment, employment, in-person financial transactions, etc. Having a lease or a permanent address in Michigan does not, in itself, qualify as physical presence.

Short-term absences (vacation periods of 21 days or less, spring break, and break time between fall and spring semesters), in and of themselves, will not jeopardize compliance with the one-year requirement. The nature of the short-term absence will be assessed to determine whether it is contrary to an intent to be domiciled in Michigan. Absences from Michigan that exceed the time mentioned above or failure to document 12 consecutive months of physical presence will be considered as noncompliance.

Filing Dates/Deadlines

Students may apply for resident classification for any semester/session in which they are enrolled. Applications must be filed not later than 20 calendar days following the first day of classes for the Fall and Spring semesters (10 calendar days for the Summer I and Summer II sessions). The deadline dates for filing the Application for Resident Classification for University Admissions and/or Fee Purposes are the same for all students (undergraduate and graduate). If the deadline falls on a weekend, holiday or closure day, it will be extended to the next business day.

(Note: Applications must be received in the Office of the Assistant Vice President for Business by the filing deadline. Applicants who do not file by the deadline will be responsible for paying tuition at the non-resident rate. Exceptions will not be granted.)

Incomplete information (supporting documentation) and/ or absence of dates (month/day/year) could result in immediate denial of resident status and/or delay the processing of your application.

All official actions concerning the review of your residency application will be communicated to you in writing. It is your responsibility to notify this office of any change in your mailing address.

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 fees as students desiring credit.

Change in Credit Hour Load, Effect on Tuition

Changes in student credit hour load prior to the end of the final day for adding a course are considered to be reassessments, and a refund will be granted, in full, for any net reduction in the credit hour load. After the final day for adding a course, there is no re-assessment or refund for reduction in credit hour load. An increase in credit hour load will result in an upward adjustment of the tuition fee assessment. Students should refer to the
Complete Withdrawal from All Courses, Effect on Tuition

The Schedule of Course Offerings for the appropriate semester/session should be consulted for the refund policy that pertains to complete withdrawal.

Students completely withdrawing from all classes must enter this information into the touchtone registration system or by going to the Registrar’s office during the official drop/add days in order to process their withdrawal and assure a 100 percent refund. The withdrawal date for refund purposes will normally be determined by the date that the Registrar receives a Change of Enrollment Request form or an Appeal to Withdraw form. Students who find it impossible to be on campus to process a complete withdrawal and do not have access to touchtone phones may write to the Registrar’s office, Room 3210 Seibert Administration Building, for aid in processing their withdrawal. All written requests for complete withdrawal must bear the appropriate postmark date for consideration of any refund.

STUDENT FEES OTHER THAN TUITION

The following are other 2002-2003 fees applicable for graduate study on campus.

**Admission Application Fee**
A non-refundable fee of $25 must accompany each application for admission.

**College of Engineering and Applied Sciences Class Fees**
An additional fee of $25.50 will be assessed for each course at the 200-level and above, including graduate courses.

**College of Health and Human Services Class Fees**
An additional fee of $26.00 will be assessed for each course at the 200-level and above, including graduate courses.

**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 into a single per capita assessment. The enrollment fee for students registered in on-campus classes is as follows.

Students enrolled for 7 or more credit hours per semester or 4 or more credit hours per session:
- Fall and Spring Semesters: $289.00
- Summer I and Summer II Sessions: $144.50

Students enrolled for 6 or fewer credit hours per semester or 3 or fewer credit hours per session:
- Fall and Spring Semesters: $120.00
- Summer I and Summer II Sessions: $60.00

**Extended University Programs Technology Fee**
A technology fee of $25.00 per student is assessed each semester/session. Certain courses, such as contract courses or Self-Instructional courses, are exempt.

**Graduation Fee and Application Deadline**

- **Summer II Session Graduation** (August)
  - $30.00 Application Deadline: August 1
  - $50.00 Application Deadline: July 15

- **Fall Semester Graduation** (December)
  - $30.00 Application Deadline: December 1
  - $50.00 Application Deadline: November 15

- **Spring Semester Graduation** (April)
  - $30.00 Application Deadline: April 1
  - $50.00 Application Deadline: March 15

**Summer I Session Graduation** (June)

- $30.00 Application Deadline: May 1
- $50.00 Application Deadline: May 15
- *No Commencement Exercises in August*

**International Student Fee**
International students will be charged a $25.00 fee each semester.

**Late Registration Fee**
A late registration fee of $100.00 is assessed each student who is not registered for at least one class prior to the third day of the semester/session. Students who have registered for classes prior to the late fee assessment date and wish to process drops/adds, should add classes before processing drops to avoid being assessed the fee.

**Late Add Fee**
Classes cannot be added after the drop/add registration period ends except for extenuating circumstances as determined by the Office of the Registrar. Should the Registrar deem that a late add should be granted, the student will be assessed a fee of $50.00 per class added. If the student was not previously registered for at least one class, the late registration fee of $100.00 also will be assessed.

**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 charged one time per year, Fall semester through Summer II session. Students registered in classes that require more than one type of liability insurance will be charged once for each.

**Student Assessment Fee**
An assessment fee (SAF) of $12.00 per semester (Fall and Spring) and $6.00 per session (Summer I and Summer II) will be collected from all graduate and undergraduate 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. The following is a sample of the programs funded in previous years: Bronco Bash, Homecoming, College Bowl, Miller Movies, Bernie’s Afterhours, Bernhard Center’s Center Stage, lectures, etc.

**TUITION AND FEE PAYMENT FOR GRADUATE APPOINTEES**
Graduate appointees (i.e., those holding assistantships, associateships, or fellowships) are entitled to a charge privilege for tuition and related fees. However, installment payments must be made. An account is considered to be delinquent thirty days after the beginning of a semester and thirty days after the beginning of a session. At that time a one and one-half percent monthly service charge will be added to the unpaid balance. Delinquent accounts are subject to all University collection procedures, including referral to an external collecting agency. All tuition and fees must be paid prior to registration for the next semester/session.
REGISTRATION, RECORDS, ACADEMIC REGULATIONS

REGISTRATION
Registration is conducted by telephone (616-333-1500) and over the web (www.wmich.edu/registrar/) at Western Michigan University according to the schedule and procedures given in the Schedule of Course Offerings which is published prior to each semester and session and is available in the Registrar's Office, in advising offices, and on the WMU web site. The Schedule of Course Offerings should be consulted for details regarding the time and place of graduate classes, credit types and levels for courses, course prerequisites, procedures and regulations regarding the adding or dropping of courses, tuition and fee schedules and their methods of payment, final examination week schedules, names and telephone numbers of department offices and advisors, and all the University regulations that affect the registration process. Registration by students signifies an agreement to comply with all University regulations that affect the registration process, as well as to all University requirements that affect the time and place of graduate classes.

Course Numbers and Graduate Credit
To receive graduate credit, graduate students will register for courses offered at the 500-, 600-, or 700-level. Courses numbered 600 and above are open only to graduate students, courses numbered 500 through 599 are open to both graduate and advanced upperclass students who meet the course prerequisites. Graduate students enrolling in courses at the 500-level or higher will receive graduate credit. All 700-level courses are graded on a "Credit/No Credit" basis, with no exception.

No graduate credit is given for registration in undergraduate courses, nor for any type of correspondence work, nor for Individualized Learning courses offered by the Department of Distance Learning, regardless of course number.

Adding or Withdrawing from 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 in the Schedule of Course Offerings.

Only students who have a class that is not officially scheduled to meet during the first five days of class enrollment will be given an additional opportunity to drop/add. See the Schedule of Course Offerings for details of this procedure.

Students may withdraw (drop) classes through the fifth (5th) day of the term 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).

Dropping Classes and Withdrawing from All Classes
Students may drop a course or withdraw from all courses without accruing an academic penalty through the Monday of the tenth week of classes in the fall and spring semesters and through the Monday of the fifth week of the summer I and summer II sessions. A non-punitive "W" will be reflected on the student's academic record for any classes dropped after the drop/add period and before the withdrawal deadline. The final date for withdrawing is published in the Schedule of Course Offerings. Students may not withdraw from any class after this date without academic penalty.

Each student is encouraged to confer with the instructor before withdrawing from a class as the student may not re-register for the class. Students who wish to drop a course or withdraw from all classes officially after the Monday of the tenth week of classes in the fall and spring semesters and through the Monday of the fifth week of the summer I and summer II sessions because of genuine hardship (i.e., illness, death in the immediate family), must be passing the course and must file a written appeal on forms which may be obtained from the Registrar's Office. If a student wishes to withdraw from some but not all courses, s/he must obtain the approval of the instructor of record for each course to be dropped. If the student wishes to withdraw from all classes, s/he must obtain the approval of the academic advisor and a financial aid advisor.

An Appeals Committee to review late withdrawals will be appointed by the Provost and Vice President for Academic Affairs. The Appeals Committee may request information from the instructors involved and from other appropriate sources. The Registrar's Office will record the drop or withdrawal if it has approvals as listed above. If the semester has ended, the student must request a grade change to "W" through the Grade Appeal Process.

Registration in Master's Thesis, Specialist Project, Doctoral Dissertation
A student who intends to register for the Master's Thesis (700), Specialist Project (720), or Doctoral Dissertation (730) for the first time is required to file a completed Permission to Elect form with The Graduate College before registering to ensure that the student is informed about the regulations pertaining to the preparation and submission of the manuscript and to the requirements for research involving regulated subjects and hazardous materials.

Registration for Continuous Enrollment in Master's Thesis, Specialist Project, Doctoral Dissertation
Following a student's first enrollment in the Master's Thesis (700), Specialist Project (720), or Dissertation (730), the student must have continuous enrollment in that same course until all thesis or project or dissertation requirements are completed satisfactorily and approved by all appropriate bodies. Registration deadlines apply. For students not enrolled in the summer I and summer II sessions, pre-enrollment in the subsequent fall semester is necessary for access to library resources during summer I and summer II.

Continuous enrollment is defined as enrollment in all fall and spring semesters from the initial enrollment to the semester in which the student graduates. If the student will graduate in the summer I or summer II session, the student must be enrolled in that session. Students who desire to have remote access to WMU's library databases during the summer I and summer II sessions may do so by paying the customary computer fee for each session in which computer and remote library services are desired.

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 master's thesis, specialist project, or doctoral dissertation must include the written approval or exemption letter from the appropriate board as an appendix to the thesis, project, or dissertation, and a student completing such regulated research for a course report, paper, or project must include the written approval or exemption letter from the appropriate board as an addendum to the report, paper, or project. For more information, call the Office of the Vice President for Research, 387-9298.

RECORDS
Academic Forgiveness
Students who are readmitted into graduate study will not have grades and credit hours...
count in the computation of their grade point average that were earned more than seven years prior to their new entrance date. In such cases, the transcript will read, "Grades and credit hours earned more than seven years prior to current entrance date were not included in the computation of the grade point average." The request for academic forgiveness must occur at the time of readmission.

**ACADEMIC REGULATIONS**

**ACADEMIC STANDARDS**

All graduate students, PGT and degree candidates, must earn a degree program grade point average of at least 3.0 to satisfy University requirements. An overall grade point average (GPA) will be included as part of the student transcript. The academic standards policy is intended to encourage satisfactory progress toward that end.

1. **Good Standing:** A graduate student is in good standing whenever that student's degree program grade point average is at least 3.0.

2. **Warning:** Whenever the grade point average for any enrollment period is less than 3.0, but the degree program grade point average is 3.0 or above, the student will be warned.

3. **Probation:** If a student's degree program grade point average falls below 3.0, the student will be placed on probation for one semester.

4. **Continued on Probation:** If the degree program grade point average increases .01 or better during the semester of Probation, although still below 3.0, the student will be Continued on Probation for one additional enrollment period at the discretion of the academic department housing the student's program.

5. **Probation Removed:** When the conditions of Good Standing are restored, Probation will be removed.

6. **Dismissal:** The student who fails to increase his/her degree program grade point average .01 or better at the end of an enrollment period of Probation, or whose degree program grade point average fails to reach 3.0 at the end of an enrollment period of Continued on Probation, will be dismissed from the University. Exceptions may be granted only by the academic unit's or program's admission body, and only through the unit's or program's appeal process. Students who have been dismissed from Western Michigan University are expected to remain out at least one full fifteen-week semester.

7. **Appeal Procedure:** Upon appeal by the student, the program or academic unit admission body will determine whether to grant Continued on Probation status. Continued on Probation status must be granted by the program or academic unit admission body in order for the student to register. The appeal must be initiated and the decision made by the program or unit prior to the subsequent semester's last day to add classes.

**ATTENDANCE**

Students are responsible directly to their instructors for class and laboratory attendance, and for petitions to excuse absences.

**COURSE GRADES AND GRADING SYSTEM**

A grade is given in each course in which a student registers. Grades are indicated by letters and assigned honor points as shown in the table below. Credit toward a degree program will be granted only for courses in which a grade of "C" or better is earned.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
<th>Honor Points Per Credit Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Outstanding</td>
<td>4.0</td>
</tr>
<tr>
<td>BA</td>
<td>Exceptional</td>
<td>3.5</td>
</tr>
<tr>
<td>B</td>
<td>Very good</td>
<td>3.0</td>
</tr>
<tr>
<td>CB</td>
<td>Good</td>
<td>2.5</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>DC</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Failing</td>
<td>0.0</td>
</tr>
<tr>
<td>X</td>
<td>Failure (Failure)</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>Official Withdrawal</td>
<td></td>
</tr>
<tr>
<td>CR</td>
<td>Credit</td>
<td>0.0</td>
</tr>
<tr>
<td>NC</td>
<td>No Credit</td>
<td>0.0</td>
</tr>
<tr>
<td>AUD</td>
<td>Audit</td>
<td>0.0</td>
</tr>
</tbody>
</table>

X—(Failure) Official 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.

I—Incomplete: This is a temporary grade which the instructor may give to a student when ill, 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.

Incomplete grades (except those given in Master's Thesis 700, Specialist Project 720, and Doctoral Dissertation 730, and courses directly related to them or identified by departments) will convert to an "X" if not removed within one calendar year, or sooner if stipulated by the instructor who receives an incomplete grade in a course in order to remove the "I".

An instructor who assigns a grade of "I" will complete an official Report of Incomplete Work form indicating the remaining requirement for removal of the incomplete grade and indicating the time allowed, if less than one full year. The instructor will retain a copy for his/her own records and submit a copy to the departmental office. The remaining copies will be returned, along with the grade sheets, to the Registrar's Office, which will provide the student with a copy.

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 Schedule of Course Offerings.

CR or NC—Credit or No Credit: The Credit/No Credit grading system is used in all 700-level courses, as well as some departmental courses approved by the University. The student's transcript will indicate "CR" when the grade received is an A, BA, or B; "INC" when incomplete; and "NC" when the grade received is a C-, D, D-, or X.

AUD—Audit: The symbol "AUD" is used to indicate that a student has enrolled in a course as an auditor, has attended at least three-fourths of the class or laboratory attendance.
sessions, and has given evidence to the course instructor that the role as auditor has been satisfactory. A student who registers for a graduate course as an auditor, with the permission of the instructor, is not eligible to sit for examinations, earns no credit hours for the registration, and pays full tuition. The student must enroll in the audit status at the time of registration, and may not be transferred from the audit status after the course has begun.

**Grade Change**

A student who believes that an error has been made in the assignment of a grade must follow the procedure described later in this catalog in the Student Rights and Responsibilities section under the heading, "Course Grade and Program Dismissal Appeals."  

**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 completed. For example, a total of forty-eight honor points earned in a semester by a student who completed sixteen hours of course work gives a grade point average of 3.0 for the semester.

**Graduate Credit by Examination**

Each academic unit responsible for offering a graduate program may, with the approval of its dean, establish a procedure for granting credit by examination for any course numbered 500 through 700. All credit by examination is subject to the following conditions:

1. The academic unit which offers a graduate program shall determine if an equivalency examination may be used to obtain credit for a particular 500- or 600-level course in that academic unit.
2. All equivalency examinations will be administered and graded by no fewer than two faculty members from the academic unit offering the particular course.
3. All credit by examination shall be graded "Credit" or "No Credit." "Credit" will be posted on the transcript as "Credit earned by examination" without letter grade or honor points. Students who do not achieve a sufficient score to receive "Credit" will have no credit earned.
4. Credit by examination can be used to meet all other University graduation requirements except the residency requirement.
5. Credit by examination can be earned only by those students admitted to a specific graduate degree or certificate program and who are enrolled concurrently with the examination for credit.
6. Credit by examination earned at another university may transfer in accordance with the current policies of The Graduate College governing the transfer of credit.
7. Examination fees are assessed on a credit hour basis and are the same for all students. The current fee schedule: less than four credit hours, $50.00; four credit hours to eight credit hours, $100.00. By special arrangement, some course examination fees may require higher fees.

**Honor Points**

The number of honor points earned in a course is the number of semester hours credit given by the course multiplied by the value of the letter grade received. (See the "Class Standing System" table above.) For example, a grade of "B" (3 honor points) in a four-hour course gives 3 x 4, or 12 honor points.

Honor points are not generated in a Credit/No Credit course, such as in any 700-level course.

Credit earned in undergraduate courses is not computed into the graduate point-hour ratio.

Honor point deficiencies acquired in credits earned at Western Michigan University cannot be made up by credits and honor points earned at another university. Only credit hours transferred from another university, not grades nor honor points.

**Final Examination**

All students enrolled in a course in which a final examination is given must take the examination. 

Student requests for an examination at any other time than that scheduled may not be honored.

**Full-time/Part-time Student Status**

For all graduate students taking courses for a stated degree or certificate program, six hours constitutes full-time status, and three hours constitutes half-time status in fall and spring semesters. In the summer I and summer II sessions, three hours in either session constitutes full-time status for that session and two hours constitutes half-time status.

Students who have completed all course work for their master's or doctoral level program and who have only the dissertation to complete are required by Western Michigan University to enroll for a minimum of one-hour in thesis or dissertation credits in all fall and spring semesters through the semester of graduation. If the student will graduate in the summer I or summer II session, the student must be enrolled in that session. Such enrollment will satisfy WMU's continuous enrollment requirement.

However, students are aware that FICA regulations and some federal loan deferment regulations require at least half-time enrollment, which at WMU is now at least three hours of enrollment. Graduate students, those enrolled for thesis or dissertation hours, must be enrolled for at least half-time (3 hours at WMU) in order to qualify for FICA tax exemption or to be eligible for loan deferments.

Since enrollment fees are determined by hours enrolled, and not by full- or part-time status, students (whether graduate or undergraduate) who enroll for six or fewer hours are charged a lesser enrollment fee than those who enroll for seven or more hours, and consequently they are required to pay an additional fee for unlimited use of the recreation center. Students enrolling for six or fewer hours will have access to the recreation center for 10 visits without extra fee charges.

**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 covered by 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 within 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 that (a) agreement must be reached on a mutually acceptable project concept. At a minimum, such a description should contain an outline of the study topic, specification of the work to be done and any additional readings 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**

With the exception of courses that are approved by the University Curriculum Review Policy as repeatable for credit (e.g., multi-topic or umbrella courses), no more than two courses may be retaken and no course may be repeated more than once during the student's graduate career. In this respect, it should be distinguished from "credit by examination," a different option in which the student completes the work and takes the examination. The repetition of a course may be obtained from the program advisor and graduate dean before registration for the course to be repeated takes place. The original grade for the course will remain on the student's transcript, and both the original and repeated course grade will be computed into the degree program grade point average.

**Thesis, Project, and Dissertation**

**Composition and Role of Thesis Committee, Project Committee, and Dissertation Committee**

A master's thesis committee shall be appointed for each student undertaking a thesis as partial fulfillment of the requirements for a master's degree. The purpose of the thesis committee is twofold: 1) to provide the range of expertise necessary to advise a student in the conduct of the thesis work; and 2) to ensure that evaluation of the thesis represents a consensus of professionals in the student's chosen discipline.

The master's thesis committee is charged with the supervision and evaluation of the master's thesis, a task that includes but is not
limited to the following responsibilities: a) advise the student on selection and/or development of a master's thesis topic; b) review and approve a proposal for the master's thesis; c) provide consultation regarding progress on the thesis; d) evaluate the final document; and e) in those departments requiring an oral defense, evaluate the oral defense of the thesis.

In addition to the previously described responsibilities that are generic to all thesis committees, the chairperson of the committee shall also have the following additional responsibilities: a) in those departments where this responsibility is not discharged through other mechanisms, advise the student regarding selection of thesis committee members; b) routinely monitor student progress on the thesis; c) call thesis committee meetings; d) evaluate the readiness of the thesis proposal and of the thesis for committee review and action; and e) inform the student of the need to adhere to the Guidelines for the Preparation of Theses, Projects, and Dissertations.

Each thesis committee shall consist of a minimum of three members or associate members of the graduate faculty of Western Michigan University. Two of the committee members must be from the department or academic program in which the student is pursuing the master's degree. The appointment of a master's thesis committee is a three-stage process requiring, first, a mutual agreement between the master's student and the prospective committee members; second, a formal appointment by the chairperson of the department (or the chairperson's designee); and third, notification of and approval by the office of the dean of The Graduate College regarding this appointment.

If there are differences among the members of a master's thesis committee over the approval of the thesis and its oral defense, it shall be the responsibility of the committee to undertake every reasonable effort to resolve these differences and come to a unanimous decision.

In the event a student wishes to appeal a negative decision by the student's master's thesis committee, the student shall first take the appeal to this same committee, which shall hear the appeal and render a decision. In case the committee cannot reach a unanimous agreement and the student wishes to appeal further a negative decision, a Review Committee shall be established consisting of the dean of The Graduate College, the appropriate academic dean, and the chairperson or director of the unit. The Review Committee shall seek to resolve the controversy without passing on the thesis. The Review Committee handling such a case is limited to procedural actions, such as reconstituting the master's thesis committee if the case merits it.

Specialist Project Committee
A specialist project committee shall be appointed for each student undertaking a project as partial fulfillment of the requirements for a specialist degree. The purpose of the project committee is twofold: 1) to provide the range of expertise necessary to advise a student in the conduct of the specialist project, and 2) to ensure that evaluation of the project represents a consensus of professionals in the student's chosen discipline.

The specialist project committee is charged with the supervision and evaluation of the specialist project, a task that includes but is not limited to the following responsibilities: a) advise the student on selection and/or development of a specialist project topic; b) review and approve a proposal for the specialist project; c) provide consultation regarding progress on the project; d) evaluate the final document; and e) in those departments requiring an oral defense, evaluate the oral defense of the project.

In addition to the previously described responsibilities that are generic to all project committees, the chairperson of the committee shall: a) inform the student of the need to adhere to the Guidelines for the Preparation of Theses, Projects, and Dissertations; b) select and appoint committee members; c) call project committee meetings; d) evaluate the readiness of the project proposal and of the project for committee review and action; and e) inform the student of the need to adhere to the Guidelines for the Preparation of Theses, Projects, and Dissertations.

Each project committee shall consist of a minimum of three members or associate members of the graduate faculty of Western Michigan University. Two of the committee members must be from the department or academic program in which the student is pursuing the specialist degree. The appointment of a specialist project committee is a three-stage process requiring, first, a mutual agreement between the specialist student and the prospective committee members; second, a formal appointment by the chairperson of the department (or the chairperson's designee); and third, notification of and approval by the office of the dean of The Graduate College regarding this appointment.

If there are differences among the members of a specialist project committee over the approval of the project and its oral defense, it shall be the responsibility of the committee to undertake every reasonable effort to resolve these differences and come to a unanimous decision.

In the event a student wishes to appeal a negative decision by the student's specialist project committee, the student shall first take the appeal to this same committee, which shall hear the appeal and render a decision. In case the committee cannot reach a unanimous agreement and the student wishes to appeal further a negative decision, a Review Committee shall be established consisting of the dean of The Graduate College, the appropriate academic dean, and the chairperson or director of the unit. The Review Committee shall seek to resolve the controversy without passing on the dissertation. The Review Committee handling such a case is limited to procedural actions, such as reconstituting the doctoral dissertation committee if the case merits it.

Electronic Thesis and Dissertation (ETD) Program
The Electronic Thesis and Dissertation (ETD) program, managed by The Graduate College, has been adopted as a permanent program at WMU. ETDs are optional for all on-campus and branch campus graduate students.

Benefits
The ETD program benefits the University by showcasing the contributions of our students. It benefits the discipline by making the most current research readily available on the Internet. It benefits the students by preparing them for future electronic submission to
journals and conferences as well as providing them a vehicle for sharing their research with potential employers. The ETD process also enables students to add multimedia files and other features to the manuscript, allowing for a more creative and advanced expression of the material in the thesis, project, or dissertation.

Proprietary Rights
Students retain all proprietary rights, such as copyright and patent rights, to the thesis, project, or dissertation. Students also retain the right to use all or part of the thesis, project, or dissertation in future publications.

Accessibility Options
There are several accessibility options. Students may choose to make the manuscript immediately available worldwide on the Internet, allow restricted access to only the WMU campus network for a period of one year, or withhold all access for patent and/or proprietary purposes for a period of one year. Students may also choose to make some files accessible while restricting access to others. The student should consult with faculty to determine the appropriate accessibility option, and to determine which journals consider posting of a thesis or dissertation to a website as a prior publication. The default accessibility option is "restricted access" for all submissions unless the student chooses another option. Restricted access is removed after one year unless the graduate or his/her advisor request its continuation. The graduate or his/her advisor may renew restricted access indefinitely on a yearly basis.

ETD Creation
After a thesis, project, or dissertation is formatted according to the standards in the Guidelines for the Preparation of Theses, Specialist Projects, and Dissertations, it is converted from the original document into a Portable Data Format (PDF) file. The Graduate College offers periodic workshops on the process, including conversion of electronic files to PDF. Multimedia files and special features may also be added to the document. Where appropriate, departments will assist students with embedding various media files into their ETDs.

ETD Submission and Storage
The ETD submission process is very similar to the paper thesis, project, or dissertation submission process. Instead of submitting a paper copy of the committee-approved manuscript to The Graduate College for final review and approval, the PDF file will be submitted directly to the ETD server. Approval forms, research protocol approval letters, and any other signed documents will be submitted separately to The Graduate College to be filed for additional security. ETDs will be electronically catalogued and available through a link from the ETD site and accessible from the University Libraries online catalog at the access level chosen by the student. Long-term preservation of dissertations will be maintained by continued submission of the manuscripts to Bell and Howell (University Microfilms, Inc.). Students also have the option to submit a paper copy of the final thesis, project, or dissertation for deposit with the University Libraries.

Transfer Credit
Transfer credit will be recorded on the Western Michigan University transcript as "Credit" (CR) only and will not be calculated into the honor points earned and the graduate grade point average at Western Michigan University. Grades and honor points do not transfer; only credit transfers. As a consequence, honor point deficiencies acquired in credits earned at Western Michigan University cannot be made up by credits earned at another university.

Master's Program
Six semester hours (three and four quarter or term hours are transferred as two semester hours) of graduate credit may be transferred from other schools provided:
1. The credits were earned in an institution accredited for graduate study and are of "B" grade (3.0) or better. Moreover, the student's overall grade point average for all graduate work taken at the other institution must also be "B" (3.0) or better.
2. The credit is earned within a six year period prior to graduation from Western Michigan University, is represented on an official transcript of the other university, and is identified as graduate credit.
3. The student's program advisor verifies that the transfer credits contribute to the student's degree program and includes them in the student's Graduate Student Permanent Program of Study.
4. The graduate dean approves the inclusion of the transferred credits in the student's Graduate Student Permanent Program of Study.

Second Master's Program
A student wishing to earn a second master's degree may transfer a maximum of six semester hours of approved graduate credit from the first graduate degree program. The second degree program must fulfill all the other usual requirements for a master's degree.

Specialist Program
A student with a master's degree from another university who completes a specialist degree at Western Michigan University may transfer up to thirty-six semester hours of approved graduate credit. A student without a master's degree who completes a specialist degree at Western Michigan University may transfer up to twelve semester hours of approved graduate credit.

Doctoral Program
A student enrolled in a doctoral program must complete a minimum of thirty semester hours, excluding the dissertation, at Western Michigan University after admission to the doctoral program. The thirty hours, excluding the dissertation, project, or credit earned at another institution. Credit earned at another institution in addition to the thirty hours (excluding the dissertation) earned at WMU after admission to the doctoral program however, may be approved by the doctoral program advisor and included in the student's Graduate Student Permanent Program of Study.

Undergraduate Credit in a Graduate Program
In certain instances, an advisor may permit a student to include up to six semester hours of 300- or 400-level courses in a graduate program, provided the student receives written permission from the advisor, the department chair, and the graduate dean prior to registering for these courses and then earns a grade of "B" or better. These courses earn undergraduate credit only which is not computed into the graduate grade point average. Undergraduate tuition is charged for these courses.
GRADUATION PROCEDURES AND REQUIREMENTS

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 in December, April, and June.

Degree Program
The graduation process requires students to:
1. Apply for graduation by submitting the form Application for Graduation Audit and an application fee ($30.00 or $50.00, depending upon the date of filing) for a graduation audit. The application form may be obtained from the Registrar's Office on the third floor of the Seibert Administration Building or on the Internet at www.wmich.edu/registrar/auditform.htm. Doctoral students should apply at least two semesters prior to intended graduation date.

Graduation Fee and Application Deadline
Fall Semester Graduation (December) $30.00 Application Deadline: August 1
$50.00 Application Deadline: November 15*

Spring Semester Graduation (April) $30.00 Application Deadline: December 1
$50.00 Application Deadline: March 15*

Summer I Session Graduation (June) $30.00 Application Deadline: February 1
$50.00 Application Deadline: May 15*

Summer II Session Graduation** (August) $30.00 Application Deadline: April 1
$50.00 Application Deadline: July 15*

*Doctoral students should apply at least two semesters prior to intended graduation date.

**No Commencement Exercises in August

2. Fulfill all program and degree and University requirements and obligations.
3. If required for the degree, successfully complete, defend, and have approved by the graduate dean, the master's thesis, specialist project, or doctoral dissertation.
4. Meet all department, Graduate College, and University deadlines for the completion of all work required for the degree and the submission of all materials required for graduation. All work taken either on or off the campus must be completed by graduation day.

The graduation audit, initiated by the submission of the Application for Graduation Audit, is a process by which a student's academic record is examined to make sure all the requirements for the degree have been met. The audit is conducted by a graduation auditor in the Registrar's Office and its outcome depends greatly on the completeness and appropriateness of the materials contained in the student's academic record. Students should ensure that the following requirements are met and that the following documents are contained in their academic record before applying for graduation:

1. A Graduate Student Permanent Program of Study is completed, approved by the advisor and graduate dean, and filed in the Registrar's Office with the appropriate graduation auditor. The Graduate Student Permanent Program of Study should be filed as soon as practicable after the student begins enrollment following admission to the degree program.
2. All transfer credit, if applicable, is approved and the Graduate Transfer Credit form is appropriately signed by the advisor and the graduation auditor.
3. All completed course work (and other program requirements, where applicable) coincide with the Graduate Student Permanent Program of Study.
4. Where applicable, all relevant documents are filed attesting to the approval of committee appointments, passing of comprehensive examinations, completion of research tools, successful defense of thesis or project or dissertation, fulfillment of any residency requirement, and compliance with the continuous enrollment requirement within the time limit allowed for the completion of degree requirements.

Students who do not meet all degree and University requirements will be removed from the graduation class automatically. Such students must 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 the student's academic record does not show complete fulfillment of all requirements within thirty days after the established commencement date.

Students who wish to change from one graduation class to another need to complete a change of graduation date form. The graduation auditor will not automatically move the student to another graduation class. No fee is charged for submitting a change of graduation date form.

Nondegree Graduate Certificate Program
Students completing the requirements for a Graduate Certificate Program, whether together with a degree or independent of a degree, may apply for a certificate of completion. The process, fee, and requirements for obtaining a graduate certificate are similar to that described above for obtaining a degree. The essential differences are that the student applying for a graduate certificate will have been officially admitted to the certificate program, will have completed the application form entitled Application to Receive Graduate Certificate, and will have completed satisfactorily the certificate program requirements recorded on the student's advisor-approved Graduate Certificate Program, Program Outline.

GRADUATION REQUIREMENTS
Graduates of specific degree programs offered by Western Michigan University are expected to meet the same academic standards and requirements. These academic standards and requirements vary; however, by discipline, by degree level, by program concentration, and often by conditions related to a student's admission (for example, the completion of specified course or experiential prerequisites). For more specific information about the graduation requirements for each department's degree programs, read the program requirements section of the relevant department's listing in this catalog or contact the degree program's graduate advisor or the department office.

Master's Degree
In addition to the minimum University requirements for graduation listed below, each master's degree program requires students to complete satisfactorily specific courses, examinations, research, and/or experiences. For more complete information about the requirements for each master's program, read the program requirements section of the relevant program's listing in this catalog or contact the program's graduate advisor or the department office.

1. Minimum Credit Hours: Completion of a minimum of thirty hours of accepted graduate credit in an approved program of study. Hours in addition to thirty may be required by a specific program; consult the program advisor for complete information.
   • At least one-half of the credits earned for the master's degree must be in courses numbered 600 or above.
   • A master's level Graduate Student Permanent Program of Study may include a maximum of four hours of credit in 599 (Research).

2. Grade Point Average: A degree program grade point average of at least 3.0 is required for all work taken for the master's degree at Western Michigan University.
   • Credit toward the master's degree is granted only for graduate courses in which a grade of "C" or better is earned. Courses with lower grades will not count toward graduation.

3. Transfer Credit: Six semester hours (three and one-quarter or term hours are transferred as two semester hours) of graduate credit may be transferred from other universities provided:
8. Continuous Enrollment in 700: The course 6. Enrollment in Master's Thesis (700): A 18 GRADUATION REQUIREMENTS tward meeting the program requirements within the first six hours of registration will student unable to complete the thesis requirements are completed satisfactorily however, only six hours of 700 will count be required to continue to enroll in 700; enrollment in 700, the student must have one to six hours. Following a student's first enrollment in 700, the student must have continuous enrollment in 700 until all thesis requirements are completed satisfactorily and approved by the appropriate bodies. A student unable to complete the thesis within the first six hours of registration will be required to continue to enroll in 700; however, only six hours of 700 will count toward meeting the program requirements for the master's degree. For students not enrolled in summer I and summer II sessions, pre-enrollment in the subsequent fall semester is necessary for access to library resources during summer I and summer II. Continuous enrollment is defined as enrollment in all fall and spring semesters during the student's enrollment to the semester in which the student graduates. If the student will graduate in summer I or summer II, the student must be enrolled in that session. If the student desires to have remote access to WMU's library databases during the summer I and summer II sessions may do so by paying the customary nonrefundable fee for each session in which computer and remote library services are desired.

9. Submission of Master's Thesis (700) Manuscript: The manuscript when submitted, must conform to the style and format requirements explained in the University's Guidelines for the Preparation of Theses, Projects, and Dissertations, available for purchase in Western's Campus Bookstore or for free downloading at http://www.wmich.edu/grad/. Also, the manuscript may be submitted for review only after it has been reviewed and approved by the student's thesis committee and only with the signed committee approval forms certifying departmental approval of the manuscript and the student's successful defense of it. Students who submit a thesis electronically through the ETI site must submit these approval forms as well as any other documents containing signatures, such as research protocol approval letters, separately to The Graduate College.

If the student wishes to have the master's thesis published by Bell & Howell (formerly University Microfilms, Inc.), a certified check or money order for $50.00 (payable to Bell & Howell) must accompany the manuscript when it is submitted to The Graduate College.

See the Graduate Studies section of this catalog, under GRAD 700, for additional information regarding the Master's Thesis.

Second Master's Degree
A student wishing to earn a second master's degree may include a maximum of six credits from the first master's degree program, if approved by the program advisor and the graduate dean. The second degree program must fulfill all of the other usual requirements for a master's degree.

Acquiring a Master's Degree en route to the Doctoral Degree Students who enter a doctoral program with a bachelor's degree and upon recommendation of their department, acquire the master's degree by the following means:

1. The student requests the departmental graduate advisor to review the student's program of study to ascertain that it meets the requirements for the master's degree.

2. The graduate advisor or chair submits a program of study demonstrating that the student must complete the minimum number of semester hours specified by the doctoral degree as defined by The Graduate College and the student's academic unit/department and submits a letter indicating that the department recommends that the student be awarded a master's degree.

3. The student files an application for graduation with a master's degree, initiating the graduation audit which determines the student's eligibility for graduation.

4. With the approval of the advisor, the semester hours of work earned and applied to the second master's degree may be applied to the doctoral degree. The student must complete the minimum number of semester hours specified by the doctoral program and demonstrate that he or she has met the additional competencies that distinguish the doctoral degree from the master's degree.

5. A separate application for graduation with a doctoral degree must be filed.
4. Transfer Credit: A student with a master's degree from another university who completes the remaining credits for a specialist degree at Western Michigan University may transfer up to thirty-six semester hours of approved graduate credit. A student without a master's degree who completes a specialist degree at Western Michigan University may transfer up to twelve semester hours of approved graduate credit. Graduate credit earned at another university is eligible for transfer to a Western Michigan University specialist program if provided:

- The credit is earned at an institution accredited for graduate study and is of "B" grade (3.0) or better. Moreover, the student must have a grade point average for all graduate work taken at the other institution must also be "B" (3.0) or better.
- The credit is earned within a six-year period prior to graduation from Western Michigan University, is represented on an official transcript of the other university and identified on that transcript as graduate credit.
- The student's program advisor verifies that the transfer credits contribute to the student's program and include them in the student's Graduate Student Permanent Program of Study.
- The graduate dean approves the inclusion of the transferred credits in the student's Graduate Student Permanent Program of Study.
- Honor points and grades earned at another university do not transfer to Western Michigan University. Transfer credit will be recorded on the Western Michigan University transcript as "Credit" (CR) only and will not be calculated into the honor points earned and the grade point average at Western Michigan University.

5. Grade Point Average: A degree program requires students to complete specific courses, examinations, research, and/or experiences. For more complete information about the requirements for each doctoral program, read the program requirements section of the relevant program's listing in this catalog or contact the program's graduate advisor or office.

1. Minimum Credit Hours: After admission to the doctoral program, completion of a minimum of thirty hours, excluding the dissertation, at Western Michigan University in an approved program of study. Hours in addition to thirty may be required by a specific program; consult the program advisor for complete information. The thirty hours, excluding the dissertation, may not include any credit earned at another institution. Credit earned at another institution during the thirty hours and dissertation earned at WMU after admission to the doctoral program, however, may be approved by the doctoral program advisor and included in the student's program of study.

- Each student's program will be planned by a committee selected in consultation between the student and the graduate advisor of the program in which the student wishes to study. The exact distribution of courses, seminars, and research will depend upon the program and may vary from one student to another. Each program, however, will contain a significant amount of research, and each student will be required to complete a dissertation.
- A doctoral level Graduate Student Permanent Program of Study may include a maximum of four hours of credit in 598 (Readings).

2. Research Tools: Demonstration of proficiency in two appropriate research tools, as determined by the department and approved by the University. Normally, the research tools are selected from among foreign language, statistics, research methodology, and computer programming; however, other tools have been approved for some programs.

3. Residency Requirement: The general residency requirement for doctoral students is one academic year (two consecutive semesters) of full-time study on campus. Each doctoral program may, however, with approval of the University through the curriculum approval process, establish its own residency requirement. Students must meet the residency requirement prior to approval for candidacy. Students who wish to have the specialist project published by Bell & Howell (formerly University Microfilms, Inc.), a certified check or money order for $50.00 (payable to Bell & Howell) must accompany the manuscript when it is submitted to The Graduate College.

6. Research Subject Protection: Studies conducted in research that involves human or animal subjects, biohazards, genetic material, or nuclear materials/ radiation must have prior approval of the research proposal by the appropriate University division, thus assuring compliance with the regulations for the protection of such subjects or the use of such materials.
9. Enrollment in Doctoral Dissertation (730): A student who registers for the Doctoral Dissertation (730) for the first time is required to file a completed Permission to Elect form before registering to ensure that the student is informed about the regulations pertaining to the preparation and submission of the manuscript and to the requirements for research involving regulated subjects and hazardous materials.

• Doctoral Dissertation (730) varies in credit from a minimum of twelve hours to a maximum of twenty-four hours. The minimum and maximum number of hours of 730 required by each department is determined by the department in a proposal approved by the University's curriculum review process. A department may require all students within the program to register for a specific, common total of hours between twelve and twenty-four, or a program may require different students within the program to register for a variety of total hours between twelve and twenty-four. For more complete information about the dissertation requirements for each doctoral program, read the program requirements section of the relevant program's listing in this catalog or contact the program's graduate advisor or the department office.

• See the Graduate Studies section of this catalog, under GRAD 730, for additional information regarding the Doctoral Dissertation.

10. Continuous Enrollment in 730: The course 730, Doctoral Dissertation, may be registered for in increments of one hour or more. Following a student's first enrollment in 730, the student must have continuous enrollment in 730 until all dissertation requirements are completed satisfactorily and approved by the appropriate bodies. A student unable to complete the dissertation within the program-specified hours will be required to continue to enroll in 730; however, only the program-specified hours for 730 will count toward meeting the program requirements for the doctoral degree. For students not enrolled in summer I and summer II sessions, pre-enrollment in the subsequent fall semester is necessary for access to library resources during summer I and summer II. Continuous enrollment is defined as enrollment in all fall and spring semesters from the initial enrollment to the semester in which the student graduates. If the student will graduate in summer I or summer II, the student must be enrolled in that session. Students who desire to have remote access to WMU's library databases during the summer I and summer II sessions may do so by paying the customary computer fee for each session in which computer and remote library services are desired.

11. Submission of Doctoral Dissertation (730) Manuscript: The manuscript, when submitted, must conform to the style and format requirements explained in the University's Guidelines for the Preparation of Theses, Projects, and Dissertations, available for purchase in Western's Campus Bookstore or for free downloading at http://www.wmich.edu/grad/. Also, the manuscript may be submitted for review only after it has been approved by the student's thesis committee and only with the signed approval forms certifying departmental approval of the manuscript and of the student's successful defense of it. Students who submit a thesis electronically through the ETD site must submit these approval forms as well as any other documents containing signatures, such as research protocol approval letters, separately to The Graduate College.

12. Publication of the Dissertation Manuscript: All doctoral dissertations will be published (microfilmed) by Bell & Howell (formerly University Microfilms, Inc.) and an abstract of the dissertation will be prepared by the student for publication in Dissertation Abstracts. A certified check or money order for $60.00 (payable to Bell & Howell) must accompany the manuscript when it is submitted to The Graduate College.

**Nondegree Graduate Certificate Program**

To signify that a student has satisfactorily completed an approved curriculum in a Graduate Certificate Program, a certificate of completion is awarded. Regular admission to the program by the relevant academic unit is required. The student must complete the fifteen (15) to twenty-one (21) hours of course requirements of the graduate certificate program with a "B" (3.0) or better grade point average, with no course grade lower than "C," within a six-year period after admission to the certificate program. Students whose certificate programs are taken primarily through part-time study have the option of requesting an extension from the graduate dean. Extensions beyond the six years may also be granted for other students by the dean of The Graduate College for such legitimate reasons as illness, injury, or hardship. In such situations, the student and department must demonstrate how the student will bring up to date the content knowledge from courses taken more than six years before the projected date of completion of the certificate program. For more information about the completion requirements for each certificate program, read the program requirements section of the relevant program's listing in this catalog or contact the program's advisor or the department office.
STUDENT FINANCIAL ASSISTANCE

FELLOWSHIPS, ASSISTANTSHIPS, ASSOCIATE SHIPS, GRANTS

Western Michigan University provides fellowships and assistantships for students planning to pursue graduate study.

Applications are due by February 15, and appointments are usually made by April 1 for students planning to enroll in the fall semester.

Appointments are often renewable, except for Graduate College Fellowships and Dissertation Fellowships. For more information and to obtain application forms, visit or call The Graduate College.

The following appointments are available; the stipend amounts are those in effect during the 2002-2003 academic year.

Graduate College Fellowship

Graduate College Fellowships of $9,312 for two semesters are awarded in open competition to outstanding students (3.25 and above) entering master's degree programs. An entering student is defined as one who will have earned no more than six graduate credits by the beginning of the fall semester. The fellowship requires no service from the student, but encourages participation in the professional activities of the department. Enrollment in at least nine hours per semester is required. The fellowship will pay 18 hours of full tuition. Application deadline: February 15.

Graduate College Doctoral Associateship

Graduate College Doctoral Associateships of $14,335 for two semesters and one session are offered to students admitted to the following departments: Biological Sciences, Chemistry, Comparative Religion, Computer Science, Counselor Education and Counseling Psychology, Economics, Educational Studies, English, Geosciences, History, Industrial and Manufacturing Engineering, Mathematics and Statistics, Mechanical and Aeronautical Engineering, Paper and Printing Science and Engineering, Physics, Political Science, Psychology, Public Affairs and Administration, Science Studies, Sociology, and Teaching, Learning, and Leadership. The associateship requires twenty hours of service per week from the student in the department or in a related area. Enrollment of at least six hours per semester and three hours per session is required. The associateship will pay up to 21 hours of full tuition. Application deadline: February 15.

Graduate College Dissertation Fellowship

Graduate College Dissertation Fellowships of $17,802 for two semesters and two sessions are awarded in open competition and on the basis of superior scholarly achievement to assist full-time doctoral students with completion of their dissertations. To be eligible, an applicant must be a doctoral candidate who can demonstrate superior academic achievement and a record of timely and steady progress toward degree completion. Applicants must have completed all requirements for the degree except the dissertation and have an accepted dissertation proposal. Enrollment of at least six hours per semester and three hours per session is required. For nonresidents of Michigan, the fellowship will pay up to 18 hours of the out-of-state portion of the tuition. Application deadline: February 15.

Thurgood Marshall Assistantship

Thurgood Marshall Assistantships of $12,336 for the academic year plus the Summer I and Summer II sessions are available to U.S. citizens from historically underrepresented groups who are beginning their master’s degree programs and who have regular admission to the program. Enrollment is required in at least nine hours per semester and five hours per session, and service of ten hours per week is required in the student’s department or academic unit. Recipients of the assistantship award are eligible for partial in-state tuition scholarships which will be applied to the in-state portion of the tuition bill. For nonresidents of Michigan, the assistantship will pay up to 18 hours of the out-of-state portion of the tuition. Although applications may be submitted at any time, priority will be given to those who apply by February 15.

Historically Underrepresented Groups Program

The Historically Underrepresented Groups Program awards financial assistance to qualifying entering graduate students who are U.S. citizens from historically underrepresented groups. The program is intended to furnish a base of financial support to assist these students to pursue graduate degrees at WMU (priority is given to students enrolling in programs leading to a Ph.D.). The awards are tailored to each individual and can be made in conjunction with other awards, sometimes including partial in-state tuition and up to 18 hours of the out-of-state portion of the tuition. Departmental service up to twenty hours per week or teaching assignments may be required. Applications and additional information may be obtained from The Graduate College. Although applications may be submitted at any time, priority will be given to those who apply by February 15.

Martin Luther King/Cesar Chavez/Rosa Parks Future Faculty Fellowship

Martin Luther King/Cesar Chavez/Rosa Parks Future Faculty Fellowships are available to U.S. citizens from historically underrepresented groups with regular admission to a doctoral program and who wish to pursue a full-time teaching career in post-secondary education in Michigan or Illinois. The fellowship does not require departmental service; however, students must meet other requirements as stated in the guidelines for KCP fellowships. KCP fellowships can be awarded in conjunction with other appointments. Inquiries should be sent to the Office of Student Employment. Although applications may be submitted at any time, priority will be given to those who apply by February 15.

Departmental Teaching or Research Assistantship

Teaching and Research Assistantships at a minimum of $9,919 for two semesters of full-time appointment are available in many administrative units of the University. Interested students may apply by sending a resume and cover letter to the Office of Career and Student Employment Services or by contacting the department directly. Departments with openings will have access to these resumes. Students seeking information about open graduate assistant positions should contact the Office of Student Employment.

Service Assistantship

Service Assistantships at a minimum of $9,919 for two semesters of full-time appointment are available in many administrative units of the University. Interested students may apply by sending a resume and cover letter to the Office of Career and Student Employment Services or by contacting the department directly. Departments with openings will have access to these resumes. Students seeking information about open graduate assistant positions should contact the Office of Student Employment.

Thurgood Marshall Professional Tuition Grant

Thurgood Marshall Professional Tuition Grants are available for U.S. students from historically underrepresented groups with regular admission in a master’s degree program who enroll part-time. The grant reimburses in-state tuition after courses are completed for all earned credits of “B” or better. Reimbursement is made for up to six credits per semester and up to a maximum of two sessions. Applications may be submitted at any time, priority will be given to those who apply by February 15.

Graduate Student Research and Travel Fund Grant

Graduate Student Research and Travel Fund grants (maximum of $600) are awarded to encourage research by graduate students and to assist them in presenting their findings to professional groups. Students must be enrolled at the time the research or travel takes place. This grant may be awarded in conjunction with other appointments. Application deadlines: September 15, November 15, and March 15. Applications and...
addition information may be obtained from
The Graduate College.

University Dames Endowed Scholarship Grant
University Dames Endowed Scholarship grants are available for candidates who are
admitted to a graduate degree program, who have successfully completed at least 15 credit
hours of graduate work, and who are in good academic standing. Preference is given to
female candidates. The award amount is
credited to the student’s University account
and applied toward tuition, fees, and books.
Nominations from department chairs or
graduate advisors must include the nominee’s
vita and a letter of support from either the
department chair or graduate advisor. The
scholarship is awarded on an annual basis
each spring. Applications must be received by
March 31.

George and Beatrice Fisher Gerontology Dissertation Prize
This annual award recognizes the doctoral
dissertation that best advances the study and
understanding of the process of aging. The
prize may be awarded in any discipline or field
related to gerontology. Candidates must be
admitted to a degree program and be in good
academic standing. Nominations from
department chairs or graduate advisors must
include a summary of the nominee’s
gerontology research, a vita, and a letter of
support from the department chair or graduate
advisor. The annual award is made during the
month of June. Applications must be received by
May 15.

Patricia Lee Thompson Dissertation Award
This annual award assists with completion of
the dissertation. Award monies may be used for
any costs associated with completion of the
dissertation. Applicants must have completed
all requirements for the degree except the
dissertation and must have an accepted
dissertation proposal. Application deadline:
February 15. Note: The next scheduled
competition for the Patricia Lee Thompson
Dissertation Award will be February 2004.

POLICIES GOVERNING GRADUATE APPOINTEES
Definitions and Classifications
1. A graduate appointee is a student enrolled in
a program leading to a graduate degree or
to a graduate certificate who receives a
University-administered salary and stipend
which is not less than one-half of the
prevailing full amount set by the University for
that particular type of appointment.
2. To be eligible for a graduate appointment a
student must be regularly admitted, in
good academic standing, and enrolled in a
program leading to a graduate degree or a
graduate certificate. A student admitted to a
graduate degree program or concurrently to a graduate degree program and a
certificate program is eligible for an appointment in any unit in the
University. A student admitted only to a graduate certificate program is eligible for an
appointment only within the academic unit offering the graduate certificate.
3. Although graduate appointments differ in
many important ways, each can be
classified as either an assistantship or a
fellowship. The critical difference between
an assistantship and a fellowship lies in the
primary intent of the awarder—as payment for service (salary) or as a gift (stipend)
to help the awardee achieve an educational
goal. Although there may be some aspect of
service connected with a Fellow’s particular activity, this activity is
part of the training designated for all
participants in the Fellow’s academic program, and the service rendered is
primary to the educational goal.
4. More than one fractional appointment may
be held simultaneously. However, in no
case shall one position exceed the
amount of the award, whether a remission
of service connected with a Fellow’s
appointment is automatic, or as a gift for
service (salary) or as a gift (stipend) to
help the Fellow achieve an educational
goal, rather than a payment for services.

Service Requirement
The kinds of service required of Graduate
Assistants may vary among departments, each of which determines its own range of
appropriate possibilities subject to
administrative review. Whatever kind of service
is required, however, a full assistantship in
any department consists of twenty hours of
service per week or its equivalent.
5. The minimum salary and stipend for
full-time Assistants and Associates in each
type of appointment is established by the
Provost and Vice President for Academic
Affairs.
6. Fractional awards are made for fractional
appointments.
7. Assistantship and fellowship awards may
have tax implications. Detailed records of
educational expenses and check stubs
from any payment received from the
University should be kept for tax purposes.

Affirmative Action
The University’s Affirmative Action Policy shall
apply to graduate appointments.

Professional Ethics
Graduate assistants and associates shall
adhere to the same standards of professional
ethics as those of the regular faculty. (See
"Statement on Professional Ethics" in current
Agreement between WMU and the AAUP.)

Notification of Status
1. At the time of their appointment, graduate
appointees shall be informed in writing of
the specific conditions of the appointment.
They shall be informed that the offer of an
appointment is contingent upon acceptance into a graduate degree
program at the University. Continuance of the appointment depends in part on
satisfactory progress in that program and satisfactory performance of assigned
duties. The letter shall state the
amount of the award, whether a remission of tuition is involved, the probable
assigned activities, the length of the
appointment, conditions of service, and, if appropriate, the criteria for renewal. Any
other conditions peculiar to an individual
appointment shall be contained in the letter of appointment.
2. Each appointee shall be provided with
information prepared by The Graduate
College concerning current University-wide
procedures, practices, privileges, and
responsibilities that relate to graduate
appointees. Each department is
responsible for providing any supplemental information on the matters that is
necessary and special.

Professional Development
1. Assigned activities of graduate appointees
shall be relevant professional experiences.
2. Graduate appointees can expect
professional guidance and timely
evaluation in the performance of their
duties.

Enrollment Status
1. A full appointment requires a minimum
enrollment of six credits per semester or
three credits per session. Individual
departments may require an enrollment of
more than the minimum number of credit
hours. A Graduate College Fellowship
requires enrollment in at least 9 credit
hours per semester. Some circumstances may
allow for decreased enrollment, however;
departments will advise appointees.
2. It should be noted that students registered
for seven or more credits a term (four or
more credits a session) are assessed, as
part of the enrollment fee, prepaid
student health center and recreation center
fees that allow access to health center
services and recreation center facilities.
Students enrolled for six or fewer credits a
semester (three or fewer credits a session)
are assessed a lesser enrollment fee which
allows for only limited services at the
health center and provides ten visits to the
recreation center. Students in the latter
case have the option to pay the difference


FINANCIAL AID AND SCHOLARSHIPS

1. Tuition fees: Graduate appointees may, at the discretion of the University, be granted partial or full tuition remission. Any such remission shall be included in the student's appointment letter and on the appointment form. Tuition remission is awarded only during the semester(s) a graduate appointee is in residence. Students are granted such partial or full tuition remission and subsequently withdraw from a class or from classes after the refund period will be required to repay the portion of the tuition that was granted as a benefit of the appointment.

2. University housing: Graduate appointees will be accorded priority in securing University housing in residence halls or family housing apartments (if deadlines are observed and as facilities permit).

3. Library: Graduate appointees will be accorded discount privileges on purchases at the Western Michigan University Bookstore in the same manner that they are authorized for part-time faculty.

4. Parking: Graduate appointees are exempt from paying the motor vehicle registration fee, but are required to register their motor vehicles. Application may be made to the Public Safety Annex for parking privileges in designated lots; the appointee will be required to present the ID and appointment validation sticker.

5. Campus Bookstore: Graduate appointees will be accorded discount privileges on purchases at the Western Michigan University Bookstore in the same manner that they are authorized for part-time faculty.

6. University facilities: Graduate appointees will be accorded the use of University facilities (e.g., student offices, research facilities, etc.) authorized by the director of the facilities on the same basis that they are authorized for part-time faculty.

7. Health insurance: Appointees may elect to enroll in a University-sponsored Health Insurance Program. [All students enrolled at Western Michigan University are eligible to participate in the Student Health Insurance Program (dependent coverage available) where each participant pays the full cost of coverage.] Graduate appointees are eligible to receive a University contributed portion of the cost of coverage, provided they complete the necessary enrollment form and file it and the appropriate premium with The Graduate College. Payments are due by the prescribed enrollment period. Enrollment materials and information are available at the Sindecuse Health Center and The Graduate College.

Evidence of Status

For formal identification as a graduate appointee, the student should carry a special validation sticker affixed to the student identification card. This validation sticker may be obtained in The Graduate College at the beginning of each term.

Benefits

1. Tuition fees: Graduate appointees may, at the discretion of the University, be granted partial or full tuition remission. Any such remission shall be included in the student's appointment letter and on the appointment form. Tuition remission is awarded only during the semester(s) a graduate appointee is in residence. Students are granted such partial or full tuition remission and subsequently withdraw from a class or from classes after the refund period will be required to repay the portion of the tuition that was granted as a benefit of the appointment.

Students Admitted on Permission to Take Graduate Classes (PTG) Status

Students who have been admitted to The Graduate College on PTG status are not considered admitted to a graduate program and may not be eligible for financial aid.

Students admitted on PTG status to complete teacher education certification requirements to obtain permanent certification may be eligible for loans at the undergraduate level. Students who have applied for admission to a graduate program and are classified as PTG to take prerequisite courses to be admitted into the graduate program may be eligible for loans at the undergraduate level for a twelve-month period. Students who are in these PTG categories and are eligible for federal aid may need to have parent information listed on their FAFSA if under 24 years of age at the time of application.

Applying for Financial Aid

To determine eligibility for need-based financial aid programs, students must file a Free Application for Federal Student Aid (FAFSA). The FAFSA is available from Western’s Student Financial Aid Office, other higher education institutions, or can be filed electronically at www.fafsa.ed.gov. Returning graduate students will receive a "Personal Identification Number" (PIN) in the mail to file electronically. Students may file the FAFSA as soon as January 1 of the award year for which they are planning to attend Western Michigan University.

Students who have been admitted to a graduate program are considered "independent." Students are required to file the application with only their own income information. Students who have been admitted to The Graduate College as a PTG student (Permission to Take Graduate Classes) are not considered admitted to a graduate program and may need to have parent information listed on the application. In addition, PTG students have limited loan eligibility only, and at the undergraduate annual and aggregate limits.

After filing the FAFSA, other documents and processes may be required before an award notice or payment is processed. Written communication will be mailed to students identifying what is required as a result of application edits,-specific programs awarded, or general eligibility requirements.

Application edits may require copies of federal tax returns or asset documentation. Social security matches may require copies of the social security card and driver's license. Immigration and Naturalization Service matches may require copies of INS documents. Program requirements may include receipt of loan promissory notes or completion of "entrance counseling." Enrollment counseling is required for first time loan borrowers at Western.

Awards are initially based on full-time enrollment (6 credits or more Fall or Spring and 3 credits or more Summer I and Summer II) and adjusted to reflect actual enrollment after the term begins. Most Federal financial aid programs require a minimum enrollment equivalent to half-time status (at least 3 credits Fall or Winter and at least 2 credits Spring or Summer) to be eligible for payment.

Any additional resources or changes to funding or regulations may affect a student's financial aid awards. If the additional information received affects the financial aid awards, a Revised Award Letter will be mailed.

Cost of Attendance

The "cost of attendance" for financial aid purposes is calculated using an estimated cost for tuition, fees, room, dining, books, supplies, personal, travel and loan fees. It is based on residency status (i.e., tuition, fees), institutional employment, and loans. Any scholarships, stipends, or other resources will be assessed first before awarding need-based financial aid. Additional eligibility factors may be considered in determining the type and amount of aid programs in the award package.

In general, the eligibility factors that are reviewed are citizenship, residency, family level, grade level, enrollment hours, enrollment terms, degree status, default status, and good academic standing.

Awards are initially based on full-time enrollment (6 credits or more Fall or Spring and 3 credits or more Summer I and Summer II) and adjusted to reflect actual enrollment after the term begins. Most Federal financial aid programs require a minimum enrollment equivalent to half-time status (at least 3 credits Fall or Winter and at least 2 credits Spring or Summer) to be eligible for payment.

Any additional resources or changes to funding or regulations may affect a student's financial aid awards. If the additional information received affects the financial aid awards, a Revised Award Letter will be mailed.

Payment Process

Payment of financial aid begins approximately 10 days prior to the start of a semester and is credited to the student's account to pay tuition, fees, housing, food, and other authorized charges. Payments are disbursed to each student based upon the program eligibility requirements, and minimum enrollment requirements are verified at the time of disbursement. Any excess funds (remaining loan amount) will be mailed to a student's local address.
After the end of the drop/add period, awards may be reduced or canceled based upon final enrollment. For financial aid purposes, full-time enrollment for graduate students is at least 6 credit hours in the fall or spring semesters and 3 credit hours in the summer I or summer II sessions. Half-time enrollment is at least 3 credit hours in the fall or spring semesters and 2 credit hours in the summer I or summer II sessions.

**Maintenance Requirements**

In accordance with Federal and State regulations, the financial aid office must monitor the student's progress towards graduation on an annual basis (at the end of spring semester). We monitor the following: 1) Minimum credit hours passed per semester, 2) maximum total semesters attempted, 3) maximum total hours attempted, and 4) minimum cumulative grade point average. Full-time master's students must maintain a cumulative grade point average of 3.0 and pass at least 12 credit hours per academic year (or 6 hours per fall and/or spring semester); attempt no more than 72 hours total and attend no more than 8 fall and/or spring semesters. Full-time doctoral students must maintain a cumulative grade point average of 3.0 and pass at least 12 hours per academic year (or 6 hours per fall and/or spring semester); attempt no more than 135 hours total and attend no more than 14 fall and/or spring semesters. If the student is consistently enrolled less than full-time (less than 6 hours each fall and spring semester), the student should visit the financial aid website (www.wmich.edu/finaid) for details. Students who have graduated and who minimum criteria are not eligible for federal loans or for federal or state work study. Students who have experienced unusual circumstances may submit a written appeal with documentation to the Financial Aid Office to be considered by an appeal committee.

**Withdrawal from All Courses, Effect on Financial Aid**

If you are a financial aid recipient and you drop all of your classes during the drop/add period (or indicate you never attended any of your classes), you may lose some or all of your financial aid eligibility. If you drop all of your classes prior to the start of the semester (or indicate you never attended), you are no longer eligible for financial aid for that semester. All scholarship, grant, assistantship, and employment funds (including community service opportunities) must be returned. If you are a Federal financial aid recipient and you completely withdraw from all classes prior to the start of the semester, all aid must be returned. If you completely withdraw from all classes after the beginning of the semester, the law requires that the amount of Federal aid earned up to that point is determined by a specific formula. If you receive Federal aid and have not earned the amount of Federal aid that you are eligible for, the excess Federal aid must be returned. The amount of Federal aid you have earned is determined on a pro-rata basis. Therefore, if you completely withdraw from all classes after the beginning of the semester, you earn 30 percent of the Federal aid you received. Once you have completed more than 60 percent of the semester, you earn all of your Federal aid.

**Types of Financial Aid**

**Employment**

Financial aid programs funded by Federal and State governments and the University to assist needy student through employment opportunities. Students work ten to twenty hours per week while attending school and may earn up to a specified amount per academic year. Western's Student Employment Program assists students who have been awarded employment in selecting jobs either on- or off-campus (including community service opportunities).

**Michigan College Work Study** provides employment opportunities for undergraduate and graduate students. Students work ten to twenty hours a week while attending school and may earn up to a specified amount per academic year. Western’s Career and Student Employment Services Office assists students who have been awarded employment in selecting jobs either on- or off-campus (including community service opportunities).

**Loans**

Financial aid programs designed to assist students through borrowing at a lower interest rate with opportunities to defer principal payments and possibly interest payments until after enrollment ends. Federal Perkins Loan allows needy graduate students to borrow funds on an annual basis with an interest rate of 5.0%. The annual amount varies per academic year, and the total outstanding debt includes loans received for undergraduate study. Interest and principal payments are deferred as long as a student is enrolled at least half-time. Repayment of the loan, plus interest, to Western Michigan University begins nine months after the student ceases to be enrolled at least half-time.

**Federal Direct Subsidized (FDS) Loan** allows graduate students with financial need to borrow funds on an annual basis with a variable interest rate capped at 6.25% of the annual amount on an annual basis with the interest rate charged on the amount a student is enrolled at least half-time. Interest and principal payments are deferred as long as a student is enrolled at least half-time. Borrowers pay a 3% loan origination fee on each loan 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** is a program not based on need and allows graduate students with financial need to borrow funds on an annual basis with a variable interest rate capped at 8.25%. The annual amount is dependent upon cost of attendance, grade level, and other resources received. The total debt outstanding as a graduate student for all Stafford Loans (subsidized and unsubsidized) includes any Stafford loans received for graduate study. 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. Loans forgiven during the period are deferred as long as a student is enrolled at least half-time. Borrowers pay a 3% loan origination fee minus a 1.5% rebate 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.

**Alternative Loans**

Alternative loans may be an option for graduate programs that cost more than the maximum annual loan limit allowed for Federal loans ($19,500). For students who require additional funds (or are not eligible for Federal funds), there are "Alternative Student Loan Programs" available. A list of lenders is available in the Student Financial Aid Office or on the website (www.wmich.edu/finaid). We recommend you to apply for Federal aid first before applying for an alternative loan. When applying for an alternative loan, the financial aid office must complete a portion of the application indicating the amount you have requested does not exceed "cost of attendance" and that you meet the enrollment requirements for the loan (some lenders do allow enrollment of less than half-time). Alternative loans and Federal loans can never be consolidated.

Therefore, if you have both, you will be making two separate payment on your loans.

**Other Financial Opportunities**

In addition to employment and loan programs, other financial assistance is available to students.

**WMU Nontraditional Student Scholarship** is available for part-time graduate students (less than 6 credits Fall or Winter and less than 3 credits Spring). The maximum award amount is $500.00 per semester for up to two semesters per year. Scholarship, need, special circumstances, and availability of funds are factors in determining recipients and award amounts. Applicants must complete the Free Application for Federal Student Aid and submit a scholarship application by July 1 or November 1. Contact Student Financial Aid, a WMU Regional Center, or www.wmich.edu/finaid for an application form.

**Dieder H. Harenbcik Institute for International and Area Studies Exchange Scholarships** are available through the Harenbick Institute's Study Abroad Office, which administers international exchange scholarships awarded in a competitive process annually to qualified graduate students for study in foreign universities in Asia and Europe. Contact the Study Abroad Office, 820 Eberwell Hall, for information and application forms.

**On- and Off-campus Student Employment** opportunities exist. The Office of Career and Student Employment Services Office assists students in search of employment opportunities for WMU students. Part-time employment is available in and around Kalamazoo; internships and summer jobs are posted from all over the country.

**Students seeking employment** should visit the office regularly. Those interested specifically in an internship can register and have their employment information shared with interested employers. Available employment opportunities are also posted at www.brncojobs.wmich.edu online. The Office of Career and Student Employment Services Office assists students in search of employment opportunities for WMU students. Part-time employment is available in and around Kalamazoo; internships and summer jobs are posted from all over the country.

**Individual appointments are encouraged** for students with special employment questions, confidential resolution of problems, and assistance in completion of employment materials. Please call (616) 387-2745.

**Payment Plans** are available through either Academic Management Services or Tuition Management Systems. These programs provide an option of paying the student's tuition, fees, and on-campus housing costs on a monthly basis.
The plans generally cost $55.00 and do not charge interest. Students generally pay a deposit, and the balance is paid by monthly installments. The companies, in turn, pay the University directly. Students may call Academic Management Services at 1-800-625-0120 and Tuition Management Systems at 1-800-722-4867. Academic Management Services can also be contacted online at http://www.amsweb.com and Tuition Management Systems at www.afford.com online.

U.S. Armed Forces offer students a variety of educational assistance programs. For further information, call the local armed forces recruiter.

Receipt of Assistantships/Fellowships

If you are a financial aid recipient who has been offered an assistantship of fellowship by a department of the Graduate College, it will not be indicated on your Award Letter until the financial aid office has been notified of the award by the Graduate College. If you have accepted the full amount of Federal loans awarded to you, your loans may be reduced when the assistantship or fellowship (or any other awards) are added to your award file. Even if your loans have been disbursed, they may be reduced at the time we receive notification of the receipt of additional assistance.

International Students

International students are not eligible for Federal or State financial aid. There may be scholarships, assistantships, or fellowships available through WMU departments or the Graduate College. 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. There are also scholarship search engines for international students such as www.edupass.org or www.supercollege.com online.
GENERAL UNIVERSITY POLICIES

In addition to the several policy statements included below, the University's general academic policies may be found on Western Michigan University's website:
www.wmich.edu/sub/u-policies.html/

Student Rights

BASIC RIGHTS
1. Students have the right to free inquiry, expression, and association.
2. Students should be free from discrimination and harassment based on race, sex, sexual orientation, age, color, national origin, religion, disability, marital status, or family status.
3. Students should be secure in their persons, living quarters, papers, and effects.
4. Students are protected against improper disclosure as provided for in the Family and Education Rights and Privacy Act of 1974.
5. Students have the right to access their personal records and other University files as provided for under the Michigan Freedom of Information Act.
6. Students are free to participate in the governance of the University through membership in appropriately designated University and college committees.

ACADEMIC RIGHTS
1. Student performance will be evaluated solely on academic criteria.
2. Students have protection against prejudiced or capricious academic evaluation.
3. Students are free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.
4. Students will be fully informed by the faculty about course requirements, evaluation procedures, and the academic criteria to be used in each class. This information will be provided at the beginning of the semester or sufficiently in advance of actual evaluation.
5. Students have the right to have all their examinations and other graded material made available to them with an explanation of the grading criteria. Faculty will retain all such materials not returned to the student for at least one full semester (or through spring plus summer sessions) after the course was given. Faculty are not required to return such material to the student, but must provide reasonable access.

Student Academic Conduct

ACADEMIC HONESTY
If a student is uncertain about an issue of academic honesty, he/she should consult the faculty member to resolve questions in any situation prior to the submission of the academic exercise.

Violations of academic honesty include but are not limited to:

Cheating
Definition
Cheating is intentionally using or attempting to use unauthorized materials, information, notes, study aids or other devices or materials in any academic exercise.

Clarification
1. Students completing any examination are prohibited from looking at another student's examination and from using external aids (for example, books, notes, calculators, conversation with other) unless specifically allowed in advance by the faculty member.
2. Students may not have others conduct research or prepare work for them without advance authorization from the faculty member.

Fabrication, Falsification, And Forgery
Definition
Fabrication is the intentional invention and unauthorized alteration of any information or citation in an academic exercise. Falsification is a matter of inventing or counterfeiting information for use in any academic exercise or University record.

Forgery is defined as the act to imitate or counterfeit documents, signatures, and the like.

Clarification
1. "Invented" information shall not be used in any laboratory experiment, report of results or academic exercise. It would be improper, for example, to analyze one sample in an experiment and then "invent" data based on that single experiment for several more required analyses.
2. Students shall acknowledge the actual source from which cited information was obtained. For example, a student shall not take a quotation from a book review and then indicate that the quotation was obtained from the book itself.

Plagiarism

Definition
Plagiarism is intentionally, knowingly, or carelessly presenting the work of another as one's own (i.e., without proper acknowledgment of the source). The sole exception to the requirement of acknowledging sources is when the ideas, information, etc., are common knowledge.

Clarification
1. Direct Quotation
   Every direct quotation must be identified by quotation marks or appropriate indentation and must be properly acknowledged, in the text by citation or in a footnote or endnote.
2. Paraphrase
   Prompt acknowledgment is required when material from another source is paraphrased or summarized, in whole or in part, in one's own words. To acknowledge a paraphrase properly, one might state: "To paraphrase Locke's comment, . . .", and then conclude with a footnote or endnote identifying the exact reference.
3. Borrowed facts
   Information gained in reading or research which is not common knowledge must be acknowledged.
4. Common knowledge
   Common knowledge includes generally known facts such as the names of leaders of prominent nations, basic scientific laws, etc. Materials which add only to a general understanding of the subject may be acknowledged in the bibliography and need not be footnoted or endnoted.
5. Footnotes, endnotes, and in-text citations
   One footnote, endnote, or in-text citation is usually enough to acknowledge indebtedness when a number of connected sentences are drawn from one source. When direct quotations are used, however, quotation marks must be inserted and acknowledgment made. Similarly, when a passage is paraphrased, acknowledgment is required.

Complicity

Definition
Complicity is intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.

Clarification
Examples of complicity include knowingly allowing another to copy from one's paper
during an examination or test, distributing test questions or substantive information about the materials to be tested before the scheduled examination on academic work knowing that the collaboration will not be reported; taking an examination or test for another student, or signing another's name on academic exercises.

(NOTE: Collaboration and sharing information are characteristics of academic communities. These become violations when they involve dishonesty. Faculty members should make clear to students expectations about collaboration and information sharing. Students should seek clarification when in doubt.)

Computer Misuse

Definition

Computer academic misuse is the use of software to perform work which the instructor has told the student to do without the assistance of software.

CONDUCT IN RESEARCH

Research and creative activities occur in a variety of settings at the University, including class papers, theses, dissertations, reports or projects, grant funded projects and service activities. Research and creative activities rest on a foundation of mutual trust. Misconduct in research and in creative activity destroys that trust and is prohibited. Students shall adhere to professional standards of integrity in both artistic and scientific research including appropriate representations of originality, authorship and collaborative crediting.

Definition

Misconduct in research is defined as serious deviation, such as fabrication or falsification of data, plagiarism, or scientific or creative misrepresentation, from accepted professional practices of the discipline or University in carrying out research and creative activities or in reporting or exhibiting/performing the results of research and creative activities. It does not include honest error or honest differences in judgments or interpretations of data.

Clarification

Examples of misconduct in research include but are not limited to:

1. Fabrication of Data:Deliberate invention or alteration of information
2. Falsification of Data: Dishonesty in reporting results, ranging from unauthorized alteration of data, improper revision or correcting of data, gross negligence in collecting or analyzing data, to selective reporting or omission of conflicting data.
3. Plagiarism and Other Misappropriation of the Work of Others: The representation of another person's ideas or writing as one's own, in such ways as stealing others' ideas from grant proposals, award documents, or manuscripts intended for publication or exhibition/performance when one is a reviewer for granting agencies or journals or when one is a juror.
4. Abuse of Confidentiality:Taking or releasing the ideas or data of others which were given in the expectation of confidentiality, e.g., ideas from grant proposals, award documents, or manuscripts.
5. Dishonesty in Publication or Exhibition/Performance: Knowingly publishing, exhibiting or performing work that will mislead, e.g., misrepresenting material, particularly its originality, or adding or omitting the names of other authors without permission.

6. Deliberate Violation of Requirements: Failure to adhere to or receive special requirements for work under research regulations of federal, state, local or university agencies, including guidelines for the protection of human subjects or animal subjects and the use of recombinant DNA, radioactive material, and chemical or biological hazards.

7. Failure to Report Fraud Concealing or otherwise failing to report known misconduct or breaches of research or artistic ethics.

Research Board Requirements

Misconduct in research includes failure to comply with requirements of the conduct of research and creative activities, e.g., the protection of human subjects, the welfare of laboratory animals, radiation, and biosafety. Allegations in these areas may be brought by Human Subjects Institutional Review Board, the Institutional Animal Care and Use Committee, and the Institutional Biosafety Committee.

CHARGES OF VIOLATIONS OF ACADEMIC HONESTY AND CONDUCT IN RESEARCH

Western Michigan University's Academic Honesty and conduct in research policies have been created and defined by members of its academic community, recommended by its faculty senate, and adopted by its board of trustees. The processes necessary to support these policies are managed and facilitated by the Office of Student Judicial Affairs (OSJA). If you have questions about the forms, the process, your role in the process, or anything else related to academic honesty, please call the Office of Student Judicial Affairs at 387-2160. These policies take effect August 30, 1999, and supersede previous catalog sections entitled "Academic Policy and Status," "Academic Conduct Violation: Consequences and Appeals," "Academic Grade Appeal Procedure," and "General Academic Appeals Procedure." This section applies to cases in which a student is to be charged with a violation of the Academic Honesty Policy, the policy on Academic Honesty and the policy on Conduct in Research.

1. Charging a student with a violation: An Academic Dishonesty/Conduct in Research Charge Form is filled out by the instructor for the purpose of charging the student. After the instructor completes the form, the instructor sends it (or may fax it) to the OSJA. A staff member in that office will then contact the student and schedule a meeting between the student and the OSJA. An OSJA staff member will also notify the Registrar of the pending case, and will institute a "disciplinary hold" with the instructor to an Academic Integrity Committee so decides

2. If the student admits the charge: If the student admits responsibility, the OSJA will contact the instructor and arrange an appointment between the instructor and the student to communicate the instructor's penalty for the behavior, unless the instructor chooses not to meet with the student. The OSJA may impose an academic penalty up to failure of the course in which the student is enrolled. The OSJA may also impose non-grade-related penalties ranging from reprimand to dismissal from the University.

3. If the student denies responsibility: If the student denies responsibility, the OSJA will consult with the instructor to ascertain the instructor's preference as to the hearing type. The hearing may consist of a meeting between the instructor and the student or a meeting between the student and an Academic Integrity Committee. An Academic Integrity Committee will consist of three faculty members and two students, selected using procedures established by the Professional Concerns Committee of the Faculty Senate.

4. If the student wants to appeal a finding of responsibility after a hearing with the instructor: A student may appeal a finding of responsibility resulting from a hearing with the instructor to an Academic Integrity Committee within five University business days. The student cannot appeal after that time has elapsed.

5. The authority of the academic integrity committee: An Academic Integrity Committee will conduct hearings to determine whether the student is responsible for academic dishonesty. An Academic Integrity Committee makes no decisions regarding the penalties and/or grades to be imposed by the instructor or by the OSJA.

6. A finding of "responsible" has been made: A finding of "responsible" occurs when a student admits responsibility to the OSJA, the instructor so decides, or an Academic Integrity Committee so decides by majority vote. When that finding has occurred, the instructor may impose an academic penalty up to failure of the course in which the student is enrolled. A decision by the instructor regarding a grade penalty cannot be appealed by the student once the student has been found responsible and has exhausted or waived all appeals. Also, once the student has been found responsible and has exhausted or waived all appeals, that student's continued attendance in the relevant class depends on the penalty imposed by the instructor and/or the OSJA. If the instructor determines to fail the student in the course, the student is not permitted to continue attending class. Again, following a finding of responsibility, the OSJA may impose additional penalties ranging from reprimand to dismissal from the University. In all cases when a final finding of responsibility has been made, the Registrar will be notified and will note the finding on the student's academic record.

7. If a finding of "not responsible" has been made: If a finding of "not responsible" has been made, the case is dismissed and no penalties are imposed.

8. While a case is pending: A case is considered pending until one of two events occurs: (1) the student elections responsibility or (2) the hearing process is completed. While a case is pending, the student has the right to attend and participate in class. If the case is pending at the end of the semester, the instructor shall assign a grade. Incomplete grade may be assigned, and the instructor shall assign a grade of "not responsible." If these efforts are unsuccessful, the instructor's academic unit chair/director will appoint another qualified faculty member to assign the grade.
Selection, Training, and Organization of Academic Integrity Committee (AIC)

An Academic Integrity Committee (AIC) will be drawn from a panel of faculty and students who are trained by the Office of Student Judicial Affairs (OSJA). For each instance of an academic dishonesty charge which requires AIC review (see above), a five-member AIC composed of three faculty members and two students will be selected to hear the charge. Each five-member AIC panel will be constructed and administered by the Professional Concerns Committee (PCC). Each academic unit will elect one tenured or tenure-track faculty member to serve on the AIC panel. Student AIC panel members must be recommended by faculty, and each academic unit is asked to recommend one undergraduate and one graduate student to the OSJA. Students recommended to the AIC panel will be screened by the OSJA to ensure that no AIC student member has incurred a previous academic dishonesty sanction and that each AIC student member has a satisfactory disciplinary record.

Faculty members will serve three-year terms (with staggered terms for the first AIC panel) to ensure the continuity of experience and training). Students will serve one-year terms with reappointment possible for up to a total of three years. It will be necessary to include on the panel those who can serve in the spring and summer.

Each five-member AIC shall be composed of three faculty members and two student members. For a charge against an undergraduate student, both student members of the AIC shall be undergraduates. For a charge against a graduate student, both members shall be graduate students. Each AIC will elect a faculty member to chair the committee, and each AIC must have three faculty and two student members present to have a quorum. When necessary, faculty and/or student members of an AIC may be replaced with AIC panel members selected by the PCC.

The Professional Concerns Committee (PCC) shall also function as an oversight committee for reviewing and monitoring all University policies and procedures regarding academic conduct, including academic dishonesty, grade appeal and program dismissal issues. A report of all AIC activities shall be made to the Faculty Senate Executive Board each year by the PCC, and recommendations for changes in policies and procedures regarding academic conduct, including academic dishonesty, grade appeal and program dismissal issues may be part of that annual report. Such recommendations may result in modifications to these procedures and policies.

Course Grade and Program Dismissal 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. A student wants to appeal a decision to dismiss the student from an academic program for reasons other than charges of violations of academic honesty and/or conduct in research policies.

Throughout this process, the Office of the University Ombudsman is available to students and instructors for assistance on procedures and clarification of the rights of all parties.

**Informal meeting with instructor:** A student is encouraged to begin the appeal process by meeting with the instructor who assigned the grade or the person(s) who made the program dismissal decision. Such meetings often help students understand the grading practices of instructors and often lead to resolution of differences over grades.

2. **Written appeal and conference with the academic unit chair/director:** If the informal meeting with the instructor does not resolve the issue, the student must submit a letter requesting an appeal to the academic unit chair/director. This letter must be received by the academic unit chair/director within ninety calendar days of the last day of the semester or session in which the grade was recorded on a student's record, or in the case of a program dismissal, ninety calendar days of the day the written notification of program dismissal was sent to the student. The letter must identify the basis of the appeal and state in detail why the student believes that grade or program dismissal decision should be changed. The accepted bases of appeal are:
   a. Grade was calculated or the program dismissal decision was made in a manner inconsistent with University policy, the syllabus, or changes to the syllabus.
   b. The grade(s) was/were erroneously calculated.
   c. Grading/performance standards were arbitrary, unethical, or unreasonable.
   d. The instructor failed to assign or remove an incomplete or to initiate a grade change as agreed upon with the student.

A grade appeal cannot be made in response to a grade penalty assessed as a result of an official finding of responsibility for academic dishonesty. Again, this finding has been made through the procedures provided in the academic honesty policy. Following a conference with the student, the chair/director may or may not recommend to the instructor that the instructor re-evaluate the student's work in the course. The chair/director cannot change the student's grade without the instructor's agreement.

Note: Appealing a grade or other complaints based on charges of discrimination or sexual harassment should be taken to the affirmative action officer, pursuant to other University policies and procedures.

3. **Appeal to committee:** If the matter involves a program dismissal, or if the chair/director has granted that a basis of student appeal (A, B, C, or D above) may exist and the student is not satisfied that the instructor has subsequently fairly re-evaluated the student's work, the student may appeal to a grade and program dismissal appeals committee. This appeal must be initiated within thirty calendar days of the instructor's unfavorable decision (reached by the method described in step 2). If the student has requested a meeting with the academic unit chair/director and has not been granted such a meeting within sixty calendar days of the chair/director's receipt of the student's request, the student may then initiate an appeal to a grade and program dismissal appeals committee. The student will initially appeal through the Office of the University Ombudsman. When the Ombudsman receives the appeal, the Ombudsman will schedule a meeting of a grade and program dismissal appeals committee using procedures determined by the Professional Concerns Committee of the Faculty Senate. The Committee will consist of three members drawn from a panel of faculty established for this purpose. A grade and program dismissal appeals committee can effectuate a grade change or a reversal of a program dismissal decision by majority vote.

The panel from which the three-member grade and program dismissal appeal committee is drawn will be made up of five faculty members from each college, who will be appointed to this panel for two-year staggered terms by the Professional Concerns Committee of the Faculty Senate.

4. **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 unavailable to assign grade, or other office, pursuant to other University policies and procedures.

**Thesis/Project/Dissertation Appeals Procedures**

If there are differences among the members of a thesis/project/dissertation committee over the approval of the thesis/project/dissertation and its oral defense, it shall be the responsibility of the committee to undertake every reasonable effort to resolve these differences and come to a unanimous decision.

In the event a student wishes to appeal a negative decision by the student's thesis/project/dissertation committee, the student shall first take the appeal to the same committee, which shall hear the appeal and render a decision. In case the committee cannot reach a unanimous agreement and the student wishes to appeal further a negative decision, a Review Committee shall be established consisting of the Dean of the Graduate College, the appropriate academic dean, and the chairperson or director of the unit. The Review Committee shall seek to resolve the controversy without passing on the thesis/project/dissertation. The Review Committee handling such a case is limited to procedural actions, such as reconstituting the committee if the case merits it.

**The Family Educational Rights and Privacy Act**

The Family Educational Rights and Privacy Act of 1974 is a Federal law which states that (a) a written institutional policy must be established and (b) a statement of adopted procedures covering the privacy rights of students must be made available. The law provides that the institution will maintain the confidentiality of student education.

Western Michigan University accords all the rights under the law to students declared independent. No one outside the institution shall have access to, nor will the institution disclose any information from, students' educational records without the written consent of the students, except to personnel within the institution, to officials of other institutions in which students seek to enroll, to persons or organizations providing financial aid, to accrediting agencies carrying out their accreditation function, to persons in compliance with a judicial order, and to persons in an emergency in order to protect the health or safety of students or other persons. All these exceptions are permitted under the Act.

Within the Western Michigan University community, only those members, individually...
or collectively, acting in the students' educational interest are allowed access to address, telephone number, date and place of birth, curriculum and major field of study, dates of attendance, degrees and awards received, the most recent previous educational agency or institution attended by the student, participation in officially recognized activities and sports, and weight and height of members of athletic teams. Students may withhold contents of these records, to have a hearing if the decisions are in favor of the students, the students may place with the Registrar, or a person designated by the Registrar who, within ten days after receiving such request, will inform students of the date, place, and the time of the hearing. Students may present evidence of the issuance of the issues raised and may be assisted or represented at the hearings by one or more persons of their choice, including attorneys, at the students' expense. The hearing officer will adjudicate such challenges will be the Registrar, or a person designated by the Registrar, who does not have a direct interest in the outcome of the hearing.

Decisions of the hearing officer will be final, will be based solely on the evidence presented at the hearing, will consist of written statements summarizing the evidence and stating the reasons for the decisions, and will be delivered to all parties concerned. The educational records will be corrected or amended in accordance with the decisions of the hearing officer, if the decisions are in favor of the students. If the decisions are unsatisfactory to the students, the students may place with the Registrar the records of the educational records, except for educational files that are part of the students' records, and released whenever the records in question are disclosed.

Revision of these regulations will be published as experience with the law and institutional policies warrants.

Residency Policy of Western Michigan University

The governing board at each university in Michigan has the authority to establish a residency policy/guidelines for admissions and/or fee purposes. Therefore, residency policies (guidelines) may vary from school to school and are individually determined. By other state authorities to determine residency for purposes such as income and property tax liability, driving and voting.

The policy which follows was approved by the Western Michigan University Board of Trustees effective with the Fall Semester, 2001. This policy applies to all students (undergraduate and graduate) at WMU. The Office of the Assistant Vice President for Business administers this policy. Information on this policy is available through the University's web site. Additionally you may contact the Office of the Assistant Vice President for Business directly at 3080 Seibert Administration Building, Western Michigan University, Kalamazoo, MI 49008, or call (616) 387-2966 for additional information or to request an application form.

Residency Policy for University Admissions and/or Fee Purposes

Any student may apply for in-state resident classification for any semester/session in which they are enrolled by completing the "Application for Resident Classification for University Admissions and/or Fee Purposes" and submitting it to the Office of the Assistant Vice President for Business. Applications may be filed as early as one month prior to the start of each semester/session but not later than 20 calendar days following the first day of classes for the fall and winter sessions (10 calendar days for the spring semester and summer sessions).

The deadline dates are the same for all students (undergraduate and graduate).
institution of higher education; and (3) that the student has not taken steps to establish a domicile outside Michigan or any other action inconsistent with maintaining a domicile in Michigan.

b. Dependent Student — Parent(s) Not in Michigan: A dependent student whose parents are domiciled outside the State of Michigan is presumed to be a non-resident for tuition-paying purposes at Western Michigan University.

4. Independent Student: A student may be granted in-state residency for tuition paying purposes, once the student provides evidence of domicile consistent with maintaining a domicile in Michigan, for at least 3 calendar months (one year) of physical presence in the State of Michigan immediately preceding the first day of classes of the term in which the student is applying for a change in status. The year of continuous presence is never the only criterion used for determining in-state classification and, in itself, will not qualify a student for in-state status for tuition-paying purposes at WMU.

5. Residence of Spouse: The residence of a student who otherwise would be classified as a resident for University Admissions and/or Fee purposes must be verified by the following:

   a. Permanent Resident Alien: must be fully processed and possess Permanent Resident alien card or stamp in passport verifying final approval by filing deadline for applicable term.
   b. Refugees: must have I-94 card with "Refugee" designation.
   c. A, E, G, and I visa holders: Based upon current law, these non-immigrant visa classifications are the only ones that permit the visa holder to reside in the United States. As changes occur in applicable law, this list shall be updated.

6. Immigrants and Aliens: Only persons who are currently residing permanently in the United States may be eligible for resident classification at Western Michigan University. These individuals, like U.S. citizens, must have established a Michigan domicile as defined in these regulations. In other words, having the privilege of remaining permanently in the United States, in itself, does not entitle a person to resident classification for University fee purposes. At the present time, non-citizens who are entitled to reside permanently in the United States include:

   a. Permanent Resident Alien: must be fully processed and possess Permanent Resident alien card or stamp in passport verifying final approval by filing deadline for applicable term.
   b. Refugees: must have I-94 card with "Refugee" designation.
   c. A, E, G, and I visa holders: Based upon current law, these non-immigrant visa classifications are the only ones that permit the visa holder to reside in the United States. As changes occur in applicable law, this list shall be updated.

7. Migrant Worker (Seasonal/Agricultural Employment): 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 of the 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 a 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.

8. Misrepresentation and Falsification of Information: Students who provide false or misleading information or who intentionally omit relevant information on their applications for resident classification or the Application for Resident Classification for University Admission and/or Fee Purposes* or any other document relevant to residency eligibility may be subject to disciplinary and/or legal measures.

9. Appeal Process: Any student may appeal the decision on their residency application within 20 calendar days after he/she has been served notice of the decision on their application by taking the following steps:

   a. Provide a written notice of appeal to the Director of Compensation and/or Employee Relations at the University; and its elimination shall be the responsibility of the entire University community. Depending upon the seriousness of the misconduct, informal corrective action may be adequate.

Complaint Procedure

Sexual harassment and sexism constitute acts of misconduct. Therefore, when any of such acts are reported and confirmed, prompt, disciplinary action will be taken, up to and including discharge. However, to ensure the University to act through these procedures, employees and students are encouraged to report such incidents.

Employees should report such conduct to the Director of Compensation and/or Employee Relations, 1275 Seibel Administration Building (387-3620). Students should report such conduct to the Affirmative Action Director

Policy on Sexual Harassment and Sexism

Western Michigan University is committed to an environment which encourages fair, humane, and beneficial treatment of all faculty, staff, and students. In accordance with that fundamental objective, the University has a continuing commitment to assist the equal opportunity and to oppose discrimination because of race, color, sex, sexual orientation, age, religion, national origin, handicap, height, weight, or marital status. Therefore, in the same perspective, neither sexual harassment nor sexism will be tolerated at Western Michigan University. It is expected that each member of the University community will consider himself/herself responsible for the proper observance of this policy.

Definitions

Sexual Harassment: Sexual harassment is defined as unwelcome sexual conduct which is related to any condition of employment or evaluation of student performance. This definition is intended to include more than overt advances. It may involve any form of actual or implied sexual relations. It applies as well to repeated or unwarranted sex-related statements, unwelcome touching, sexually explicit comments, and/or graphics. All persons should be sensitive to situations that may affect or cause the recipient discomfort or humiliation or may display a condescending sex-based attitude towards a person. Sexual harassment is illegal under both state and federal law. In some cases, it may be subject also to prosecution under the criminal sexual conduct act. Conduct will be defined as sexual harassment when any or all three of the following conditions exist:

1. The sex-related situations are unwelcome by the recipient.*
2. A specific or implied connection with employment or student status is involved.
3. The sexual harassment continues after the recipient has made it clear that the conduct is unwelcome.*

* Note: In some cases of overt physical sexual conduct, a blatant threat if sexual favors are not given, or promised reward in exchange for sexual favors, no notice that the conduct is unwelcome shall be necessary and a finding of sexual harassment may be based on a single occurrence.

Sexism

Sexism is defined as the perception and treatment of any person, not as an individual, but as a member of a category based on sex. Whether expressed in overt or subtle form such as sex-related jokes or materials, sexism in the classroom or workplace is unacceptable at Western Michigan University, and its elimination shall be the responsibility of the entire University community. Depending upon the seriousness of the misconduct, informal corrective action may be adequate.

The Student's Responsibility and the Residency Application Process

While circumstances for each applicant are unique, the following information is designed to be a reference for students who are interested in applying for resident classification for tuition-paying purposes at Western Michigan University (WMU). The fact that a student may qualify for resident status at another college or university in the State of Michigan or that the student may be considered a resident by other laws or regulations within the State of Michigan is not used in determining resident status for tuition-paying purposes at WMU.

Required Documentation

When filing an Application for Resident Classification for University Admissions and/or Fee Purposes, the following documentation must be included with the application form:

- All applicants must provide a copy of a valid driver's license for their self and of the person or persons upon whom the applicant is basing the claim to resident eligibility.
- All applicants must provide copies of the front and signature pages of the most recent year's federal and state income tax returns and accompanying W2s for the applicant and the person or persons upon whom the applicant is basing the claim to resident eligibility.
- All applicants who are born outside of the United States must provide any additional identification or documentation that they have in their possession to support their claim to residency eligibility.
- All applicants who are dependent students (independent or dependent) must provide evidence of domicile not submitted with the initial application must be included with the appeal.
- All applicants whose claim to resident eligibility is basing the claim to resident eligibility on any or all three of the following conditions shall provide the following documentation in addition to the previously noted documentation:

   a. Permanent Resident Alien: must be fully processed and possess Permanent Resident alien card or stamp in passport verifying final approval by filing deadline for applicable term.
   b. Refugees: must have I-94 card with "Refugee" designation.
   c. A, E, G, and I visa holders: Based upon current law, these non-immigrant visa classifications are the only ones that permit the visa holder to reside in the United States. As changes occur in applicable law, this list shall be updated.

   *Note: In some cases of overt physical sexual conduct, a blatant threat if sexual favors are not given, or promised reward in exchange for sexual favors, no notice that the conduct is unwelcome shall be necessary and a finding of sexual harassment may be based on a single occurrence.

   *Sexism

   *Sexism is defined as the perception and treatment of any person, not as an individual, but as a member of a category based on sex. Whether expressed in overt or subtle form such as sex-related jokes or materials, sexism in the classroom or workplace is unacceptable at Western Michigan University, and its elimination shall be the responsibility of the entire University community. Depending upon the seriousness of the misconduct, informal corrective action may be adequate.

   *Complaint Procedure

   *Sexual harassment and sexism constitute acts of misconduct. Therefore, when any of such acts are reported and confirmed, prompt, disciplinary action will be taken, up to and including discharge. However, to ensure the University to act through these procedures, employees and students are encouraged to report such incidents.

   *Employees should report such conduct to the Director of Compensation and/or Employee Relations, 1275 Seibel Administration Building (387-3620). Students should report such conduct to the Affirmative Action Director
President’s Statement on Racial and Ethnic Harmony

Western Michigan University is firmly committed to the principles of racial equality and nondiscrimination. On its campus, students, faculty, and staff of many races and ethnic backgrounds live and work closely together in offices, classrooms, and residence halls. This racial and ethnic mix brings richness and diversity to the cultural, intellectual, and personal dimensions of campus life. The University benefits from this diversity and seeks to enhance it.

All members of the University are expected to contribute to an atmosphere of racial and ethnic harmony on campus, displaying tolerance for cultural differences and courtesy and civility in discourse with students, faculty, and staff of diverse backgrounds and origins. In the event that there is no room for derogatory comments of a racial nature, be they in the form of slurs, posters, songs, jokes, graffiti, or the like.

Most members of the campus community need not be reminded of the institutional position in this regard. The very few who need the admonition must realize that the University will take the strongest possible action, including dismissal, against those who through racist acts bring discord to this campus.

Discrimination: Complaints and Grievance Procedure

Western Michigan University, in accordance with the law, prohibits discrimination in the provision of all student instruction, activities, and programs. Discrimination based on race, color, religion, national origin, sex, sexual orientation, age, disability, height, weight, veteran status, family status, or marital status shall not be tolerated in the determination of eligibility, participation, or grading for any courses or program established for the benefit of students unless otherwise provided by law.

Students who have inquiries about the University’s Anti-Discrimination Policy or about anti-discrimination laws, including Title IX and the Rehabilitation Act of 1973, or who have complaints of prohibited discrimination, may file their inquiries and complaints with the Office of Institutional Equity, 1015 Trimpe Building, (387-6316).

The Office of Institutional Equity will receive and investigate complaints of prohibited discrimination filed with it by students and may assist the student in their concerns. The complaint, an oral allegation or charge against the University, an employee(s), or an agent, stating prohibited discrimination has occurred, must be filed with the Office of Institutional Equity or professor, instructor, or program director within fourteen (14) calendar days of events or knowledge of events giving rise to the complaint. The complaint must be filed by the student and discussed with the Office of Institutional Equity before any formal grievance can be initiated.

The Office of Institutional Equity will make reports and recommendations to the complaining students and to the academic dean or program director concerned. In the event the student’s complaint is not satisfactorily resolved, the student may file a formal written grievance. Formal written grievances protesting prohibited discrimination shall be filed in accordance with the Anti-Discrimination Grievance Procedure for Students.

A grievance is defined as a formal written allegation by a student(s) that there has been a violation of the University’s Anti-Discrimination Policy or a discriminatory application of official University policies, procedures, rules, or regulations regarding student rights or privileges.

Any student(s) who wants to file such grievance should contact the Office of Institutional Equity, 1015 Trimpe Building, (387-6316) and file a complaint against harassment, intimidation, or retaliation. Such complaint should be filed with the Office of Institutional Equity, 1015 Trimpe Building, (387-6316).

Step 1: Departmental Level

A formal grievance must be filed with the Office of Institutional Equity no later than thirty (30) calendar days after the event or events being grieved took place. The Affirmative Action Department will then forward the grievance to the Step 1 representative. A final decision will be reached by the Step 1 representative.

Step 2: Appeal to the Vice Presidential Level

If the grievance is not resolved at Step 1, the student may appeal to the appropriate Vice President within seven (7) calendar days after receiving the Step 1 representative’s written answer. The student must file the appeal with the Office of Institutional Equity, using an official University appeal form. The Office will, in turn, notify the department representative and the appropriate Vice President of the student’s appeal. The appropriate Vice President or his/her designee shall then arrange a meeting with the grievant, his/her designated representative (if requested), and any other individuals who may help resolve the grievance. This meeting must be held within fourteen (14) calendar days after the appropriate Vice President or his/her designee hearing the appeal receives the grievance from the Office of Institutional Equity. Within seven (7) calendar days after this meeting, the appropriate Vice President or his/her designee hearing the appeal will communicate an answer in writing to the involved parties.

Step 3: Appeals to the Presidential Level

If the grievance has not been resolved at Step 2, it may be appealed to the University President. The Office of Institutional Equity must receive the appeal within seven (7) calendar days after the vice president receives the Step 2 answer. The President, at his/her discretion, will handle the grievance personally or will designate a representative to conduct a hearing or investigation of the grievance, report findings, and recommend a decision. The President will make the final grievance decision and communicate it to the appropriate parties.

In addition to filing a grievance with Office of Institutional Equity, the student may file a complaint directly with the Office of Civil Rights, U.S. Department of Education, or pursue both avenues of complaint resolution.

Western Michigan University Student Code

A student who chooses to enroll at Western Michigan University assumes the obligation for conduct that is compatible with the University’s mission as an educational institution. While students have the privilege to enroll at the institution of their choice, choosing to enroll at Western Michigan University signifies a student to become aware of, and to abide by the behavior standards of the University.

Ignorance of acceptable boundaries of student behavior as contained in the Student Code is not a basis for excusing inappropriate behavior.

Western Michigan University is an educational community that aspires to be purposeful, open, just, disciplined, caring, and celebrative. The Student Code and the Office of Student Judicial Affairs are tangible examples that illustrate commitment to these ideals. The Student Code describes the boundaries of acceptable student behavior and is approved by the Board of Trustees. The Office of Student Judicial Affairs interprets and enforces the Student Code.

The University disciplinary process is not analogous to, is not equivalent to, and does not conform to, criminal law procedures. This process is designed, in part, to determine responsibility, or lack thereof, for violations of the Student Code only—not guilt or innocence relative to criminal matters. The University disciplinary process shall be informal in nature so as to provide substantive justice and it shall not be bound by legal jargon, court-like proceedings, or legal definitions, which are the province of the criminal courts.

The discipline of students in the educational community is a part of the teaching process and as such, its focus shall be educational. This includes the possible use of suspension or expulsion as disciplinary measures as they may prove invaluable tools in the educational process of the individual student.

The student judicial system is not only concerned with the individual student’s welfare, but also the welfare of the University community. Any question about the processes, rules, or policies, or any other concern not specifically covered by the Student Code shall be decided solely by the Dean of Students or his/her designee. Additionally, the Student...
Code provisions may be extended or amended to apply to new and unanticipated situations which may arise. Enrollment in the University does not insulated students from their obligation to behave in a manner consistent with local, state, and federal law. Violation of local, state, and federal law while on University premises is a violation of the Student Code. While the University does not desire to act as a policing authority for the activities of the student off of University premises, the University may take appropriate action in situations involving misconduct demonstrating flagrant disregard for any person or persons, and/or when a student's or student organization's behavior is judged to threaten the health, safety, and/or property of any individual or group. Many of the items of misconduct referred to in the Student Code may also constitute violations of local, state, and federal law and carry the possibility of criminal prosecution as well.

While any violation of the Student Code is considered a serious matter, certain violations are considered to be of an especially serious nature. These violations include acts of academic dishonesty, any acts that disrupt the functions of the University, and any acts that threaten the health or safety of any member of the University community or any other person. Student involved in these activities are considered a threat to the orderly functioning of the University, and their behavior is considered detrimental to the educational mission.

The complete text of the Western Michigan University Student Code is published by the Office of Student Judicial Affairs of the Division of Student Affairs and may be obtained from that Office.
Complete and current information about University and Student Services may be obtained by visiting the University's website (http://www.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 is located in East Hall, Room 111. Staff collect, preserve, and make accessible records which document 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 State Archives.

ATHLETICS, INTERCOLLEGIATE

The University is represented by men's teams in football, baseball, basketball, indoor and outdoor track, cross country, tennis, ice hockey, and soccer. Women's teams represent the University in basketball, cross country, golf, gymnastics, synchronized skating, softball, tennis, indoor and outdoor track, soccer, and volleyball.

Athletics are governed by the Athletic Board, which adheres to the policies and principles established by the National Collegiate Athletic Association and Mid-American Conference. Western Michigan University is a member of the Mid-American Conference. Other members of the conference are Akron, Ball State, Bowling Green, Buffalo, Central Michigan, Eastern Michigan, Kent State, Marshall, Miami (Ohio), Northern Illinois, Ohio, and Toledo.

CAREER AND STUDENT EMPLOYMENT SERVICES

The Office of Career and Student Employment Services offers a full range of services to help develop skills, explore the world of work and obtain full-time employment upon graduation. Services include a career learning lab, on-campus interviewing, part-time off-campus employment, internship opportunities, weekly job opportunity bulletins, Web-based employment listings, maintenance and distribution of education credentials, a computerized career guidance system, career fairs, and workshops.

For more information or to schedule an appointment, call (269) 387-2745. The Office is located on first floor of Ewett Hall.

CHILDREN'S PLACE LEARNING CENTER

The Children's Place Learning Center, located in the middle of campus at 2210 Wilbur, is open from 7:30 a.m. to 6:00 p.m. weekdays. The convenient location and flexible care schedules make the center an attractive child care option for WMU faculty, staff, and students. Children 2-1/2 to 11 years old and toilet trained may be enrolled full-time, part-time, or hourly (maximum 10 hours per week). Breakfast, lunch, and snacks are included in the tuition and are provided by WMU's Dining Services Department. A full vegetarian menu is available each day.

The Children's Place philosophy emphasizes child-initiated learning within a culturally diverse community. The program nurtures and supports the development of children by providing developmentally appropriate activities which address each child's need for fun, creativity, active play, communication skills, problem solving, social interaction, rest and nutrition. The program is licensed by the State of Michigan. For more information and an application call (269) 387-2277.

DISABLED STUDENT RESOURCES AND SERVICES

Disabled Student Resources and Services assists Western Michigan University students who have disabilities as they seek to find effective accommodations, maximize their abilities and gain independence. DSRS offers advocacy, registration assistance, readers/scribes and other test accommodations, textbook taping, accessibility information, handi-van transportation, adaptive equipment, and referral to other campus and community agencies.

The office is located in Essentials Hall, Rooms B-117-122 and can be reached by calling (269) 387-2116.

HOUSING

Western Michigan University students may live on or off campus. Two alternatives exist for campus housing. Students may choose from one of two residence halls, Residence Halls and WMU Apartments, and both deliver tremendous value to their residents. The success rate in meeting the housing needs of their residents is very high and improvements are constantly being made. For these reasons, students should carefully consider the benefits of on-campus housing when choosing where to live. The listed rental fees are complete. They include all utilities, cable TV, and in most cases, many extra benefits not available off-campus.

Your residence hall application will be sent upon admission to Western Michigan University. An apartment application may be submitted before you are officially admitted to the University. The application date is the basis for assignment and the probability of an assignment increases with early application.

Admission to the University or submitting a contract for a housing assignment does not guarantee a space will be available. Requests received after capacity are placed on a waiting list.

WMU Residence Halls

Twenty-two residence halls in locations close to every academic hall on campus attract over 5,500 students each academic year. These students represent a variety of different backgrounds, cultures, and academic interests.

Most halls offer a variety of services and opportunities for students to socialize with fellow residents. Furnished rooms include: desk, chair, and drawer. Students are encouraged to personalize their space with other furnishings. Most residence halls also offer a variety of common areas such as lounges, computer labs, and study rooms. Western Michigan University residence halls are open throughout the entire year, including periods of University closure. All residence halls are open year-round.

Dining Services

WMU Dining Services offers a full range of dining options to meet the needs of all University students. Options include: a variety of residence hall dining services, a wide selection of on-campus food courts, and a variety of specialty shops and cafes located in various locations around campus. Dining Services offers a variety of meal plans and pricing options to fit the needs of all students. The University_prudently manages its relationships with local food service vendors to ensure the highest quality and value for its students.
and sessions, and residents who must remain in the area make their own alternative housing arrangements during these periods. All residents are permitted to remain in their assigned rooms during the Thanksgiving and spring break recesses.

The award-winning WMU Dining Service has an excellent reputation with an extensive menu developed in consultation with residents and a professional dietitian. All hall residents (except those who live in the room-only hall) must choose between three available plans: Bronco Gold Dining Plan which provides all meals except Sunday evening; the Bronco 15 Plan, providing 15 meals; and the Bronco 10 Plan, providing 10 meals.

The WMU Dining Service is especially unique because students may eat as often as they wish, in any dining hall on campus, 7:00 a.m. through 6:30 p.m., five days a week (Saturday until 6:00 p.m.) and from 8:00 a.m. until 3:00 p.m. on Sunday. Two dining rooms (Burnham and Goldsworth Valley I) are open until 8:00 p.m. Monday-Thursday.

For further information contact the Residence Life Office, Student Services Building, 269-387-4735 or 800-545-6006. Website: www.reslife.wmich.edu

WMU Apartments
Many students choose to live in one of three Western Michigan University Apartment complexes which are open to student families, single graduates, and older undergraduates. The apartments are convenient to academic buildings, recreation areas, libraries, and the University Student Recreation Center. Direct computer connection to WMU is available in the apartments. Rental rates, which include parking, all utilities and cable television, are generally lower than off-campus complexes.

The 600 apartments are open year-around with a flexible lease that is renewable each semester. Residents appreciate the international and collegiate atmosphere of the apartment complexes and pleasant relationships are formed between neighbors that often continue long after graduation.

Make inquiries directly to the WMU Apartment Office, Faunce Student Services Building, Kalamazoo, Ml 49008-5079 or visit our website at www.wmich.edu/apartments. Telephone: 800-882-9819 or 269-387-2175 or fax 269-387-4786.

Off-Campus Housing
Approximately 72 percent of Western's students live off campus in privately owned housing. Thus, a unique service is provided to assist them in locating a place to live. Listings of apartments, houses, sleeping-rooms, and rooms are maintained on the World Wide Web and are printed for distribution. Students can see a photograph of what the rental unit looks like by accessing the WWW.

While most students look forward to off-campus living as an opportunity to pursue individual life styles, their experiences are often plagued by strained roommate relations and rental difficulties that interrupt their academic achievement. Recognizing the significance of an adequate housing environment for all students, the University's rental listing program is supplemented with conflict resolution and educational programs as well as tenant/landlord services. For additional information regarding off-campus housing, contact the Office of Off-Campus Life, Room 3510, Faunce Student Services Building, Telephone: 269-387-2336; FAX: 269-387-2325; URL: http://www.ocl.wmich.edu

OFFICE OF INFORMATION TECHNOLOGY
The Office of Information Technology (OIT) encompasses a wide spectrum of computing and information technology support. In addition to supporting administrative computing functions on campus, OIT also services academic and educational computing needs at the University. This includes providing students with computer accounts with access to the Internet (e-mail and World Wide Web), supporting open access computing facilities for students, providing a wide variety of computing workshops, and supporting a computing Help Desk.

The Office of Information Technology is located on the first floor of the University Computing Center. Telephone 387-5430. The website is www.wmich.edu/oit

INTERNATIONAL PROGRAMS AND SERVICES
Western Michigan University annually hosts some two thousand international students and has a long tradition of international involvement across all colleges. Commitment to continued expansion of our international dimension is included in the university mission statement. The *International Programs and Services* office facilitates the implementation of Western's World Wide Web home page will take you to a comprehensive directory of international programs and services. Offices that administer international programs and services are conveniently located together in Ellsworth Hall.

Office of International Student Services (OISS)
Ms. Jennifer Jackson, Director
A411 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5176
Telephone: (269) 387-5899; FAX: (269) 387-5835
www.wmich.edu/oiss

The Office of International Student Services handles admissions and special needs for international students. Services include:
• Processing of applications for admission
• Immigration advising
• Orientation program for newly arrived international students
• Assistance with housing arrangements
• Coordination of international student organizations and activities
• Liaison between international students and financial aid
• Personal and social counseling

International students interested in seeking admission to Western Michigan University should contact OISS for application materials. (Application forms and an application status inquiry procedure also are available online.)

Career English Language Center for International Students (CELCIS)
Ms. Laura Latulippe, Director
B2031 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5182
Telephone: (269) 387-4800; FAX: (269) 387-2253
http://www.wmich.edu/oia/cels

The Career English Language Center for International Students provides intensive English language instruction for prospective students who need further training in order to qualify for admission to Western Michigan University. Holders of F-1 visas in the CELCIS program must be enrolled full-time; resident aliens and holders of F-2 visas may attend CELCIS programs on a part-time basis. CELCIS classes at various levels include: speaking and listening comprehension, grammar, academic reading and vocabulary building, academic writing, and research paper writing. Extra-curricular activities include monthly social hours, conversation partners, home visits, and various social, sport, and cultural programs.

CELCIS operates four terms per year: two fifteen-week terms (fall and winter), and two seven-week terms (spring and summer). University Testing and Evaluation Services offers the institutional TOEFL at the conclusion of each term. CELCIS issues the Certificate of Eligibility for a visa (Form I-20) specifically for admission to CELCIS programs. Admission to CELCIS does not imply admission to the Graduate College or to a degree program.

Contact the CELCIS office for application materials. (Materials also are available online.)

Office of Study Abroad (OSA)
Dr. Sabine Kaehr, Director
B200 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5245
Telephone: (269) 387-5899; FAX: (269) 387-0630
http://www.wmich.edu/studyabroad

The Office of Study Abroad operates a large number of foreign study programs varying in length from a few weeks to a full academic year. These programs include a growing number of graduate internship and field study programs. OSA offers financial assistance for studying abroad at advance levels in foreign languages offered at WMU, and for beginning study of languages not available at WMU as part of programs of study at institutions outside the United States.

Graduate 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 the Office of Study Abroad.

In addition to competitive financial aid programs, OSA provides a number of important services to WMU students preparing to study, intern, or do research outside the United States. Services include orientation programs, International Student/Employee Identity Card (ISIC), Youth Hostel Pass, insurance procedures, and current information about conditions in countries of destination. OSA maintains an extensive research and information base on programs offered by other colleges and universities. The office also serves as a contact point between WMU students overseas and the university.

Office of International Affairs
Dr. Howard Dooley, Executive Director
B200 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5177
(269) 387-3951; FAX: (269) 387-3962
http://www.wmich.edu/oia

The Office of International Affairs offers coordination and services in support of connections between Western Michigan University and other institutions:
• Maintenance of official agreements between WMU and institutions outside the United States
• Official receptions and services for visiting international scholars and delegations
• Technical assistance and training projects abroad
• Offshore degree programs and twinning programs
• Summer training institutes for faculty from colleges and universities outside the United States
• Support for faculty and graduate students seeking Fulbright, IREX, and other programs.
competitive research, travel, or residency programs requiring institutional nomination or sponsorship.

**Dietrich H. Haenicke Institute for International and Area Studies**

Dr. Ronald Davis, Assistant Provost and Director
B200 Ellsworth Hall
Western Michigan University
Kalamaazoo MI 49008-5245
Telephone: (269) 387-3985; FAX (269) 387-0636
http://www.wmich.edu/hcenter

The Haenicke Institute collaborates with colleges, departments, and interdisciplinary programs to promote global, international, and area studies throughout Western Michigan University. Activities and services include:

- Collaboration and support for degree programs and graduate concentrations
- Financial support for faculty research and presentation travel abroad, and for faculty instructional development, pertinent to the Institute's mission
- Limited support in collaboration with the Office of Study Abroad, for advanced foreign study and research by graduate students
- Interdisciplinary course offerings in collaboration with the College of Arts and Sciences
- Facilitating academic collaboration among faculty in global, international, and area studies programs
- Academic conferences, symposia, and lectures by visiting scholars
- Administrative support for faculty groups and interdisciplinary centers engaged in comparative international and area studies research
- Development of the university's global and international expertise as a resource for regional school systems and in-service teachers, citizen organizations, and other parties.

**MULTICULTURAL AFFAIRS, THE DIVISION OF**

The Division of Multicultural Affairs, formerly known as the Division of Minority Affairs, promotes a supportive environment for racial/ethnic minority students by providing a range of services and programs that have a positive impact on their academic success and quality of life.

To enhance diversity in the community, the Division initiates and coordinates cultural programming and facilitates opportunities for learning and personal development for all students at Western Michigan University. The Division’s activities are designed to define and positively react to minority students’ needs and improve their environment. By doing so, students are ensured the greatest opportunity for a successful and relevant educational experience.

For information, call 269-387-4420 or visit the office in Ellsworth Hall, Room A-228, or visit the website http://www.multicultural.wmich.edu

**OFF-CAMPUS LIFE**

The Office of Off-Campus Life responds to the diverse needs of the 72 percent of WMU students who reside off campus. Specifically, graduate students are provided assistance in locating a place to live. To aid students searching for rental housing or roommates, a comprehensive data base system has been developed. Students can access rental and roommate information through the World Wide Web. Listings of apartments, houses, sleeping rooms, students in need of roommates and those available as roommates are also maintained and printed for distribution.

Recognizing the significance of an adequate housing environment for all students, the University’s rental listing program is supplemented with conflict resolution and educational programs as well as tenant/landlord services. For additional information regarding off-campus housing, contact the Office of Off-Campus Life, Room 3510, Faunce Student Services Building. Telephone: 269-387-2326, Fax: 269-387-2325; World Wide Web: http://www.ocl.wmich.edu

**OFFICE OF OMBUDSMAN**

The University Ombudsman is an intervention agent and impartial person who helps students, faculty and staff resolve academic and non-academic concerns. The Ombudsman listens to you and discusses your question or concern; provides you with information that answers your question or helps you locate someone who can assist you; explains the University’s policies and procedures and how they may affect you; follows up with you and others at the University to make sure your concern is resolved; and recommends changes in the institution that will make it more responsive to every member of the community. The basic principles of the University Ombudsman are independence, impartiality, and confidentiality. The Ombudsman is authorized to make thorough investigations and has access to most University offices and records, reports and other documents in the University. No person shall suffer any penalty because they seek assistance from the Ombudsman. The Ombudsman is appointed by the Board of Trustees and reports directly to the Provost. The office is located in 218 Bernhard Center. Telephone: 387-5300.

**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 motor mopeds with the 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 West Michigan Avenue (at the corner of West Michigan and Knollwood) or by telephoning 387-4609 during normal University business hours.

**POLICE**

Located at 511 Monroe, off the 1300 block of West Michigan, the Department of Public Safety is open 24 hours a day, providing a full range of police services through the use of a uniformed patrol division, a detective division, and a communications center. 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 office, telephoning 387-5555 or 911 in an emergency.

**PUBLICATIONS**

Western Herald, WMU's student newspaper, is published Mondays, Tuesdays, Wednesdays, and Thursdays during the fall and spring semesters, Mondays and Thursdays during the summer I session, and Monday and Thursday during the summer II session. The Western Herald is made available to students partially through support from the general fund of Western Michigan University. Positions on the paper are filled by students with the exception of the general manager/advisor.

Western News is the official publication for administration, faculty, and staff members. It is published every other Thursday by the Office of University Relations, which also produces WMU - the Western Michigan University Magazine in association with the Office of Alumni Relations. The magazine is published four times a year for alumni, donors, and other friends of the University.

**RADIO**

WMUK is Western's full power stereo public radio broadcasting service, operating at 102.1 on the FM dial with a power of 50,000 watts and serves an area 80 miles in radius; this area includes most of the southwestern quarter of the state.

WMUK(FM) provides a cultural extension of the University through its broadcasts of campus, community, and area events. Through the satellite-linked National Public Radio network of stations, WMUK provides listeners with outstanding programming in the fine and popular arts, news, and information from around the world. WMUK has built an enviable reputation in classical, bluesgrass, and jazz music programming, as well as programming for Spanish-speaking audiences.

WMUK(FM) is a charter member of NPR, the National Public Radio network of over 500 non-commercial radio stations. WIDR(FM), a 100-watt station operated by students, broadcasts on 89.1. Facilities of WIDR(FM) are located in the L. Dale Faunce Student Services Building. WIDR(FM) offers a unique opportunity for Western Michigan University students to gain experience in programming, promotion, and station operation.

**SINDECUSE HEALTH CENTER**

The Sindecuse Health Center is a student-oriented medical facility that exists to assist the University community members to achieve and maintain their optimal health status. As a student attending Western Michigan University, you have access to high-quality, convenient health care through our many professional services. Our entire staff works as a team to assist you with your health care and health education needs. For a complete explanation of services, visit the Center’s website at www.wmich.edu/shc/

**Medical Services**

The Health Center provides evaluation, treatment, and education for a variety of illnesses and injuries in addition to preventive health care. Medical specialties include family practice, internal medicine, gynecology, psychiatry, dermatology, pediatrics, orthopedics and sports medicine. In addition, Health Center physicians and physician assistants can refer students to other medical specialists in the Kalamazoo area or elsewhere.

Upon acceptance to the University, each student will receive a Health History Questionnaire. Completing and returning this questionnaire is important. It is a permanent part of a student's medical record and a reference when medical treatment is required.
The mission of the Student Activities and Leadership Programs is to enhance student learning and personal development by engaging students in educationally purposeful academic and social activities. Student Activities and Leadership Programs has registered over 300 student organizations at WMU representing a diverse range of interests. We welcome you as a valued member of our community and are excited to be a part of your learning and personal development.

For campus information, visit the website at www.salp.wmich.edu or visit the office, 2420 Faunce Student Services Building.

STUDENT DIRECTORY

The WMU Faculty/Staff/Student Telephone Directory is published annually by the Office of Information Technology of the University. It is distributed during early November, without charge, to all students in residence halls and family housing units, and is available at the Information Center in the Seibert Administration Building.

Individual listings in the WMU Student Directory contain the following information:
1. Name
2. Curriculum
3. Local address and telephone number
4. Home address

Students wishing to exclude any or all of the above information from the WMU Student Directory (primary or secondary electronic) must fill out a Directory Exclusion Form in Room 3210, Seibert Administration Building, during the first five days of classes fall semester. During spring, summer I, and summer II terms, students may restrict this information to academic use by filling out the Directory Exclusion Form during the first five days of classes.

STUDENT VOLUNTEER SERVICES

Student Volunteer Services (SVS) is dedicated to furthering the community service movement on campus and to enhancing the traditional classroom education through experiential service-learning opportunities. The mission of Student Volunteer Services is to foster awareness and understanding of the challenges facing our society and to encourage student involvement in addressing these needs through community service and social action.

Through SVS, students have access to volunteer opportunities in over 150 community and campus programs. The SVS staff will assist you in determining where your interests and skills can be matched with community needs. Individual volunteer opportunities and one-time group projects are available in a variety of interest areas including food/clothing/shelter services, mental and physical health care, friendships/role model services, recreation, education, cultural arts and sciences, financial/legal/government services, handicapped services, advocacy, natural resources, and media/public relations. Individual volunteer opportunities typically require a two to four hour weekly time commitment; one-time group projects vary from three to eight hours.

Service projects coordinated by SVS include Alternative Spring Break, Into the Streets, Service Week, and the Volunteer Opportunities Fair. Presentations are offered throughout the academic year and include information on service sites, volunteer positions, and how to get involved. Students are encouraged to visit our office located in the Lee Honors College. Telephone: 387-3230.

SUBSTANCE ABUSE SERVICES

University Substance Abuse Services, located in the Sindecuse Health Center, provides an outpatient treatment and prevention program for Western Michigan University students concerned with their use, misuse, or abuse of alcohol and other mood-altering substances.

Under the auspices of the University Counseling and Testing Center and Division of Student Affairs, the program offers information, assessment, training, counseling and supportive therapy, referral and follow-up services to individuals and groups. Also offered are didactic groups to those students seriously interested in exploring their relationship with mood altering drugs (alcohol, marijuana, stimulants, narcotics, depressants and barbiturates) as well as groups for adult children of alcoholics.

University Substance Abuse Services is licensed by the State of Michigan Department of Consumer Resources and is protected by a nationally certified substance abuse therapist and professor of counseling. All services are free, unless they are court ordered, and completely confidential as required by state and federal law. Students are encouraged to make an appointment through the Sindecuse Health Center reception area, or, by calling 387-3257.

UNIVERSITY COUNSELING AND TESTING CENTER

Many important decisions and situations will confront students while they are at Western Michigan University. They will need to make decisions regarding courses, curricula, and career exploration. They may become involved in social and personal situations that leave them feeling confused and upset. In addition, it may be likely that the inherent stresses of university life will, at some time, interfere with academic achievement and personal growth.

The University Counseling and Testing Center, located on the main floor of the Faunce Student Services Building, exists to help students deal effectively with such concerns.

The Center is staffed with professionally licensed counselors and psychologists and is accredited by the International Association of Counseling Services.

Counseling and Testing Center services consist of the following:

Personal Counseling to assist individuals in better understanding themselves and the emotional conflicts that may interfere with their everyday lives as students, to help them become more aware of alternative means of coping with conflicts, and to aid them in developing more satisfying and fulfilling lifestyles.

Educational Counseling to help students deal with conflicts concerning vocational planning and educational goals.

Career Counseling and Testing to provide students with the resources, skills, and experiences necessary for reasonable educational and career choices. Individual and group activities are offered to (1) increase self-understanding, including insights into one's interests, values, and abilities, and (2) learn how to acquire information about careers; (3) review choices, make decisions, and establish plans of action; and (4) test the feasibility of individual plans by experiencing the reality of the working world.

The Career Exploration/Media Center contains a wide and varied selection of printed materials with an emphasis on self-understanding, career exploration and preparation, occupational information, and job trends. Included is a section of college and university catalogs, educational resources, and computer-aided guidance and information pertinent to career awareness. An extensive collection of professional test material is also available for student/faculty review.

Training and Internship Programs for graduate students and interns from the
received 14,938 items from other libraries or document delivery services, and provided 4,075 items to continuing education faculty and students.

The University Libraries have a large number of collections and services available to its users. The online catalog provides access to the University Libraries’ collections by author, title, subject, and keyword. Over 100 databases are available through the OCLC FirstSearch system with additional resources available through the IAC reference Center Gold, and individually accessed databases. The Libraries’ web page (http://www.wmich.edulibraries) contains a listing of available databases and electronic resources. Terminals located in Waldo Library and its branches give the user access to these resources. Access is also available remotely from a home or office computer. Additional electronic indexes are provided on CD-ROM terminals located in reference areas.

The major purpose of the University Libraries is to take an active role in the educational process at the University, and to provide facilities, materials, and an environment that will support the students’ educational progress but also will encourage them to develop the habit of self-education.

UNIVERSITY RECREATION PROGRAMS AND FACILITIES

Student Recreation Center (289) 387-3760

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 faculty members. The facility includes an 8,000 square foot fitness/weight room with over 100 pieces of state-of-the-art equipment, a recreational pool with attached swim pool and saunas, a 45’ climbing wall, outdoor jogging track, basketball courts, volleyball and badminton courts, indoor tennis courts, 10 racquetball courts, aerobics room, multipurpose gym, fitness testing laboratory, and much more. The SRC is equipped with state-of-the-art electronic security system to help protect our student-funded facility from vandalism and to ensure that all users are properly authorized. Only ID cards belonging to individuals who have paid the facility fee may gain access and take advantage of programs and services.

In informal recreation programs, the SRC encourages participation in a variety of cooperative, educational, and athletic activities. Each week, a new program is offered, with a focus on a particular area of interest. Programs are designed to provide fun, enjoyment, and opportunities for social interaction and personal growth.

In sports, the SRC offers a variety of intramural and intercollegiate clubs and teams, providing opportunities for students to participate in competitive and recreational activities. TheSRC also encourages students to develop their skills and abilities through participation in team sports and individual competitions.

In addition to its physical fitness programs, the SRC offers a variety of health and wellness programs, including workshops, seminars, and classes on topics such as nutrition, stress management, and overall health and well-being.

The SRC also offers a variety of social events and activities, including dances, parties, and other gatherings, providing opportunities for students to meet new people and socialize in a fun and relaxed environment.

The SRC is committed to providing a safe and inclusive environment for all students, and works to ensure that all programs and services are accessible and equitable for all students.

The SRC encourages students to take advantage of the opportunities offered by the SRC and to participate in a variety of programs and events to help them achieve their personal and academic goals.

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 Officer 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 Information Card" 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 Officer 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. The Veterans' Certification Officer may be reached in the Office of the Registrar at (269) 387-4115.

WRITING CENTER

The Writing Center is part of the Center for Academic Support Programs. It provides writing assistance for students, faculty, staff, and other members of the WMU community.

The Writing Center exists for all WMU students (graduate and undergraduate) who choose to work on their writing. Because writing is such a complex act, students often concentrate on particular aspects of writing with each visit. They may work with a tutor on organization or focus; they may want to hone their style or find new ways to come up with topics or ideas for development; they may also work on the conventions of English.

To accommodate the needs of many students, the Writing Center offers three different types of appointments. Most popular is the drop-in appointment, which allows students to see a tutor immediately. Students may also choose to schedule appointments in advance or set up a regular weekly appointment with the same tutor. Students may choose to have a report sent to their instructors detailing their visit. The Writing Center tutors are glad to work with students on their papers; however, they will not copyedit or proofread papers for educational purposes.

The Writing Center also provides workshops on writing with sources and on proofreading techniques, and offers writing-related computer software. For answers to quick questions about writing, call the Writers' Hotline at 387-4615 or send e-mail to (writing-center@wmich.edu).

The Writing Center is located in Room 1039 Moore Hall; telephone 387-4615.
Vision
The College of Arts and Sciences seeks to create a challenging and intellectually vital learning community. Such a community engages students and faculty alike in a continuing discourse, providing focus for being active, informed, productive, creative, open-minded, and ethically responsible citizens in a complex, multicultural, and rapidly changing world.

The College of Arts and Sciences is committed to the support and enhancement of graduate education, undergraduate education, research, and public/professional service; informed in all dimensions by commitment to diversity, to collaboration, to social responsibility and to civility, and sustained by continuous development and recognition of the efforts of faculty, advising personnel, support staff, emeriti and alumni.

Mission
The College of Arts and Sciences, as a key component in a student-centered research university, integrates research, teaching, and service in a manner that supports the College's vision by fostering the discovery, extension, dissemination, preservation, and application of knowledge. The College:
- Supports the personal and professional growth of students and faculty.
- Provides high quality teaching for the full range of the College's educational responsibilities.
- Pursues basic and applied research in and across disciplines.
- Develops critical thinking, communication, research, aesthetic and creative abilities, problem solving, and multiple learning skills.
- Fosters the development of disciplinary, core knowledge.
- Provides students with the skills to communicate effectively across disciplines and cultures.
- Raises awareness about the social, cultural, environmental, and international contexts of knowledge to help students develop the skills to address the most pressing social, scientific, and moral problems of our society.
- Promotes high levels of professional integrity and general civility among faculty, staff, and students.
- Commits to diversity in the recruitment and retention of students and faculty.
- Serves as a resource to the university and local, state, national and global communities.
- Generates enthusiasm for lifelong learning.

Programs
Africana Studies Courses (AFS)

Open to Upperclass and Graduate Students
AFS 598 Independent Study
2–4 hrs.
Independent research or investigation of a specific topic related to the Black experience. May be repeated for credit.

Open to Graduate Students Only
AFS 600 Black Americana Studies Seminar
4–6 hrs.
In depth study of specific areas of Black American life and culture. Since Black Americans have been involved in the total life of the nation, special study is called for. There are at least two dimensions which lend themselves to special study. The first and most obvious is that of unusual achievement by persons of known and identifiable African ancestry. A second and more elusive dimension is Black “influence”—positively and negatively—in American life and culture.

American Studies Courses (AMS)

Open to Upperclass and Graduate Students
AMS 500 Special Topics in American Studies
3 hrs.
This course provides group study of special topics in American Studies. Topics will vary with the training and scholarship of the professor or professors involved. Prerequisites: At least 18 hours of courses approved in the American Studies Program, including AMS 200 and AMS 300, or graduate-student status in any participating department.

AMS 590 Interdisciplinary Theory and Methods
3 hrs.
This course will allow students to understand the development of American Studies from the early history and literature syntheses to the symbol and myth school to the social and cultural studies approaches that have drawn their techniques from anthropologists and other social and natural scientists. Prerequisites: At least 18 hours of courses approved in the American Studies Program, including AMS 200 and AMS 300, or graduate-student status in any participating department.

AMS 598 Independent Study
1–3 hrs.
An individual project is available to advanced students by special permission from the director of American Studies. Prerequisites: At least 18 hours of courses approved in the American Studies Program, including AMS 200 and AMS 300, or graduate-student status in any participating department.

ANTHROPOLOGY

Advisor:
Robert Anemone
Room 128, Moore Hall

The Master of Arts in Anthropology is designed to provide the students with a basic understanding of the major theories and methods of the discipline as a whole. Students have the opportunity to specialize in one of three subdisciplines of anthropology: archaeology, cultural anthropology, or biological anthropology. Graduate seminars are available on such specialized topics as Archaeological Theory and Method (Processual and Post-Processual), Great Lakes, Eastern U. S., Forensic Anthropology, Human Biology, Paleoanthropology, and Research Methods. In addition to course work, students are encouraged to pursue original independent research. The M.A. program in anthropology prepares graduates for Ph.D. programs in anthropology or other related disciplines, as well as establishing the foundation for careers in cultural resources management, education, industry, government, or non-profit organizations.

Admission Requirements
1. Students should have completed a major or minor in Anthropology. Other students will be considered but may be required to enroll in undergraduate prerequisite course work.
2. Accumulation of a grade point average of at least 3.0 during the final two years of undergraduate work.
3. Three letters of recommendation are required from persons able to assess the applicant's academic record, potential for success in a Master of Arts program in Anthropology, and suitability for an assistantship in this discipline. These letters should be submitted directly to the graduate advisor.
4. Each applicant must submit to the graduate advisor a one-page statement outlining his or her career goals and interests in anthropology.

Program Requirements
Two tracks are available for completing the Master of Arts in Anthropology:

THESIS TRACK
The thesis track consists of 36 credit hours: 30 hours of course work and six hours of thesis. Five courses and the thesis are required; five courses are elective. In total, at least 21 hours must be at the 600- or 700-level.
1. Four seminar courses are required: ANTH 601 (3 hrs.), 602 (3 hrs.), 603 (3 hrs.), and 604 (3 hrs.).
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2. One research methods course is required: ANTH 530 (3 hrs.).
3. Fifteen elective hours of courses, approved in consultation with advisor.
4. Comprehensive examination in area of specialty (e.g., biological anthropology, cultural anthropology, or archaeology).
5. Master’s Thesis is required: ANTH 700 (6 hrs.).
6. Successful defense of the master’s thesis and oral presentation of thesis results to department.

NON-THESIS TRACK
The non-thesis track consists of 36 credit hours: 30 hours of course work and six hours of internship. Four courses and the internship are required; six courses are elective. In total, at least 18 hours must be at the 600-level.

1. Four seminar courses are required: ANTH 601 (2 hrs.), 602 (3 hrs.), 603 (3 hrs.), and 604 (3 hrs.).
2. Eighteen hours of elective courses, approved in consultation with advisor.
3. Internship or practicum is required: ANTH 699 (6 hrs.).
4. Oral presentation of internship or practicum results to department.
5. Comprehensive examination in three areas (biological anthropology, cultural anthropology, or archaeology).

Anthropology Courses
(ANTH)

Open to Upperclass and Graduate Students

All 500-level courses have the following Prerequisites: Junior/senior status; 12 hours of Anthropology; and ANTH 110, 210, or consent of instructor.

ANTH 500 Topics in Archaeology
3 hrs.
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, prehistory). The topic to be studied will be announced each semester. May be repeated for credit. Prerequisites: Junior/senior status; 12 hours of Anthropology, and ANTH 110, 210, or consent of instructor.

ANTH 501 The Rise of Civilization
3 hrs.
The archaeological record in one or more of the nuclear centers of prehistoric civilization will be considered in some detail. The course may focus intensively upon one area, (e.g., the Near East or Meso-America) or it may give equal emphasis to two or more areas in a comparative framework. The specific area or areas to be studied will be announced each semester. May be repeated. Prerequisites: Junior/senior status, 12 hours of Anthropology; and ANTH 110, 210, or consent of instructor.

ANTH 502 The Origins of Agriculture
3 hrs.
An intensive study of the human transition from hunting-gathering to cultivation during the post-Pleistocene period. Topics to be treated include: both archaeological and botanical models to explain these processes; the comparison of agricultural systems in various parts of the world; the geographic distribution and biosystematics of selected cultivars; and the cultural systems which have arisen from the economic foundations of plant domestication. Prerequisites: Junior/senior status; 12 hours of Anthropology, and ANTH 110, 210, or consent of instructor.

ANTH 505 Social Archaeology
3 hrs.
Investigates the mechanisms of social, political, and economic integration within human social groups by analyzing and interpreting the material world. Focus will vary between communal and complex social forms. Prerequisites: Junior/senior status, 12 hours of Anthropology, and ANTH 210 or consent of instructor.

ANTH 506 The Archaeology of Gender
3 hrs.
Gender constructs, a critical organizing principle for human interaction, are becoming an important focus of anthropological 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: Junior/senior status, 12 hours of Anthropology, and ANTH 210.

ANTH 510 Human Biology
3 hrs.
An advanced course in the method and theory involved in the study of the biology of Homo sapiens. Aspects of Human Biology that will be studied from a biocultural perspective include growth and development, infectious disease, nutrition, adaptation, and stressful environments, genetics, and demography. Prerequisites: Junior/senior status and 12 hours of Anthropology, including ANTH 250 or consent of instructor.

ANTH 520 Anthropological Theory
3 hrs.
Students are introduced to anthropological theory as a means of raising questions that are significant to the sciences in generon. The importance of theory to ethnographic research and a critical understanding of the social world will be emphasized. The course will also focus on the historical and political roots of anthropology through comparing select theorists from the early British, French, and American schools. Special attention will be given to current theoretical controversies that continue to define the political and ethical concerns of working with human subjects. Prerequisites: Junior/senior status and 12 hours of Anthropology, including ANTH 240 or social science requirement.

ANTH 521 Nacionalism, Invented Tradition, and Self-Identity
3 hrs.
This course introduces students to the theoretical debates concerning nationalism by evaluating the works of authors such as Anderson, Hobbsawm, and Gellner and by examining select case studies of nationalism in a number of world areas. Emphasis will be on nationalism as a cultural as well as political process so its relation to invented tradition and self-identity will be highlighted. Prerequisites: ANTH 240, graduate standing or consent of instructor.

ANTH 522 Poverty, Power, and Privilege
3 hrs.
This course critically explores anthropological approaches to understanding poverty as well as racial, class, and gender disparities. 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 Kalahari region.

ANTH 526 Principles and Medicine
3 hrs.
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 relate to belief and contemporary medical care, including western medicine and alternatives, spirit possession and trance, and methods of divination. Prerequisite: ANTH 240.

ANTH 530 Research Methods
3 hrs.
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: Junior/senior status 12 hours of Anthropology.

ANTH 531 Medical Anthropology
3 hrs.
This course starts with the premise that illness is as much cultural as it is a biological phenomena and explores the ways in which different societies, including our own, perceive and manage illness and disease. The primary focus of the course is to understand the intersection of cultural, social, and political variables in the experience of illness and the practices associated with healing. Specific topics include ethnomedicine, spiritual healing, primary health care in the developing world, the symbolism of modern medicine, the political economy of health care and AIDS, and inequality. Prerequisites: Junior status, 12 hours of anthropology, and ANTH 240 or consent of instructor.

ANTH 542 Development Anthropology
3 hrs.
An examination of the role of social science when applied to the solution of specific development problems, particularly in the Non-Western World. Explores a wide range of applied or adaptive research techniques designed to insure that directed social change actually benefits those for whom it is intended. Also surveys numerous research strategies, methods and constraints involved in conducting research for national or international development agencies. Prerequisites: Junior/senior status, 12 hours of Anthropology, and ANTH 240 or consent of instructor.

ANTH 545 Topics in Sociocultural Anthropology
3 hrs.
An intensive study of the cultures of an area of the world or selected problems. Topic will be announced each semester and be repeated for credit. Prerequisites: Junior/senior status, 12 hours of Anthropology, and ANTH 240 or consent of instructor.

ANTH 550 Human Evolution
3 hrs.
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 palaeontological theory, issues relating to species definition and recognition, functional anatomical complexes, and human morphological variation. Prerequisites: Junior/senior status, 12 hours of Anthropology, and ANTH 250.
ANTH 551 Evolution of Human Culture
3 hrs.
This course is designed to provide a platform for discussion of hominid and early modern human culture. Questions for discussion include: Do non-human primates have culture? Is reproductive behavior related to the development of human culture? How can early hominid behavior be modeled? What constitutes modern human behavior in the archaeological record? The course will focus on three problem areas in Old World Prehistory: 1) Chimpanzee material culture and early hominid Oldowan assemblages; 2) the Middle Palaeanthic and the origin of modern humans; and 3) the Upper Palaeanthic and the cultural revolution. Prerequisites: Junior/senior status and 12 hours of Anthropology, including ANTH 210 or ANTH 250 or permission of instructor.

ANTH 552 Forensic Anthropology
3 hrs.
The study of biological anthropology as it applies to the legal system. Primary emphasis will be on skeletal and dental identification, facial reconstruction and analysis of time since death. Courtroom procedures and responsibilities of the expert witness in the legal system will be covered. Prerequisites: Junior/senior status, 12 hours of Anthropology, and ANTH 250 or consent of instructor.

ANTH 555 Topics in Biological Anthropology
3 hrs.
A consideration of the biological relationships of specific population groups or general problems in human biology (e.g., human genetics, human growth and constitution, paleopathology, dental anthropology). Topic will be announced each semester. May be repeated for credit with different topics. Prerequisites: Junior/senior status, 12 hours of Anthropology, and ANTH 250 or consent of instructor.

ANTH 583 Anthropology and History
3 hrs.
The course evaluates the relationship between anthropology and history through reading selected works in each discipline. Theoretical and methodological similarities and differences will be addressed as well as how each discipline writes about the "other." Special attention will be given to the rhetorical devices employed to make ethnographic and historical accounts convincing and the potential to critical scholarship that the ongoing exchange between the two disciplines offers. Prerequisites: ANTH 240, graduate standing or consent of instructor.

Open to Graduate Students Only
ANTH 601 Seminar in Cultural Anthropology
3–4 hrs.
Intensive study of contemporary issues in sociocultural theory. May be elected as a graduate cognate course by students in other disciplines. May be repeated for credit when topics vary. Prerequisite: Consent of instructor.

ANTH 602 Seminar in Archaeology
3–4 hrs.
Advanced study in the major problem areas of prehistoric research. May be elected as a graduate cognate course by students in other disciplines. May be repeated for credit when topics vary. Prerequisite: Consent of instructor.

ANTH 603 Seminar in Biological Anthropology
3–4 hrs.
Advanced instruction and research in the principal problem areas in biological anthropology. May be elected as a graduate cognate course by students in other disciplines. May be repeated for credit when topics vary. Prerequisite: Consent of instructor.

ANTH 604 Integrating Anthropology
3 hrs.
This course provides an integrative introduction to major themes that cross-cut the anthropological sub-disciplines. Topics such as the evolution of language, Marxist thought, or race and racism will be explored through a combination of guest lectures, readings of primary literature, and seminar-style discussions. Students will be encouraged to explore the nature of anthropological inquiry and to find the linkages between cultural, biological, and archaeological anthropology. Prerequisite: Graduate standing in anthropology.

ANTH 605 Biography and Material Culture
3 hrs.
This course introduces students to the anthropology of everyday and precious objects. The class explores how objects relate to people's understandings of themselves as individuals and participants in specific cultural communities. Students will need classic and contemporary anthropological writings about material culture and will spend time discussing the differences between cultural and archaeological approaches to understanding objects. Prerequisite: Previous course work in anthropology or history.

ANTH 610 Topics in Archaeology
3 hrs.
An intensive study of a selected topic or emerging field in archaeology, topics will vary and will be announced in the Schedule of Course Offerings. May be repeated for credit with different topics. Prerequisite: Consent of instructor.

ANTH 640 Topics in Sociocultural Anthropology
3 hrs.
An intensive study of a selected topic or emerging field in sociocultural anthropology. Topics will vary and will be announced in the Schedule of Course Offerings. May be repeated for credit with different topics. Prerequisite: Consent of instructor.

ANTH 650 Topics in Biological Anthropology
3 hrs.
An intensive study of a selected topic or emerging field in biological anthropology. Topics will vary and will be announced in the Schedule of Course Offerings. May be repeated for credit with different topics. Prerequisite: Consent of instructor.

ANTH 690 Archaeological Field School
3 hrs.
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 fieldwork (i.e., logistics, site location survey, mapping, recovering and recording 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 M.A. program requirements. Prerequisite: ANTH 210 or consent of instructor.

ANTH 698 Independent Readings in Anthropology
1–3 hrs.
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 which is not offered in a formal course. Prerequisite: Graduate standing.

ANTH 699 Independent Research in Anthropology
1–3 hrs.
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. Prerequisite: Graduate standing.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

ANTH 700 Master's Thesis
6 hrs.

ANTH 710 Independent Research 2–6 hrs.
ARTS AND SCIENCES

Arts and Sciences Course (A-S)

Open to Upperclass and Graduate Students
A-S 598 Directed Off-Campus Independent Studies
1-16 hrs.
A program of independent study that allows the student to pursue a subject that falls outside of the traditional disciplines. The initiative for describing the project, planning the methodology 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 to a maximum of 16 hours. Prerequisites: Approval of the proposal. Repeatable to a maximum of 16 hours. Required.

Open to Graduate Students Only

Foreign Studies Seminars

Students may receive up to six hours credit in any combination of departments as described provided the seminar is planned with that in mind. No student will receive credit under any of the course plans indicated here for work done in seminars planned and conducted by other institutions or for work done independent of seminars planned by the College of Arts and Sciences.

A-S 604 Graduate Foreign Studies Seminar
1-6 hrs.
Seminars in the Social Sciences conducted outside the U.S. Students who complete such a seminar may receive credit under any of the course plans indicated here for work done in seminars planned and conducted by other institutions or for work done independent of seminars planned by the College of Arts and Sciences. Prerequisites: Approval of the seminar. May be repeated for credit. Prerequisite: Approval of the seminar. May be repeated for credit.

Chinese Course (CHN)

Open to Upperclass and Graduate Students
CHN 550 Independent Study in Chinese
1-3 hrs.
Directed individual study of a specific topic in Chinese language, literature, or culture. May be repeated for credit. Prerequisites: Completion of four courses in Chinese or equivalent; minimum grade point average of 3.0 in Chinese; departmental approval required.

Japanese Course (JPNS)

Open to Upperclass and Graduate Students
JPNS 550 Independent Study in Japanese
1-3 hrs.
Directed individual study of a specific topic in Japanese language, literature, or culture. May be repeated for credit. Prerequisites: Completion of four courses in Japanese or equivalent; minimum grade point average of 3.0 in Japanese; departmental approval required.

ASIAN AND MIDDLE EASTERN LANGUAGES

Dr. Xiaojun Wang, Chair
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Nabil Abdelfattah
Hideko Abe
Aji Fukushima
Timothy Light
Xiaojun Wang

Asian and Middle Eastern Languages Course (AMEL)

Open to Upperclass and Graduate Students
AMEL 500 Special Topics in World Languages
3 hrs.
The topic(s) to be announced in the Schedule of Course Offerings. 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.

Chinese Course (CHN)

Open to Upperclass and Graduate Students
CHN 550 Independent Study in Chinese
1-3 hrs.
Directed individual study of a specific topic in Chinese language, literature, or culture. May be repeated for credit. Prerequisites: Completion of four courses in Chinese or equivalent; minimum grade point average of 3.0 in Chinese; departmental approval required.

Japanese Course (JPNS)

Open to Upperclass and Graduate Students
JPNS 550 Independent Study in Japanese
1-3 hrs.
Directed individual study of a specific topic in Japanese language, literature, or culture. May be repeated for credit. Prerequisites: Completion of four courses in Japanese or equivalent; minimum grade point average of 3.0 in Japanese; departmental approval required.

Master of Science in Biological Sciences

Advisor:
John Spitsbergen,
Room 3052, Haenicke Hall

The Master of Science in Biological Sciences enhances students’ ability to plan, conduct, analyze, and report original research. Course work increases students’ scientific preparation and supports their research. Through the advice of the students’ major advisor, efforts are made to choose courses to meet individual needs and interests. The degree may serve as preparation for continued graduate or professional study or for positions in the private or public sector. Thesis and non-thesis options are offered.

Admission Requirements

To be admitted to the master’s program, both departmental and University requirements must be met. Application materials must be obtained from both the Department of Biological Sciences at (616) 387-5625 and the Office of Admissions and Orientation at (616) 387-2000. To be considered, an application must contain:
1. Completed University and Departmental application forms;
2. Official transcripts from all colleges and universities previously attended, indicating that the applicant has a. earned a Bachelor’s degree from an accredited institution with an overall grade point average of at least 3.0, and b. taken appropriate courses in biology, chemistry, physics, and mathematics;
3. Official scores for the verbal, quantitative, and analytical sections of the Graduate Record Exam (these must be submitted to the Office of Admissions and Orientation); 4. Three letters of recommendation; and
5. A cover letter highlighting the student’s most important accomplishments to date and indicating how graduate work at Western Michigan University will further the applicant’s career goals.

Although not required for admission, applicants are encouraged to contact individual faculty to discuss their research interests. Students with academic deficiencies may be provisionally admitted and required to
address their deficiencies during the first year in the graduate program.

Program Requirements
The Master of Science in Biological Sciences (Thesis Option) requires 33 hours of course work, including preparing and defending a thesis in an oral examination and presenting research results at a departmental seminar. The Master of Science in Biological Sciences (Non-Thesis Option) requires 33 hours of course work, including presentation of research results at a departmental seminar, defense of research results in an oral examination, and preparation of a manuscript suitable for publication in a refereed journal (in consultation with the student’s thesis committee).

Required Courses (11 hrs.)
There are 6 graduate core courses: BIOS 611, BIOS 612, BIOS 613, BIOS 614, BIOS 615 and BIOS 616. Master’s students are required to take 3 of these 6, 1 from each of three pairs: BIOS 611 Eukaryotic Cell Biology or BIOS 612 Prokaryotic Cell Biology; BIOS 613 Animal Physiology or BIOS 614 Plant Physiology; and BIOS 615 Ecology or BIOS 616 Evolution. In addition, each student is required to take 2 hours of BIOS 605 Biological Sciences Colloquium.

Elective Courses (16 hrs.)
Elective courses are selected with the advice and approval of the student’s advisory committee. Electives are selected from Biological Sciences or approved cognate courses.

Research Requirement (6 hrs.)
Thesis Option:
BIOS 703 Master’s Thesis (6 hrs.)
Non-Thesis Option:
BIOS 710 Independent Research (6 hrs.)

Master of Science in Molecular Biotechnology
Advisors:
John Spitsbergen, Graduate Advisor
Room 3052, Haenicke Hall
Brian Tripp, Program Coordinator
Room 3435 Wood Hall

The Master of Science in Molecular Biotechnology is designed to provide students with training and experience in areas of biology and health sciences that require cross-disciplinary skills due to the large volumes of information collected during research. The High Throughput Screening Option provides training and experience in concepts and methods from molecular and cellular biology, chemistry, instrumentation, and statistics to rapidly screen vast chemical libraries for biological activities. This process is an important component of pharmaceutical and biotechnology research and development.

Admission Requirements
1. Official transcripts from previous colleges and universities indicating applicant has earned a Bachelor’s degree or higher from an accredited institution with an overall grade point average of at least 3.0 (or vita outlining related industry experience).
2. Applicants will need to show that they have a sufficient background in biology, chemistry, and mathematics to handle graduate level courses in these areas. This can be accomplished either through proof of background in undergraduate courses or extensive work experience. Students from areas outside biology or chemistry may apply, but are likely to be asked to enroll in undergraduate prerequisite course work.
3. Three letters of recommendation and cover letter expressing applicant’s career goals.

Program Requirements
The Master of Science in Molecular Biotechnology (High Throughput Screening Option) requires 33 hours of course work, including a spring/summer internship after classroom and lab courses have been completed. The internship requires written and oral presentations on work completed during the internship.

Required Courses (11 hrs.)
The core courses of this curriculum include 4 biochemistry courses, 3 biology courses, 2 courses in data management and analysis, and a spring/summer internship. The specific courses are CHEM 550, CHEM 552, CHEM 600, CHEM 650, BIOS 561, BIOS 611, BIOS 633, STAT 567, and STAT 622.

Elective Courses (16 hrs.)
This curriculum has no electives. Substitutions of required courses may be possible based on student’s past experience and approval of advisor.

Research Requirement (6 hrs.)
Mentors for the BIOS 712, Professional Internship (4 hrs.) will be assigned by the Program Coordinator after consultation with the student and an appropriate industrial representative. The internship may take place with one or several industrial partners throughout the U.S.

Doctor of Philosophy in Biological Sciences
Advisor:
John Spitsbergen,
Room 3052, Haenicke Hall

The Doctor of Philosophy in Biological Sciences at Western Michigan University offers a unique combination of traditional research experience, breadth of course work, and training in effective communication of scientific concepts. This program is specifically designed for students who wish to pursue careers in the biological sciences that require excellence in both teaching and research. In addition to the research tools requirement, the pedagogy requirements also provide excellent training for careers in government and industry. Additional information may be obtained from the Departmental Graduate Secretary or Graduate Advisor.

Admission Requirements
Application materials may be obtained from the Office of Admissions and Orientation (Graduate Admissions) and from the graduate advisor, Department of Biological Sciences. International students must obtain admission materials from the Office of International Student Services and from the graduate advisor, Department of Biological Sciences.

Candidacy
No later than the end of the third calendar year after enrollment in the Ph.D. program, doctoral students must seek candidacy. By this time the student should have completed the research tools requirement. To be admitted to candidacy, the student must submit and defend, in an oral examination administered by the proposed Dissertation Committee, a dissertation research proposal. This proposal will be in the format of an NIH or NSF grant application. Student will be given a grade of pass or fail by the Dissertation Committee. In the event of failure, the proposal may be revised and re-defended once, and this must be done within one calendar year of failure. Candidacy will be approved or denied by the Graduate Advisor based upon submission of an acceptable dissertation proposal, successful completion of the defense of that proposal, positive recommendations from a majority of the student’s Dissertation Committee, satisfactory performance in coursework, and successful performance in all other professional activities, including teaching assignments.

Program Requirements
1. A minimum of 61 graduate semester hours. These hours shall consist of the following:
   a. At least 12 hours of distribution courses from the following list as approved by the Dissertation Committee:
      i. BIOS 611, Eukaryotic Cell Biology (3 hrs.)
      ii. BIOS 612, Prokaryotic Cell Biology (3 hrs.)
      iii. BIOS 613, Animal Physiology (3 hrs.)
      iv. BIOS 614, Plant Physiology (3 hrs.)
      v. BIOS 615, Ecology (3 hrs.)
      vi. BIOS 616, Evolution (3 hrs.)
   b. At least 9 hours of electives chosen from the graduate offerings of Biological Sciences or other
departments appropriate to the student's career and research interests as agreed upon by the student and the Dissertation Committee.

c. Three hours of BIOS 605 Colloquium

d. Three hours of BIOS 699 taken during three laboratory rotations.

e. Four hours of BIOS 610 (Teaching of Biological Sciences), including a formal course and three Teaching Experiences.

3. Doctoral Research composed of at least 15 hours of BIOS 735 (Graduate Research) and at least 15 hours of BIOS 730 (Doctoral Dissertation).

2. Satisfaction of the research tools requirement.

3. Successful completion and defense of the research proposal.

4. Successful completion of Comprehensive Examination.

5. Successful oral defense of dissertation and approval of the dissertation by the Dissertation Committee.

6. Any other requirements as specified by The Graduate College.

General Plan and Sequence of the Program

1. Students will satisfy any curricular deficiencies beginning with the first semester in residence.

2. Core courses should be taken, after consultation with the Dissertation Committee, early in the program to assist in preparation of the research proposal.

3. Course work pertaining to teaching and Teaching Experiences should be initiated no later than the second year of graduate study.

Financial Assistance

The Department of Biological Sciences offers opportunities for financial support of doctoral students through Graduate Assistantships and Graduate Advisor and The Graduate College. Opportunities for financial support of doctoral students include Graduate Assistantships through Graduate Advisor and The Graduate College.

Biology Sciences Courses (BIOS)

Open to Upperclass and Graduate Students

All 500-level courses have the following Prerequisites: Junior/senior standing and at least 12 hs. Biology, including the specific prerequisite for each course.

BIOS 507 The Biology of Addictive Drugs 3 hrs.

The study of modes of action and effects of psychoactive drugs, such as alcohol, marijuana, cocaine, amphetamines, heroin, methadone, LSD, PCP, and nicotine.

Prerequisites: An introductory physiology course, or consent of instructor.

BIOS 512 Environment and Health Problems 3 hrs.

The impact of the environment on the health of the individual and of populations, the resulting physiological and anatomical difficulties, and the various means employed in meeting these challenges.

BIOS 518 Endocrinology 3 hrs.

A study of the hormonal integration of organ-system function, including the chemical nature of these secretions, the cellular and biochemical mechanisms of hormone actions, and the endocrine feedback control mechanisms. The regulatory nature of hormones in developmental processes, in adaptation, and in disease processes will be stressed. Prerequisite: BIOS 350; biochemistry is recommended.

BIOS 524 Microbial Genetics 3 hrs. Fall (alternating years)

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. Prerequisites: BIOS 312 Microbiology and BIOS 250 Genetics, or consent of instructor.

BIOS 525 Molecular Biology 3 hrs.

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 includes computer usage with the web. Prerequisites: BIOS 232 or BIOS 312 (or equivalent) and junior, senior, or graduate student standing. Consent of instructor.

BIOS 526 Molecular Biology Laboratory 3 hrs.

This course is designed to expose students to techniques that are currently being used to manipulate and analyze nucleic acids. Students 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: BIOS 250; BIOS 312 Microbiology, CHEM 375 Organic Chemistry I, CHEM 376 Organic Chemistry Lab I, and junior, senior, or graduate student standing.

BIOS 531 Biology of Aging 3 hrs.

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 tissues over time. Clinical applications are introduced where they provide additional insight into the aging process. Prerequisite: An introductory physiology course.

BIOS 534 Virology 3 hrs.

A study of the classification, structure and chemistry of viruses. Emphasis will be placed on the cell-virus interaction leading to the disease process or cellular alterations in mammalian systems. Prerequisite: BIOS 312; biochemistry is recommended.

BIOS 536 Immunology 3 hrs.

A study of the biophysical and biochemical mechanisms of the immune response and the chemical nature of antibodies, antigens, and their interaction. Emphasis will be placed on the role of humoral and hypersensitivity reactions. Prerequisite: BIOS 312; Biochemistry is recommended.

BIOS 542 Entomology 4 hrs.

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. Prerequisite: BIOS 151.

BIOS 547 Ornithology 3 hrs.

An introductory course that explores both scientific and popular aspects of bird study. Life history, behavior, ecology, and identification are emphasized.

BIOS 549 Field Ecology 3 hrs.

Field studies of forests, native grassland, wetlands, and other local ecosystems. Plant and animal composition, geological history, human effects, succession, and other aspects of the structure and working of ecosystems are integrated. Field ecological techniques are emphasized. Prerequisite: BIOS 301 or equivalent.

BIOS 553 Limnology 3 hrs.

Biological, chemical, and physical aspects of lakes, ponds, and streams. Ecological relationships of invertebrate animals and lower plants are emphasized. Prerequisite: BIOS 151.

BIOS 557 Water Pollution Biology 3 hrs.

A comparison of organisms which live in clean waters as contrasted with those in polluted waters. Streams, lakes and ponds will be studied. Water conditions will be analyzed, and the use of biological indicators will be studied. The course will include field trips, laboratory work and lecture presentations. Prerequisite: BIOS 202.

BIOS 559 Neurobiology 4 hrs. Fall

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 understanding 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: BIOS 350 and college-level courses in Physics and Biochemistry, or consent of instructor.

BIOS 560 Toxicology 3 hrs. Fall

Through a lecture/discussion format, the means by which toxins exert their effects on mammalian, aquatic and ecological systems will be explored. Topics will include bioaccumulation, distribution and excretion of chemicals in the body, the role of metabolism in enhancing or reducing toxicity, mechanisms of toxicity and the effects of toxicants on the major organ systems. Chemodynamic processes which control exposure of organisms will be presented in the context of risk assessment, and the problems inherent in predicting and quantifying risks will be discussed. This course is cross-listed with CHEM 558. Prerequisites: BIOS 350, and chemistry through biochemistry, or permission of instructor.

BIOS 561 Pharmacology 3 hrs. Winter (alternate years)

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: BIOS 350 and a course in organic chemistry.
BIOS 570 General Pathology
4 hrs.
An introduction to pathology which describes the structural and biochemical changes occurring in cells and tissues following injury or disease. Prerequisites: BIOS core curriculum and organic chemistry.

BIOS 574 Embryology
4 hrs.
Embryology is the study of the development of an organism from a single fertilized cell to a complex multicellular fetus. The course will present this material from both a classical descriptive and 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 in vitro and in vivo. Prerequisite: BIOS 250.

BIOS 597 Topics in Biological Sciences
3-4 hrs.
Lectures or seminars in various areas of the biological sciences will be offered. The student's record will indicate the topic studied. May be repeated for credit.

Open to Graduate Students Only
BIOS 601 Special Investigations (various areas)
2-6 hrs.
An independent study in one of the various specialties represented by members of the department. The field in which work is offered will be indicated on the student record. May be repeated for credit up to a maximum of six hours. Prerequisite: Consent of instructor.

BIOS 602 Seminar: Variable Topics
2-6 hrs.
Several seminars in various areas of Biological Sciences will be offered. The student's record will indicate the seminars in which he/she has participated. May be repeated for credit. Prerequisite: Consent of instructor.

BIOS 605 Biological Sciences Colloquium
1 hr.
A series of seminars describing current research in various fields in the Biological Sciences. Reports on these research seminars are required. May be repeated for credit up to a maximum of 2 hours. Graded on a "Credit/No Credit" basis. Prerequisite: Admission to a department degree program.

BIOS 610 Teaching of Biological Sciences
1-4 hrs.
This course will provide instructional techniques for the teaching of Biological Sciences at the college or secondary level. May be repeated for credit. Prerequisite: Consent of instructor.

BIOS 611 Eukaryotic Cell Biology
3 hrs.
A study of the structure and function of the organelles and biochemical components of eukaryotic cells. Through lectures and readings in current literature, students will examine the latest information on the working of eukaryotic cells. Prerequisite: A course in biochemistry.

BIOS 612 Prokaryotic Cell Biology
3 hrs.
Bacterial structure-function relationships are examined in a biochemical context. Current and classical concepts of cell biochemistry are organized around the bacterial cell as a model for understanding energetics, synthesis of cell structures, transport, metabolism, and regulatory mechanisms. Readings will be from the literature and substantial use will be made of review articles in biochemistry and microbiology for lecture topics. One paper will be required. Prerequisites: A course in biochemistry and a course in microbiology or consent of instructor.

BIOS 613 Animal Physiology
3 hrs.
Current concepts and molecular details of modern systems physiology will be examined through lecture, readings from the current literature, discussion, and student presentations. Emphasis will be placed on understanding the mechanisms used by the organ systems of animals to maintain homeostasis. Prerequisite: A course in physiology or consent of instructor.

BIOS 614 Plant Physiology
3 hrs.
An advanced topics course covering the current research emphases on the physiology, molecular biology, environmental biochemistry, and cell biology of plants. Prerequisite: Biochemistry.

BIOS 615 Ecology
3 hrs.
The structure and dynamics of plant and animal populations are considered with critical evaluations of current concepts. Emphases include the relative roles of competition and trophic interactions in population dynamics and how communities are structured. Applications of ecological concepts will consider aspects of conservation biology, pest control, agroecosystem function, and risks of genetic engineering. Prerequisite: A course in Ecology or consent of instructor.

BIOS 616 Evolution
3 hrs.
Evolution is approached as the all-encompassing theory of biology. Topics range from genetic and molecular issues to adaptation in life histories and behavior. At least one paper will be required. Course readings will be drawn primarily from journal articles. Prerequisites: A course in genetics and a course in ecology or consent of instructor.

BIOS 620 Mutagenesis/Carcinogenesis
3 hrs.
Through lectures, presentations by students, and reading of the current literature, the mechanism of action, impact on human health as well as practical aspects of detection of mutagens and carcinogens are examined. Prerequisites: A course in genetics and a course in biochemistry or consent of instructor.

BIOS 630 Biological Imaging
3 hrs.
A technique-oriented course stressing preparatory procedures and use of various biological imaging methods. These will include both transmission and scanning electron microscopy, fluorescence microscopy, laser-scanning confocal microscopy, and image analysis. Prerequisite: Consent of instructor.

BIOS 633 Topics in Biological Sciences
3 hrs.
Courses in which a selected area of biological sciences is studied in depth. Possible topics will reflect the areas of expertise of the biological sciences faculty. The specific topic dealt with in a given semester will be indicated in the Schedule of Course Offerings and on the student's record. Students may take one or all topics offered for credit. Prerequisite: Consent of instructor.

BIOS 699 Laboratory Rotations
1-4 hrs.
This course provides credit for Laboratory Rotation requirement of the Ph.D. program. Students will carry out directed studies in a research laboratory different from the laboratory where their thesis research is conducted.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

BIOS 700 Master's Thesis
6 hrs.

BIOS 710 Independent Research
2-6 hrs.

BIOS 712 Professional Field Experience
2-12 hrs.

BIOS 730 Doctoral Dissertation
15 hrs.

BIOS 735 Graduate Research
2-10 hrs.
CHEMISTRY

Dr. Jay Means, Chair
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Michael Barcelona
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Subra Muralidharan
Marc W. Pankovic
David S. Reinhold
Elke Schoffers
Donald R. Schreiber
Susan R. Stapleton
Brian Tripp

Master of Science in Chemistry
Advisors: David Reinhold, Room 3152, Wood Hall
Steven Bertman, Room 3440, Wood Hall

The Department of Chemistry is a research degree program designed to provide a broad background in the various fields of chemistry with concentration in one.

Admission Requirements

Entrance requirements, in addition to those of The Graduate College, include taking entrance examinations covering any three of the fields of Analytical, Inorganic, Organic, Physical, Chemistry, and Biochemistry. The entrance exams are scheduled during the week preceding each semester and the spring session. New students, unless entering with an acknowledged deficiency, are required to take three examinations before they start classes.

Students who fail an entrance examination are required to attend the corresponding undergraduate course, if available, or make specific arrangements with the appropriate division. Enrollment in a 600-level Chemistry course is not permitted unless the appropriate entrance requirement has been satisfied.

Program Requirements

The student is required to elect twenty hours in the field of Chemistry, including the Master’s Thesis. The Chemistry hours may be more than twenty depending on the student’s background. The remaining hours up to at least thirty hours may be in a related field or fields. The course sequence will include (if not previously elected):

1. CHEM 501, Chemical Literature
2. CHEM 506, Chemical Laboratory Safety
3. CHEM 520, Instrumental Methods in Chemistry
4. CHEM 515, Inorganic Chemistry or CHEM 550, Biochemistry I or CHEM 552, Biochemistry I with Laboratory
5. CHEM 601, Graduate Seminar (Attendance required every semester)
6. Three 600-level courses from three different divisions (Analytical, Biochemistry, Inorganic, Organic, and Physical)
7. CHEM 700, Master’s Thesis (6 hrs.)

The requirement for any of the above 500-level courses is waived if the student has taken a corresponding course as an undergraduate.

The student is required to pass a final oral defense of his or her thesis administered by the student’s graduate committee. The student is also required, as part of the graduate training in chemistry, to attend departmental seminars, colloquia, and symposia, and to participate in research within the department.

Doctor of Philosophy in Chemistry

The Department of Philosophy in Chemistry, with emphasis in environmental chemistry, is a research degree designed for persons intending to take a leadership role in teaching and/or research in applied areas of environmental chemistry. The program takes an innovative approach, using the skills and expertise provided by the traditional areas of chemical study as the foundation for addressing chemical processes occurring in the atmosphere, biosphere, hydrosphere, and lithosphere. The program is designed to offer flexibility so that a full-time student may complete the degree in four years and a nontraditional student may be accommodated around full-time employment. The educational goals of the program stress a well-rounded expertise in chemistry, as well as a literate acquaintance with another environmentally related discipline such as biological science, hydrogeology, or paper science. These educational goals provide a scientific breadth not often found in traditional chemistry degrees. Combining formal education with a research endeavor encompassing a chemical discipline will provide students with the high quality education necessary to contribute to the resolution of the expected and unexpected environmental issues of the future.

Admission Requirements

Applicants to the program are expected to meet the entrance requirements of The Graduate College and hold a bachelor’s degree in chemistry or an equivalent amount of experience or training. Application must be both to the Office of Admissions and Orientation—Graduate Admissions and to the department. Prospective students are required to take the Graduate Record Examination General Test and the Chemistry or Biochemistry Subject Test. Three letters of recommendation from academic or professional sources should accompany the application. Application material, including grade point average, transcripts, performance on GRE’s, and letters of recommendation will all be used in the determination of admission and financial support.

Program Requirements

1. After admission, the student will be required to take standardized placement examinations. Identified deficiencies, if any, will be remedied with appropriate course work determined by an academic advisor.
2. Within the first academic year, students will select a research advisor and a major area of study. Selection of the research advisor will be by mutual consent of the faculty member and student. Selection of the student’s major area of study will be determined in consultation with the research advisor. Major areas of study currently include analytical chemistry, biochemistry, inorganic chemistry, organic chemistry, and physical chemistry. Shortly after selecting a research advisor, a dissertation committee should be established. The committee should be comprised of the advisor serving as chair and at least two other faculty members from the department and one member from outside the department. No more than two of the departmental committee members should be from the student’s major area of study. Emeritus faculty may serve on the committee. Removal of a committee member will require mutual consent of the student and the dissertation committee or a majority vote of the department faculty.
3. The student will complete at least sixty (60) semester hours of credit for the degree, with no more than half the credits as course work. A minimum of nine (9) graduate level courses must be completed satisfactorily. Fifteen (15) hours of doctoral dissertation research is required. The remaining hours will be completed through a combination of co-op/internship experiences and/or special research problems and investigations in chemistry. The coop/internship option should be especially attractive to individuals who are considering an industrial career or who are already employed by industry and wish to set up a new scientific initiative. The student must maintain an overall grade point average of 3.0/4.0 to meet graduation requirements. The following describes the distribution of credit hours for the degree.
   a. Chemistry courses
      • Three (3) courses with environmental application (9 hrs.)
      • Four (4) chemistry courses that emphasize major field (12 hrs.)
   b. Cognate courses
      • Two (2) courses from outside the department (6 hrs.)
   c. Other
      • Seminar credit (1 hr.)
      • Chemical literature (2 hrs.)
   d. Special research problems or coop/internships (15 hrs.)
   e. Doctoral dissertation (15 hrs.)
4. Beginning in the first year and concurrent with course work, the student will be required to take cumulative examinations (CUMEs) that cover all of the major areas of study in chemistry. The purpose of the cumulative examination is to ensure that the student has, and can demonstrate and apply, knowledge of current, advanced chemical principles. The following describes the cumulative examination process.
   a. Eight (8) cumulative examinations (CUMEs) will be given in each academic year.
   b. On each examination, there will be offered a question from three of the five major areas of study: Analytical Chemistry, Biochemistry, Inorganic Chemistry, Organic Chemistry, and Physical Chemistry. The student will choose any two (2) questions to answer.
   c. The student must pass twelve (12) CUME questions by the time the student has completed the chemistry courses (generally within the first three years of the program). At least three (3) of the twelve (12) questions passed must be from an area outside the student’s concentration.
   d. The student must pass at least two (2) CUME questions by the end of the first year.
   e. The student must pass a least four (4) CUME questions before standing for the research proposal defense.
5. Within the first two years, the student will be required to present a critique seminar on a paper or papers from the current literature. Upon successful completion of the seminar, a passing grade will be received for seminar credit.
6. The student, after successful completion of no less than four (4) CUME questions, must be required to defend a written proposal for a unique research topic. The proposal topic must be unrelated to the student’s current dissertation research project and...
Chemistry Courses (CHEM)

Open to Upperclass and Graduate Students

Undergraduates with junior or senior status and 12 credit hours in chemistry may enroll in 500-level courses with prior approval of the department chair.

CHEM 505 Chemical Literature 2 hrs.
An introduction to the use of the various types of chemical literature such as journals, abstracts, monographs, government, and institutional publications, and patents. Both manual and computer search techniques are employed in the course of completing assigned problems involving literature searches in analytical, biological, inorganic, organic, and physical chemistry fields. Prerequisite: Twenty-three hours of chemistry.

CHEM 506 Chemical Laboratory Safety 1 hr.
A study of toxic, corrosive, flammable, explosive, electrical, mechanical, thermal, and radiant energy hazards frequently encountered in chemical laboratory work. Emphasis is placed on precautionary methods to avoid damaging accidents and on emergency procedures to apply when accidents occur. Prerequisite: Twenty-four hours of chemistry.

CHEM 509 Topics in Chemistry 3 hrs.
A topic is presented in greater depth or from a perspective different from that of a typical undergraduate course. Representative topics, such as pesticides and drugs, industrial chemical, chemical pollution, etc., according to student interests and requests. Prerequisite: Sixteen hours of chemistry or consent of instructor.

CHEM 515 Inorganic Chemistry 3 hrs.
This course, along with CHEM 570 and CHEM 575, 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. Students are strongly advised to have already completed CHEM 570 and to be registered simultaneously in CHEM 575. Prerequisite: CHEM 431 or permission of instructor.

CHEM 520 Instrumental Methods in Chemistry 3 hrs.
An introduction to the theory and application of modern chemical instrumentation is presented. General topics covered are elemental electronics, electrochemistry, spectroscopy, and other instrumental techniques. Prerequisite: Four hours of laboratory per week. Prerequisites or concurrent enrollment: CHEM 431, 436.

CHEM 525 Techniques in Water Analysis 2 hrs.
Analytical techniques and methodology commonly used to determine water quality are presented. Modern instrumental methods are stressed with particular emphasis on spectrophotometric and chromatographic techniques. Laboratory provides practical experience in application of principles discussed in lecture. Not available to Chemistry majors. Prerequisite: CHEM 575.

CHEM 528 Chemical Separations 3 hrs.
Principles and applications of chemical separations, including distillation, crystallization, extraction, electrophoresis and a variety of chromatographic techniques. Laboratory exercises illustrate typical applications of the methods. Prerequisite: CHEM 577.

CHEM 540 Biogeochemistry 3 hrs.
An advanced survey of major current research topics in biogeochemistry. Examines chemical interactions among waters, minerals, and life in the aquatic and geologic environment. Prerequisites: CHEM 112 and CHEM 113 or CHEM 525, or permission of the instructor.

CHEM 550 Biochemistry I 3 hrs.
The chemistry, properties, and molecular biology of proteins and nucleic acids. Includes discussions of amino acids, enzymes, and biochemical energetics. Prerequisites: CHEM 375, 378, and 430.

CHEM 552 Biochemistry I with Laboratory 4 hrs.
This course consists of 550 plus lab. Experiments involve more advanced techniques and instrumentation than in 356 laboratory. Emphasis will be on purification and properties of proteins and nucleic acids. Prerequisites: CHEM 377, 378, and 430.

CHEM 554 Biochemistry II 3 hrs.
Continuation of 550. Chemistry and metabolism of carbohydrates and lipids. Metabolism of amino acids and photosynthesis. Prerequisite: CHEM 550 or 552.

CHEM 556 Toxicology 3 hrs. Fall
Through a lecture/discussion format, the means by which toxicants exert their effects on mammalian, aquatic and ecological systems will be explored. Topics will include bioaccumulation, distribution and excretion of chemicals in the body, the role of metabolism in enhancing or reducing toxicity, mechanisms of toxicity, and the effects of toxicants on the major organ systems. Chemodynamic processes which control exposure of organisms will be presented in the context of risk assessment, and the problems inherent in predicting and quantifying risks will be discussed. This course is cross-listed with BIOS 580. Prerequisites: BIOS 350, and chemistry through biochemistry, or permission of instructor.

CHEM 570 Advanced Organic Chemistry and Spectroscopy 3 hrs. Fall
This course, along with CHEM 515 and CHEM 575, provides a capstone chemistry experience for undergraduates. The course expands on fundamentals of organic reactions and mechanisms through investigations 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: CHEM 377, 378, 431 and 24 hours of Chemistry.

CHEM 575 Advanced Chemical Synthesis 2 hrs.
This course provides a synthetic laboratory experience for undergraduates in conjunction with the CHEM 570 and CHEM 515 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. It is strongly recommended that CHEM 570 be taken before CHEM 575 to prepare students for spectral interpretation. Prerequisites: CHEM 377, 378, 431, 520 or permission of the instructor.
CHEM 580 History of Chemistry 3 hrs.
This course is taught from the point of view of the history of chemical theory in which the evidence for the theories is critically presented. Prerequisites: Sixteen hours of chemistry, including CHEM 370, 371 and CHEM 375, 376.

CHEM 590 Special Problems in Chemistry 2 hrs.
Research work on a problem in chemistry in association with a faculty member. May be repeated for credit. Graded on a Credit/No Credit basis. Prerequisites: Twenty-four hours of chemistry, which includes CHEM 436, and approval of the department chairman and a faculty director.

Open to Graduate Students Only

CHEM 601 Graduate Seminar 1 hr.
Graduate seminar in chemistry. Required of all candidates for the Master's degree in chemistry. Graded on a Credit/No Credit basis. (Two semesters; 1 hr. credit.)

CHEM 609 Advanced Topics in Chemistry 3 hrs.
Topics are presented at a more advanced level than that used for undergraduate courses. Representative topics would be Organometallic Chemistry, Theories of Liquids and Solutions, Organic Quantum Chemistry, etc...the offering of which would depend on student interest. Repeatable for credit. Prerequisite: Consent of instructor.

CHEM 610 Advanced Inorganic Chemistry 3 hrs.
Covers the principles in inorganic chemistry and the chemical elements. Such topics as extranuclear structure of the atoms, periodic classification of the elements, valency and the chemical bond, complex ions and coordination compounds, acids and bases, and nonaqueous solvents are included in the study of chemical principles. The remainder of the course concerns the chemical elements and their compounds. Prerequisite: CHEM 515.

CHEM 611 Advanced Inorganic Chemistry 3 hrs.
The chemistry of the transition elements. Consideration of the electronic and magnetic states of transition metals and their compounds; the symmetry, stability, and reaction mechanisms of coordination compounds; application of bonding theories; systematic chemistry of the transition and inner transition elements. Prerequisite: CHEM 515.

CHEM 622 Theory of Analytical Chemistry 3 hrs.
A course in the fundamental principles underlying chemical methods of analysis. Special attention is focused on equilibria, kinetics, and mechanisms of the important types of chemical reactions (acid-base, precipitation, complex formation, and redox) involved in chemical analysis; on methods of separation (precipitation, electrodeposition, and distillation techniques); and on the application of statistical methods of sampling, experiment design, and interpretation of results. Prerequisite: CHEM 431.

CHEM 624 Analytical Spectroscopy 3 hrs.
A comprehensive treatment of those instrumental techniques which are based upon either the emission or absorption of energy by matter. Emission spectroscopy, Raman spectroscopy, mass spectrometry, ultraviolet, visible, and infrared absorption spectroscopy, fluorimetry, and other selected topics. Prerequisite: CHEM 520.

CHEM 625 Electroanalytical Chemistry 3 hrs.
The theory and application of electrochemical measurements are discussed with particular emphasis on the theoretical aspects of polarography, potentiometry, amperometry, conductimetric titrations, and other selected topics. Prerequisite: CHEM 520.

CHEM 626 Chemical Instrumentation 3 hrs.
Principles and characteristics of construction and design for chemical and optical instruments. Prerequisite: CHEM 520.

CHEM 627 Spectrochemical Instrumentation and Techniques in Environmental Analysis 3 hrs.
This course will cover how optical and mass spectrometric methods can be applied to the analysis of environmental samples. The scope will include both theory and applications involving instrumental techniques used for elemental and molecular spectrometric analysis. The course will be arranged in such a manner as to point out that the choice of analytical technique will depend on the type of information being sought, the characteristics of the analyte, and sample form. Prerequisite: CHEM 520.

CHEM 630 Advanced Physical Chemistry 3 hrs.
A study of the fundamentals of quantum mechanics and some of its applications to chemistry. Included are the exactly solvable systems, some approximation methods used for chemical bonds and in more complicated molecules, and introduction to group theory representations and character tables. Some prepared computer programs will be used. Prerequisite: CHEM 431.

CHEM 631 Computational Chemistry 3 hrs.
Introduction to the basic theory and practice of computational chemistry. Topics include molecular orbital theory, molecular mechanics and dynamics simulation, analyses of reactivity, chemical structure, intermolecular interactions and spectroscopic properties, and applications to environmental problems. Prerequisite: CHEM 431.

CHEM 633 Chemical Thermodynamics 3 hrs.
Includes a review of the three laws of thermodynamics, state functions, activities, partial molar qualities, thermodynamics of solutions, equilibrium, and statistical thermodynamics. Prerequisite: CHEM 431.

CHEM 635 Chemical Kinetics 3 hrs.
Measurement of reaction rates, reaction rate theory, mechanisms of elementary processes, reactions in solution and on surfaces, complex reactions, application kinetics to mechanisms, and photochemistry. Prerequisite: CHEM 431.

CHEM 637 Aquatic Chemistry 3 hrs.
This course will examine the physical and chemical processes that control the chemical composition of natural water systems, including lakes, rivers, estuaries, oceans, and groundwater. We will also consider what effects pertinent factors like pH, Eh, temperature, and salinity have on these processes, and how these processes control the fate of a pollutant when it enters the aquatic water system. This course requires a knowledge of basic physical chemistry. Prerequisite: CHEM 430 or equivalent.

CHEM 638 Surfaces in the Environment 3 hrs.
This course will examine the physical and analytical chemistry of environmentally important interfaces. Topics will include: dry deposition, heterogeneous catalysis, and surface photochemistry in the atmosphere; surface phenomena in liquid-gas exchange; and soil binding of pollutants. Prerequisites: MATH 123, CHEM 430, 431 or equivalent. (MATH 230 recommended.)

CHEM 650 Proteins and Nucleic Acids 3 hrs.
Physical techniques for studying proteins and nucleic acids. Molecular evolution and binding interactions of proteins and nucleic acids. Prerequisite: CHEM 550 and 554.

CHEM 655 Environmental Carcinogenesis 3 hrs.
The effect of environmental agents such as ultraviolet light, ozone, components of cigarette smoke, and auto emissions on human health will be discussed with an emphasis on the biochemical interaction of these agents with DNA and how DNA repair enzymes act to protect organisms from the harmful effects of these agents. Prerequisite: Consent of instructor.

CHEM 663 Mechanisms in Organic Chemistry 3 hrs.
Fundamental principles of advanced organic chemistry that are not generally covered in introductory courses in organic chemistry. Emphasis on structure and bonding, stereochemistry, conformational analysis, reaction energetics, and mechanistic tools. Prerequisites: CHEM 377, 378.

CHEM 665 Organic Synthesis 3 hrs.
Survey of reactions that are of value in organic synthesis. Using current chemical literature, the course discusses scope and limitations of important synthetic methods. Prerequisites: CHEM 377, 378.

CHEM 667 Atmospheric Chemistry 3 hrs.
An examination of the fundamental physical and chemical processes in the lower and middle atmosphere. Relationships with biogeochemical cycles will be investigated, and issues of human influence will be discussed. Prerequisites: CHEM 377, 430.

CHEM 668 Environmental Organic Chemistry 3 hrs.
An examination of how the environmental fate of organic compounds is influenced both by the physical and chemical properties of those compounds and by the phases occurring in environmental compartments. Focuses on aquatic systems. Prerequisites: CHEM 377, 431.

CHEM 690 Special Investigations in Chemistry 1-6 hrs.
Research or independent study in one of the specialties of a member of the Chemistry Department. Graded on a credit/no credit basis. May be repeated for credit. This course cannot be used to partially satisfy the 600-level distributional degree program requirement of the Chemistry Department. Prerequisite: Consent of Instructor.

CHEM 695 Graduate Coop/Internship 1-4 hrs.
Research or practical training experience outside the department or university. This work is to be summarized in a written report. Consent of the instructor is required so that students can be assigned to an employer in order to best serve both student and employer. Course is repeatable up to 6 credit hours. Graded on a Credit/No Credit basis. Prerequisite: Consent of instructor.
COMMUNICATION
Dr. Steven Rhodes, Chair
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JoNina Abron
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Leigh Ford
Wendy Ford
Richard Gershon
James Gilchrist
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Heather Addison
Sandra Borden
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Leigh Ford
Wendy Ford
Richard Gershon
James Gilchrist
Kathleen Propp
Advisor and Director, Graduate Program:
Kathleen Propp
Room 318, Sprau Tower
The Master of Arts in Communication has three options:
Option A—Interpersonal Communication,
Option B—Organizational Communication, and
Option C—Telecommunications.

The option in Interpersonal Communication is designed for students interested in improving their knowledge and ability in interpersonal communication, with potential application in a variety of human service professions. The option in Organizational Communication is designed for those students whose professional interests involve using communication in an organizational setting. The option in Telecommunications is designed for those students who wish to learn about the theory underlying the uses of telecommunication technologies, the practical applications of the technologies by organizations, and the operations of this expanded area of business. Individual programs are designed in consultation with the graduate advisor based on a student’s needs, interests, and professional objectives.

Admission Requirements
Students must satisfy the general admission requirements of The Graduate College. Students applying to the Communication master’s degree program must have completed undergraduate work in communication, speech, or allied disciplines and have achieved at least a 3.0 grade point average in their last two years of course work. Additional course work may be required at the time of admission into the program, as deemed necessary by the director of graduate studies. Undergraduate transcripts, graduate transcripts where applicable, Graduate Record Examination scores (effective for admission in fall 2003 and after), three letters of recommendation (on WMU Graduate Reference Forms), and evidence of academic interest and ability are required of each applicant.

Program Requirements

OPTION A—INTERPERSONAL COMMUNICATION
The Interpersonal Communication option is intended for students who desire a terminal degree or who wish to qualify for further graduate work. Students will take courses with an emphasis in interpersonal communication. A thesis is recommended for those considering further graduate work in communication. Elective credit may include course work in interpersonal, organizational, or telecommunications, and up to 6 hours of graduate credit from another department.

Required Courses

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<td>COM 601</td>
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Elective Courses

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<th>Course</th>
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<td>COM 600</td>
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<td>COM 673</td>
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<td>COM 681</td>
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Total 33 hours

OPTION B—ORGANIZATIONAL COMMUNICATION
The Organizational Communication option is designed for those students desiring an understanding of the communication process in organizations, the nature of relationships among its members, and a knowledge of preparation, presentation, and effects of messages in organizations. The program will prepare individuals for positions incorporate business, human resources, public relations and information services, and for such positions as the directors or coordinators of communication in organizations.

This program also is designed for those currently in the field of organizational communication—that is, individuals holding (or expecting to hold) positions in organizations which require high levels of communication activity and ability. Training for such positions involves the development of effective communication in functioning organizations as well as dealing with non-routine matters such as (1) facilitating the flow of ideas and personnel contacts among those individuals and groups concerned with the development of new projects such as action research programs; (2) coordinating diverse members and groups for organizational projects; (3) coordinating efforts to resolve conflicts among individuals and groups within the organization; and (4) implementing and regulating the flow of messages to and from the organization in its relations with other organizations.

Course work combines communication theory and social scientific methods in the exploration of how information is exchanged.
and relationships are developed and maintained in effective organizations. A thesis is recommended for those considering further graduate work in communication. Elective credit may include course work in interpersonal, organizational, or telecommunications, and up to six hours of graduate credit from another department.

**Required Courses** .......................... 9 hours

COM 601 Introduction to Graduate Study in Communication .......................... 3

COM 602 Communication Research Methods .............................................. 3

COM 682 Organizational Communication .................................................. 3

**Elective Courses** ............................ 12 hours

COM 604 Seminar in Communication Ethics .................................................. 3

COM 673 Conflict Management ................................................................. 3

COM 680 Seminar in Organizational Communication* .................................. 3

COM 681 Group Communication Processes ................................................. 3 hrs.

COM 683 Power and Leadership in Organizational Communication .................. 3

COM 685 Special Topics in Organizational Communication* .......................... 3

**Thesis Option Requirements** .......................... 9 hours

An approved statistics course* ................................................................. 3

COM 700 Master’s Thesis ............................................................................. 6

**Graduate Electives** .............................. 3-12 hours

Select electives to complete the 33 hours, which may include up to 6 cognate hours from other departments, selected in consultation with the advisor.

**Total** .............................................. 33 hours

*See the Graduate Advisor for the list of approved courses. Each semester the student is enrolled, he/she must consult with the Graduate Advisor.

**OPTION — TELECOMMUNICATIONS**

Telecommunications is the process of communicating by means of electronic technologies, including radio, broadcast and cable television, interactive video, multimedia, telephony, electronic mail, computer based decision support systems, video and audio teleconferencing, and other technologies used to create, store, and transmit messages to one another. At the graduate level, telecommunications is the study of the use of these technologies by individuals and organizations.

Telecommunications encompasses a broad range of technologies that are becoming less distinct from one another as telephone companies and cable companies begin to compete for business with each other and as computers become multi-media workstations capable of video, voice, and data communication.

Telecommunications technologies now pervade all contexts of communication. Traditionally, these technologies were used for mass entertainment (television and radio) and for interpersonal point-to-point communication (telephone), but are now widely used by business, government, and education. All of these new uses of telecommunications technologies occur in the context of extensive government regulations, at both the national and international levels. People making use of these technologies, must, therefore, be knowledgeable of the regulatory context.

The telecommunications option is intended for those students who wish to learn about the theory underlying the uses of these technologies, the practical applications of the technologies by organizations, and the operations of this expanding area of business. A thesis is recommended for those considering further graduate work in communication. Elective credit may include course work in interpersonal or organizational and up to 6 hours of graduate credit from another department.

**Required Courses** ............................. 12 hours

COM 601 Introduction to Graduate Study in Communication ........................ 3

COM 602 Communication Research Methods .............................................. 3

COM 641 Theories of Telecommunications Uses and Effects .......................... 3

COM 643 Technologies and Organizational Planning .................................... 3

**Elective Courses** ............................... 9 hours

COM 507 Foundations of Communication Research ..................................... 3

COM 541 Telecommunications Law and Policy ............................................. 3

COM 551 Methods of Media Analysis ......................................................... 3

COM 554 Seminar in Communication Technology ....................................... 3

COM 564 Telecommunications Networks ...................................................... 3

COM 604 Seminar in Communication Ethics ................................................ 3

COM 640 Seminar in Telecommunications* .................................................. 3

COM 644 News Media and the Organization .................................................. 3

COM 647 Communication and Organizational Video ..................................... 3

COM 685 Special Topics in Organizational Communication* .......................... 3

**Thesis Option Requirements** .......................... 9 hours

An approved statistics course* ................................................................. 3

COM 700 Master’s Thesis ............................................................................. 6

**Graduate Electives** .............................. 3-12 hours

Select electives to complete the 33 hours, which may include up to 6 cognate hours from other departments, selected in consultation with the advisor.

**Total** .............................................. 33 hours

*See the Graduate Advisor for the list of approved courses. Each semester the student is enrolled, he/she must consult with the Graduate Advisor.

**Communication Courses (COM)**

**Open to Underclass and Graduate Students**

Undergraduates with junior or senior status and 15 hours of COM or related courses may enroll in 500-level courses with prior approval of advisor and/or instructor.

COM 505 Special Topics in Communication 1-3 hrs.

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 Course Offerings; some are added during the semester. Further information and a full listing of topics may be obtained from the departmental offices, 301 Sprau Tower. Six (6) hours of COM 505 approved by an advisor may be accumulated as credit toward a Master of Arts in Communication.

COM 506 Special Topics in Telecommunications ........................................... 3 hrs.

Study of special topics in telecommunications management, law and policy, and technology. **Prerequisites:** COM 240 and junior or senior standing; or graduate standing.

COM 541 Telecommunications Law and Policy ............................................. 3 hrs.

Provides an overview of the essential regulatory and policy issues governing the field of telecommunications. Special attention is given to such topics as: privacy, access and right to reply, and copyright. A case study approach is used for the purpose of understanding legal precedent. **Prerequisite:** COM 200 or graduate standing.

COM 551 Methods of Media Analysis ......................................................... 3 hrs.

An investigation of the approaches to media analysis (auterist, internationalist, sociological, structural, historical, ideological, psychological) by intensive "reading" and shot sequence examination and evaluation of widely divergent works. **Prerequisite:** COM 241 or 356 or graduate standing.

COM 554 Communication Technology .......................................................... 3 hrs.

This course provides an overview of telecommunications technology and services. The course is intended for the manager who requires a "practical" understanding of the design and performance characteristics of such telecommunication technology as satellite, optical fiber, PBX, and cellular telephones communications. In addition, this course will include an appropriate measure of economic, regulatory, and policy issues as they pertain to the development of new and enhanced telecommunications services. **Prerequisite:** COM 240 or graduate standing.

COM 560 Teaching Communication ............................................................. 3 hrs.

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:** COM 104, 170, 200, or consent of the department.

COM 554 Telecommunications Networks ...................................................... 3 hrs.

This course provides an overview of telecommunications networking technologies, standards, and protocols. Network configurations, switching technologies and signaling standards that sustain voice and data communications networks, corporate networks, and advanced intelligent networks are major sections of the course. **Prerequisite:** Junior or Senior standing and COM 240, or graduate standing.

**Open to Graduate Students Only**

COM 600 Listening ................................................................. 3 hrs.

Explores the role of listening in learning. Research in the field is examined and appraised. Listening tests are taken and discussed. Class members design listening projects or research projects. Focus increases sensitivity to the impact of speech.

COM 601 Introduction to Graduate Study in Communication .......................... 3 hrs.

Introduces Communication graduate students to the research literature, methodology, and theoretical domains of the communication discipline. Students will learn the standards of scholarly writing and be introduced to the criteria for choosing and evaluating research methodologies.
COM 602 Communication Research
3 hrs.
This course is an introduction to the methods of conducting communication research. Although an overview will be provided of all methodologies, the primary focus of the course will be on those applied methods associated with organizational communication. A lecture/discussion/experiential format will be used.

COM 603 Teaching Communication
3 hrs.
Introduces the pedagogy of the communication discipline, focusing on teaching methods appropriate to the undergraduate classroom. Particular attention will be paid to learning theory, teaching methods, course and syllabus preparation, computer use, audiovisual materials, text selection, diversity, encouraging participation, and academic honesty. This course will be required of new teaching assistants in the Department of Communication. Laboratory exercises for the course will be related to students' teaching assignments. Prerequisite: Teaching Assistantship in the Department of Communication or special approval of the Graduate Director and instructor.

COM 604 Seminar in Communication Ethics
3 hrs.
An in-depth examination of a central issue in communication ethics as it manifests itself in different contexts, including mass communication, organizational communication, and interpersonal communication. Issues may vary from term to term. Examples include deception, confidentiality, autonomy, and privacy.

COM 640 Seminar in Telecommunications
3 hrs.
Exploration of selected topics in telecommunications. Possible topics, each of which may be taken for credit, include: A. Nonverbal Communication; B. Personality and Communication; C. Family Communication; D. Health Communication; E. Female/Male Interaction; F. Intercultural Communication; and G. Intergroup Communication.

COM 671 Cognition and Emotion
3 hrs.
Examination of cognitive, affective, and psychomotor aspects of communication. Emphasis is on current research and theory pertaining to the information processing of the individual, particularly in the areas of self-discovery, self-control, the creative self, the thinking self, the relating self, and the mediating self.

COM 673 Conflict Management
3 hrs.
Based on the assumption that conflict pervades human life, the course explores the strategies of productive and nonproductive interpersonal and social conflict within the organizational setting. Theories of conflict are examined, and an explanation of the sources that stimulate conflict in humans is made.

COM 674 Theories of Interpersonal Communication
3 hrs.
A study of the dynamics of interpersonal communication from various theoretical perspectives. Emphasis is on the assumptions, conceptualizations, and models which explain how people interact at the content and relationship levels.

COM 680 Seminar in Organizational Communication
3 hrs.
Exploration of selected topics in organizational communication. Possible topics, each of which may be taken for credit, include: A. Communication Training and Development; B. Interviewing for Managers; C. Public Relations for Managers; D. Communication and Customer Service; and E. Organizational Communication Technology.

COM 681 Group Communication Processes
3 hrs.
A study of small group communication as it affects problem solving and decision making. Emphasis will be on developing an understanding of how participants in problem solving groups work together and how they can be made more effective through leader facilitation. The student will have practical experience in studying problem-solving and decision-making methods.

COM 682 Organizational Communication
3 hrs.
This course examines the theoretical foundations and research methodologies of organizational communication. Students will apply research and theory in analyzing a functioning organization. The focus is on a system analysis in diagnosing communication problems and developing plans for change.

COM 683 Power and Leadership in Organizational Communication
3 hrs.
This course is designed to study power and leadership within the organization from a communication perspective of sender and receiver of messages. Students will examine research in power, leadership traits, styles, contingency theories, and group leadership approaches and make application to individual career development.

COM 685 Special Topics in Organizational Communication
3 hrs.
Intensive group study of special topics in applied organizational communication. Possible topics, each of which may be taken for credit, include: A. Communication Training and Development; B. Interviewing for Managers; C. Public Relations for Managers; D. Communication and Customer Service; and E. Organizational Communication Technology.

COM 690 Special Topics in Communication Research
3 hrs.
Offers focused training in specialized methods of communication research. Possible topics, each of which may be taken for credit, include: A. Ethnographic Research in Communication; B. Critical Research in Communication; C. Survey Research in Communication; D. Organizational Communication Assessment; and E. Communication Training Evaluation Methods. Prerequisite: COM 602 or equivalent graduate level research methods course.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

COM 700 Master's Thesis
6 hrs.

COM 710 Independent Research
2-6 hrs.

COM 712 Professional Field Experience
2-6 hrs.

COM 647 Corporate and Organizational Video
3 hrs.
An extensive survey of the many ways television is used by organizations, including sales presentations, on-the-job training, customer information, and employee news. The role of the organizational television (OTV) department and the duties of an OTV producer are discussed. Students develop proposals for new OTV programs and criteria for judging the effectiveness of OTV videos. Teleconferencing, interactive video, and conventional delivery methods will be compared.

COM 670 Seminar in Interpersonal Communication
3 hrs.
Exploration of selected topics in communication theory. Possible topics, each of which may be taken for credit, include: A. Nonverbal Communication; B. Personality and Communication; C. Family Communication; D. Health Communication; E. Female/Male Interaction; F. Intercultural Communication; and G. Intergroup Communication.

COM 671 Cognition and Emotion
3 hrs.
Examination of cognitive, affective, and psychomotor aspects of communication. Emphasis is on current research and theory pertaining to the information processing of the individual, particularly in the areas of self-discovery, self-control, the creative self, the thinking self, the relating self, and the mediating self.

COM 673 Conflict Management
3 hrs.
Based on the assumption that conflict pervades human life, the course explores the strategies of productive and nonproductive interpersonal and social conflict within the organizational setting. Theories of conflict are examined, and an explanation of the sources that stimulate conflict in humans is made.

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A study of the dynamics of interpersonal communication from various theoretical perspectives. Emphasis is on the assumptions, conceptualizations, and models which explain how people interact at the content and relationship levels.

COM 680 Seminar in Organizational Communication
3 hrs.
Exploration of selected topics in organizational communication. Possible topics, each of which may be taken for credit, include: A. Communication Training and Development; B. Interviewing for Managers; C. Public Relations for Managers; D. Communication and Customer Service; and E. Organizational Communication Technology.

COM 681 Group Communication Processes
3 hrs.
A study of small group communication as it affects problem solving and decision making procedures. Emphasizes will be on developing an understanding of how participants in problem solving groups work together and how they can be made more effective through leader facilitation. The student will have practical experience in studying problem-solving and decision-making methods.
COMPARATIVE RELIGION

Dr. Brian C. Wilson, Chair
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Telephone: 387-4391
FAX: 387-4914

Stephen G. Covell
David Ede
Nancy Falk
Julia R. Harmon
Edward Thomas
Timothy Light
Susanne Mrozik
Rudolf Siebert
Brian C. Wilson

Master of Arts in Comparative Religion

Advisors:
Brian C. Wilson
Room 214, Moore Hall

The Master of Arts in Comparative Religion is designed to provide students with a strong foundation of knowledge of at least two religious traditions, the principal classical works in the field of Comparative Religion, and the central issues of theory and method that underlie the discipline of the study of religion.

Admission Requirements
1. The completion of a baccalaureate degree from an accredited institution.
2. The submission of a letter of intent stating specific areas of interest and academic and professional goals.
3. Two letters of recommendation from persons able to evaluate the applicant's potential for graduate study.
4. Submission of Graduate Record Examination scores.

Program Requirements
The Department of Comparative Religion offers course work leading to a Master of Arts in Comparative Religion, with two options:

OPTION I
Students pursuing this option will:
1. Complete a total of at least 27 hours of course work, including 12 hours of required courses (REL 600, 610, 615, and 620) and 15 hours of electives chosen from approved courses.
2. Prepare a master's thesis (6 hours) under the direction of a thesis advisor.
3. Demonstrate reading proficiency in one foreign language relevant to the research area.
4. Defend the master's thesis in oral examination.

OPTION II
This option does not require the preparation of a thesis. Students pursuing this option will:
1. Complete a total of at least 33 hours of course work, including 12 hours of required core courses (REL 600, 610, 615, and 620) and 21 hours of approved electives.
2. Complete satisfactorily a comprehensive examination in the area or areas of concentration.
3. Demonstrate reading proficiency in one foreign language relevant to their research area.

Comparative Religion Courses (REL)

Open to Upperclass and Graduate Students
Undergraduates with junior or senior status and two previous courses in Religion may enroll in 500-level courses.

REL 500 Historical Studies in Religion
2-4 hrs.
The topic to be announced in the Schedule of Course Offerings. 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.

REL 510 Morphological and Phenomenological Studies in Religion
2-4 hrs.
The topic to be announced in the Schedule of Course Offerings. 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: Millennium, Utopia, and Revolution; Femininity as a Religious Form; Great Islamic Thinkers; the Hindu Yogas, the Occult Tradition.

REL 511 Women in Religion
3 hrs.
Drawing together materials from many religious traditions, this course explores religion's effects on women and women's effect on religion. It especially attends to women's roles in traditions studied—both roles allotted to women and roles women shape for themselves. It also traces repeating patterns in women's religious experience and evaluates common explanations for such patterns.

REL 520 Methodological Studies in Religion
2-4 hrs.
The topic to be announced in the Schedule of Course Offerings. 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: Specific Issues in the Study of Religion; the Critical Theory; Myth and Symbol in Religion and Literature.

REL 521 The Teaching of Religion in the Public School
3 hrs.
This course focuses on methods and issues involved in the teaching of religion in the public school. Particular attention given to the problems of its constitutionality, the distinction between the academic study of religion and religious instruction, and the question of meaning. Various approaches to the teaching of religion are critically evaluated. Teaching methods appropriate to the level of instruction, availability, organization, selection, and use of materials will be discussed. Required of all students following a Secondary Education Curriculum which includes the academic study of religions as a minor.

REL 530 Constructive Studies in Religion
2-4 hrs.
The topic to be announced in the Schedule of Course Offerings. 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: Religious Images of Man; Christian Humanism; the Structure of Religion; the Future of Religion; Religion, Language, and Structuralism.

REL 598 Readings in Religion
1-4 hrs.
Research on some selected period or topic under supervision of a member of the Religion faculty. Approval of instructor involved and Chairperson of the Department must be secured in advance of registration.

Open to Graduate Students Only
REL 600 Classics in Comparative Religion
3 hrs.
A systematic study of the most important scholarly works in Comparative Religion. Special attention will be paid to the historical context in which these classics were produced, their role in intellectual history, and their contributions to the humanities and the social sciences.

REL 601 Classics II
3 hrs.
A continuation of REL 600 with an emphasis upon more recent works in the humanities and the sciences that have precipitated new forms of inquiry about religious thought and practice. Special attention will be paid to the arguments about interpretive methods typical of the humanities versus explanatory theorizing of the sciences and their relevance for understanding religion in comparative perspective.

REL 610 Theory and Method I
3 hrs.
An examination of the major theoretical options for understanding and explaining religion in comparative perspective and the major methods employed by theoreticians in their development of such theoretical options. Particular attention will be paid to intellectualist, symbolist, and structuralist ideological, emotivist, and cognitive method and theory.

REL 611 Theory and Method II
3 hrs.
A continuation of REL 610 with an emphasis upon case studies for specific historical and cultural contexts. The course will focus specifically on the contributions that the cognitive sciences have made and continue to make to causal explanations of religion. Particular attention will be paid to the development of literature having to do with the conditions for the acquisition and the transmission of cultural knowledge.

REL 615 Survey of Religions of the World
3 hrs.
A survey of ten major religious traditions; each tradition will be studied through its historical development, its unified system (symbols, beliefs, and rituals), and its intellectual and practical practices such as annual celebrations, rites of passage). While learning the content of individual traditions and exploring the comparative questions between/among traditions, students will focus on the issues of teaching about religion generally and the problematic of presenting individual traditions. This course will balance content of religious traditions and pedagogical techniques as a way of preparing students to teach basic courses in religion.

REL 616 Teaching Comparative Religion
3 hrs.
A course introducing the content and pedagogy of comparative religion, focusing on ten major religious traditions and the teaching methods appropriate for the undergraduate classroom. Particular attention will be paid to learning theory, teaching methods, course preparation, syllabus design, computer use (especially the PASS program), audiovisual materials, and text selection. Students will be introduced to the classroom situation under the mentorship of a faculty member by leading discussions, delivering lectures, and preparing and grading examinations.
ECONOMICS

Dr. Bassam E. Harik, Chair
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Susan N. Houseman
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William S. Kern
Jean Kimmel
Donald J. Meyer
Debasri Mukherjee
Jon R. Neill
Christopher J. O'Leary
Michael J. Ryan
Samuel Pavel
Susan Pozo
Werner Wichel
Tesfaye Teklu
Edward VanWesep
Mark V. Wheeler
Huizhong Zhou

Master of Arts in Applied Economics

Advisor: William Kern, Room 5301, Friedmann Hall

The Master of Arts in Applied Economics is designed to provide students with a strong foundation in economic analysis combined with the ability to apply theory to contemporary problems. Graduates of the program are employed in industry, government, and teaching. Some graduates continue their formal training in economics, pursuing the Ph.D. degree at WMU or at another university.

Admission Requirements

1. Satisfactory completion of a minimum of twelve undergraduate hours in economics or in equivalents approved by the graduate advisor.
2. Satisfactory completion of intermediate level courses in microeconomic and macroeconomic theory. Students not meeting this requirement will be admitted with reservation and be required to complete satisfactorily ECON 403 and 406.
3. Satisfactory completion of at least one course in calculus.

The M.A. in Applied Economics is designed for those who expect to pursue a career in business or government and prefer a course of study leading to a terminal degree that emphasizes the applications of economics to the problems of these areas. The program may include a professional internship with a local firm or non-profit institution. The degree is awarded on the basis of the satisfactory completion of thirty hours in a planned program prepared in consultation with the graduate advisor.

Program Requirements

1. The satisfactory completion of either twenty-four hours of courses plus a master's thesis or thirty hours, if additional courses are submitted lieu of the thesis, in a planned program prepared in consultation with the graduate advisor.
2. At least an overall "B" average in the Economics courses that the student takes in an advisor-approved program of study.
Program Requirements
A minimum of eighty-one Ph.D.-level credit hours is required in this program. This includes eighteen hours of workshops, twelve hours of internship, and twelve hours of doctoral dissertation.

Required Core Courses:
- ECON 604 Mathematical Economics
- ECON 619 Introduction to Econometrics
- ECON 622 Economic Statistics
- ECON 655 Microeconomic Theory I
- ECON 666 Microeconomic Theory II
- ECON 675 Macroeconomic Theory I
- ECON 676 Macroeconomic Theory II
- ECON 670 Advanced Econometrics I
- ECON 671 Advanced Econometrics II

ECON 503 Economic Computing
3 hrs.
This course provides students with basic skills needed for gaining access to economics databases and for using data management programs on personal and mainframe computers. It provides instruction and lab experience in transferring files and performing operations widely employed by economists. 
Prerequisites: ECON 403 and 406 or permission of instructor.

ECON 504 Mathematics for Economists
3 hrs.
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: ECON 201 and 202, MATH 122 or consent of instructor.

Open to Graduate Students Only
ECON 600 Applied Economics for Management
3 hrs.
The course examines the relationships between the theory of the firm and recent developments in the area of operations research. Among the concepts and tools discussed are game theory, linear programming, capital budgeting, inventory theory, output-input analysis, price policy, and cost analysis. This course may not be taken for credit if a student has received credit for ECON 400.

ECON 601 Basic Economic Analysis
3 hrs.
This course is designed to provide students with an understanding of fundamental economic concepts. Students become acquainted with the basic tools that economists use to analyze issues and apply the science of economics. After completing the course, students will be better able to analyze problems from an economic perspective. Students are introduced to basic concepts in the fields of microeconomics and macroeconomics. Knowledge of these concepts is prerequisite for further study in business, public and development administration.

ECON 602 Applied Economics
3 hrs.
Emphasis will be placed on decision-making under conditions of uncertainty. Topics will include advanced material in linear programming, game theory, capital budgeting, and forecasting. 
Prerequisite: ECON 600.

ECON 603 Advanced Price Theory
3 hrs.
This course is designed to introduce students to the concepts of multivariate calculus and mathematical analysis commonly used in the mathematical analysis of economic problems. Its primary objective is to teach students the rudiments of mathematical programming as they apply to economic theory. Thus, students will be introduced to selected topics from consumer theory and the theory of the firm. 
Prerequisites: MATH 122, MATH 125 or equivalents.

ECONOMICS 55
ECON 607 Uncertainty and Information 3 hrs.
This course covers selected topics in the study of uncertainty and information. These topics include decision theory, game theory, and information transmission. The course emphasizes the use of economic models to analyze problems involving uncertainty and information. Prerequisite: ECON 604 or ECON 603.

ECON 609 Seminar in Economics 3 hrs.
This seminar covers selected topics in current issues in economics. The topics vary from semester to semester, and course may be repeated. Prerequisite: Four hours of advanced economic theory or consent of instructor. Topics vary, and course may be repeated.

ECON 610 Human Resources I 3 hrs.
This course is an introduction to human resource economics. Its objective is to provide students with the theoretical background needed to understand labor market issues relating to human resource and labor problems. Thus, this course will present a general survey of the theory that forms the core of modern labor economics. Prerequisite: ECON 603 or equivalent.

ECON 611 Human Resources II 3 hrs.
This course is the second course in a two-semester sequence required for the Ph.D. field in human resource economics. The objective of this course is to apply theory and quantitative methods to various topics in human resource and labor economics, such as discrimination, employment and training policies, income distribution, turnover and migration, unions and collective bargaining, and household production and family decisions. Prerequisite: ECON 610.

ECON 616 Collective Bargaining in Public Employment 3 hrs.
This course examines collective bargaining developments in local, state, and federal governments, including bargaining units, negotiations, grievance procedures, strikes, and dispute settlements. Prerequisites: ECON 201 and 202 or consent of instructor. Not open to Economics graduate students.

ECON 617 Economics of Health and Human Services 3 hrs.
Economic problems of health and human services will be considered. Alternative policy solutions are viewed from the economist's point of view. Prerequisites: ECON 201 and 202 or consent of instructor. Not open to Economics graduate students.

ECON 619 Introduction to Econometrics 3 hrs.
This course is an introduction to econometric models and their use in economic analysis. The course covers multiple regression models, the implications and treatment of serial correlation and heteroskedasticity. Prerequisite: ECON 622 or equivalent.

ECON 620 Economic Forecasting 3 hrs.
This course covers the construction, evaluation, and presentation of econometric forecasts. Students are taught to model and forecast economic data which contain trend, seasonal, and cyclical components. Both univariate and multivariate forecasting techniques are examined. A forecasting project is required of each student. Prerequisite: ECON 619 or equivalent.

ECON 622 Economic Statistics 3 hrs.
This course focuses on the theory and practice of testing hypotheses, statistical estimation theory, the basic theory underlying the linear model, and introduction to econometric models, and the nature of difficulties which arise in applying statistical models to economic research problems. Prerequisites: MATH 122 or equivalent, ECON 402 or equivalent.

ECON 624 Public Finance I 3 hrs.
This course is devoted to a study of welfare and public sector economics. The objective is to acquaint students with the framework used by economists to analyze and evaluate public policy. Prerequisite: ECON 603 or equivalent.

ECON 625 Public Finance II 3 hrs.
Selected topics from public sector economics will be presented. Foremost among these is benefit-cost analysis. Thus, consumers' surplus, the social discount rate, and decision-making under uncertainty are other topics that will be covered regularly. The main purpose of this course is to provide students with the background necessary to conduct research in public finance. Prerequisites: ECON 624, ECON 665.

ECON 650 Industrial Organization/Busines Economics I 3 hrs.
This course will survey the major topics in industrial organization, antitrust economics, and the economics of regulation. Prerequisite: ECON 603 or equivalent.

ECON 651 Industrial Organization/Busines Economics II 3 hrs.
This course will cover selected topics in industrial organization, antitrust economics, and the economics of regulation. Prerequisites: ECON 650, ECON 665.

ECON 662 National Income Analysis 3 hrs.
A basic course in economic theory with emphasis on modern theories of output of the economy as a whole and on the uses of these theories as guides to policy. Prerequisites: ECON 403 and 406.

ECON 665 Microeconomic Theory I 3 hrs.
Core ideas in theoretical microeconomics will be introduced. The course will address a number of standard microeconomic topics, including the theories of consumption and production, cost and expenditure functions, market structures, and input demand. Prerequisites: MATH 122, MATH 123 or equivalent.

ECON 666 Microeconomic Theory II 3 hrs.
This course presents an advanced treatment of consumer and producer theory. It will be composed of selected topics in microeconomic theory, including general equilibrium and welfare analysis. Prerequisites: ECON 604, ECON 665.

ECON 670 Advanced Econometrics I 3 hrs.
The first course in the advanced econometrics sequence. This course presents sample distribution theory for the estimation and testing of econometric models. Applications will be made to SUR systems, error components, nonlinear regression, limited dependent variables, and sample selection bias. Prerequisite: ECON 619.

ECON 671 Advanced Econometrics II 3 hrs.
This is the second course in the advanced econometrics sequence. This course considers the specification and evaluation of dynamic econometric models. Both single and multiple time series models are examined. The issue of nonstationarity and the role of vector autoregressions and cointegration are emphasized. Prerequisite: ECON 670.

ECON 675 Macroeconomic Theory I 3 hrs.
This course develops a general equilibrium macroeconomic model reflecting the recent developments in the literature. Prerequisites: MATH 122, MATH 123 or equivalents.

ECON 676 Macroeconomic Theory II 3 hrs.
The second course in the Ph.D. level macro sequence. A rigorous analysis of macro theory and macro policy issues with an emphasis on empirical testing. Prerequisites: ECON 604, ECON 675.

ECON 680 International Economics I 3 hrs.
In this course the interaction of the domestic economy with the international financial world will be studied. Topics include: Exchange rate determination, balance of payments, and the international monetary system. Prerequisites: ECON 622, ECON 662 or equivalents.

ECON 681 International Economics II 3 hrs.
This course examines the reasons for and implications of international trade. Topics include: Models of international trade, policies used to influence trade and the welfare effects of international trade policies. Prerequisite: ECON 603 or equivalent.

ECON 686 Monetary Economics 3 hrs.
In this course the interaction between macroeconomic activity and the quantity of money in the economy is studied. Both theoretical and empirical models are examined. Topics include empirical evidence on money and output, money and transactions, and interest rates and monetary policy. Prerequisites: ECON 619 and ECON 676 or equivalent.

ECON 688 Economic Development I 3 hrs.
An intensive examination of a number of selected key topics in development economics, centering on issues of crucial importance to developing nations. Examples of such issues are primary products, capital formation, technological change, inflation, debt servicing, population, etc. Prerequisites: ECON 201 and 202.

ECON 689 Economic Development II 3 hrs.
This course will concentrate on analysis of development theory and examine its relevance to the problems facing extant developing economies. Different approaches to economic development will be examined using advanced economic theory and methodology. Prerequisites: ECON 665, ECON 675, ECON 686.

ECON 699 Economics Workshop 3 hrs.
A workshop designed to deepen a student's understanding of theoretical and empirical economics by discussing the research being conducted by the Department's faculty, economists from other institutions, and Ph.D. candidate graduate students. Prerequisites: ECON 660, ECON 670, ECON 676. Topics will vary and course may be repeated.
Open to Graduate Students Only—Please refer to The Graduate College section for course description.

ECON 700 Master's Thesis 6 hrs.
ECON 710 Independent Research 2-6 hrs.
ECON 712 Professional Field Experience 2-12 hrs.
ECON 730 Doctoral Dissertation 12 hrs.

ENGLISH

Dr. Arnold Johnston, Chair
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Georgina Hill
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Paul Johnston
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Katherine Joslin
Jill Larson
Mary Anne Loewe
Christopher Nagle
William Olsen
Gwen Raaberg
Mark Richardson
John Saillant
Eve Salisbury
Jana Schulman
Herbert Scott
Gwen Tarbox
Larry tenHarmsel
Grace Tiffany
Karen Voake
Daneen Wardrop
Constance Weaver
Allen Webb
Witschi, Nicolas S.

Master of Arts In English
Advisor: Gwen Tarbox, Room 618, Sprau Tower

The Master of Arts in English provides advanced study of literature, literary history, literary theory, and other literary concerns. A student desiring to enter the program should present a thirty-hour undergraduate major with a grade-point average of at least 3.0 and a sample of critical writing about literature. Applicants must take the Graduate Record Examinations, both the General Test and the Subject Test in Literature, and forward their scores to the Department of English.

At least twenty hours of the undergraduate major must be in courses in literature; no more than fifteen of the thirty should be at the freshman-sophomore level. Applicants lacking an undergraduate major but who have at least 20 hours of work in English with a substantial number of courses in literature and who are otherwise judged eligible may be granted admission to the program on condition that they remedy deficiencies in preparation by taking some undergraduate courses as prerequisites. Applicants must take the Graduate Record Examinations, both the General Test and the Subject Test in Literature, and forward their scores to the Department of English.

Required courses in the program are (a) three writing courses: ENGL 631 Essay Writing, ENGL 632 Article Writing, and ENGL 633 Professional Writing; and (b) several courses in a field other than English (8-12 hours). The additional courses needed to complete a coherent thirty-eight-hour program are selected in consultation with the graduate director.

On admission, students should consult with the advisor at the earliest opportunity concerning their program of study. For more detailed information and for an application form, write to the department's graduate director or see the department's pages on the World Wide Web at the following URL: http://www.wmich.edu/english.

Master of Arts in English With An Emphasis On Professional Writing

The Master of Arts in English with an Emphasis on Professional Writing is a thirty-eight hours degree program designed to meet the increasing demand for people with liberal arts education and with a particular skill in writing non-fiction prose.

A student desiring to enter the program should present a thirty-hour undergraduate major with a grade-point average of at least 3.0 and samples both of critical writing about literature and of other expository writing. At least twenty hours of the major must be in courses in literature; no more than fifteen of the thirty should be at the freshman-sophomore level. Applicants lacking an undergraduate major but who have at least 20 hours of work in English with a substantial number of courses in literature and who are otherwise judged eligible may be granted admission to the program on condition that they remedy deficiencies in preparation by taking some undergraduate courses as prerequisites. Applicants must take the Graduate Record Examinations, both the General Test and the Subject Test in Literature, and forward their scores to the Department of English.

For more detailed information and for an application form, write to the graduate director or see the department's pages on the World Wide Web at the following URL: http://www.wmich.edu/english.

Master of Arts in English With An Emphasis On Teaching

The Master of Arts in English with an Emphasis on Teaching is designed to meet the needs of English teachers, most especially those teaching in secondary schools, but also those teaching English and the language arts in middle and elementary schools. (Note: The degree does not provide teacher certification.)

A student desiring to enter the program should present a thirty-hour undergraduate major with a grade-point average of at least 3.0 and a sample of critical writing about literature. At least twenty hours of the major must be in courses in literature; no more than fifteen of the thirty should be at the freshman-sophomore level. Applicants lacking an undergraduate major but who have at least 20 hours of work in English with a substantial number of courses in literature and who are otherwise judged eligible may be granted admission to the program on condition that they remedy perceived deficiencies in preparation by taking some undergraduate courses as prerequisites. Applicants must take the Graduate Record Examinations, both the General Test and the Subject Test in Literature.
in English, and forward their scores to the Department of English.

Required courses in the program are (a) two courses chosen from ENGL 615 Literary Criticism, ENGL 630 Introduction to Graduate Studies, and ENGL 640 The Nature of Poetry; (b) two courses in English pedagogy, including the pedagogy of writing; (c) one course in the study of multicultural literature; (d) one course in an English language; and (e) ENGL 691 Research and Scholarship in English Education. Of the additional graduate level courses needed to complete the thirty-three hours, at least nine hours must be in literature (exclusive of ENGL 582 and 583). On admission, students should consult with the advisor at the earliest opportunity concerning their program of study.

For more detailed information and for an application form, write to the department's graduate director or see the department's pages on the World Wide Web at the following URL: http://www.wmich.edu/english.

Master of Fine Arts In Creative Writing

The Master of Fine Arts in Creative Writing is a 48-hour degree program for students who wish to become professional writers of poetry, fiction, or drama. It is the minimal academic qualification appropriate for those who wish to teach the craft of writing at the college or university level. A student desiring to enter the program should present a thirty-hour undergraduate major with a grade-point average of at least 3.0 and samples both of writing in the genre in which he or she expects to specialize and of critical writing about literature. Applicants must take the Graduate Record Examinations, General Test, and forward their score to the Department of English. At least twenty hours of the major must be in courses in literature; no more than fifteen of the thirty should be in the freshman-sophomore level. Applicants lacking an undergraduate major but who have at least 20 hours of work in English with a substantial number of courses in literature and who are otherwise judged eligible may be granted admission to the program on condition that they remedy deficiencies in preparation by taking some undergraduate course work as prerequisites.

Required courses in the program are (a) 12-18 hours in writing workshops; (b) ENGL 640 The Nature of Poetry; (c) either ENGL 642 Studies in Poetry or ENGL 644 Studies in the Novel; (d) two courses in modern literature; (e) ENGL 699 MFA Project. Another course in English and cognate fields will bring the total to 48 hours.

On admission, students should consult with the advisor at the earliest opportunity concerning their program of study.

For more detailed information and for an application form, write to the department's graduate director or see the department's pages on the World Wide Web at the following URL: http://www.wmich.edu/english.

Doctor of Philosophy in English

The Doctor of Philosophy in English is designed to meet the needs of future scholars and writers, particularly those who intend to teach at undergraduate institutions. The program requires all candidates to have broad knowledge of English and American literature, acquaintance with non-traditional literature, practical and/or theoretical background in the teaching of English, and a specialization in one or more of the discipline's fields—literature, English language, creative writing, and pedagogy. Whatever their specialization, all candidates will receive essential experience in scholarship, teaching, and writing in the profession, and will develop the breadth required of teachers in relatively small English departments. Applicants must take the Graduate Record Examinations, both the General Test and the Subject Test in Literature in English, and forward their scores to the Department of English.

On admission, students should consult with the advisor at the earliest opportunity concerning their program of study.

For more detailed information and for an application form, write to the graduate director or see the department's pages on the World Wide Web at the following URL: http://www.wmich.edu/english.

Program Requirements

Candidates entering with an MA or an MFA are credited with 30 hours (or more if their transcripts warrant it). Those entering directly from a baccalaureate program will be expected to complete the courses designated as "prerequisites" as early as possible in their studies.

1. Prerequisites (equivalent courses from other institutions are accepted) — 12 hours
   a. For candidates in literature, language, or pedagogy: Literary Criticism; Introduction to Graduate Studies; The Nature of Poetry; and an approved English language course.
   b. For candidates in creative writing: Literary Criticism; an approved course in modern literary forms; a genre-specific course; an approved English language course.

2. Distribution requirement — 18 hours
   Six graduate level courses from the following list of areas, selected so that no two contiguous periods are skipped. Candidates in creative writing must choose Contemporary Literature as one area.
   • American literature before 1865
   • American literature 1865-1945
   • British literature to 1500
   • Renaissance British literature (through Milton)
   • Restoration and 18th-century British literature
   • Nineteenth-century British literature
   • Modern British literature
   • Contemporary literature

3. Non-traditional literature — 3 hours
   At least one course in literature in English by an ethnic minority group, by post-colonial writers, or by other groups not traditionally included in the canon.

4. Teaching component — 6 hours
   Six hours of credit elected from courses or practica in the teaching of composition, literature, English language, or creative writing.

5. Area of specialization — 12 hours
   At least 12 credit hours in an area (or for creative writing students, a genre) chosen in preparation for the dissertation. The areas include the periods listed in the Distribution Requirement as well as English Language, and the Theory and Practice of Teaching English in the college level.

6. Cognate or support area — 3-6 hours
   An optional area to complement the specialization. May include courses from other departments.

7. Candidacy Examination
   After satisfying the distribution requirement, students will take four three-hour comprehensive examinations over their chosen areas, including an exercise in practical criticism. These examinations should be completed within three years of admission. May be repeated once.

8. Foreign Language Requirement
   Students must demonstrate by examination or by completion of two 400-level courses basic reading competence in at least one foreign language.

9. Doctoral Readings and Oral Examination — 3-6 hours
   Near the completion of course work and before beginning the dissertation, students will take ENGL 711, Readings in Doctoral Specialization, a course of readings designed by the candidate in conjunction with a faculty supervisor. An oral examination over the chosen books will be held.

10. Dissertation — 15 hours
   The dissertation is to be a book-length manuscript of scholarship, criticism, research, or creative writing comprised of either a single piece of work or a coherent collection of shorter pieces that are methodologically, structurally, or thematically related.

Financial Assistance

A small number of doctoral fellowships are awarded each year, together with a number of doctoral teaching assistantships.

English Courses (ENGL)

Open to Upperclass and Graduate Students

Prerequisites to 500-level courses are 18 hours of English courses, including eight or more at the 300/400-level and second semester junior status; exemption only by permission of Director of Undergraduate Studies.

ENGL 522 Studies in American Literature 3 hrs.
   Study of a movement or a recurring theme in American literature, such as romanticism, realism, naturalism, humor, or racial issues.

ENGL 530 Medieval Literature 3 hrs.
   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 studied mainly in translation.

ENGL 532 English Renaissance Literature 3 hrs.
   Readings in representative writers of the period 1500-1660.

ENGL 534 Restoration and Eighteenth Century Literature 3 hrs.
   Readings in representative writers of the period 1660-1800, focusing on the diversity of literary forms in the period.

ENGL 536 Romantic Literature 3 hrs.
   Readings in poetry and criticism, with emphasis on such writers as Blake, Burns, the Wordsworths, Coleridge, Scott, Byron, the Shelleys, and Keats.

ENGL 537 Victorian Literature 3 hrs.
   Readings emphasizing such writers as Carlyle, Mill, Dickens, Thackery, Eliot, Tennyson, the Brownings, and Arnold.

ENGL 538 Modern Literature 3 hrs.
   Readings in representative writers of the period 1890-1945, not exclusively in British and American literature.

ENGL 539 Post-Colonial Literature 3 hrs.
   Readings in representative writers from colonial and post-colonial cultures.
ENGL 540 Contemporary Literature
3 hrs.
Readings in representative writers who have come to prominence chiefly since 1945.

ENGL 555 Studies in Major Writers
3 hrs.
Study of the works of classical, European, British, or American writers. Limited to one or two authors. May be repeated for credit as long as the authors covered are different.

ENGL 566 Creative Writing Workshop
4 hrs.
An advanced course in the writing of poetry, fiction, or drama, with class criticism of each student's writing. The course may be taken more than once.

ENGL 574 Grammar for Teachers
4 hrs.
Deals with issues surrounding the teaching of grammar, various aspects of grammar itself, and ways of teaching grammar and developing students' grammatical competence.

ENGL 582 Studies in Children's Literature
3 hrs.
A study in depth of significant themes, movements, and types of children's literature. Prerequisite: ENGL 282 or permission of the department.

ENGL 583 Multi-Cultural American Literature for Children
3 hrs.
A course designed to develop an understanding of the cultural diversity of the American 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 diversity within the American heritage. Prerequisites: 16 hrs. of English course work, including ENGL 282.

ENGL 597 Studies in English: Variable Topics
1–3 hrs.
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 Course Offerings; some are added during the semester. Further information and full listing of topics may be obtained from the English Department, sixth floor Sprau Tower.

ENGL 598 Readings in English
1–4 hrs.
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 student. Approval of English advisor required. May be elected more than once.

Open Only to Graduate Students admitted to English Curricula or by Permission of the English Graduate Advisor.

ENGL 610 Seminar
3 hrs.
Study of a problem in literary history or criticism. May be repeated once with the permission of the graduate advisor.

ENGL 615 Literary Criticism
3 hrs.
Readings in several significant theorists on the nature of literature, the characteristics of aesthetic response to literature, and principles underlying the analysis and evaluation of literature. Works in at least two genres will be examined in light of these theoretical writings.

ENGL 621 Studies in British Literature
3 hrs.
The advanced study of selected aspects of British literature. May be repeated once with the permission of the graduate advisor.

ENGL 622 Studies in American Literature
3 hrs.
The advanced study of a topic in American literary history, such as The American "Renaissance," The 1920's, The Transcendental Tradition in American Literature, Fiction (or Poetry, or Drama) in America, or The Development of Modern American Prose Style. May be repeated once with the permission of the graduate advisor.

ENGL 630 Introduction to Graduate Studies
3 hrs.
This course is intended to provide graduate students with an introduction to the theory and practice of literary criticism at the professional level. The goal of course readings and discussion generally will be to aid students in the completion of a substantial research project of a kind suitable for publication.

ENGL 631 Essay Writing
3 hrs.
A course in the writing of informal expository prose in the forms used for addressing general audiences. There will be a generous amount of reading in exemplary works and a concern for understanding the rhetorical principles underlying good modern prose. Prerequisite: A bachelor's degree.

ENGL 632 Article Writing
3 hrs.
A course in the writing of informative prose directed toward a non-specialist audience. There will be study and practice in the methods of gathering and analyzing information and in the effective organization and presentation of factual material.

ENGL 633 Professional Writing: Form and Technique
3 hrs.
A course in writing in the various formats needed by large institutions; whether academic, corporate, or public. Particular emphasis will be placed on the use of the interview to gather information, on preparing speeches, brochures, newsletters, and other publications, and on the techniques of non-personal prose.

ENGL 640 The Nature of Poetry
3 hrs.
A study of styles, techniques, forms, and conceptions of poetry, involving practice in explication, both oral and written, of individual poems.

ENGL 641 Studies in Modern Poetry
3 hrs.
An intensive study of the work of several modern poets.

ENGL 642 Studies in Drama
3 hrs.
Selected areas of drama from classical times to the present.

ENGL 644 Studies in the Novel
3 hrs.
An examination of significant forms and techniques employed in the novel from its beginnings to the modern age.

ENGL 645 Studies in the Modern Novel
3 hrs.
An intensive study of the works of some important novelists of the twentieth century.

ENGL 652 Studies in Shakespeare: Tragedy
3 hrs.
Selected tragedies of Shakespeare.

ENGL 653 Studies in Shakespeare: Comedy
3 hrs.
Selected comedies of Shakespeare.

ENGL 666 Graduate Writing Workshop
3 hrs.
Any given section of this course will focus on either poetry, fiction, or drama. Course organization will emphasize roundtable discussion of student writing. Course may be taken more than once; a student may elect up to 12 credit hours in one genre and up to 18 hours in all. M.F.A. candidates must take at least 6 hours in their area of specialization. Prerequisite: Open to graduate students accepted into the M.F.A. program and, with the permission of the instructor, to other graduate students.

ENGL 669 Methods of Teaching College Writing
3 hrs.
A course required of those teaching the freshman composition course, ENGL 105, for the first time. Establishes the basic structure and methodology for teaching such a course. Participants prepare assignment sequences for their classes, design appropriate learning activities, and practice evaluating and responding to student writing. Participants are introduced to activities that reflect different theories and approaches to the teaching of composition.

ENGL 672 Language, Dialects, and Sociolinguistics
3 hrs.
A course focusing on specific varieties of American English studied from historical, linguistic, literary, and/or social perspectives as the basis for application of sociolinguistic theory and research to a variety of topics. These may include the study of American culture and literature, educational implications of dialect diversity in monolingual and multilingual settings, the links between language and social identity, and gender/ethnic differences in language. Issues such as language change, attitudes toward language, and implications for teaching English will be explored in detail.

ENGL 673 Psycholinguistics in Reading
3 hrs.
An examination of psycholinguistic insights into the nature of the reading process, with emphasis on practical implications and applications for the classroom.

ENGL 676 Old English
3 hrs.
A course dealing with the grammatical structures of Old English and the sociolinguistic context in which this language was spoken and written, with a view to applying such linguistic study to translating and interpreting pre-1066 English literary texts, both poetry and prose, including Beowulf.

ENGL 677 Middle English
3 hrs.
A course dealing with the grammatical structures of Middle English and the sociocultural context in which this language was spoken and written, with a view to applying such linguistic study to translating and interpreting Middle English texts, both prose and poetic, Chaucerian and non-Chaucerian, in the various regions of English-speaking Britain.

ENGL 679 Studies in Composition Theory
3 hrs.
A course which examines various approaches to the teaching of composition. Aims to increase awareness of the relationship between theory and practice, acquaint participants with ongoing dialogues within the field, and help them identify and formulate their own professional stances. Attention will
be given to the impact on composition theory of scholarship in fields such as classical rhetoric, linguistics, literary theory, cognitive psychology, human development and learning, social constructionism, and ethnology. **Prerequisite:** Teaching experience.

**ENGL 680 Advanced Methods in Teaching Literature**
3 hrs.
A study of theories and methods of teaching literature.

**ENGL 681 Advanced Methods in Teaching Language and Composition**
3 hrs.
A study of theories and methods of teaching language and composition.

**ENGL 690 Scholarship and Writing in the Profession**
3 hrs.
In this seminar students will prepare the capstone Essay to be submitted as the culminating requirement for the M.A. in English. The course will include analysis and evaluation of journals and articles in areas relevant to the student's research topic, "workshop" review and editing of the paper, and preparation for oral presentation and discussion of the student's work in a Master's Colloquium. Graded on a Credit/No Credit basis. **Prerequisites:** ENGL 630 and prior completion of at least 21 hours of credit toward the Master of Arts in English.

**ENGL 691 Research and Scholarship in English Education**
3 hrs.
As reflective practitioners in English classrooms, participants in this seminar will develop a research question, review relevant professional literature, conduct classroom and/or academic research using appropriate research techniques, and present findings orally in a written report or paper that will be the capstone paper for the MA in English with an Emphasis on Teaching. **Prerequisites:** Students in the program who have completed at least 24 hours of the course of study and who have completed the core courses, the teaching of English courses, the English language course and the multicultural literature course may enroll.

**ENGL 697 Studies in English: Variable Topics**
1–3 hrs.
Group study of special topics in language, literature, and composition. These special courses and workshops may be offered on campus, in the off-campus centers, or as in-service work in schools. Students may repeat this course, providing topics vary. For further information, consult the graduate advisor.

**ENGL 699 M.F.A. Project**
3–6 hrs.
A collection of short fiction, a collection of poetry, a collection of one-act plays, a full-length play, or a novel. The work presented in fulfillment of this requirement must be judged by a committee of the graduate faculty to be worthy of publication or production; a public reading or performance is required.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

**ENGL 700 Master's Thesis**
6 hrs.
**ENGL 710 Independent Research**
2–6 hrs.
**ENGL 711 Readings in Doctoral Specialization**
3–6 hrs.
In consultation with a faculty member, the doctoral student will design a reading list of 20 to 30 books in a specialized area; students wishing additional guided reading may register a second time. The student will master these works independently and, in consultation with faculty members, select a representative list of approximately 20 works on which to be evaluated in a two-hour oral exam, conducted by a committee of at least two faculty members. **Prerequisite:** Doctoral candidacy.

**ENGL 712 Professional Field Experience**
2–12 hrs.
**ENGL 713 Practicum in Teaching in the Discipline**
3 hrs.
A practicum in teaching in the discipline will be done as collaborative teaching with an experienced faculty member in a broad-based undergraduate course in language, literature, creative writing, or advanced composition. There will opportunity for both guided praxis and reflection on praxis. May be repeated. **Prerequisite:** Consent of advisor.

**ENGL 730 Doctoral Dissertation**
15 hrs.
FOREIGN LANGUAGES
AND LITERATURES

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Antonio Isea
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Molly Lynde-Rechcia
Michael Militar
Patricia Morella
Holly Nibert
Dashio Nisula
Joseph Reish
Pablo Pastra-Pérez
Mariola Pérez de la Cruz
Cynthia Running-Johnson
Mercedes Tasende
Herman Teichert
Benjamin Torres
Robert Vann
Eric R. Webb
Lindsey Wilhite

FRENCH

French Courses (FREN)

Open to Upperclass and Graduate Students

500-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.

FREN 510 Studies in French and Francophone Culture
3 hrs.
An intensive study of selected aspects of French and Francophone culture. Course varies according to topic and may be repeated for credit with permission of advisor. Representative topics might include Women in French Society, The French Tradition in Quebec, Francophone Cinema. Prerequisites: FREN 316, 317, either 322 or 323, plus one additional course at the 300-, 400-, or 500-level.

FREN 528 French Literature from the Middle Ages to the Revolution
3 hrs.
The study of selected literary texts from the Middle Ages to the end of the eighteenth century. Prerequisites: FREN 316, 317, and 325.

FREN 529 French Literature from the Revolution to the Present
3 hrs.
The study of selected literary texts from the late eighteenth century to the present. Prerequisites: FREN 316, 317, and 325.

FREN 550 Independent Study in French
1–3 hrs.
Directed, individual study of a specific topic in a French literary or linguistic area. Departmental approval required for admission. Repeatable for credit. Prerequisite: A minimum grade point average of 3.0 in the major.

FREN 560 Advanced Readings in French
3 hrs.
Topics of literary, cultural, or linguistic merit will be analyzed. Topics will vary from semester to semester. May be repeated for credit. Prerequisites: FREN 316, 317, 325, or permission of instructor

GERMAN

German Courses (GER)

Open to Upperclass and Graduate Students

500-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.

GER 528 Survey of German Literature
3 hrs.
A comprehensive study of German literature from its beginning through Romanticism. Prerequisites: GER 316, 317, 322 or 325 or equivalent.

GER 529 Survey of German Literature
3 hrs.
A comprehensive study of German literature from German Realism to the present. Prerequisites: GER 316, 317, 322 or 325 or equivalent.

GER 550 Independent Study in German
1–3 hrs.
Directed, individual study of a specific topic in a German literary or linguistic area. Departmental approval is required for admission. Repeatable for credit. Prerequisite: One 500-level course in the major; a minimum grade point average of 3.0 in the major.

GER 559 History of the German Language
3 hrs.
Survey of the development of the German language. Prerequisite: Six hours of 300-level German or above.

GER 560 Studies in German Literature
3 hrs.
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisites: German 316, 317, 322 or 325 or equivalent. 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. Nineteenth Century Drama—Primarily Kleist, Grillparzer, Hebbel, and Hauptmann. Twentieth Century Drama—Representative selections.

LANGUAGE

Language Courses (LANG)

Open to Upperclass and Graduate Students

LANG 550 Independent Study in Classics
1–3 hrs.
Directed, individual study of a specific topic related to Classical languages, literature, and/or culture. Departmental approval required for admission. Prerequisite: Completion of four courses or equivalent in classics; minimum grade point average of 3.0 in the major; departmental approval required. May be repeated for credit.

LANG 558 Modern Language Instruction (In French, German, Spanish, or other language)
3 hrs.
Required for modern language teaching majors and minors. This course will acquaint prospective language teachers with various approaches and strategies involved in modern language teaching. Specifically, in a performance-oriented program, students will learn theory and practice related to teaching the listening, speaking, reading, and writing skills, as well as the culture component. Students should complete this course before beginning directed teaching. This course will be offered regularly. (The comparable methods course for Latin is LAT 557, Teaching of Latin.)

LANG 580 Foreign Language for Special Purposes
1–12 hrs.
The study of or practice in a specialized area in the field of foreign 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. Students may repeat the course for credit, provided the subject matter differs. Prerequisite: Completion of four courses in area of specialization; departmental approval required.

Open to Graduate Students Only—Please refer to The Graduate College section for course description.

LANG 710 Independent Research
2–6 hrs.

LATIN

Latin Courses (LAT)

Open to Upperclass and Graduate Students

500-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.

LAT 550 Independent Study in Latin
1–3 hrs.
Directed, individual study of a specific topic in Latin literature or linguistics. Departmental approval required for admission. Repeatable for credit. Prerequisite: A minimum grade point average of 3.0 in the major.

LAT 557 Teaching of Latin
3 hrs.
The purpose of the course is to acquaint the prospective teacher with theory and practice appropriate to 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.

LAT 560 Medieval Latin
4 hrs.
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
LATVIAN

Latvian Course (LATV)

Open to Upperclass and Graduate Students

500-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.

LATV 550 Independent Study in Latvian

Directed individual study of a specific topic in a Latvian language, literature, or culture area. Department approval required for admission. Repeatable for credit. Prerequisite: Permission of Department and instructor.

RUSSIAN

Russian Course (RUSS)

Open to Upperclass and Graduate Students

500-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.

RUSS 550 Independent Study in Russian

Directed individual study of a specific topic in a Russian language, literature, or culture area. May be repeated for credit. Department and instructor approval required.

SPANISH

Master of Arts in Spanish

Advisor:

Mercedes Tasende,

511 Sprau Tower

EMAIL: Mercedes.tasende@wmich.edu

TelephoneNumber: 387-3014

The Master of Arts in Spanish enables students to extend and deepen their knowledge of language, literature, and culture in the Hispanic world. The program provides advanced study for those who intend to pursue professional careers in Spanish related fields as well as for those students who desire to do further graduate work.

Admission Requirements

1. Possess a baccalaureate degree with a major of thirty hours in Spanish, or equivalent.
2. Have a minimum 3.0 grade point average in the undergraduate Spanish major.
3. Provide two letters of recommendation from persons able to evaluate the applicant's potential for graduate work in Spanish.
4. Submit a brief statement regarding areas of interest and academic/professional goals.

Applicants who do not meet all of the above requirements may be admitted at the discretion of the Spanish graduate faculty. In such cases, students may be required to complete advisor-approved course work to remove certain deficiencies.

Program Requirements

1. Complete thirty hours of work in courses numbered 500 and above. At least eighteen of these credits must be in courses numbered 600 and above. A maximum of six hours of the required thirty hours may be taken in appropriate cognate fields, as approved by the Spanish graduate advisor.
2. Complete satisfactorily SPAN 600, Don Quijote (3 hrs.).
3. Pass a two-part comprehensive examination conducted in Spanish on the field of Hispanic literature, culture, and language.

For additional information about the Master of Arts in Spanish and for forms needed to apply for admission, students may write to WMU's Department of Spanish and Portuguese. Assistantships may be available for qualified applicants.

Spanish Courses (SPAN)

Open to Upperclass and Graduate Students

500-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.

SPAN 510 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. Since specific topics will vary each semester, this course may be repeated for credit. Prerequisites: SPAN 316 and 317, 322, 323, or 324; plus one additional course at the 300-level or above.

SPAN 526 Survey of Spanish Literature to the 18th Century

A survey of Spanish literature from its origin to, and including, the seventeenth century. Prerequisites: SPAN 316, 317, and 325.

SPAN 527 Survey of Spanish Literature from the 18th Century to the Present

A survey of Spanish literature from the eighteenth century to the present. Prerequisites: SPAN 316, 317, and 325.

SPAN 528 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: SPAN 316, 317, and 325.

SPAN 529 Survey of Spanish American Literature from Modernismo to the Present

A survey of Spanish American literature from late 19th century to the present. Prerequisites: SPAN 316, 317, and 325.

SPAN 550 Independent Study in Spanish

Directed, individual study of a specific topic in a Spanish literary or linguistic area. Departmental approval required for admission. Repeatable for credit. Prerequisite: One 500-level literature course in the major; a minimum grade-point average of 3.0 in the major.

SPAN 560 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 560. Thus, a student may take any or all of the offerings at various times. Prerequisites: Three hours of SPAN 526, 527, 528, 529, or departmental permission.

Representative topics which may be treated in this area include:

Cervantes—Don Quijote and other works of Cervantes together with his life and thought.

Seventeenth Century Theatre—Main works of Lope de Vega through Calderon de la Barca.

Nineteenth Century—The Romantic Movement.

Nineteenth Century Novel—Development of the regional novel from Ferran Caballero through Blasco Ibanez.

Generation of '98—Thought and works of typical representatives such as Unamuno, Azorin, Baroja, and A. Machado.

Contemporary Theater—Evolution and analysis of the characteristics.

Spanish-American Short Story—Significant short stories along with the cultural and social background.

Contemporary Spanish-American Novel—The new Spanish-American novel along with the cultural and social background.

Open to Graduate Students Only

SPAN 600 Don Quijote

An in-depth study of Cervantes' masterpiece. Emphasis is on literary analysis, but attention will also be paid to Cervantes' language.

SPAN 610 Topics in Hispanic Culture

The advanced study of selected aspects of Hispanic culture. Course varies according to topic and may be repeated with permission of advisor. Representative topics include:

Non-Castilian Spanish Cultures: Galicia, Euskadi and Catalunya; The Way of St. James and Medieval Tradition; Contemporary Spanish Cinema; Women in Spanish Society; Hispanic Culture in the United States; Ideas and Ideology in Contemporary Latin America; Spanish American Popular Culture.

SPAN 620 Topics in Spanish Literature

The advanced study of selected aspects of Spanish literature. Course varies according to topic and may be repeated with permission of advisor. Representative topics include:

Medieval Spanish Literature; Golden Age Poetry and Theatre; Golden Age Prose; Cervantes: Galatea, Novelas ejemplares, Persiles y Sigismunda; Nineteenth Century Literature; Generation of 1898; Contemporary Spanish Theatre; Modern Spanish Theatre; Modern Spanish Poetry.

SPAN 630 Topics in Spanish American Literature

The advanced study of selected aspects of Spanish American Literature. Course varies according to topic and may be repeated with permission of advisor. Representative topics include:

Spanish-American Short Story; Spanish-American Fiction; Spanish-American Essay; Spanish-American Poetry.

SPAN 640 Topics in Spanish Linguistics and Methodology

The advanced study of selected aspects of Spanish linguistics and methodology. Course
Spanish Linguistics; History of the Spanish Language; Sociolinguistics; Pragmatics and Discourse Analysis; Spanish Syntax; Acquisition of Spanish as a Second Language.

SPAN 650 Methods of Teaching College Spanish
3 hrs.
Recommended for new teaching assistants in Spanish. Establishes the methodology for teaching Spanish language at the university level. Some areas covered are: How to teach in the target language; the development of appropriate classroom tasks and activities; evaluating and testing; and aspects of second language acquisition theory. Participants create and share materials to be used in their own language classrooms. Prerequisite: Acceptance into Spanish M.A. program, or PTG status and permission of instructor.

SPAN 680 Research and Writing
3 hrs.
A study of the techniques of research and the art of expression, leading to the completion of a scholarly monograph. (Enrollment limited to ten students.)

SPAN 690 Seminar
1-3 hrs.
Intensive study of a particular author or of a literary, linguistic, or cultural topic. Course varies according to topic and may be repeated with permission of advisor.

GEOGRAPHY
Dr. David G. Dickason, Chair
Main Office: Room 3244, Wood Hall
Telephone: 387-3410
FAX: 387-3442
James Bills
Deborah Che
Ellen M. C. Cutrim
Lisa DeChano
David G. Dickason
Charles (Jay) Emerson
Rolland Fraser
Chansheng He
David Lemberg
Eldor C. Quandt
Joseph P. Stoltman
Gregory Veeck
Jordan Yin

Master of Arts in Geography
Advisor:
Ellen Cutrim,
Room 3244, Wood Hall
The goals of the Master of Arts in Geography are: 1) to assist students in acquiring the skills needed for independent geographic research, including organizational and communication skills; and 2) to enable the student to develop a concentration in a particular aspect of the field. At the same time, each program is individually designed to suit career or personal objectives. Students may prepare for a geographic career in government, business and industry, or for pursuit of a higher degree. A minimum of 30 graduate hours is required.

Admission Requirements
Experience indicates that geography majors/minors, or social/biological/physical science majors with some geography normally can meet program requirements. Prior to the successful completion of ten graduate hours, the following admission requirements must be met or the student will not be admitted to further 600- or 700-level courses.
1. The attainment of passing scores on the comprehensive qualifying examinations in physical and human geography, and map, chart, and air photo reading. If unsuccessful the student may retake an examination. If a passing score is still not obtained, the student must receive a "B" or better in a course with comparable subject matter (GEOG 105, 205, 265).
2. Successful completion ("C" grade or better) of GEOG 375 Principles of Cartography or approved equivalent.

Program Requirements
1. Completion of a minimum of three courses in one of the three following areas of concentration:
   a. Community Development and Planning
   b. Environmental and Resource Analysis
   c. Geographic Techniques
2. Completion of 30 hours of approved graduate credits in all concentrations, except Community Development and Planning, where 36 hours are required; at least 20 hours to be completed in the Geography Department.
3. Completion of GEOG 661 (Geographic Research), GEOG 567 (Computerized Geodata Handling and Mapping), and GEOG 666 (Professional Development Seminar). GEOG 556a (Urban Planning and Zoning) also is required for the Community Development and Planning concentration.
4. Completion of 6 hours of GEOG 700 (Master’s Thesis) or two to six hours of GEOG 710 (Independent Research). In addition, students may enroll in GEOG 712 (Professional Field Experience), and students with the Community Development and Planning concentration must complete a six-hour internship (enrolling in GEOG 712).

Master of Arts in the Teaching of Geography
Advisor:
Joseph Stoltman,
Room 3610, Wood Hall
The 34-hour Master of Arts in the Teaching of Geography is designed to improve the classroom teacher’s competencies. There are two major objectives: to provide elementary and secondary teachers with a graduate degree option which combines the content of geography and related disciplines with professional development, and to provide elementary and secondary teachers with the skills and knowledge necessary for providing educationally sound learning experiences for their students.

Admission Requirements
The prospective candidate should examine state teacher certification requirements if those have not been fulfilled in an undergraduate program. Before the completion of ten graduate hours, all students must meet the following requirements:
1. Completion of GEOG 460, Concepts and Strategies in the Teaching of Geography, or an approved equivalent with a grade of "B" or better.
2. The attainment of passing scores on the comprehensive qualifying examinations in physical and human geography.

Program Requirements
The minimal requirements for the Master of Arts in the Teaching of Geography include the following:
1. Completion of 34 hours of graduate-level courses, at least one half of which at the 600-level or higher.
2. Completion of at least 20 hours of 500- and 600-level geography courses.
3. Completion of ED 601 (Fundamentals of Educational Research) or GEOG 661 (Geographic Research).
4. Completion of at least six hours of graduate-level education courses (not including ED 601).
5. Completion of GEOG 666 (Professional Development Seminar).
6. Completion of a two- or three-hour capstone experience, consisting of either GEOG 710 (Independent Research) or GEOG 712 (Professional Field Experience).

Geography Courses (GEOG)

SYSTEMATIC GEOGRAPHY
Open to Upperclass and Graduate Students
Prequisites applicable to all 500-level courses in Geography are 14 credit hours of geography, including the specific prerequisite for each course, or consent of advisor and/or instructor.
GEOG 521 Studies in Climatology and Meteorology 3 hrs.
Studies at an advanced level in climatology and meteorology. Topics of current interest to atmospheric scientists, such as global climate change, are examined in depth. Regional climatic phenomena and their relation to atmospheric circulation patterns are also investigated. Prerequisite: GEOG 225 or consent.

GEOG 544 Studies in Economic Geography 2–3 hrs.
Principles of world patterns of agriculture, manufacture, or transportation which link global production and consumption. In any term, the course focuses upon one of these three economic sectors. Prerequisite: GEOG 205 or 244 or consent.

1. 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.

2. Manufacture. 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.

3. 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.

GEOG 545 Studies in Human Geography 2–3 hrs.
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. Prerequisite: GEOG 203 or GEOG 205 or GEOG 244, or by consent of instructor. Course may be repeated for credit.

1. 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.

2. 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 Schedule of Course Offerings.

3. 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.

GEOG 553 Water Resources Management 3 hrs.
Examination of water resources management with emphasis on the effects of water uses and runoff on water quality and quantity. Topics include water resource systems, estimating consumptive and nonconsumptive water uses and runoff with computer models, and multiple socio-economic and hydrological factors in water resources management. Prerequisites: MATH 122, GEOG 105 and 225, and CS 105, or consent of instructor.

GEOG 554 Outdoor Recreation: Resources and Planning 3 hrs.
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 recreation needs, policy considerations, administration of recreational land uses, and various problems associated with outdoor recreation. Readings, discussion, and study designed and executed individual studies provide professional orientation.

GEOG 555 Contemporary Issues in Resources Management 3 hrs.
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. Prerequisite: GEOG 350 or consent.

GEOG 556 Studies in Urban and Regional Planning 3 hrs.
Each of the courses listed under this number focuses on a major aspect of planning, including a review of the objectives of the planning process, legislation pertaining to planning operations, and methods of field and library investigation required for analysis and policy formulation in matters related to planning.

1. Urban Planning and Zoning. The Planning Process and the development of Comprehensive Plans as practiced in American communities. The legal foundations of zoning and subdivision regulations, and the implementation of the comprehensive plan. The organization, role, and relationship of the planning commission, the zoning board, and the planning department in the community. Prerequisite: GEOG 365 or consent.

2. Regional Planning. Studies in the administration and coordination of planning programs at the regional level, e.g., transportation and communications, land use and conservation, drainage systems and wastewater treatment, residential and industrial development. The evolution and current status of planning methodologies are examined with emphasis on economic and environmental tradeoffs, and on problems of implementing regionally-oriented planning programs.

3. Public Lands and Parks. Specific programs and policies relating to the preservation and development of government-controlled lands.

GEOG 557 Environmental Impact Assessment 3 hrs.
Alteration of the natural human environment for perceived economic and social benefits often has significant and 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. Prerequisites: Senior standing and GEOG 350 or permission.

GEOG 570 Cities and Urban Systems 3–4 hrs.
Study of processes and forms of urban settlement highlighting problems relating to:
1. political and geographical realties of urbanized regions;
2. factors in city growth (or decline);
3. the size, function, and geographical distribution of cities; and
4. land use and 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.

Open to Graduate Students Only

GEOG 620 Seminar in Physical Geography 2–3 hrs.
A review of current literature and recent developments in several disciplines which are the basis of physical geography. Since each seminar emphasizes different subject areas, such as landforms, soils, and vegetation, this seminar may be repeated. A final research project is required. Prerequisite:
One of several advanced courses in physical geography, geology or biology, or consent of instructor.

GEOG 670 Seminar in Urban Geography and Planning 2–3 hrs.
A review of the current literature and recent methodological developments in the field of urban geography and planning. Prerequisite: GEOG 546 (1.1) or 570.

REGIONAL GEOGRAPHY

Open to Graduate Students Only

Prerequisites applicable to all 500 level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor.

GEOG 510 Anglo American 3 hrs.
Review of the physical, cultural, and economic geography of the United States and Canada. Focus on regional problems and outlooks. Lectures, assigned readings, and periodic seminars. May not be taken for credit if student has received credit for GEOG 380.

GEOG 511 South America 3 hrs.
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. May not be taken for credit if student has received credit for GEOG 381.

GEOG 512 Middle America 3 hrs.
Systematic consideration of the physical environment of Mexico, Central America, and the West Indies. A problems approach is utilized to reckon with the economic, social, and political trends of the region. May not be taken for credit if student has received credit for GEOG 382.

GEOG 513 Western and Southern Europe 3 hrs.
Examination from western Europe from a regional perspective. The environmental and historical backgrounds serve as a foundation for more intensive study of contemporary conditions, problems, and issues. May not be taken for credit if student has received credit for GEOG 383.
GEOG 518 The Pacific Realm
3 hrs.
Analysis of the human and physical geography of the Southwest Pacific, with concentration on Australia, New Zealand, and Polynesia. May not be taken for credit if student has received credit for GEOG 385.

GEOG 520 South Asia
3 hrs.
Survey of the physical, cultural, and economic geography of the Indian subcontinental region (India, Pakistan, Bangladesh, Sri Lanka and the countries of the Himalayas). Primary focus is placed on India with emphasis upon the characteristic spatial patterns and relationships found in the region. May not be taken for credit if the student has received credit for GEOG 390.

Open to Graduate Students Only

GEOG 609 Studies in Regional Geography
2–3 hrs.
An investigation of selected topics in physical and human geography of a region, e.g., Latin America, Anglo-America, Europe. Regional concentration will vary from semester to semester, with the region being indicated at time of enrollment. May also be offered in conjunction with field studies to various areas, and may be repeated for credit. Prerequisite: An appropriate introductory course at either the undergraduate or graduate level.

GEOGRAPHIC METHODOLOGY AND RESEARCH

Open to Upperclass and Graduate Students

Prerequisites applicable to all 500-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor.

GEOG 557 Environmental Impact Assessment
3 hrs.
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 statements. Prerequisites: Senior standing and Geography 350 or permission.

GEOG 566 Field Geography
2–4 hrs.
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 observations. (One hour lecture and three hours laboratory.) Prerequisites: GEOG 265 or 375 and 582 or consent of instructor.

GEOG 567 Geospatial Analysis and Mapping
4 hrs.
Introduction to fundamental principles and procedures of representation and analysis of geographic data, in a variety of applications. The course combines theoretical discussions with practical data analysis. Topics include geographic measurement and representation; methods and software for descriptive and inferential statistics, with emphasis on spatial data analysis; computer mapping techniques; geographic modeling; and exploration of data resources. Prerequisites: GEOG 357 or consent of instructor; senior or graduate standing.

GEOG 568 Qualitative Methodology
3 hrs.
Introduction to the application of qualitative concepts and methods in the analysis of geographic problems. Emphasis is placed on data base management, computer applications of common numeric and statistical methods, and utility assessment of various research designs and strategies. Prerequisite: GEOG 567 or consent.

GEOG 569 Intermediate Geographic Systems
4 hrs.
Principles and applications of Geographic Information Systems (GIS). Examines the nature and accuracy of spatially referenced data, as well as methods of data capture, storage, retrieval, visualization, and output. 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. Prerequisite: GEOG 375.

GEOG 580 Advanced Cartography
4 hrs.
A review of current trends and philosophies of cartography. A combination of lectures, demonstrations, and independent projects provide the advanced cartography student with opportunities to practice state-of-the-art map design, production, photo-reproduction and computer-assisted mapping. It is recommended that GEOG 567 be taken before 580. Prerequisite: GEOG 375 or equivalent.

GEOG 582 Remote Sensing of the Environment
3 hrs.
The student will acquire proficiency in the fundamental techniques and skills of photogrammetry and photointerpretation during the first part of the course. The remainder of the semester will be spent in interpreting photos dealing with such topics as geomorphology, archaeology, vegetation and soils, water resources, rural and urban land use, as well as topics adapted to the interest and anticipated future work of the student. Prerequisite: Consent of departmental advisor.

GEOG 597 Independent Study
1–3 hrs.
Problem formulation and research design are expected of graduate students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Consent of departmental advisor and instructor.

Open to Graduate Students Only

GEOG 661 Geographic Research Design
4 hrs.
Problem formulation and research design are introduced in light of modern geographic thought and current practices. Other course emphases are sources of geographic information, search strategies, and the written presentation of research materials. Graduate students in geography are urged to complete this course as soon as possible. Prerequisite: Consent of departmental advisor.

GEOG 665 Seminar in Geography
1–3 hrs.
Designed for the advanced student interested in analyzing problems related to various topics in geography. Prerequisite: Consent of instructor. May be repeated.

GEOG 666 Professional Development Seminar
1 hr.
Students participate in selected activities related to professional development. These activities include critiques of professional presentations, participation in professional meetings, and presentations of papers to faculty and colleagues. This course cannot be repeated for credit. This course is graded on a Credit/No Credit basis.

GEOG 669 Advanced GIS Seminar
3 hrs.
This course extends the focus of GEOG 569, Geographic Information Systems, from concepts and procedures to project applications and techniques in both individual projects and in seminars. Each student will be required to determine a Geographic Information Systems (GIS) problem and devise an efficient, innovative, and practical solution using advanced techniques in spatial analysis, spatial statistics, and cartographic programming. This course will increase the exposure to the state of the art in GIS software, theory, and practice. Seminar topics will include professionally relevant issues such as interfaces of GIS with spatial analysis, spatial statistics, remote sensing, and spatial modeling and customization with internal and external programming languages, project design, and management. Prerequisites: GEOG 567, 569, and an introductory computer programming course (Visual Basic, C, C++, FORTRAN, PASCAL, or the equivalent).

GEOG 682 Advanced Remote Sensing
3 hrs.
This course focuses on acquisition and interpretation of remotely sensed data, including data collection with several instruments. The main body of this course stresses interactive interpretation of digital image data collected from aircraft or satellites and manipulated within image processing/geographic information system software.

GEOG 686 Content Standards in Geography/Social Studies Teaching
3 hrs.
This course develops the content that is essential for teaching content standards based social studies in Michigan schools with an emphasis upon geography. The content basis, including theories, concepts, and principles of the social sciences and the inquiry processes they employ, will be applied to the instructional expectation of social studies teachers. Course is repeatable for credit when topics vary. Prerequisite: Consent of departmental advisor.

GEOG 687 Assessment in Geography/Social Studies
3 hrs.
The course develops classroom and large-group assessment theory and principles of practice in geography/social studies for grades 5–12 students. Selected, constructed and extended response items that conform to the MEAP model for social studies are the assessment form for development, design, and analysis. Emphasis will be on classroom tests that assess high-level thinking skills in geography/social studies. Course is repeatable for credit when topics vary. Prerequisite: Consent of departmental advisor and instructor.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

GEOG 700 Master's Thesis
3 hrs.

GEOG 710 Independent Research
2–6 hrs.

GEOG 712 Professional Field Experience
2–12 hrs.
GEOSCIENCES

Dr. Alan Kehew, Chair
Main Office: 1183 Rood Hall
Telephone: 387-5485
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David Barnes
Daniel Cassidy
Ronald B. Chase
G. Michael Grammer
William B. Harrison, III
Dwane Hampton
Alan E. Kehew
Michelle Kominz
Carla M. Koretsky
R. V. Krishnamurthy
William A. Sauck
Christopher J. Schmidt

The Department of Geosciences offers the Master of Science in Geology as well as the Master of Science in Earth Science, which is an interdisciplinary program having two options, with geology as a core. The Department also offers the Doctor of Philosophy in Geology.

Master of Science in Geology

Advisor:
Michelle Kominz,
Room 1133, Rood Hall

The Master of Science in Geology is designed to prepare the student for professional work in geology and for further graduate study.

Admission Requirements

Undergraduate major in geology. Consideration of other preparation will be handled on an individual basis.

Program Requirements

1. Master's degree in hydrogeology or related field, e.g., geology, geophysics, or geochemistry. Applicants with degrees in chemistry, biology, environmental engineering, civil engineering, and geography may be admitted provided they take remedial work in hydrogeology.

2. Grade-point average of 3.25 (of 4.0) in graduate work.

3. Applicants are to arrange for three letters of recommendation to be sent from academic and/or professional sources.

4. Applicants are to submit the following:
   a. A minimum of thirty-five hours is required for the degree without a master's thesis or coursework in hydrogeology.
   b. Students are expected to attend Departmental seminars and are required to give one presentation. Students may enroll for credit in GEOS 660 for seminar presentations.

5. Successful completion of an approved hydrogeology course if not completed in the student's undergraduate program.

6. Pass an oral defense of the thesis or independent research.

Doctor of Philosophy in Geology

Advisor:
Alan E. Kehew,
Room 1183, Rood Hall

The Doctor of Philosophy in Geology offers degree programs in research skills, students will consult with the graduate advisor; and/or research, and/or computer science. For specific details concerning approved research skills, students will consult with the graduate advisor.

1. A minimum of thirty-five hours is required for the degree, including GEOS 438 (or equivalent).

2. Students are expected to attend Departmental seminars and are required to give one presentation. Students may enroll for credit in GEOS 660 for seminar presentations.

3. A copy of the Graduate Record Examination score must be supplied to the department before the end of the first semester in residence.

4. Satisfactory completion of GEOS 700, Master's Thesis (6 hrs.)

5. Successful completion of an approved examination in earth science covering field methods and research. It may consist of an oral written examination, and an oral portion that will be conducted within six months of the successful completion of the written portion of the examination. The student will have the opportunity to repeat the written portion of the examination in order to qualify as a Ph.D. candidate.

4. Complete and successfully defend a dissertation on a research topic approved by the student's doctoral committee. Fifteen credit hours are required for the doctoral dissertation.

General Plan and Sequence of Program

As soon as possible after matriculation, the student will select an advisor who will chair his/her dissertation committee. The doctoral program will be planned by the student in consultation with his/her advisor and the doctoral committee.
Minimum requirements in ancillary fields include mathematics through differential equations and approved upper division courses in chemistry, biology, physics, geography, and statistics. Additional outside course work applicable to the dissertation problem may be required by the doctoral committee. The student will present a seminar on the results of his or her dissertation research to the University and defend his/her dissertation.

Students entering the Ph.D. program in hydrogeology will consider the following in developing the curricular sequences in their program:

1. If curricular deficiencies exist, required courses are to be taken beginning in the first semester in residence. A minimum of one deficiency must be satisfied each semester or term until all are removed. All exceptions must be approved by the Graduate Committee.

2. Research tool courses are to be taken as early as practicable in the program of study.

3. Courses that are logical precursors to other courses should be taken in their proper sequential order. Each student will develop a "proper sequencing" of courses with his/her graduate committee.

Sample Program for a Student Entering with a Bachelor's Degree in Geology

Master's degree component of program

Courses Credit Hours
GEOS 512 Hydrogeology 3
GEOS 609 Surface Water Hydrology 3
GEOS 545 Hazardous Waste Remediation 3
GEOS 525 Principles of Well Drilling and Installation 1
GEOS 526 Principles of Aquifer Testing 1
GEOS 527 Principles of Well Drilling and Installation 1
GEOS 528 Principles/Practices of Groundwater Sampling/Monitoring 1
GEOS 600 Hydrogeochemistry 3
GEOS 605 Groundwater Modeling 3
GEOS 608 Advanced Hydrogeochemistry 3
GEOS 609 Surface Water Hydrology 3
GEOS 612 Advanced Hydrogeology 3
GEOS 614 Environmental Regulatory Overview 1
GEOS 615 Contaminant Hydrogeology 3
GEOS 617 Stable Isotope Geochemistry 3
GEOS 666 Advanced Hydrogeology Seminar 3

Research and professional field experience

GEOS 710 Independent Research 5
GEOS 712 Professional Field Experience 3
GEOS 735 Graduate Research 10
GEOS 730 Doctoral Dissertation 15

Sample Program for a Student Entering with a Master's Degree in Geology

Students who have had the equivalent of any of the courses listed will be permitted to take alternate courses from the list of elective courses. Entering students will be encouraged to take courses to develop "tool skills" early in their program.

Basic or Core courses required in this program

Courses Credit Hours
CHEM 525 Techniques in Water Analysis 3
CHEM 515 Applied Hydrogeology 3
CHEM 523 Hazardous Waste Operation and Emergency Response 1
GEOS 524 Remediation Design and Implementation 1
GEOS 525 Surface Geophysics 1
GEOS 528 Principles and Practices of Aquifer Testing 1
GEOS 527 Principles of Well Drilling and Installation 1
GEOS 528 Principles/Practices of Groundwater Sampling/Monitoring 1
CHEM 600 Hydrogeochemistry 3
GEOS 605 Groundwater Modeling 3
GEOS 608 Advanced Hydrogeochemistry 3
GEOS 609 Surface Water Hydrology 3
GEOS 612 Advanced Hydrogeology 3
GEOS 614 Environmental Regulatory Overview 1
GEOS 615 Contaminant Hydrogeology 3
GEOS 617 Stable Isotope Geochemistry 3
GEOS 666 Advanced Hydrogeology Seminar 3

Research and professional field experience

GRAD 710 Independent Research 5
GRAD 730 Doctoral Dissertation 15
GRAD 735 Graduate Research 10

Elective courses

GEOS 506 Introduction to Soils 3
GEOS 516 Geochronology and Global Change 3
GEOS 536 Glacial Geology 3
GEOS 555 Introduction to Geochemistry 3
GEOS 561 Reflection Seismology 3
GEOS 562 Gravity and Magnetic Exploration 3
GEOS 563 Electrical Methods 3
GEOS 564 Environmental Field 3
GEOS 610 Geochemistry 3
GEOS 611 Mineral Analysis 3
GEOS 613 Wetlands Hydrology 3

Other courses approved by the student's graduate committee.

Research experiences required in this program

GEOS 710 Independent Research 5
GEOS 730 Doctoral Dissertation 15
GEOS 735 Graduate Research 10

Financial Assistance

Several departmental, University and grant-funded fellowships, teaching assistantships, and research assistantships are available. Application forms and additional information are available from the Department of Geology and from The Graduate College.
GEOS 520 Economic Geology 3 hrs.
Original occurrence, and utilization of metallic and non-metallic mineral deposits, and mineral fuels. Three lectures a week. Prerequisite: GEOS 301 or GEOS 335.

GEOS 523 Hazardous Waste Operation and Emergency Response 1 hr.
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: GEOS 412 or 512.

GEOS 524 Remediation Design and Implementation 1 hr.
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: GEOS 412 or 512.

GEOS 525 Surface Geophysics 1 hr.
An introduction to the use of those surface geophysical methods used in the investigation of ground water. Includes shallow seismic, electrical, and magnetic methods; and ground penetrating radar. Prerequisite: GEOS 412 or GEOS 512.

GEOS 526 Principles and Practices of Aquifer Testing 1 hr.
Introduction to the methods of aquifer testing with emphasis on step drawdown pump tests, forty-hour field log test with recovery, slug tests and bail tests data processing, using computer software, water level recorders, data loggers and water level measuring equipment. Prerequisite: GEOS 412 or GEOS 512.

GEOS 527 Principles of Well Drilling and Installation 1 hr.
An introduction to hollow-stem auger drilling and well installation, rotary drilling with mud and air, limestone drilling, monitoring well design, sample collection and description, cuttings, spit spoon, and Shelby tube, borehole geophysics, and installation and development of wells. Prerequisite: GEOS 412 or GEOS 512.

GEOS 528 Principles/Practices of Groundwater Sampling/Monitoring 1 hr.
An introduction to state-of-the-art techniques for sampling, monitoring, and evaluating groundwater systems and surface water interactions. Includes quality control and assurance procedures, groundwater sampling equipment and procedures, field hydrochemical equipment and procedures, and vadose zone sampling of water and gas. Prerequisite: GEOS 412 or GEOS 512.

GEOS 530 Plate Tectonics and Earth Structure 3 hrs.
Major tectonic features and internal structure of the earth in relation to plate tectonics. Critical examination of the tenets of plate tectonics. Prerequisite: GEOS 301 or GEOS 335, 430, or consent of instructor.

GEOS 536 Glacial Geology 3 hrs.
A study of the mechanics of glacial 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: GEOS 301 or GEOS 335.

GEOS 540 Igneous and Metamorphic Petrology 4 hrs.
Advanced discussion of origins and positions of igneous and metamorphic rocks in light of recent experimental evidence and concepts of global tectonics. Prerequisite: GEOS 440 or equivalent.

GEOS 545 Hazardous Waste Remediation 3 hrs.
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 design and operation of hazardous waste remediation systems involving water pollution, air pollution, solid waste, and groundwater pollution. Prerequisites: MATH 122 and corequisite MATH 123; CHEM 112/113.

GEOS 555 Introduction to Geochemistry 3 hrs.
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: GEOS 335, CHEM 112/113.

GEOS 560 Introduction to Applied Geophysics 3 hrs.
Seismology, gravity, geomagnetism, electrical resistivity, and heat measurements applied to the determination of the internal structure of the earth. Two lectures and three hours of practical laboratory-introduction to geophysical instrumentation. Prerequisites: GEOS 301 or GEOS 440; GEOS 430; MATH 122; two semesters of college physics; or consent of instructor.

GEOS 561 Reflection Seismology 3 hrs.
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. Two lectures and three hours of laboratory, problem solving, and field exercises. Prerequisites: GEOS 560 and MATH 123.

GEOS 562 Gravity and Magnetic Exploration 3 hrs.
Gravimetric and magnetic methods applied to tectonic, mining, geophysical, and crustal studies. Theoretical background, instrumentation, surveying techniques, data reduction, processing, computer modeling, and interpretation will be discussed. Two lectures and three-hour laboratory with field exercises and laboratory modeling. Prerequisites: GEOS 560, MATH 123, and PHYS 440, or consent of instructor.

GEOS 564 Environmental Field Geophysics 3 hrs.
Field studies utilizing seismic gravity, and magnetic, electromagnetic, georadar, and electrical/ resistivity methods for glacial geology and ground-water, engineering, and environmental problems in the Kalamazoo area. Course also includes field work at local sites. Prerequisite: GEOS 560, or consent of instructor.

Open to Graduate Students Only

GEOS 600 Hydrogeochemistry 3 hrs.
Geochemoical characteristics of surface water and groundwater: equilibrium thermodynamics, the carbon cycle, redox processes, ion exchange, organic compounds and isotopes. Prerequisite: GEOS 512 or consent of instructor.

GEOS 605 Groundwater Modeling 3 hrs.
Study of groundwater flow and contaminant transport rates using analytical and numerical models. Prerequisites: GEOS 512, 600, FORTRAN or BASIC, MATH 274, or consent of instructor.

GEOS 608 Advanced Hydrogeochemistry 3 hrs.
Investigation of selected topics in hydrogeochemistry. A problem-oriented approach to the study of classical and current topics dealing with natural and contaminated groundwaters. Prerequisite: GEOS 600.

GEOS 609 Surface Water Hydrology 3 hrs.
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.

GEOS 610 Geochemistry 3 hrs.
An introduction to the basic principles and theories of geochemistry. Prerequisites: GEOS 440 or permission.

GEOS 611 Mineral Analysis 3 hrs.
X-ray diffraction and fluorescence techniques applied to mineralogical and petrological problems. Prerequisites: GEOS 335 or permission.

GEOS 612 Advanced Hydrology 3 hrs.
Analytical and numerical analysis of groundwater flow and contaminant transport. Topics include well hydraulics, flow in unsaturated soils, multiphase flow, and advection-dispersion. Prerequisites: GEOS 512, 605, and MATH 123.

GEOS 613 Wetlands Hydrology 3 hrs.
Introduction to hydrologic function of wetlands, wetlands classification, and the relationship between hydrology and soil and plants. Emphasis will be placed on the use of these parameters in wetlands delineation. Prerequisite: GEOS 512 or consent of instructor.

GEOS 614 Environmental Regulatory Overview 3 hrs.
Study of those federal and state laws that govern the distribution, use and pollution of natural waters. Emphasis is placed on current interpretations and policy.

GEOS 615 Contaminant Hydrodynamics 3 hrs.
Theory and field methods related to the transport of contaminants in groundwater. Includes theoretical considerations, case histories, law, analysis of problems, and preparation of hydrogeological reports.
GEOS 617 Stable Isotope Geochemistry
3 hrs.

GEOS 630 Structural Analysis
3 hrs.
The theory of and methods involved in the geometric, kinematic, and dynamic analysis of deformed rock bodies. All scales of observation are considered from hand specimens to large map areas. Prerequisites: GEOS 430 and consent.

GEOS 634 Research in Geology and Earth Science
1-4 hrs.
Advanced readings or research in an area to be selected after consultation with a supervising staff member. May be repeated for credit (for no more than a total of six hours).

GEOS 645 Carbonate and Clastic Petrology
3 hrs.
Identification, recognition, and analysis of sedimentary rocks in hand specimen and thin section. Study of the distribution of sediments in basin settings. Prerequisites: GEOS 433 and 435, or consent of instructor.

GEOS 646 Carbonate and Evaporite Depositional Systems
3 hrs.
Processes, characteristics, and relationships of modern and ancient basin carbonates and evaporite facies. Course includes an 11-day field trip (Winter break) to investigate Holocene, Pleistocene, and Tertiary carbonate environments and facies in Florida; and a 3-day trip to northern Indiana and Ohio to examine Silurian Platform carbonates. Student projects include logging, description, and interpretation of cores and slabs at the mesoscopic level. Two lectures and one 3-hour laboratory per week. Prerequisites: GEOS 433, GEOS 435.

GEOS 650 Topics in Geology and Earth Science
2-4 hrs.
An intensive study of specific subjects in the area of Earth Science as listed. Prerequisite: Consent of instructor. Subject to be offered during a semester or term. Will be announced in advance.

GEOS 655 Quantitative Basin Analysis
3 hrs.
Theory and practical application of sequence stratigraphy and backstripping; two fundamental tools of the petroleum industry and academic community. Prerequisites: GEOS 435 and GEOS 560 or consent of instructor.

GEOS 656 Clastic Depositional Systems
3 hrs.
Description and analysis of clastic depositional systems and discussion of the sediment they produce. Laboratory investigations include stratigraphic and seismic analysis. Prerequisite: GEOS 435 or consent of instructor.

GEOS 660 Seminar in Geology and Earth Science
1 hr.
A seminar designed to provide students with the opportunity to examine and discuss important problems in Earth Science. Oral presentations will be required. Prerequisite: Consent.

GEOS 666 Advanced Hydrology Seminar
1-3 hrs.
Topics in theoretical and applied hydrology. Course is repeatable for credit. Prerequisite: Graduate standing.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

GEOS 700 Master's Thesis
6 hrs.

GEOS 710 Independent Research
2-6 hrs.

GEOS 712 Professional Field Experience
2-12 hrs.

GEOS 730 Doctoral Dissertation
15 hrs.

GEOS 735 Graduate Research
2-10 hrs.
Master of Arts in History

Advisor: Larry Simon, Room 4313, Freedman Hall

The Master of Arts in History serves both as preparation for doctoral study and as a professional degree in many fields of research, teaching, and public history.

Admission Requirements

1. Substantial undergraduate course work in history and related social sciences and humanities. (Students with strong academic records but deficient in undergraduate course work in history may be admitted with a stipulation to complete appropriate undergraduate courses.)

2. Graduate Record Examination (GRE) general aptitude test scores.

3. Three letters of recommendation.

4. A brief essay concerning applicant's academic and professional objectives, and a writing sample.

5. Students whose native language is other than English must achieve a TOEFL score of 600 or above, or otherwise demonstrate a command of English judged adequate by the department to pursue graduate study in the discipline.

Program Requirements

Three options for completing the degree are available.

THERESIS OPTION (30 hrs.):

Designed for students who anticipate doctoral studies in history, or other subsequent graduate study, and/or careers in research. Requirements:

1. HIST 601.

2. A broad field of specialization built around readings courses and research seminars. At least two readings courses (HIST 605-620) are required and additional course work in this area is strongly recommended. At least one research seminar (HIST 670, 675-688) is required. Specific research emphases are developed in consultation with the Graduate Advisor and department faculty. Consult the department's Graduate Advisor for further information.

3. Students must take at least two courses (one at the 600-level) which focus as a major part of the course work on the tools that historians use, such as cartography, paleography, oral history, anthropology, ethnohistory, ethnography, material culture, art, architecture, archeology, etc. These courses are designated by the Graduate Studies Committee and a list of courses which meet this requirement each semester will be available from the Director of Graduate Studies at registration.

4. Electives chosen in consultation with the Graduate Advisor. The department requires at least one course covering theory and/or research practices in an allied social science or humanities discipline. (Up to 6 hrs. of appropriate course work may be chosen outside the department, and up to 6 hrs. of appropriate course work in history at the 400-level, exclusive of 496-499, may be elected with the approval of the Graduate Advisor.)

5. Foreign language requirement: Proficiency in a foreign language demonstrated by satisfactory completion of a 201-level or 401-level foreign language course, or by a department approved examination. Proficiency must be demonstrated prior to comprehensive examination.

6. Comprehensive examination: a field-based written examination following completion of at least 18 hours of course work including required core courses and a research seminar. An oral examination may also be required by the student's exam committee.

7. Thesis: a major research investigation in the field of specialization. Candidates with an advanced record of research and/or publication may substitute a second research seminar (HIST 670, 675–898) with the prior approval of the Graduate Advisor.

8. Students who fail to produce a satisfactory thesis may count course work taken (except thesis hours) toward a general option degree. If they are students in the doctoral program, they will be dismissed from that program, but will be allowed to continue course work until they have completed enough hours for a general option master's degree. See the department graduate handbook for additional information regarding the thesis.

GENERAL OPTION (30 hrs.):

Designed for in-service teachers, general enrichment, multidisciplinary studies, and other purposes for which the master's degree normally is a terminal degree. Requirements:

1. HIST 601.

2. At least one research seminar (HIST 670, 675–688). Research seminars have prerequisite readings courses.

3. Students must take at least one course which focuses as a major part of the course work on the tools that historians use, such as cartography, paleography, oral history, anthropology, ethnohistory, ethnography, material culture, art, architecture, archeology, etc. These courses are designated by the Graduate Studies Committee and a list of courses which meet this requirement each semester will be available from the Director of Graduate Studies at registration.

4. Up to 12 hrs. of course work may be taken outside the department in an advisor-approved program of study, and up to 6 hrs. of appropriate course work in history at the 400-level, exclusive of 496–499, may be elected with the approval of the Graduate Advisor.

5. Comprehensive examination: a course-based written examination following completion of at least 24 hours of course work including required core courses and a research seminar. An oral examination may also be required by the student's exam committee.

PUBLIC HISTORY OPTION (39 hrs.):

Designed for students entering or continuing in public history professions. Requirements:

1. HIST 601.

2. At least one research seminar (HIST 670, 675–688). Research seminars have prerequisite readings courses.

3. Students must take at least three courses (two at the 600-level) which focus as a major part of the course work on the tools that historians, particularly public historians, use or courses which focus on tools of particular importance to public historians. These courses are designated by the Graduate Studies Committee and a list of courses which meet this requirement each semester will be available from the Director of Graduate Studies at registration.

4. Up to 12 hrs. of course work may be taken outside the department in an advisor-approved program of study, and up to 6 hrs. of appropriate course work in history at the 400-level, exclusive of 496–499, may be elected with the approval of the Graduate Advisor.

5. An internship/field experience (HIST 640 or 712: 6 hrs.).

6. Comprehensive examination: a course-based written examination following completion of at least 24 hrs. of course work including required core courses and a research seminar. An oral examination may also be required by the student's exam committee.

Doctor of Philosophy in History

The Doctor of Philosophy in History is designed to prepare students for careers in higher education, public and applied history, and historical administration in the fields of early and recent America, medieval and modern Europe, public history, and indigenous peoples of the Americas. Preparation extends beyond archival research techniques to include oral history and oral tradition, ethnography, archaeology, ethnohistory, material culture, museum studies, historic preservation, gender studies and documentary editing. Students are provided with opportunities to teach in the undergraduate program, to conduct research, to present papers at professional meetings and to receive training in additional professional skills.

Faculty research and instruction emphasize the social and cultural aspects of historical change. Resources include the Medieval Institute, the Institute of Cistercian Studies, the Rawlinson Centre for Anglo-Saxon and Manuscript Studies, the Institute for Social Research, the Diether Haeinicker Center for International Studies, the Great Lakes Center for Maritime Studies, the Archives and Regional History Collection, and the holdings of the French Michilimackinac Translation Project.

Admission Requirements

1. Admission normally requires a master's degree in history or a closely related discipline, or substantial prior course work in history. Students holding baccalaureate degrees may be admitted directly to the program but must complete Master of Arts comprehensive examinations after approximately 18 hours of course work with a recommendation by the examining committee to continue doctoral studies.

2. Graduate Record Examination (GRE) general aptitude test scores, applicants with a master's degree from a discipline other than history may be asked to complete the GRE subject test in history.

3. Three letters of recommendation.

4. A brief essay concerning applicant's academic and professional objectives, and a writing sample.

5. Reading proficiency in foreign languages appropriate to the proposed program of study is strongly recommended; studies to meet deficiencies in this area must be begun during the first year of doctoral study. Students whose native language other than English must achieve a TOEFL score of 600 or above, or otherwise demonstrate a command of English judged adequate by the department to pursue graduate study in the discipline.

Program Requirements

Award of the Doctor of Philosophy in History is based upon successful completion of qualifying examinations in several fields, and demonstration in seminars and the dissertation of the ability to conduct original research.

Programs of study are developed in consultation with the Graduate Advisor and appropriate faculty. The program requires a minimum of 72 hours of credit beyond the baccalaureate degree or 45 hours beyond the master's degree. The Master of Arts thesis option and the Doctor of Philosophy program share many common structures and requirements, and may be planned as a single program of study. Candidates admitted with a
master's degree from another institution or discipline may need more than the minimum of 45 hours of course work to complete the field requirements. All students must complete two core courses in their first year of study: HIST 601 and HIST 698. These courses serve several roles: They provide students with the historical and theoretical underpinnings of the profession of historian in all its myriad forms and applications; they train students in the various skills needed to succeed as professional historians in various venues; and they help students become part of the graduate student community in the department. Core courses must be completed by the end of the first year of graduate course work. Each student must also complete course work in theory and research techniques in an allied social science or humanities discipline appropriate to the student's research agenda.

Major Field
The major field is usually a chronologically broad teaching field covering a major civilization or national experience. Within the major field, students then identify, in consultation with the Director of Graduate Studies and appropriate faculty, chronological, geographical, and topical research emphases. See the department's graduate handbook for additional information.

Minor Field
The minor field may be a chronological, geographical, or topical adjunct to the major field, but may also be a concentration in theory, research, or application skills. Public history course work may also be prepared as a minor field.

Outside Field
The outside field may comprise work in a single discipline, or may be a series of courses with an interdisciplinary focus appropriate to the major field and dissertation topic.

Foreign Language Requirement
Students must demonstrate reading proficiency in at least one foreign language appropriate for their programs of study prior to qualifying examinations. Proficiency is demonstrated by satisfactory completion of a 201-level or 401-level foreign language course, or by a department-approved examination. Many major fields have additional foreign language requirements. All required course work to achieve necessary proficiencies must be completed prior to qualifying examinations.

Theory, Research, and Applications Course Work
Each student must complete approved course work in theory and research techniques in an allied social science or humanities discipline appropriate to the candidate's research agenda. Course work is selected in consultation with the student's examination committee and must be approved by the Director of Graduate Studies.

Research Tools
Three research tools are required. Competence in one foreign language is a research tool requirement for all doctoral students in the history program. In addition, competence in quantitative, statistical, or qualitative methodology must be exhibited to meet the second and third tool requirements. Competence in a tool is normally shown by a grade of "B" or better in approved course work, or by an advanced degree in an allied social science or humanities discipline. In some instances, a student may substitute a second foreign language for one of the tools in quantitative, statistical, or qualitative methodology. Course work is selected in consultation with the student's examination committee and must be approved by the Director of Graduate Studies.

Qualifying Examinations
Written and oral qualifying examinations are taken after the satisfactory completion of all course work and foreign language requirements. Examinations cover the major and minor fields and in some cases the outside field.

Dissertation
The dissertation may comprise from 12 to 18 hours of graduate course work depending upon other characteristics of the program of study.

History Courses (HIST)

Open to Upperclass and Graduate Students
Undergraduates with junior or senior standing and 12 or more credit hours of course work in history may enroll in 500-level courses with prior approval of the department chair.

HIST 500 Studies in History
1-3 hrs.
Topics announced in Schedule of Course Offerings. May be repeated under different topics.

HIST 510 Colloquium
1 hr.
Research presentations by department faculty, advanced graduate students and invited scholars. Specific topics may be listed in Schedule of Course Offerings. May be repeated to a maximum of 3 hrs. Graded on a Credit/No Credit basis.

HIST 515 Topics in Public History
1-3 hrs.
Selected topics in aspects of public history including museology, historic preservation and cultural resource management, historical administration, information science, and applied research. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 517 Topics in Economic and Social History
1-3 hrs.
Selected topics in the history of economic and social conditions and change such as the development of world trade and world economy, development and modernization, urbanization, social and political movements, demography and migration, family structure, etc. Topics announced in Schedule of Course Offerings. May be repeated under different topics.

HIST 519 Topics in Intellectual and Cultural History
1-3 hrs.
Selected topics in the history of ideas, literary and artistic expression, intellectual and cultural character of various periods and civilizations, examination of historical conditions through philosophy and the arts, etc. Topics announced in Schedule of Course Offerings. May be repeated under different topics.

HIST 530 Studies in Early American History
3 hrs.
Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 535 Studies in Recent American History
3 hrs.
Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 550 Studies in Medieval History
3 hrs.
May be cross-listed with MDVL 500. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 556 Studies in Modern European History
3 hrs.
Selected approaches to European history since the Renaissance. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 558 Studies in Asian and African History
3 hrs.
Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 590 Proseminar
3 hrs.
Research and writing on selected themes. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 591 Topics in Theory and Practice
1-3 hrs.
Selected theoretical, technical, and interpretive issues in the field of history: interaction with methodologies of other social science and humanities disciplines; innovative forms and techniques of documentation and data collection; major historical interpretations current before the academic world and the public. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 592 Computers in Historical Research
1-3 hrs.
Computer applications to historical and related research projects including manuscript analysis techniques, text-oriented databases, museum and historical agency database and registration systems, simulations, etc. Survey of applications in closely related disciplines. Maybe repeated. Prerequisite: CS 105 or equivalent.

HIST 595 History Writing Workshop
1-3 hrs.
Practicum in the writing of history: editing and publishing; preparation of written materials for lay readers and audiences outside the discipline. May be repeated to a maximum of six semester hours.

HIST 596 Local History Workshop
1-3 hrs.
Practicum in research techniques for problems in local and small community history, including oral tradition, genealogy, and interdisciplinary method. May be repeated to a maximum of six semester hours.

Open to Graduate Students Only
HIST 600 Historical Method
3 hrs.
Introduction to the field of history and its recent development. Practice in the use of oral and written communication skills for conveying historical knowledge to various audiences. Survey of major journals and bibliographical tools for general research. Examination of interaction between historical techniques and those of related disciplines.

HIST 601 Historiography
3 hrs.
Study of the major figures, ideas, and developments in historiography. Students may conduct research in their fields of concentration.

HIST 602 Historical Theory
3 hrs.
Study of the literature, research, and explanatory strategies of contemporary historical theory with emphasis on social and cultural history.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 605</td>
<td>Readings in Early United States History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
</tr>
<tr>
<td>HIST 608</td>
<td>Readings in Recent United States History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 612</td>
<td>Readings in Medieval History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 616</td>
<td>Readings in Modern European History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 618</td>
<td>Readings in Global and Contemporary History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 620</td>
<td>Bibliographical Research</td>
<td>1-3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 625</td>
<td>Problems in Cultural Resource Management</td>
<td>1-3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 635</td>
<td>Research Techniques in Medieval History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
</tr>
<tr>
<td>HIST 640</td>
<td>Museums Practicum</td>
<td>3-6 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 642</td>
<td>Oral History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 644</td>
<td>Material Culture and the Built Environment</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 646</td>
<td>Historical Archaeology</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 650</td>
<td>Special Projects</td>
<td>1-3 hrs.</td>
<td>Prerequisites needed.</td>
</tr>
<tr>
<td>HIST 670</td>
<td>Seminar in History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 671</td>
<td>Seminar in Theory and Philosophy of History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 672</td>
<td>Seminar in Local History Methodology</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
</tr>
<tr>
<td>HIST 675</td>
<td>Seminar in Early United States History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 682</td>
<td>Seminar in Medieval History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 686</td>
<td>Seminar in Modern European History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 688</td>
<td>Seminar in Global and Contemporary History</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 698</td>
<td>College Teaching and Professional Activity</td>
<td>3 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 700</td>
<td>Master's Thesis</td>
<td>6 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 710</td>
<td>Independent Research</td>
<td>2-6 hrs.</td>
<td>Prerequisites needed.</td>
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<tr>
<td>HIST 712</td>
<td>Professional Field Experience</td>
<td>2-12 hrs.</td>
<td>Prerequisites needed.</td>
</tr>
<tr>
<td>HIST 730</td>
<td>Doctoral Dissertation</td>
<td>12-18 hrs.</td>
<td>Prerequisites needed.</td>
</tr>
<tr>
<td>HIST 735</td>
<td>Graduate Research</td>
<td>2-10 hrs.</td>
<td>Prerequisites needed.</td>
</tr>
</tbody>
</table>

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.
The Department of Mathematics offers graduate programs leading to the Master of Arts in Mathematics, the Master of Arts in Mathematics Education, the Master of Science in Applied Mathematics, the Master of Science in Computational Mathematics, the Master of Science in Operations Research, and the Doctor of Philosophy in Mathematics, the Doctor of Philosophy in Mathematics Education. The Department of Mathematics offers a concentration in Collegiate Mathematics Education, and the Doctor of Philosophy in Mathematics Education.

Financial Assistance
The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships and Fellowships. Individuals desiring further information about such opportunities, or about the graduate program as a whole, should contact the Mathematics Graduate Office (3325 Everett Tower) or the Department Office (Room 3319, Everett Tower).

Master of Arts in Mathematics Education
Advisor: See Mathematics Office, Room 3319, Everett Tower

The Department of Mathematics offers a broad-based study of the mathematical sciences, including statistics, differential equations, mathematical programming, and computer science. The use of mathematical models to study practical problems will be heavily stressed. Students receive broad training for professional employment in industry or government. Those completing this program will also be prepared to teach in the area of mathematical applications.

Admission Requirements
The entering student will be expected to have two years of calculus, including multivariate calculus and differential equations, a course in linear algebra, a course in probability, a course in advanced calculus, a knowledge of programming languages such as Pascal and FORTRAN, some experience with numerical methods, and a course in data structures. The courses at WMU which satisfy the admission requirements are: 1253, 272, (374 or 230 and 274), 570, (STAT 362 or 560), and CS 111, 112, (201 or 306). A promising student may be admitted with some deficiencies in these admission requirements.

The missing work would then become an extra program requirement.

Program Requirements
1. Complete at least fifteen approved semester hours in graduate level mathematics courses, usually selected from:
   MATH 530 Linear Algebra
   MATH 580 Number Theory
   MATH 611 Mathematical Applications
   MATH 612 Data Analysis
   MATH 615 Intermediate Analysis
   MATH 616 Survey of Algebra
   MATH 617 Discrete Dynamical Systems
   MATH 649 Studies in Geometry
   STAT 560 Applied Probability

2. Complete twelve semester hours of approved mathematics education courses:
   MATH 653 Studies in Teaching Secondary Mathematics
   MATH 654 Secondary School Mathematics Curriculum Studies
   MATH 695 Seminar in Mathematics Education

3. Complete an approved three-semester hour, 600-level elective, selected from mathematics, mathematics education, or professional education.

In meeting these program requirements an effort is made to select courses that deal with concepts and skills related to central themes in secondary school mathematics programs. These themes are given substance in courses that deal with topics enabling students to review and build on their previous course work, to explore new areas, to develop thorough understandings of concepts that are initiated in secondary school mathematics courses, and to achieve a high level of mastery of skills associated with these concepts.

Master of Science in Applied Mathematics
ADVISOR: See Mathematics Office, Room 3319, Everett Tower

The Master of Science in Applied Mathematics emphasizes a broadly based study of the mathematical sciences, including statistics, differential equations, mathematical programming, and computer science. The use of mathematical models to study practical problems will be heavily stressed. Students receive broad training for professional employment in industry or government. Those completing this program will also be prepared to teach in the area of mathematical applications.

Admission Requirements
The entering student will be expected to have two years of calculus, including multivariate calculus and differential equations, a course in linear algebra, a course in probability, a course in advanced calculus, a knowledge of programming languages such as Pascal and FORTRAN, some experience with numerical methods, and a course in data structures. The courses at WMU which satisfy the admission requirements are: 1253, 272, (374 or 230 and 274), 570, (STAT 362 or 560), and CS 111, 112, (201 or 306). A promising student may be admitted with some deficiencies in these admission requirements.

The missing work would then become an extra program requirement.

Program Requirements
1. Complete the following 25 or 26 semester hours of specified courses:
   MATH 507 Numerical Analysis I
   MATH 574 Ordinary Differential Equations
   MATH 602 Mathematical Modeling
   MATH 607 Numerical Analysis II
   MATH 638 Linear Programming
   OR
   IME 610 Linear Programming for Engineers

2. Complete twelve semester hours of approved mathematics education courses:
   MATH 653 Studies in Teaching Secondary Mathematics
   MATH 654 Secondary School Mathematics Curriculum Studies
   MATH 695 Seminar in Mathematics Education

3. Complete an approved three-semester hour, 600-level elective, selected from mathematics, mathematics education, or professional education.

In meeting these program requirements an effort is made to select courses that deal with concepts and skills related to central themes in secondary school mathematics programs. These themes are given substance in courses that deal with topics enabling students to review and build on their previous course work, to explore new areas, to develop thorough understandings of concepts that are initiated in secondary school mathematics courses, and to achieve a high level of mastery of skills associated with these concepts.

Mathematics
MATH 510 Applied Matrix Algebra
MATH 527 Differential Geometry of Curves and Surfaces
MATH 609 Studies in Applied Mathematics
MATH 572 Vector Calculus and Complex Variables
2. Complete 6 semester hours consisting of MATH 560, CS 111, 112, (MATH 331 recommended) courses at WMU which satisfy the admission requirements. The missing work would then become an extraprogram requirement.

MATHEMATICS

Program Requirements

1. Complete the following 17 semester hours of specified courses:
   - MATH 571 Advanced Calculus II
   - MATH 676 Complex Analysis
   - STAT 680 Topics in Statistical Computing
   - MATH 690 Seminar in Applied Mathematics (1 hr.)
   - MATH 699 Reading and Research
   - MATH 712 Professional Field Experience

Computer Science

CS 527 Theory of Computer Graphics
CS 580 Theory of Computation
CS 631 Advanced Data Structures
CS 680 Mathematical Theory of Formal Languages

Industrial Engineering

IME 611 Operations Research for Engineers

Statistics

STAT 562 Statistical Theory
STAT 566 Nonparametric Statistical Methods
STAT 660 Statistical Inference I
STAT 664 Design of Experiments I
STAT 667 Complex Analysis

These courses may be repeated for credit.

Master of Science in Computational Mathematics

Advisor: See Mathematics Office, Room 3119, Everett Tower

The Master of Science in Computational Mathematics emphasizes numerical and computer methods which have become very significant in the solution of computer-intensive scientific problems, including large scale problems. The primary objective of the program is to prepare students in the development and implementation of critical computational techniques from inception to algorithm to software.

Admission Requirements

In addition to the general requirements of The Graduate College, the entering student will be expected to have two years of calculus, including multivariable calculus and differential equations, courses in linear algebra, modern algebra, probability, advanced calculus, numerical analysis, a knowledge of the programming languages FORTRAN and Pascal, and a course in data structures. The courses at WMU which satisfy the admission requirements are: MATH 122, 123, 272, 230 (and 274) or 374, 330, 507, 570. (STAT 362 or 560), and CS 112, 112, (201 or 306), (alternatively CS 351 recommended).

A promising student may be admitted with some deficiencies in these admission requirements. The missing work would then become an extra program requirement.

Program Requirements

1. Complete the following 17 semester hours of specified courses:
   - MATH 571 Advanced Calculus II
   - MATH 607 Numerical Analysis II
   - MATH 637 Numerical Linear Algebra
   - MATH 690 Seminar in Applied Mathematics (1 hr.)
   - CS 580 Theory of Computation
   - STAT 682 Statistical Theory I

2. Complete 6 semester hours consisting of two of the following 3 courses:
   - MATH 602 Mathematical Modeling I
   - MATH 605 Optimization
   - MATH 608 Linear Programming

With the approval of the advisor, a student may substitute approved electives listed below for any of the specified courses in 1. or 2. above which were previously taken as an undergraduate.

3. Complete at least 9 semester hours of approved electives which are different from the above courses:

   **Mathematics**
   - MATH 510 Applied Matrix Algebra
   - MATH 530 Linear Algebra
   - MATH 527 Differential Geometry of Curves and Surfaces
   - MATH 602 Mathematical Modeling
   - MATH 605 Optimization
   - MATH 608 Linear Programming
   - MATH 699 Reading and Research
   - MATH 712 Professional Field Experience

   **Computer Science**
   - CS 527 Theory of Computer Graphics
   - CS 631 Advanced Data Structures
   - CS 680 Mathematical Theory of Formal Languages

   **Industrial Engineering**
   - IME 611 Operations Research for Engineers

   *These courses may be repeated for credit.

Doctor of Philosophy in Mathematics

Advisor: See Mathematics Office, Room 3319, Everett Tower

Admission Requirements

A student may enter this program with a master's degree or directly upon completion of a bachelor's program. In addition to satisfying the general admission requirements of The Graduate College, the student must have acquired a sufficient level of mathematical background as determined by the Mathematics Faculty of the Department.

A student entering the program in Graduate Mathematics Education must have sufficient background in mathematics and education as determined by the Graduate Committee of the Mathematics and Mathematics Education faculty.

Program Requirements

**MATHEMATICS**

A student must complete the following requirements:

1. Take at least 60 hours beyond the bachelor's degree—45 hours, excluding MATH 730. There must be 30 hours of mathematics courses numbered 600 or above, excluding MATH 730. It is required by the University that the dissertation hours and 30 hours of coursework be completed after admission to the doctoral program. The 60 hours will include the following courses:
   - A two-semester graduate sequence in Algebra (MATH 630-631)
   - A two-semester graduate sequence in Analysis (MATH 670-671)
   - A two-semester graduate sequence in Topology (MATH 621-624)
   - A course in Complex Analysis (MATH 676)
   - An approved course in applied mathematics or probability or statistics

2. Take three comprehensive examinations.
   - A student in Algebra, Analysis, or Topology must take comprehensive examinations in each of these areas.
2. A full-time student will start taking reading education courses in the fall of each academic year. Programs may focus on curricula, teaching and learning mathematics, or educational research methods courses from potential dissertation advisors as soon as the student has passed three comprehensive examinations. As soon as a student finds a dissertation advisor, the dissertation advisor may begin to select the student's committee. At least six approved graduate credit hours in the secondary mathematics area group and one additional approved credit hour in mathematics and statistics, including general topology (MATH 522), linear algebra (MATH 530), analysis (MATH 570 or 615), abstract algebra (MATH 575), graph theory (MATH 640), geometry (MATH 643), and statistics (MATH 612 or STAT 662). The remaining courses are to be selected, in consultation with program advisors, from the 500- and 600-level offerings in mathematics, statistics, educational research methods courses, and educational research methods courses selected from MATH 651, 652, and 653. Additional approved graduate credit hours selected from mathematics, statistics, mathematics education, psychology, and professional education sufficient to meet the minimum program requirements. 2. Pass three comprehensive examinations in K-12 mathematics curriculum and instruction • Psychological foundations and methods of instruction • Research and design in mathematics education 3. Acquire competence in two research tools. This will be an open presentation with an open question period. The committee will then decide to accept or reject the dissertation and defense. All committee members must agree on acceptance for the student to pass. 2. A full-time student will start taking reading education courses in the fall of each academic year. Programs may focus on curricula, teaching and learning mathematics, or educational research methods courses from potential dissertation advisors as soon as the student has passed three comprehensive examinations. As soon as a student finds a dissertation advisor, the dissertation advisor may begin to select the student's committee. At least six approved graduate credit hours in the secondary mathematics area group and one additional approved credit hour in mathematics and statistics, including general topology (MATH 522), linear algebra (MATH 530), analysis (MATH 570 or 615), abstract algebra (MATH 575), graph theory (MATH 640), geometry (MATH 643), and statistics (MATH 612 or STAT 662). The remaining courses are to be selected, in consultation with program advisors, from the 500- and 600-level offerings in mathematics, statistics, educational research methods courses, and educational research methods courses selected from MATH 651, 652, and 653. Additional approved graduate credit hours selected from mathematics, statistics, mathematics education, psychology, and professional education sufficient to meet the minimum program requirements. 2. Pass three comprehensive examinations in K-12 mathematics curriculum and instruction • Psychological foundations and methods of instruction • Research and design in mathematics education 3. Acquire competence in two research tools. This will be an open presentation with an open question period. The committee will then decide to accept or reject the dissertation and defense. All committee members must agree on acceptance for the student to pass.
Mathematics Courses (MATH)

Open to Upperclass and Graduate Students

Undergraduates with junior or senior standing and 12 credit hours of work in mathematics and statistics may enroll in 500-level courses with prior approval of the department chairperson.

MATH 507 Numerical Analysis I
3 hrs.
The analysis and use of numerical algorithms for the solution of nonlinear equations, systems of linear equations, interpolation, numerical differentiation and integration. Prerequisite: MATH 374 and a computer programming language beyond Basic, e.g., FORTRAN or C.

MATH 510 Applied Matrix Algebra
3 hrs.
An introduction to the study of methods to solve linear systems of equations, least squares approximation problems, and eigenvalue problems. Topics covered include the algebra of real and complex matrices with particular emphasis on LU-decompositions, QR-decompositions, singular value decompositions, generalized inverses, Hermitian symmetric matrices, positive definite matrices and the Spectral Theorem. Applications from multivariate calculus will be discussed. Prerequisites: Either MATH 230 or (MATH 272 and MATH 374).

MATH 522 Introduction to Topology
3 hrs.
Topics to be chosen from: Topological spaces and continuous functions, metric spaces, connectivity, separation axioms, compactness, product and quotient spaces, paracompactness, and manifolds. Prerequisite: MATH 330 or MATH 570.

MATH 527 Differential Geometry of Curves and Surfaces
3 hrs.
An introduction to Riemannian Geometry with emphasis on curves and surfaces. Topics may include isometries, orientation, differential forms, curvature, metrics, and geodesics. Prerequisites: MATH 272 and either MATH 230 or 374. (MATH 514 is recommended.)

MATH 530 Linear Algebra
3 hrs.
Properties of finite dimensional abstract vector spaces, linear transformations, and matrix algebra are studied. Prerequisite: MATH 330.

MATH 552 Teaching of Elementary Mathematics
3 hrs.
This course covers curricular issues and trends in K-8 mathematics education. Specifically, it focuses on methods and materials for teaching mathematics effectively to K-8 students. This course is not open to undergraduate students who have completed MATH 552 with a "C" or better. Prerequisite: MATH 150 with at least a "C" or better or a course equivalent to MATH 150.

MATH 554 Algebra in the Elementary/Middle School Curriculum
4 hrs.
This course is devoted to the teaching and learning of algebra in elementary and middle grades. Concepts and skills are developed and reinforced using a variety of approaches and materials. Calculators and computers are used throughout the course to develop concepts; to explore the connections among number, algebra, geometry, and statistics; and to model and solve problems involving quantitative variables. Prerequisites: MATH 150, 151, 265, and 352 with grades of "B" or better or consent of instructor.

MATH 555 Mathematical Modeling and Problem Solving in the Elementary/Middle School Curriculum
4 hrs.
This course provides experiences in mathematical modeling and problem solving for elementary/middle school teachers. Problem contexts are selected to deepen students understanding of important ideas in number theory, algebra, geometry, probability, statistics, and the conceptual underpinnings of calculus. Calculators and computers are used extensively. Prerequisites: MATH 554 with a grade of "C" or better or consent of instructor.

MATH 570 Advanced Calculus I
4 hrs.
Properties of real numbers, Cauchy sequences, series, limits, continuity, differentiation, Riemann integral, sequences and series of functions. Prerequisites: MATH 272 and 314. (MATH 330 is recommended.)

MATH 571 Advanced Calculus II
3 hrs.
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. Prerequisite: MATH 570 or approval of advisor.

MATH 572 Vector Calculus and Complex Variables
4 hrs.
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. Prerequisite: MATH 374.

MATH 574 Advanced Differential Equations
3 hrs.
Series solutions at ordinary and singular points of linear ordinary differential equations, Bessel and Legendre functions, self-adjoint boundary value problems, Fourier series, solution of partial differential equations by separation of variables. Prerequisite: MATH 374.

MATH 580 Number Theory
3 hrs.
Diophantine equations, congruences, quadratic residues, and properties of number-theoretic functions. Prerequisite: MATH 330.

MATH 590 In-Service Professional Development in Mathematics
1–3 hrs.
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. This course may be repeated. Each offering of MATH 590 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. Prerequisite: Permission of instructor.

MATH 595 Topics in Elementary/Middle School Mathematics
3 hrs.
This course addresses topics in mathematics content and pedagogy relative to the teaching and learning of elementary/middle school mathematics. Course may be repeated for credit. Prerequisite: MATH 352 or consent of instructor.

MATH 599 Independent Study in Mathematics
1–6 hrs.
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. May be repeated for credit. Prerequisite: Approval of chairperson of department.

Open to Graduate Students Only

MATH 602 Mathematical Modeling I
3 hrs.
This course considers the methodology of modeling a series of practical problems. The mathematical tools used may include dimensional analysis, optimization, differential and difference equations, graph theory and network flow theory. The practical problems may include population dynamics, economic theory of prices and production, scale models, scheduling problems, pollution, social group interaction, epidemics, and facility location. Prerequisite: MATH 574 or consent of instructor.

MATH 605 Optimization
3 hrs.
This course will cover one or several topics from the area of optimization. The topic(s) may include nonlinear programming, dynamic programming, optimal control, variational analysis, discrete optimization, stochastic optimization, and network optimization. If the material covered is significantly different, this course may be repeated for credit with approval of the instructor. Prerequisites: MATH 272 and consent of the instructor.

MATH 607 Numerical Analysis II
3 hrs.
The analysis and use of numerical algorithms for the solution of ordinary and partial differential equations, and approximation theory. Prerequisite: MATH 507.

MATH 608 Linear Programming
3 hrs.
Linear inequalities; convex geometry; optimization in linear systems; zero-sum games; applications. Prerequisite: An introductory course in linear algebra.

MATH 609 Studies in Applied Math
3 hrs.
Advanced work organized around topics related to the field of study indicated at the time the course is scheduled. Students may take this course more than once.

The courses 611 through 619 are primarily for teachers and ordinarily will not apply towards the Master of Arts in Mathematics.

MATH 611 Mathematical Applications
3 hrs.
An introduction to the philosophy of, machinery for, and methodology in applications of mathematics. Topics will be chosen from graph theory, linear programming, numerical approximation, optimization and graphical linear programming, probability, and linear differential equations. Prerequisite: Consent of the advisor.

MATH 612 Data Analysis
3 hrs.
Variation is the central concept of the course—how to understand it, what techniques to use, how to draw conclusions from data and evaluate the basis for such conclusions. Emphasis will be placed on graphical methods, simulations, computer usage, sampling, and experience with real data from the world around us and from
This course will discuss groups, rings, integral techniques. Prerequisite: Consent of advisor.

MATH 617 Discrete Dynamical Systems 3 hrs.
This course features a blend of theory and experimentation using computer software to study dynamical systems with a special emphasis on chaotic systems. Topics investigated include iteration and orbits, graphical analysis, periodic points, bifurcation theory, fractals, Julia Sets, the Mandelbrot Set, and symbolic dynamics. Prerequisite: Consent of advisor.

This course emphasizes the applications of computing technology to the teaching and learning of mathematics in grades 7–12. Particular attention is given to the role of technology in mathematical problem solving and concept development. Technology-oriented curriculum materials will be examined and developed. Prerequisite: Consent of advisor.

MATH 621 Algebraic Topology—Fundamental Group 3 hrs.
Topics may include: Homotopy, the fundamental group, covering spaces, the classification of covering spaces, the classification of compact surfaces, the Seifert-Van Kampen Theorem, and applications. Prerequisite: MATH 522.

MATH 624 Algebraic Topology—Homology Theory 3 hrs.
Topics will include simplicial complexes, homology and cohomology theories, including singular homology theory. Prerequisite: MATH 522.

MATH 625 Differential Topology 3 hrs.
Topics may include: Differentiable manifolds and smooth maps, tangent bundles, immersions, embeddings, submanifolds, transversality, Sard's Theorem, intersection theory, and additional topics. Prerequisite: MATH 522.

MATH 626 Algebraic Topology—Homotopy Theory 3 hrs.
Topics may include: Homotopy groups, fibrations, the action of the fundamental group, Hurewicz Theorem, Whitehead Theorem, Freudenthal Suspension Theorem, Eilenberg-Mac Lane Spaces, killing homotopy, and commercial curriculum materials. This course focuses on curricular and instructional issues and trends in post-high school mathematics; research on specific problems of teaching mathematics effectively to college students will be emphasized. Prerequisite: Consent of advisor.

MATH 629 Studies in Topology 3–4 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

MATH 630 Abstract Algebra I 3 hrs.
A general study of groups, rings, and modules. A specific study of finite groups, polynomial rings, and Euclidean domains. Prerequisite: MATH 530.

MATH 631 Abstract Algebra II 3 hrs.
A continuation of 630. Modules, structure theory of modules over principal ideal domains, applications to finitely generated abelian groups, rational and Jordan canonical forms of a linear transformation, bilinear and quadratic forms. Prerequisite: MATH 630.

MATH 633 Topics in Group Theory 3 hrs.
Advanced work organized around topics in the theory of groups. Possible topics include: Finite Groups, Groups and Geometries, Group Representations, Infinite Groups or Combinatorial Group Theory. Prerequisite: MATH 631.

MATH 637 Numerical Linear Algebra 3 hrs.
The analysis and use of numerical algorithms for solving problems from linear algebra, including matrix norms, singular value decompositions, Gaussian elimination, least squares methods, eigenvalues and iterative methods. Prerequisites: MATH 510 or 530, and 507.

MATH 639 Studies in Algebra 3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

MATH 640 Graph Theory I 4 hrs.
This course and MATH 641 cover the following topics: Fundamental concepts; eulerian graphs; adjacency and incidence matrices; trees, planar graphs; graph embeddings; connectivity; hamiltonian graphs; matchings; factorization; graphs and groups; Cayley color graphs; line graphs; the Reconstruction Problem; spectra of graphs; graph and map colorings; extremal graph theory; Ramsey theory. Prerequisite: Approval of advisor.

MATH 641 Graph Theory II 4 hrs.
Continuation of MATH 640. Prerequisite: MATH 640.

MATH 644 Graphs, Groups, and Surfaces 3 hrs.
Study of the interaction of graphs, groups, and surfaces. Topics covered include map-coloring problems, symmetrical maps, automorphism groups of graphs, Cayley graphs of groups, genus of graphs, genus of groups, generation of block designs, and applications to church bell ringing. Prerequisite: Consent of instructor.

MATH 645 Studies in Combinatorics 3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once. Prerequisite: Approval of instructor.

MATH 649 Studies in Geometry 3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

The courses 651, 652, 653, and 654 are primarily for teaching. Students will not apply towards the Master of Arts in Mathematics.

MATH 651 Studies in Teaching Elementary School Mathematics 3 hrs.
This is an advanced methods class devoted to analysis of current theoretical and research-based perspectives on mathematics teaching and learning and their implications for instructional practice and evaluation of student performance at the elementary school level. Explicit attention is given to the impact of technology on the teaching/learning process. Prerequisite: Consent of advisor.

MATH 652 Studies in Teaching Middle School Mathematics 3 hrs.
This is an advanced methods class devoted to analysis of current theoretical and research-based perspectives on mathematics teaching and learning and their implications for instructional practice and evaluation of student performance at the middle school level. Explicit attention is given to the impact of technology on the teaching/learning process. Prerequisite: Consent of advisor.

This is an advanced methods class devoted to analysis of current theoretical and research-based perspectives on mathematics teaching and learning and their implications for instructional practice and evaluation of student performance at the secondary school level. Explicit attention is given to the impact of technology on the teaching/learning process. Prerequisite: Consent of advisor.

MATH 654 Secondary School Mathematics Curriculum Studies 3 hrs.
Participants in this course examine curricular issues and trends in secondary school mathematics and analyze recent experimental and commercial curriculum materials. This course may be taken more than once with the approval of the student's advisor. Prerequisite: Consent of advisor.

MATH 656 Teaching of College Mathematics 2 hrs.
In this course consideration is given to curricular problems and trends in post-high school mathematics; research on specific problems of teaching mathematics effectively to college students will be emphasized. Prerequisite: Consent of advisor.

MATH 657 Issues and Trends in Mathematical Education 3 hrs.
This course focuses on curricular and instructional issues and trends in K–14 mathematics education, including an examination of major historical themes that have shaped mathematics policy and practice at these levels. Prerequisite: Consent of advisor.

MATH 658 Psychology of Learning Mathematics 3 hrs.
This course focuses on theories of mathematical thinking and knowing and on an examination of major research paradigms and research findings on mathematical learning in children and adults and their implications for instruction. Prerequisite: Consent of advisor.

MATH 659 Research in Mathematics Education 3 hrs.
This course focuses on research issues, methodologies, and trends within mathematics education along with techniques for critical analysis of research. Students are expected to design and present an individual research study. Prerequisite: Consent of advisor.
MATH 670 Real Analysis I
3 hrs.
The first of a two semester sequence in real analysis. Topics covered in the two semesters will include topology and continuous functions, Lebesque and general measure and integration, differentiation and the Radon-Nikodym theorem, Hilbert spaces, Banach spaces, and product spaces and Fubini's theorem. Prerequisites: MATH 522 and 571.

MATH 671 Real Analysis II
3 hrs.
The second of a two semester sequence in real analysis. Topics covered in the two semesters will include topology and continuous functions; Lebesque and general measure and integration, differentiation and the Radon-Nikodym theorem; Hilbert spaces, Banach spaces, and product spaces and Fubini's theorem. Prerequisite: MATH 670.

MATH 676 Complex Analysis
3 hrs.
Topics include: Cauchy Theory, series expansion, power series, types of singularities, calculus of residues. Prerequisite: MATH 571.

MATH 678 Introduction to Functional Analysis
3 hrs.
Metric spaces; category; compactness; Banach spaces; Hahn-Banach theorem; completely continuous operators; Hilbert spaces; self-adjoint operators; elementary spectral theory. Prerequisite: MATH 671.

MATH 679 Studies in Analysis
3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

MATH 688 Research Tools in the Mathematical Sciences
1-3 hrs.
This course consists of various computer applications and computer network activities that are commonly used in the mathematical community, including mathematical word processing, computer algebra systems, literature searches, and the use of internet resources. Enrollment is limited to students in a graduate degree program in mathematics or mathematics education. Students must satisfactorily complete an approved number of modules per credit hour selected. If the course is repeated, different modules must be completed. Certain departmental degree programs may require the completion of specific modules. Prerequisite: Permission of the department chairperson.

MATH 690 Seminar in Applied Mathematics
1-3 hrs.
May be repeated for credit.

MATH 692 Seminar in Topology
1-3 hrs.
May be repeated for credit.

MATH 693 Seminar in Algebra
1-3 hrs.
May be repeated for credit.

MATH 694 Seminar in Graph Theory
1-3 hrs.
May be repeated for credit.

MATH 695 Seminar in Mathematics Education
1-4 hrs.
May be repeated for credit.

MATH 697 Seminar in Analysis
1-3 hrs.
May be repeated for credit.

MATH 699 Reading and Research
May be repeated for credit.

MATH 712 Professional Field Experience
2-12 hrs.

MATH 725 Doctoral Research Seminar
2-6 hrs.

MATH 730 Doctoral Dissertation
15 hrs.

MATH 735 Graduate Research
1-6 hrs.

MEDIEVAL INSTITUTE
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James Palmietta
Pablo Pastrana-Perez
Adam Sabra
Eve Salisbury
Jana Schulman
Thomas Selier
Larry Simon
Matthew Steel
Larry Syndergaard
Paul E Szarmach

Master of Arts in Medieval Studies
Advisor:
Paul E. Szarmach,
The Medieval Institute, Walwood Hall

The Medieval Institute of Western Michigan University offers an interdisciplinary program leading to the Master of Arts in Medieval Studies. Students may choose either Option I (Thesis) or Option II (Non-thesis), depending on their career plans, personal interests, and intellectual orientation. Either option provides a broad background in medieval history, languages, literatures, palaeography, philosophy, religion, the arts, and in research methodology.

Western Michigan University offers an academic environment appropriate for the study of the Middle Ages. The University library houses extensive holdings of books and periodicals in all areas of Medieval Studies, and the Institute of Cistercian Studies publishes various series of monographs and periodicals in the field of Medieval Studies. The Richard Rawlinson Center for Anglo-Saxon Studies and Manuscript Research offers further opportunities for research and study.

Admission Requirements
In addition to meeting the general admission requirements of The Graduate College, an applicant must submit scores from the Graduate Record Examination General Test, two letters of recommendation, and a statement of intent.
Program Requirements

OPTION I, THESIS, 37 hrs.
1. A total of at least 31 hours of course work, including 13 hours of required core courses [ENGL 530 Medieval Literature; HIST 635 Research Techniques in Medieval History; LAT 560 Medieval Latin (grade of B or better required); REL 500 Christian Theology to 1500] and 18 hours of electives, the latter to be chosen from the list of approved courses in the Departments of Art, Comparative Religion, English, Foreign Languages and Literatures, History, Music, and Philosophy.
2. Demonstrated reading proficiency in Latin, and in either French, German, Italian, or Spanish.
3. Preparation of an acceptable Master's Thesis (6 hours) under the direction of a thesis advisory committee.

OPTION II, NON-THESIS, 37 hrs.
1. A total of at least 37 hours of course work, including 13 hours of required core courses [ENGL 530 Medieval Literature; HIST 635 Research Techniques in Medieval History; LAT 560 Medieval Latin (grade of B or better required); REL 500 Christian Theology to 1500] and 24 hours of electives, the latter to be chosen from the list of approved courses in the Departments of Art, Comparative Religion, English, Foreign Languages and Literatures, History, Music, and Philosophy.
2. Demonstrated reading proficiency in Latin. (Note: Option II has no modern language requirement.)
3. Option II has no thesis requirement.

Medieval Studies Courses (MDVL)

Open to Upperclass and Graduate Students
MDVL 500 Interdisciplinary Studies in Medieval Culture
3 hrs.
An interdisciplinary course organized around selected topics in medieval and Renaissance studies. The focus may be in a specific period (The Twelfth Century), a religious movement (Monasticism), a political structure (Venice—A Renaissance City-State), or the social fabric (Medieval Man: Image and Reality). In each case faculty from several departments will approach the semester's topic from the perspective and with the methodological tools of their respective disciplines, such as art, history, literature, music, philosophy, political science, and religion. The overall aim of the course is to demonstrate to students why one needs to acquire a variety of disciplines to understand a single complex problem, and how to put traditional building blocks together in new ways. The course may be repeated for credit with a different topic.

MDVL 597 Directed Study
1–3 hrs.
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.

Open to Graduate Students Only
MDVL 600 Advanced Seminar in Medieval Studies
2-4 hrs.
A research seminar for advanced graduate students with the focus on research and the preparation of papers in highly specialized areas of Medieval Studies. The specific topic of each seminar will be announced in the Schedule of Course Offerings. May be repeated for credit with a different topic.

MDVL 700 Master's Thesis
6 hrs.

MDVL 710 Independent Research
2-6 hrs.

MDVL 712 Professional Field Experience
2-12 hrs.

PHILOSOPHY

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Timothy McGrew
David Newman
Janet Pisaneschi
Michael Pritchard
Quentin Smith

Master of Arts in Philosophy

Advisors:
Sylvia Culp, Graduate Advisor
Room 321, Moore Hall
Arthur Falk, Graduate Admissions Officer
Room 311, Moore Hall
Timothy McGrew, Director of Graduate Assistant Program
Room 322, Moore Hall

The Master of Arts in Philosophy offers advanced study in the main subject areas and historical periods of philosophy.

Admission Requirements

In addition to satisfying the admission requirements of The Graduate College, applicants are expected
1. to have completed a minimum of twelve semester hours of undergraduate work in philosophy, including
2. a course in the history of modern philosophy, and
3. a course in symbolic logic, and
4. to have achieved a 3.0 or above overall grade point average in the applicant's undergraduate philosophy courses.

Applicants who do not meet the above requirements should contact the Graduate Admissions Officer, Dr. Arthur Falk, in the Department of Philosophy for additional information.

Program Requirements

NON-THESIS OPTION
To complete the Non-Thesis Option for a Master of Arts in Philosophy, students must complete
1. At least 1 course (no less than 3 credit hours) in each of the three Concentration areas (the "breadth requirement").
2. at least 3 courses (no less than 9 credit hours) in one of the Concentration areas (the "depth requirement").
3. a minimum of 24 credit hours of 500- or 600-level courses in the Department of Philosophy, and
4. a minimum of 32 graduate credit hours. (With the authorization of the Department Graduate Advisor, students may count up to 8 credit hours of courses from other departments.)

THESIS OPTION
To complete the Thesis Option for a Master of Arts in Philosophy, students must complete
1. At least 1 course (no less than 3 credit hours) in each of the three Concentration areas (the "breadth requirement"),
PHIL 512 Aesthetics
3 hrs.
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. Prerequisite: 12 credit hours in Philosophy.

PHIL 590 Philosophical Applications of Symbolic Logic
3 hrs.
This course is designed to expose graduate students to the theory of applications of modern symbolic logic. Starting with the sentential and predicate calculi, the course explores various extensions which may include alethic modal 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: 12 hours of philosophy, including either PHIL 225 or PHIL 320.

PHIL 525 Decision Theory
4 hrs.
Can there be a formal theory of what it is to be rational in one’s beliefs and actions? This course is an introduction to decision theory, which claims to be just such a theory of rationality. Attention will be given to both its mathematical development and the issues it raises in the philosophy of science, the theory of knowledge, and action theory. A working knowledge of high school algebra is assumed. Prerequisites: PHIL 220, 225 or 320, and two other courses in philosophy, mathematics (above the level of MATH 110), or computer science (above the level of CS 105).

PHIL 534 Moral and Philosophical Foundations of Health Care
3 hrs.
In this course philosophical reflection and ethical reasoning are applied to the issues surrounding the nature and purpose of the health sciences. Topics to be considered include: the aims of health care, the interplay of fact and value in health care, competing images of humankind embedded in health science, patient autonomy, dignity and medical paternalism. Prerequisite: 12 credit hours in philosophy or one of the following: mathematics, biological or social sciences.

PHIL 540 Philosophy of Mind
2-4 hrs.
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: epistemology, intentionalism, the nature of intentionality, the concept of a person, the privacy of mental states, knowledge of other minds, and scientific versus non-scientific explanations of human behavior. Prerequisite: 12 credit hours in Philosophy, including PHIL 301. May be repeated for credit, with advisor’s approval, when topics vary.

PHIL 555 Advanced Philosophy of Science
2-4 hrs.
A detailed examination of some of the central problems in contemporary philosophy of science. Topics may vary from term to term. Typical topics include: nature of scientific explanation, theory structure and change, scientific realism and anti-realism, and/or the philosophical basis of the special sciences, e.g., the physical, biological or social sciences. Prerequisite: 12 credit hours in Philosophy. May be repeated for credit, with advisor’s approval, when topics vary.

PHIL 560 Philosophy at Pre-College Levels
2-4 hrs.
A content-oriented course that explores topics, reading materials, and ways of approaching them in the teaching of philosophy at the pre-college level. A special emphasis is put on critical and creative thinking.

PHIL 570 Philosophical Topics
1-4 hrs.
An examination of special philosophical topics. Topics to be listed in the Schedule of Course Offerings. Prerequisite: Specific course prerequisites may be stipulated for specific topics and substitutions for philosophy may be allowed. Usually at least one of PHIL 300 or PHIL 301 will be required. May be repeated for credit, with advisor’s approval, when topics vary. May be offered in an accelerated format.

PHIL 598 Readings in Philosophy
1-4 hrs.
Research on some selected period or topic under supervision of a member of the Philosophy faculty.

Open to Graduate Students Only

PHIL 600 Colloquium
2-4 hrs.
A seminar in which one or more faculty involve the students in their current research. Topics may vary from term to term.

PHIL 610 Seminar in the History of Philosophy
2-4 hrs.
A close reading and discussion of selected classics written by major philosophers from the ancient, medieval, or modern period. Selections may vary from term to term.

PHIL 620 Philosophy of Language and Logic
2-4 hrs.
An examination of the relationship of language to the world, and/or the philosophical basis of standard and nonstandard logics. Possible topics include the nature of reference and predication, the distinctions between a priori and a posteriori, between analytic and synthetic, and between necessary and contingent propositions, the roles of proper names, general terms, and pronouns, and the truth conditions of sentences, as well as questions concerning the nature of modal logic, tense logic, free logic, deontic logic, epistemic logic, paracomponent logic, first and second order logics, and probability calculus. May be repeated, with advisor’s approval, when topics vary.

PHIL 631 Ethical Theory
2-4 hrs.
A study of theories of Ethics and Morality. Topics may vary from semester to semester. May be repeated for credit, with advisor’s approval, when topics vary.
PHIL 632 Theory of Knowledge
2-4 hrs.
An examination of the nature of truth, belief, and evidence. Topics may vary from term to term. Examples include: questions about the nature of perception, a priori and a posteriori knowledge, skepticism, epistemic foundations, epistemic justification, and other related topics.

PHIL 633 Metaphysics
2-4 hrs.
An examination of the underlying nature of reality. Topics may vary from term to term. Examples include: questions about the fundamental kinds of entities that comprise reality, the existence of God, universals and particulars, space and time, causation and free will, mind and matter, identity and change, and other related topics.

PHIL 650 Philosophy of Religion
2-4 hrs.
An examination of philosophical issues related to religion. Topics may vary from term to term. Examples include: the nature and existence of God, the problem of evil, theistic and scientific explanations, pantheism, the relation between faith and reason, the nature of religious experience, life after death, miracles, religious epistemology, and the theological foundations of ethics. May be repeated, with advisor's approval, when topics vary.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

PHIL 700 Master's Thesis
1-6 hrs.

PHIL 710 Independent Research
2-6 hrs.

PHYSICS

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Master of Arts in Physics

Advisor:
Dean Halderson,
Room 1135, Everett Tower

The Department of Physics offers a graduate program leading to the Master of Arts in Physics. The objective of the program is to enable students to acquire the knowledge and technical skills needed in physics-related occupations and in graduate study at the doctoral level. Thirty semester hours of graduate credit are required. An additional requirement is either to pass the Doctoral Qualifying Examination at the master's degree level or to complete a Master's Thesis. Participation in research may occur in one of three areas:

1. Theoretical physics—astrophysics, atomic physics, nuclear structure, nuclear reactions, or condensed matter.
2. Experimental physics—anatomy, atomic physics, nuclear physics, condensed matter physics, or materials analysis with accelerated ions. Campus facilities available for experimental research include a Van de Graaff accelerator and laboratory, and a low-temperature physics laboratory.
3. Computer and instrumentation physics—software and hardware development for computer data acquisition and analysis, or instrumentation development for physics research.
4. Or any combination of these, or some interdisciplinary areas.

Admission Requirements
Students entering this program are expected to have acquired a bachelor's degree in physics or at least an equivalent amount of experience and training (including training in mathematics at the appropriate level). Prospective students are required to take the GRE General Test and Physics Subject Test. The departmental graduate advisor will provide assistance to students seeking admission to this program and will recommend ways of eliminating any deficiencies in course work.

Program Requirements
The thirty semester hours of graduate credit must include the following:

1. Fifteen hours of required courses in physics, namely: PHYS 610, Research Seminar; PHYS 622, Quantum Mechanics I; PHYS 624, Statistical Mechanics; PHYS 630, Classical Mechanics; and PHYS 662, Electricity and Magnetism. Substitutions for these courses may be made only with the approval of the graduate advisor.

2. Either successful completion of the Doctoral Qualifying Examination at the master's degree level or satisfactory completion of PHYS 700, Master's Thesis (6 hours).

3. Additional hours from Physics, Computer Science, Electrical Engineering, or other departments to be chosen with the consent of the graduate advisor.

The thesis may be either theoretical or experimental in nature and is accomplished under the guidance of a committee of the graduate faculty in Physics. The topic of the thesis may be based on one of the research areas noted above, or it may be based on some other area of physics chosen by the student and approved by the thesis committee. The committee may require an oral defense of the thesis before approving it for submission to The Graduate College.

Graduate students are required to attend the Physics Colloquium, which constitutes a program for graduate students and Physics faculty, presented by members of the WMU Physics faculty and visitors from other institutions on topics related to their research specialties. Graduate students are also expected to attend the Physics Public Lectures, a series of talks on topics of general interest in physics and related fields.

Doctor of Philosophy in Physics

Advisor:
Dean Halderson,
Room 1135, Everett Tower

The Department of Physics offers a program leading to the Doctor of Philosophy in Physics. The main objective of this program is to prepare students for careers in teaching and/or research in colleges and universities, or for research in industry. Research is an integral part of the program and may be performed in either experimental physics or theoretical physics. The area of specialization may be astrophysics, atomic physics, condensed matter physics, or nuclear physics. Special facilities available for research include a 6 MV model EN tandem Van De Graaff accelerator. The graduate advisor in the Department of Physics will counsel the student until a research advisor is selected. Afterwards the student will plan his/her doctoral program in consultation with the graduate advisor and his/her research advisor.

Admission Requirements
Students entering this program are expected to have acquired a bachelor's degree in physics or at least an equivalent amount of experience and training (including training in mathematics at the appropriate level). Prospective students are required to take the Graduate Record Examination General Test. Performance on this examination will be used as one measure in the determination of admission and financial support. It is also recommended that students take the Physics Subject Test part of the Graduate Record Examination. The departmental graduate advisor will provide assistance to students seeking admission to this program and will recommend ways of eliminating any deficiencies in course work.

Program Requirements
The Doctor of Philosophy in Physics includes a minimum of 60 hours of graduate credit. These credits are composed of course work, supervised reading, seminars, and research. The research will be performed under the guidance of the student's research advisor and must culminate in a dissertation suitable for
publication. The required, minimum 60 hours of graduate credit shall consist of the following:
1. A core of basic courses listed below (28 credit hours).
2. Physics 730 Doctoral Dissertation (15 credit hours).
3. Additional courses chosen from:
   a. Research courses (PHYS 680, 681, or 682)
   b. Courses mutually agreed upon by the student and the graduate advisor or the research advisor.
4. An overall grade point average of 3.25 in all graduate work.

Basic Core Courses:
PHYS 610 Research Seminar
PHYS 615 Mathematical Physics
PHYS 622 Quantum Mechanics I
PHYS 623 Quantum Mechanics II
PHYS 624 Statistical Mechanics
PHYS 630 Classical Mechanics
PHYS 662 Electricity and Magnetism I
PHYS 663 Electricity and Magnetism II
and one (1) of the following:
PHYS 670 Atomic Physics
PHYS 671 Nuclear Physics
PHYS 672 Condensed Matter Physics

The research tool requirements must be met by demonstrated competency in two of the following: (1) Programming at the level of MATH 507, (a programming language, analysis, modeling, or simulation of data); (2) a non-native foreign language at the level of FREN 401, GER 401, etc.; (3) differential equations at the level of MATH 574, (4) the use of physics research equipment at a level equivalent to PHYS 466. PHYS 466 is strongly recommended for those students who have not had an advanced laboratory course.

The courses PHYS 615, 622, 630, and 662 normally are taken during the student's first year. Upon completion of these courses the student is required to take the Qualifying Examination. The Qualifying Examination consists of four testing sessions and will cover the contents of the four courses. This examination is a written examination; however, if deemed necessary for a more precise judgment, the student may be required to take an additional oral examination. The examination must be passed before any hours of PHYS 730 Doctoral Dissertation or PHYS 735 Graduate Research are taken. A student is allowed to take the Qualifying Examination only twice. It is recommended that the Qualifying Examination be taken at the end of the first year. This examination must be taken for the first time no later than the beginning of the student's third year and must be passed before the beginning of the student's fourth year.

The grade awarded on the Qualifying Examination is based not only on the student's performance on the written examination, but also on his or her performance in courses. The grade represents the faculty's judgment based on all available evidence, on whether or not the student should become a doctoral candidate.

After successful completion of the Qualifying Examination, the student will, upon counsel with the graduate advisor and with the consent of the faculty member involved, select a research advisor. The advisor must be a member of the graduate faculty. With agreement from the research advisor, the student will select a dissertation committee. This committee will consist of the research advisor, the student, and six additional graduate faculty members, at least one of whom is from outside the Physics Department.

As soon as possible after completion of all the core courses, the student must take the Comprehensive Examination. The Doctoral Program of Study form must be approved before this examination is taken. This examination consists of questions on the doctoral dissertation proposal and, possibly, on the core courses. A student will be given a grade of pass or fail. If a student fails the Comprehensive Examination, it may be repeated only once. At the completion of the dissertation, the student will take a Final Oral Examination. During this examination, the dissertation committee will ask questions concerning the dissertation and concerning the student's research area. Members of the committee should be provided with copies of the dissertation at least one month in advance of the examination. The dissertation and the student's knowledge of the subject areas must be deemed acceptable by the committee.

The requirements and procedures for submission of a dissertation to The Graduate College can be obtained from that College.

Physics Courses (PHYS)

Open to Underclass and Graduate Students

The department's 500-level courses are offered only to advanced physics majors who have successfully completed all prerequisite studies.

PHYS 562 Atomic and Molecular Physics 3 hrs.
This course consists of some applications of quantum mechanics. Topics include the helium atom, multielectron atoms, the Raman, Zeeman, and Stark effects, stimulated emission, transition rates, selection rules, the diatomic molecule, and molecular physics. Prerequisite: PHYS 460 or consent of instructor.

PHYS 563 Solid State Physics 3 hrs.
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. Prerequisite: PHYS 460 or consent of instructor.

PHYS 564 Nuclear and Particle Physics 3 hrs.
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. Prerequisite: PHYS 460 or consent of instructor.

PHYS 589 Selected Topics 1–4 hrs.
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. Prerequisite: Consent of instructor.

Open to Graduate Students Only

PHYS 610 Research Seminar 1 hr.
This is a required course for the first-year graduate students and will be offered every winter semester. The course consists of faculty research talks and student talks (one by each student) on papers chosen by the students and approved by the faculty members. The course will be graded on a Credit/No Credit basis.

PHYS 615 Mathematical Physics 3 hrs.
This course provides the background needed for the application of mathematics to physical problems encountered in graduate physics courses. Relevant topics in group theory, complex variables, and functional analysis are included.

PHYS 622 Quantum Mechanics I 3 hrs.
This course is designed to provide a foundation of fundamental techniques for more advanced work in the physics and chemistry of atoms, molecules, nuclei, and solids. The Schroedinger equation and operator theory are applied to simple systems such as the one-electron atom and potential scattering.

PHYS 623 Quantum Mechanics II 3 hrs.
This course is a continuation of 622. It employs state-vector formulation to study several problems of general interest, such as time-dependent perturbation theory, systems of identical particles, and angular momentum. Prerequisite: PHYS 622

PHYS 624 Statistical Mechanics 3 hrs.
Statistical methods, employing ensemble theory, are used to study the equilibrium properties of systems having many degrees of freedom. Classical and quantum theories are developed and applied to selected problems of interest in physics and chemistry. The relationships between microscopic models and macroscopic properties are emphasized.

PHYS 630 Classical Mechanics 4 hrs.
Lagrange's equations are developed early in the course and are used in the analysis of both point-mass and rigid-body problems. The modifications of classical mechanics required by the theory of relativity are reviewed. The Hamilton equations of motion and Hamilton-Jacobi theory are introduced, and some of the analogies between classical and quantum mechanics are discussed.

PHYS 650 Relativistic Quantum Mechanics 3 hrs.
This course deals with the Dirac and Klein-Gordon equations, quantum electrodynamics, Feynman diagrams, and the properties of the strong and weak interaction of elementary particles. Prerequisite: PHYS 623

PHYS 662 Electricity and Magnetism I 4 hrs.
This course deals with the static electromagnetic field, its interaction with matter, time-varying fields, Maxwell's equations, wave propagation, wave guides, and simple radiating systems.

PHYS 663 Electricity and Magnetism II 4 hrs.
This course deals with the scattering of electromagnetic waves, plasma physics, special relativity, relativistic dynamics, collisions between charged particles, bremsstrahlung, and multipole fields. Prerequisite: PHYS 662

PHYS 670 Atomic Physics 3 hrs.
This course covers atomic structure, atomic spectra, second quantization of the electromagnetic field, the interaction of radiation and matter, resonant phenomena, and the formal theory of scattering with applications to atomic collisions. Prerequisite: PHYS 623 or consent of instructor.

PHYS 671 Nuclear Physics 3 hrs.
This course covers nuclear models, nuclear matter, electromagnetic properties, reactions, interactions, etc.
PHYS 672 Condensed Matter Physics
3 hrs.
This course includes both static and dynamic properties of condensed matter with particular emphasis on transport properties, optical properties, magnetism, and superconductivity.
Prerequisite: PHYS 622 or consent of instructor.

PHYS 680 Research in Atomic Physics
1–6 hrs.
This course is available for students performing doctoral research in atomic physics. A student must have a research advisor to enroll in PHYS 680. This course may be taken more than once. Prerequisite: Consent of research advisor.

PHYS 681 Research in Nuclear Physics
1–6 hrs.
This course is available for students performing doctoral research in nuclear physics. A student must have a research advisor to enroll in PHYS 681. This course may be taken more than once. Prerequisite: Consent of research advisor.

PHYS 682 Research in Condensed Matter Physics
1–6 hrs.
This course is available for students performing doctoral research in condensed matter physics. A student must have a research advisor to enroll in PHYS 682. This course may be taken more than once. Prerequisite: Consent of research advisor.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

PHYS 700 Master’s Thesis
6 hrs.

PHYS 710 Independent Research
2–6 hrs.

PHYS 730 Doctoral Dissertation
15 hrs.

PHYS 735 Graduate Research
2–10 hrs.

POLITICAL SCIENCE
Dr. David Houghton, Chair
Main Office: 3302 Friedmann Hall
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Steven T. Benfell
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Peter Kobrak
Ashlyn Kuersten
Neil Pinney
Peter G. Renstrom
Sybil D. Rhodes
Chester B. Rogers
Brian Schaffner
Murray Scot Tanner
Lawrence Ziring

Master of Arts in Political Science

Director of Graduate Studies:
John A. Clark,
Room 3356, Friedmann Hall

The Master of Arts in Political Science offers the student a variety of options to prepare him/her for various career goals: (1) positions in the public service and quasipublic agencies; (2) further professional training in political science and related professions, such as law; (3) teaching positions in community colleges; and (4) general positions in the business world.

Admission Requirements
In addition to meeting the general admission requirements of The Graduate College, a student must have completed at least twenty-four hours of work in the social sciences or other relevant fields and have achieved a 3.0 grade point average. Graduate Record Exam scores for the quantitative, verbal, and analytical parts are required for all students. Additional materials to be submitted include a brief essay about the student’s academic and professional objectives and three recommendations (on WMU Graduate Reference Forms). The department may require the student to make up deficiencies in undergraduate preparation.

Program Requirements
The program is 30 credit hours and allows students to choose between the thesis and non-thesis options. Requirements in the two options may not be interchanged. Students should meet with the Director of Graduate Studies before registering for classes in their first semester.

THESIS OPTION
1. Thirty hours of graduate credit in Political Science. With the written approval of the Graduate Director, a student may substitute up to two courses with a maximum of eight hours of cognate work appropriate to his/her program.
2. Either PSCI 601, Foundations of American Politics I: Institutions and Politics or PSCI 602, Foundations of American Politics II: Representation and Participation; either PSCI 641, Comparative Politics I: Theories of Comparative Politics or PSCI 642, Comparative Politics II: Institutional and Contextual issues or PSCI 645, National Political Systems and International Politics; or PSCI 662, Political Philosophy I or PSCI 663, Political Philosophy II; PSCI 664, The Nature of Political Inquiry and Analysis; PSCI 694, Teaching Political Science; and PSCI 696, Research and Professional Skills.
3. PSCI 700, Master’s Thesis (6 hours).
4. Pass an oral examination on the thesis and on the student’s political science program.

NON-THESIS OPTION
1. Thirty hours of graduate credit in Political Science. With written approval of the Graduate Director, a student may substitute up to two courses with a maximum of eight hours of cognate work appropriate to his/her program.
2. Either PSCI 601, Foundations of American Politics I: Institutions and Politics or PSCI 602, Foundations of American Politics II: Representation and Participation; either PSCI 641, Comparative Politics I: Theories of Comparative Politics or PSCI 642, Comparative Politics II: Institutional and Contextual issues or PSCI 645, National Political Systems and International Politics; or PSCI 662, Political Philosophy I or PSCI 663, Political Philosophy II, PSCI 664, The Nature of Political Inquiry and Analysis; PSCI 694, Teaching Political Science; and PSCI 696, Research and Professional Skills.
3. Pass written and oral field examinations on the student’s political science program.

Master of Development Administration

MDA Director:
Lawrence Ziring,
Room 3356, Friedmann Hall

The Master of Development Administration (MDA) program is designed to prepare candidates for careers in international development and to meet the specialized needs of public administrators from the developing countries. The course of instruction has as its focus the political dimensions of development and democratization and includes a strong multidisciplinary component that draws from public administration, economics, computer science, business and management, social work, human resources and health delivery systems, and educational leadership.

The program is designed for two types of students: Public administrators and officials from developing countries who require additional training to meet new or increased responsibilities; and recent graduates from both developing and industrial countries, including the United States, who are interested in development—careers in the public sector, i.e., in government, non-governmental organization, or international organization.

The MDA program includes both development administration theory and practice, exposure to development strategies, and the honing of skills. MDA students are guided in their work by established and experienced members of the academic community, all of whom are research scholars, and the majority of whom have lived and worked in the developing countries. Usually faculty have had experience with national and/or international organizations, or have worked with a variety of governments on development projects.

Two options exist—the standard MDA program and the Peace Corps option. The admission and program requirements for each option are listed below.
STANDARD MDA PROGRAM OPTION

Admission Requirements
Applicants must satisfy the requirements for admission to The Graduate College in order to be considered for admission to this program. An applicant must possess an undergraduate degree, preferably in the social sciences with either a concentration in political science or public administration, and should have some exposure to economics and/or statistics. Applicants with actual public administration experience may, under some circumstances, substitute professional requirements for undergraduate preparation.

A grade point average of 3.0 in all undergraduate work is normally a requirement for admission to the MDA program, however, when grading scales are computed differently, equivalencies will be determined. International students must obtain from and submit their applications to the WMU Office of International Student Services. American students should apply through the WMU Graduate Admissions Office. The Department of Political Science also requires three recommendations (using WMU Graduate Reference Forms), a one page statement of the student’s interest in the MDA program, and any other supporting data that can assist the Department’s Admissions Committee, which screens and judges all applications.

All students must demonstrate English proficiency (i.e., the ability to speak, read, and write in the English language) before entering the MDA program. A Career English Program is available for students whose English language capabilities are limited.

Students are encouraged to submit all required application materials by June 15 for the fall semester; by September 15 for the winter semester; and by February 15 for the spring session.

Program Requirements
The Master of Development Administration is a professional degree that requires forty-two semester hours of graduate courses. Up to six hours may be waived for those with extensive administrative experience. To earn the MDA degree, students must maintain a minimum “B” average (GPA 3.0 on a 4.0 scale) in all courses. Students normally complete the program in 20 months. The basic requirements are as follows:

5. Concentrations. Three courses within one of the five concentrations (9 hours). Most students take the Standard Concentration. Under special circumstances a mix of courses appropriate to the needs of the student may be accepted with the approval of the MDA Director.

a. Leadership—the Standard Concentration: PSCI 644, Comparative Strategies of Development; PSCI 649, Sustainable Rural Development; PADM 614, Managing Community Growth and Development; PADM 611, Administrative Law and Governmental Regulations; PADM 636, Exercise of Power in Organizations; PADM 599, Reinventing Government; COM 673, Conflict Management; COM 683, Power and Leadership in Organizational Communication; or EDLD 602, Educational Leadership.


c. Health and Human Services: PADM 651, Health Services Environment; PADM 655, Administration of Health Services; PADM 678, Program Evaluation; PADM 658, Seminar: Current Issues in Health Service Management and Delivery; HHS 561, Problem Solving in Health and Human Services Organizations; SWRK 643, Leadership and Management in Human Services.


e. Public Policy Analysis: PSCI 605, Comparative Public Policy; PSCI 664, The Nature of Political Inquiry and Analysis; PSCI 691, Political Analysis I; PSCI 692, Political Analysis II; PADM 688, Program Planning and Proposal Writing; ECON 568/688 Economic Development; or ECON 600, Applied Economics for Management.

f. Field Paper (6 hrs.): One of the following—PSCI 633, Introduction to Public Administration, and ECON 201 or 202, Principles of Economics, or other courses as determined by the MDA Director.

5. Concentrations (9 hrs.): Three courses (9 hours) within one of the following concentrations in the field of Public Administration or related fields: PSCI 633, Introduction to Public Administration, and ECON 201 or 202, Principles of Economics, or other courses as determined by the MDA Director.

6. Field Paper (6 hrs.): One of the following—PSCI 633, Introduction to Public Administration, and ECON 201 or 202, Principles of Economics, or other courses as determined by the MDA Director.

7. Public Policy Analysis: PSCI 605, Comparative Public Policy; PSCI 664, The Nature of Political Inquiry and Analysis; PSCI 691, Political Analysis I; PSCI 692, Political Analysis II; PADM 688, Program Planning and Proposal Writing; ECON 568/688 Economic Development; or ECON 600, Applied Economics for Management.

8. Field Paper (6 hrs.): One of the following—PSCI 633, Introduction to Public Administration, and ECON 201 or 202, Principles of Economics, or other courses as determined by the MDA Director.

The Doctor of Philosophy in Political Science is designed to prepare students for careers in teaching, policy analysis, and applied as well as academic research. The Ph.D. program provides basic training in American politics, comparative politics, political theory and philosophy, and research methods. Students are expected to specialize in one of these three areas: citizen politics; political development, democratization and sustainability; or public policy and policy processes. Students may enter with either a B.A. degree or an M.A. degree.

Admission Requirements
Students must satisfy the general admission requirements of The Graduate College. Students applying to the program with a bachelor’s degree must have completed at least twenty-four hours of work in the social sciences or other relevant fields, and have achieved a 3.25 grade point average in their last two years of course work. Students applying with a master’s degree must have achieved a grade point average of at least 3.25 in their graduate work. Graduate Record Exam scores for the quantitative, verbal and analytical parts are required for all students. Each applicant should arrange to have three recommendations sent (using WMU Graduate
for the doctorate are as follows:

1. Prerequisites (non-credit). Students must have completed the following course or its equivalent with a grade of “B” or better:
   - PSCI 395, Quantitative Methods for Political Scientists

2. Required core courses. Each student is required to take the following thirteen core courses (33 hours) or their equivalent: A.) Foundations: PSCI 601, Foundations of American Politics I; PSCI 602, Foundations of American Politics II; PSCI 641, Comparative Politics I; Theories of Comparative Politics; PSCI 642, Comparative Politics II: Institutional and Contextual Issues; PSCI 692, Political Philosophy I; PSCI 663, Political Philosophy II; B.) Scope and Methods: PSCI 664, The Nature of Political Inquiry and Analysis; PSCI 691, Political Analysis I; PSCI 692, Political Analysis II; C.) Professional Skills: PSCI 694, Teaching Political Science; PSCI 695, Teaching Excellence; PSCI 696, Research and Professional Skills; and PSCI 697, Proposal Workshop.

3. Annual Reviews. In order to continue in the program, students must receive a positive annual review. In addition, first year students must take and pass a preliminary examination based upon one of three, two-course sequences: Political Theory and Philosophy (PSCI 662 and PSCI 693) or American Politics (PSCI 601 and PSCI 602) or Comparative Politics (PSCI 641 and PSCI 642) in order to continue in the program.

4. Research area. After passing the preliminary examination and completing the basic requirements, students will select their research area (either citizen politics, political development, democratization and sustainability; or public policy and policy processes). With the approval of the Graduate Director, they will:
   a.) Take nine hours of courses from an approved list, and
   b.) Select 27 additional credit hours that relate to their research area and dissertation topic from approved cognates (9 hours required), research tools/methods, and electives.

5. Research tools/methods. All Ph.D. students must demonstrate proficiency in at least two research skills and/or methodology appropriate to their field of specialization, as determined in consultation with their advisor and Graduate Director. As such, all students must successfully complete PSCI 664, 691, and 692 or their equivalents, and are urged to do so as early in their careers as possible. In addition, all students must attain competence in a second elective research skill/methodological tool sufficient to measure and assist their research activities. Elective research tools may include advanced statistical methodology, foreign language skills (other than English), survey research, econometrics, Geographic Information Systems (GIS), or other alternative skills approved by the Graduate Director and/or Graduate Committee. Students should check the specific research tools/methodology policy with the Graduate Director.

6. Comprehensive examination. In order to continue in the program after the completion of their required core course work, students must take and pass written and oral examinations covering two of the following three fields: American politics; comparative politics; political theory and philosophy.

7. Dissertation. As the capstone to the Ph.D. degree program, the dissertation is awarded 21 credit hours. The dissertation is an original and substantive research requirement and will be developed and completed under the supervision of a dissertation advisor.

Political Science Courses (PSCI)

Open to Upperclass and Graduate Students

Undergraduates who have attained at least junior status and who have completed PSCI 100 or 200 and three additional courses in political science, who have obtained prior approval of the department chair, may enroll in 500-level courses.

A critical examination of major problems facing national, state, or local government with emphasis upon contemporary efforts and studies designed to understand or solve such problems. May be repeated for credit when topics vary.

PSCI 526 Administrative Law and Public Regulation 3 hrs.
A study of the requirements for, and the limits on, the exercise of administrative powers by public officials charged with regulating significant aspects of the social and economic life of the nation. Special attention is paid to governmental regulation and the means of safeguarding individual rights through fair administrative procedures and judicial control over administrative determinations. Prerequisite: PSCI 200 or a course in Economics.

PSCI 530 Problems in Public Administration 3–4 hrs.
Consideration of issues and problems of current interest in the field of public administration. The course is intended to provide advanced work for undergraduates and to serve as an introduction to the field for graduate students without previous training in public administration.

PSCI 535 The Politics of Governmental Budgeting and Finance 3 hrs.
A survey of the political process of governmental budgeting and finance. Budget systems including program planning and budgeting systems are studied. The politics of taxation and other governmental revenues including intergovernmental transfers are studied for their impact on public policy choices.

PSCI 544 Political Change in Russia 3 hrs.
An examination of processes of political change in Russia in areas of policy and structure. Past reform efforts in the former Soviet Union and Russia are studied, followed by an intensive inquiry into current reform efforts. The course relates the Soviet and Russian experience to the literature on political change and theories of comparative politics.

PSCI 549 Problems of Foreign Political Systems 3–4 hrs.
Course will consider selected problems of the governments and political systems of Western and Eastern Europe, Asia, Africa and Latin America. The specific problems, topics, and countries to be studied will be announced each semester. May be repeated for credit when topics vary.

PSCI 552 Studies in International Relations 3 hrs.
Examines selected topics within the field of international relations. Topics will vary and will be announced each semester. May be repeated for credit when topics vary.

PSCI 553 United Nations 3 hrs.
A study of the United Nations in action. Attention is focused on significant political problems confronting world organization, i.e., functional and dysfunctional aspects of the UN, nationalism vs. internationalism; conflict resolution and UN peace-keeping efforts; specific UN accomplishments in maintaining a dynamic international equilibrium; UN weaknesses and the future of world organization.

PSCI 555 International Law 3 hrs.
The theory, sources, development, and general principles of international law, and the relationship of law to the dynamics of international politics. Decisions of international and municipal tribunals and the practices of states will be used to demonstrate the basic rights and obligations of states in time of peace and war. Such topics as recognition of states, diplomatic practice, treaties, and neutrality will also be discussed.

PSCI 562 Modern Democratic Theory 3 hrs.
The course consists of two parts. First, a consideration of traditional democratic theories, and the criticism of these theories emanating from modern elitists such as Mosca, Michels, Pareto, and Ostrogorski. Second, an analysis of the attempts of contemporary economists, political scientists, and sociologists to meet these criticisms by revising democratic theory.
The relationship between private enterprise and democracy will be assessed in response to global economic challenges. The American political economy is compared with alternative approaches in the world.

This course examines how resource, environmental, and technological processes are generating increasingly important political and economic conflicts as well as how policy made in these areas can either exacerbate or ameliorate such conflict. Examples (e.g., fossil fuel dependency, climate change, new biotechnologies or weapons) will be used to illustrate the dynamics as they create for policy makers at all levels.

Study of selected topics in public administration. May be repeated for credit when topics vary.

This course is designed to introduce and review major developments in the field of public administration, to acquaint the student with the constitutional and legal basis of administration in public agencies, and to review the ethical and legislative significance of accountability in the public service.

Concentration on the stages or aspects of public policy. Consequently, the focus of this course is on the developmental areas selected countries or typically on a national level—Congress, the presidency, the courts, and the bureaucracy—and the policy making processes from an institutional perspective.

The course reviews analyses of the representation of citizen interests in the policy making process through political participation including elections, voting behavior, political parties and activism, interest groups, and public opinion.

The course content focuses on the developing areas and uses an interdisciplinary approach. The focus of this course is on the stages or aspects of public policy. Consequently, the course will attempt to provide a synthesis between classical and behavioral political science.

This course focuses on the development of the administrative agency and the social, economic, and political forces which constitute its external environment. Emphasis is placed on developing planning, management of international aid for development projects, budgeting for state-owned enterprises, and basic tools for budget analysis.

This course provides a graduate-level introduction to American public policy. The focus of this course is on the stages or elements of the policy process as a means of analysis. While this approach has traditionally included policy formation, implementation and evaluation, it is expanded to include policy studies and other important theoretical aspects of public policy. Consequently, the course will attempt to provide a synthesis between classical and behavioral political science.
foundations of representative political systems
This course examines the constitutional and evaluates the impact of basic provisions on contemporary governance practices. Constitutions are fundamental charters of government which define the extent and manner in which sovereign power is exercised. This course examines the constitutional foundations of representative political systems and evaluates the impact of basic constitutional provisions on contemporary governance practices.

PSCI 649 Sustainable Rural Development
3 hrs.
A seminar concerning changing perceptions of rural development in the academic world and in national and international development agencies. The linkages between rural development, agriculture, food security, health, population pressures, and resource availability are analyzed. The challenges of designing and reforming administrative structures to pursue effective rural development are reviewed.

PSCI 650 Third World Seminar
3 hrs.
Variable topics examining the course of political development among the developing countries, with special reference to the relationship between administrative needs and democratic objectives. May be repeated for credit when topics vary.

PSCI 660 Seminar: Political Thought
3 hrs.
An analysis of problems and subject matter considered by political philosophers that are significant to the social sciences. Various issues arising in political thought, certain periods in history, or regions of the world may be considered. May be repeated for credit when topics vary.

PSCI 661 Principles of Politics
3 hrs.
A systematic introduction to the concepts which are crucial to an understanding of the political institutions and processes. The course is directed to the needs of the beginning graduate student.

PSCI 662 Political Philosophy I
3 hrs.
A synthesis of the history of political philosophy and the formal analysis of those positive and normative concepts and processes necessary to the understanding of political systems. The course covers the period from classical Greece through the Renaissance. Superimposed on the overall chronological format are critical inquiries into basic concepts and processes.

PSCI 663 Political Philosophy II
3 hrs.
A synthesis of the history of political philosophy from the seventeenth century to contemporary times. The course also includes a formal analysis of applicable positive and normative concepts necessary to the understanding of political systems. Superimposed on the overall chronological format are critical inquiries into basic concepts and processes.

PSCI 664 The Nature of Political Inquiry and Analysis
3 hrs.
An examination of the principles underlying the systematic study of politics. Included are discussions of such basic questions as: How do we obtain knowledge of politics?; How do we explain political phenomena? and What is the relationship between the empirical analysis and normative evaluation of political phenomena? Attention will be given to leading approaches to the study of politics and the formulation and use of concepts, generalizations and theories.

PSCI 690 Seminar in Advanced Political Analysis
3 hrs.
Variable topics in advanced political analysis and research methods are addressed. Topics may include time-series analysis, experimental design, formal methods, game theory, and comparative methods. May be repeated for credit when topics vary. Prerequisite: Permission of the instructor.

PSCI 691 Political Analysis I
3 hrs.
Introduction to the research process in political science including research design, sampling and case selection, sources of data (e.g., surveys, interviews, archives, government agencies, etc.), and basic descriptive statistics.

PSCI 692 Political Analysis II
3 hrs.
The application of statistical and mathematical models to the analysis of political data with emphasis on methodological assumptions and problems: correlation, analysis of variance, and simple and multiple regression. Prerequisite: PSCI 691 or equivalent.

PSCI 694 Teaching Political Science
1 hr.
This course addresses the basics of teaching in higher education: class preparation, leading discussions, classroom policies, university policies, classroom management, dealing with problem situations, and basic teaching skills, among others.

PSCI 695 Teaching Excellence
2 hrs.
This course introduces advanced graduate students and teaching assistants to ideas, information and methods that are innovative and encourages them to approach teaching in a way that goes beyond the traditional lecture format. Critical thinking exercises, group projects, project-oriented learning, portfolio learning, computer-aided instruction and computer simulations are possible topics. Recent research on the nature of the learning process, both among late adolescents and adults, will also be included. Graded on a Credit/No Credit basis. Prerequisite: PSCI 694.

PSCI 696 Research and Professional Skills
2 hrs.
Goals in this course include acquaintance with the department's research agenda, familiarization with the state of the discipline; overcoming common writing problems faced by professionals; demystifying certain professional activities such as conference participation, article submission and grant writing, familiarization with on-campus facilities, including library and computer support; and introduction to computer programs and databases commonly used in political science.

PSCI 697 Proposal Workshop
1 hr.
During the course of this workshop, the student will develop a dissertation proposal (and attending grant proposals, where appropriate). While this will be done primarily in conjunction with the committee, the workshop will provide a weekly support structure in which students will discuss their research question, progress and any complications. Graded on a Credit/No Credit basis. Open only to doctoral students.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

PSCI 700 Master's Thesis
6 hrs.
PSCI 710 Independent Research
2-6 hrs.
PSCI 712 Professional Field Experience
2-12 hrs.
PSCI 730 Dissertation
21 hrs.
The Department of Psychology has a strong scientific and behavioral analytic orientation, which influences all of the Department's graduate degree programs. Graduate students receive a personal appointment to a faculty advisor and to two faculty sponsors in an apprenticeship role. These arrangements facilitate the development of a personalized program to accommodate the academic and professional interests of the student and to utilize the full range of research and other facilities within the University. The student is encouraged to participate in the daily conduct of the Department's academic program and research activities.

Graduate students in all programs of the department are expected to abide by the following principles: "Ethical Principles of Psychologists" and the "Standards for Providers of Psychological Services," published by the American Psychological Association, "Guidelines for Human Subjects Research at WMU" and "Human Care and Use of Animals Policy and Procedures," published by Western Michigan University; and "Guide for the Care and Use of Laboratory Animals," published by the National Research Council. The Department expects students to abide by the Department's Graduate Training Committee, Chairperson: Lise A. Baker, 3700 Wood Hall Linda Rowen, Program Secretary 3700 Wood Hall

The Department of Psychology offers financial assistance through Department assistantships and program fellowships. Additional information concerning financial awards and program requirements may be obtained from the Department office.

Master of Arts in Psychology

Admission Requirements Applications are reviewed in terms of four sources of information, although performance related to any one source is not sufficient to assure or deny admission. Applicants are assumed to have substantial training in psychology at the undergraduate level with a minimum of 18 hours of credit in psychology, including introductory statistics. Applicants may be required to complete additional courses following matriculation in order to satisfy these basic requirements. The application procedure includes submission of:

1. A transcript showing the completion of an undergraduate major or minor in psychology.
2. Graduate Record Examination (verbal and quantitative tests).
3. Four letters of recommendation.
4. An autobiography describing academic interests and professional goals.
5. The Department of Psychology admission application.

Students are admitted only during the Fall Semester each year. The deadline for receipt of all application materials is January 20.

It is the policy and commitment of the Department of Psychology not to discriminate on the basis of race, sex, age, color, national origin, height, weight, marital status, sexual orientation, religion, handicap, or veteran status in its educational programs, student programs, scholarship and employment policies. The Department of Psychology complies with all requirements of Title VII of the Civil Rights Act of 1964, Title IX of the 1972 Amendments, Executive Order 11246 as amended, and Section 504 or the Rehabilitation Act of 1973, and all other pertinent state and federal regulations.

Program Requirements BEHAVIOR ANALYSIS Advisor: Jack L. Michael, Program Chair 3700 Wood Hall

This program prepares students for human resource management positions in business, government, and human service organizations or for entry into a Ph.D. program for advanced study. This program requires a minimum of thirty-six credit hours, including:

1. Industrial/Organizational Psychology Core (9 hrs.)
2. Behavior Principles (3 hrs.)
3. Behavior Systems Analysis (6 hrs.)
4. Methodology (6 hrs.)
5. Research Methods and Applications (6 hrs.)
6. Elective Cognates (6 hrs.)
7. A master's thesis is required of persons planning to pursue a Ph.D. degree, unless those with a professional orientation select a research project (3 hrs.) and a professional practicum (9 hrs.) in an industrial setting. The selection of elective courses outside the core, including the thesis option, is approved by the advisor for the industrial/organizational psychology program.

CLINICAL PSYCHOLOGY

No terminal Master of Arts is offered in Clinical Psychology. A master's degree in this area is offered only as part of the Doctor of Philosophy. See the description of the doctoral program in clinical psychology for more information.

SCHOOL PSYCHOLOGY

No terminal Master of Arts is offered in School Psychology. Applicants are admitted to the
Specialist in Education in School Psychology
Advisor: EdRuth Ervin, 3700 Wood Hall
The Specialist in Education in School Psychology is a competency based program designed to prepare persons for careers in Professional School Psychology. Applicants are admitted to the specialist program and receive the master's degree in the process of completing the specialist sequence.

The program has adopted an apprenticeship training model in which the applicant receives a personal appointment to one faculty advisor and two faculty sponsors. These faculty then form the training committee for the student. Apprentices are encouraged to participate in the daily conduct of the Department's various training and research activities.

The focus at the master's level is on learning basic psycho-educational, behavior analysis, and research skills, and the means for applying these directly with clients within the school setting. At the specialist level, the student develops the consultation and system analysis skills needed to implement the educational and behavior change programs through other professionals and parents.

The program emphasizes the learning characteristics of mainstream and exceptional children as well as careful analyses of the various educational environments in which these children are required to perform. The student acquires and refines educational and behavioral techniques which focus on constructing educational environments to maximize each child's personal set of learning characteristics.

The Educational Specialist degree leads to certification as a school psychologist, a credential awarded by the Michigan Department of Education. Students may obtain preliminary certification upon completion of specified coursework totaling 45 credit hours and a 600-clock-hour internship. Full certification as a school psychologist is obtained upon completion of the Educational Specialist degree and a second 600-clock-hour internship.

The Educational Specialist degree is part of the collaboratively-governed School Psychology Program, which includes participation from the Departments of Psychology and Special Education. Applicants to the program submit application materials to the Office of Admissions and Orientation, Graduate Admissions, which will then be forwarded to the Department of Psychology. Admission is offered for the Fall semester each year. Applicants must submit materials by January 20.

Admission Requirements
1. Completion of a major (or broad minor) in Psychology, related social sciences, or education.
2. Graduate Record Examination: Verbal, Quantitative, and Analytical test scores
3. Three letters of recommendation
4. Vita
5. Autobiographical sketch and statement of professional goals
6. Department of Psychology Graduate Admission Application (available at www.wmich.edu/psychology)

Experiences with children and educational staff in school settings, course work in education, or teaching certificate are considered but not required for admission.

Program Requirements
Upon successful completion of a program of 60–63 graduate credit hours, a Specialist in Education in School Psychology is awarded. The program is approved by the Michigan State Board of Education and is fully accredited by the National Association of School Psychologists and the National Council on Accreditation of Teacher Education.

Applicants should contact the Department of Psychology for more information. The training sequence will include courses in the following areas:

1. Professional Core (3 hrs.)
2. School Psychology Core (24 hrs.)
3. Education of Children with Exceptionalities (9–10 hrs.)
4. Research Methodology (6 hrs.)
5. Human Growth and Development (6 hrs.)
6. Practica in School Psychology (6 hrs.)
7. Professional Field Experience (6 hrs.)
8. Specialist Project (6 hrs.) or scholarly paper. Students intending to complete the doctoral program in School Psychology will complete PSY 720, Specialist Project; others will complete a scholarly paper.

In addition to preparation for full certification as a Michigan School Psychologist, the Specialist degree program is considered basic preparation for doctoral training in School Psychology.

Doctor of Philosophy in Psychology
The Doctor of Philosophy in Psychology is designed to provide intensive training in Applied Behavior Analysis, Clinical Psychology, Experimental Analysis of Behavior, or School Psychology. The Doctor of Philosophy is a research degree for persons intending to assume leadership roles in teaching, research, and service in a variety of professional and academic institutions.

In addition to meeting the entrance requirements of The Graduate College, applicants are expected to show evidence of interest in and aptitude for conducting research.

Graduate students receive a personal appointment of a doctoral committee chairperson and two faculty sponsors to facilitate the full development of the student's academic interests within the research programs of the Department and the University. The program is arranged to encourage active participation in the daily conduct of the Department's academic program and research activities.

The credit hour requirements of the Ph.D. program are arranged to prepare students for teaching and research. The content areas and credit hours of the individual doctoral programs are listed below and include:

APPLIED BEHAVIOR ANALYSIS (84 hrs.)
Advisor: Jim Carr, 3700 Wood Hall
1. Principles of Learning and Motivation (3 hrs.)
2. Research Methodology (6 hrs.)
3. Research in Behavior Analysis (6 hrs.)
4. Theoretical Issues in Behavior Analysis (6 hrs.)
5. Professional Issues (1 hr.)

Behavioral Approaches to Individual and Systems Management (6 hrs.)
Behavior Analysis: Theory and Application (12–26 hrs.)
Professional Experience (6–14 hrs.)
Cognates (0–12 hrs.)
Master's Thesis or Project (6 hrs.)
Doctoral Dissertation (15 hrs.)

Courses count toward the Ph.D. program in Applied Behavior Analysis only after the student has completed all courses in an M.A. program, including the M.A. thesis or M.A. project requirement.

EXPERIMENTAL ANALYSIS OF BEHAVIOR (94 hrs.)
Advisor: Jim Carr, 3700 Wood Hall
1. Core Courses (28 hrs.)
2. Theoretical Issues in Behavior Analysis (6 hrs.)
3. Behavior Analysis: Theory and Application (9–10 hrs.)
4. Professional Experience (12 hrs.)
5. Cognates (0–6 hrs.)
6. Master’s Thesis or Project (6 hrs.)
7. Doctoral Dissertation (15 hrs.)

Courses count toward the Ph.D. program in the Experimental Analysis of Behavior only after the student has completed all courses in an M.A. program, including the M.A. thesis or M.A. project requirement.

SCHOOL PSYCHOLOGY (95 hrs.)
Advisor: Ruth Ervin, 3700 Wood Hall
1. School Psychology Core (25 hrs.)
2. Foundations in Psychology (18 hrs.)
3. School Psychology Practicum (6 hrs.)
4. Predoctoral Internship (4 hrs.)
5. Doctoral Research Seminar (3 hrs.)
6. Specialist Project (6 hrs.)
7. Research Methodology and Tools (12 hrs.)
8. Behavior Analysis Concentration (6 hrs.)
9. Elective (3 hrs.)
10. Dissertation (12 hrs.)

CLINICAL PSYCHOLOGY (96 hrs.)
Advisor: Richard Sapers, 3500 Wood Hall
1. Professional Core (3 hrs.)
2. Clinical Foundations in Psychology (18 hrs.)
3. Methodology (12 hrs.)
4. Clinical Psychology Core (2–24 hrs.)
5. Clinical Practicum (18 hrs.)
6. Thesis (6 hrs.)
7. Dissertation (15 hrs.)
8. Practicum and Internship (21 hrs.)
9. Research Tools (12 hrs.)

The research activity of the doctoral student is continuous and is encouraged through participation in the apprenticeship program, completion of a six credit hour Master's Thesis, the completion of approved practicum, and completion of a fifteen credit hour dissertation. The student is required to demonstrate competence in two research tools selected from foreign languages, American sign language, computer usage, research methods, or advanced statistics. Such tools may be integral to the program requirements or may be, in some instances, additional requirements. Additional requirements may differ by program; the advisor will be able to provide complete information. The doctoral candidate will also show evidence of an ability to interpret, integrate, and discuss research data by the satisfactory completion of a comprehensive examination.
The program is arranged to provide formal evaluations of the student as he/she progresses from baccalaureate apprentice to doctoral candidate with completion of the Master’s Thesis and to doctoral degree candidate with completion of the comprehensive examination. The award of the Ph.D. degree is made following the satisfactory completion of the required hours of approved course work, demonstration of competence in two research tools, satisfactory completion of comprehensive examination, and the oral defense of the dissertation before the student’s doctoral committee at a public presentation.

The Department of Psychology offers financial assistance through Department assistantships and program fellowships. Additional information concerning financial awards and program requirements may be obtained from the Department office.

Psychology Courses (PSY)

Open to Upperclass and Graduate Students

All 500-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 330 and PSY 360. Exceptions to this requirement must be approved by the instructor.

PSY 510 Advanced General Psychology
3 hrs.
Readings, lecture, and discussion designed to introduce students 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. Recommended as a cognate course in Psychology. Recommended 
Prerequisite: One prior course in psychology.

PSY 517 Psychology in the Schools
3 hrs.
This course 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. 
Prerequisite: PSY 330 or permission of the instructor.

PSY 524 Human Sexuality
3 hrs.
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. 
Prerequisite: Psychology majors only.

PSY 526 Human Drug Use and Abuse
3 hrs.
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 are the primary focus of the course, nonhuman research findings are emphasized where appropriate.

PSY 547 Practicum: Organizational Performance Improvement
3 hrs.
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 throughout the term to discuss and troubleshoot the projects. 
Prerequisite: Permission of instructor.

PSY 550 Behavioral Medicine
3 hrs.
Application of behavioral technology to medical patients with emphasis on inpatient treatment. Sample topics include biofeedback, pain control, compliance with medical regimen, and issues related to working in a medical setting.

PSY 561 Introduction to Clinical Psychology
3 hrs.
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 activities engaged in by specialists in this field, like practice and research, it addresses career development including selecting graduate schools, training models used by universities and private schools, internship training, licensure, and the types of degrees granted. It is also suitable 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: Psychology major for undergraduates; instructor’s permission for graduate students.

PSY 570 A Behavior Analysis Approach to the Area of Mental Retardation
3 hrs. Fall
Topics will include: historical background, assessment, treatment, and legal implications of treatment.

PSY 574 Cross Cultural Psychology
3 hrs.
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 designed for 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 perspectives 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 working more than in a clinical and professional psychology to the general area of psychological assessment.

PSY 575 History of Psychology
3 hrs.
The historical and philosophical foundations of contemporary psychology are examined. Approximately equal emphasis is placed upon theoretical and applied aspects of the evolution of the modern science. The origin and development of current behavioral approaches constitute a major focus.

PSY 597 Topical Studies in Psychology
1–4 hrs.
A survey and discussion of selected research topics of current interest. Topics may include both basic science and applied aspects of the discipline. Courses may be repeated for credit, although the total number of credits may be limited by the degree program. Students should consult the program advisor.

PSY 598 Special Projects in Psychology
1–5 hrs.
This course provides the graduate student with the opportunity for independent reading and/or research under the direction of a faculty member. May be repeated for credit, although the total number of hours in a degree program may not exceed five hours. 
Prerequisites: Graduate standing and permission of instructor.

PSY 599 Practicum in Psychology
1–4 hrs.
This course provides training in the application of the principles of psychology 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 one-hour of credit requires 100 clock hours. May be repeated for credit, although number of credits may be limited by program requirements. 
Prerequisite: Written permission must be obtained from the department.

Open to Graduate Students Only

PSY 601 An Introduction to Assessment
1 hr.
This course is designed to introduce the student of professional psychology to the general area of psychological assessment. Through course readings and lectures, the student will acquire a background in issues such as Principles of Measurement, Types of Measurement Tools, Use of Rapid Assessment Devices, and criteria for selecting measures for practice. Additional areas covered will incorporate and contrast the psychometric considerations with behavioral assessment concerns. The course will be taught using the latest version of the diagnostic and statistical manual of the DSM and behavioral assessment models. The course will employ behavioral interviewing, as well as direct observation of behavior. The course will prepare the student to operate with sufficient understanding of assessment issues in the various clinical and research roles anticipated during the early professional psychology training career at Western Michigan University.

PSY 602 Introduction to Theoretical Issues
1 hr.
This course is designed to introduce the student of professional psychology to selected systems of behavior change and their theoretical underpinnings. The theoretical models characterized by these theoretical models will be outlined. Client populations most suitably treated by the various systems will also be discussed. Considerable emphasis will be devoted to comparing and contrasting a radical behavioral model with alternative conceptual schemes. Freudian analytical, cognitive, and behavioral approaches will be considered in lecture and readings. The student will develop an appreciation for the position of technical eclecticism as maintaining a theoretical preference.
PSY 603 Introduction to Professional Issues 1 hr.
This course is designed to introduce the student of professional psychology to many of the professional and ethical standards as well as contemporary issues impacting practice. Covered will be topics considering the American Psychological Association's Ethical Standards for Psychologists, Standards for Providers of Psychological Services, Ethical Principles for Research with Human Subjects, The Licensing Rules for Psychologists in the State of Michigan, issues concerning Professional Training, and Clinical and Gender in Research and Practice. Students will develop an appreciation for the contemporary complexity of the field as it pertains to professional practice and related activity. This content will be addressed through course readings and lectures, as well as special projects conducted by students.

PSY 608 Research Methods in Applied Behavior Analysis 3 hrs.
This advanced course on research methods in behavior analysis addresses research with human and nonhuman subjects, placing an emphasis on simple applied research. Research issues and specific research methods are discussed at philosophical, strategic, and practical levels. Research decisions are placed within the context of the philosophy of science underlying all scientific research endeavors. Topics include: the mission of science, behavioral assessment and measurement; experimental design, with emphasis on single-subject designs; analysis and interpretation of data; dissemination of scientific research; and, ethical issues in research. Students demonstrate their mastery of research issues through the proposal of a research project. Prerequisites: Courses in applied behavior analysis and previous or concurrent enrollment in PSY 634 or the equivalent.

PSY 609 Advanced Seminar in Applied Behavior Analysis Research 3 hrs.
An advanced course emphasizing: a) research mentorship; relevant professional issues in applied behavior analysis; b) review, integration and critical analysis or research topics in psychology. Prerequisites: Previous enrollment in PSY 608 and permission of instructor.

PSY 610 Conditioning and Learning 3 hrs.
This course examines conditioning and learning from the perspective of the experimental analysis of behavior. Emphasis is placed on basic laboratory research procedures and findings.

PSY 611 Current Research in Experimental Analysis 3 hrs.
This course examines basic research areas of current interest to behavior analysts. A central component of the course is detailed consideration of articles published in the Journal of the Experimental Analysis of Behavior. Prerequisite: PSY 610.

PSY 612 Advanced Physiological Psychology 3 hrs.
A survey of the interrelationships of physiological and behavioral processes. Lecture and laboratory. Prerequisite: Permission of the instructor.

PSY 613 Behavioral Pharmacology 3 hrs.
This course examines drug effects from a behavior-analytic perspective. Emphasis is placed on general mechanisms of drug action, variables that modulate drug effects, strategies for studying those effects, and the behavioral actions of commonly encountered drugs. Prerequisite: PSY 610.

PSY 614 Motivation and Emotion 3 hrs.
An introduction to the experimental analysis of psychological aspects of motives, incentives, and emotions. Prerequisite: Permission of instructor.

PSY 617 Applied Behavior Analysis in Education 3 hrs.
This course is designed to teach principles of learning and behavior, the application of those principles to individual and classroom instruction for teachers, school psychologists, and other educational professionals. Also, this course provides information needed for planning effective, data-based classroom interventions. Further, it provides important basic knowledge for future courses in assessment, interventions, behavioral research methods, and school psychology practicum. It is expected that students will bring to class a basic entry knowledge of learning theory, with an emphasis on operant methodology.

PSY 619 Academic Interventions 3 hrs.
This course is intended to teach school psychologists methods for resolving learners' academic performance problems. Whether the professional will use these methods to improve child performance prior to classification (pre-referral intervention) or following classification (modification for a student with a disability), the same basic principles of learning apply and, therefore, the same standards of professional behavior should be maintained. In this course, a model for improving learner outcomes that is grounded in data-based decision making and effective educational practices will be presented. The model will be applied to adapting curricula and classroom environments. There will be particular emphasis on evaluating decisions and child outcomes. This course will cover empirical research as well as conceptual and strategic issues that should guide practical applications in adapting learning environments to meet students' needs. Prerequisite: Graduate standing in psychology or education, or permission of instructor.

PSY 620 Analysis of Abnormal Behavior 3 hrs.
An advanced study of behavioral disorders as characterized by the standard classification systems, the DSM-III-R and ICD-9-M, with respect to their etiology, prognosis and treatment.

PSY 624 Personality Theory 3 hrs.
Consideration and evaluation of the major theories of personality with emphasis on those theories having implications for counseling and therapy. The course includes an examination of experimental evidence and illustrative case studies.

PSY 625 Treatment of Sexual Problems 3 hrs.
This treatment course will cover both sexual dysfunction and deviant sexual behavior. Assessment and diagnostic issues will also be covered. Prerequisites: Graduate student in psychology or permission of the instructor.

PSY 634 Experimental Design and Analysis I 3 hrs.
Topics include statistical decision theory, one factor and multiple factor factorial designs, randomized block designs, fixed, random and mixed models, and basic issues in experimental design. Prerequisite: An elementary course on statistics.

PSY 635 Correlation and Regression Analysis 3 hrs.
An advanced course covering simple correlation methods, inferential methods for one or more correlations (including meta-analysis), interpreting issues (including sampling error, sampling bias, scaling error, measurement error, functional form, cause, homoscedasticity) variants of and alternatives to Pearson correlation, multiple correlation and regression, partial and partial correlation, analysis of variance of regression for simple and complex models, model comparison procedures, methods for analyzing data (including polynomial regression and logistic regression models) and regression diagnostics. Prerequisite: PSY 634 or some other core course covering the analysis of variance.

PSY 636 Experimental Design and Analysis II 3 hrs.
Advanced methods for designing, analyzing, and interpreting complex between-subjects and repeated-measures designs. Topics include power analysis for planning experiments, and inferential analysis methods including ANOVA, multiple comparison procedures, simple effects tests, interaction contrasts tests, simultaneous confidence intervals, nonparametric methods, monotone alternative tests, and analysis of covariance for repeated measures. Advanced topics also discussed are methods for analyzing nonorthogonal design, procedures for analyzing experiments containing multiple response measures (such as multivariate analysis of variance and modified Bonferroni procedures), and current concepts of experimental validity. Prerequisites: PSY 634 and 635.

PSY 637 The Design and Analysis of Quasi-experiments and Observational Studies 3 hrs. This course covers the design and analysis of studies in which it is not feasible to randomly assign subjects to treatment. The focus is on three useful quasi-experimental designs (viz. The regression-discontinuity design, the interrupted time-series design, and the nonequivalent-group posttreatment [post-experiment]) and the observational study. Analytic procedures recently developed for these designs are covered in detail. Opaque methods that have recently become popular for analyzing observational studies are critiqued. The conceptual framework for much of the course is based on the Rubin causal model. Prerequisites: PSY 634 and 635.

PSY 641 Systems Analysis 3 hrs.
The purpose of this course is to teach individuals how to conduct analyses at three critical levels within an organization: the organizational level, the group or team level, and the individual performer level. Organizational-level analyses focus on identifying (a) the customers of an organization and its financial shareholders, (b) the organization's strategic goals with respect to its products and services, (c) its competitors in the market place, (d) the resources that the organization requires to produce its products or services, (e) environmental influences that affect the organization, and (f) its external feedback procedures that enable the organization to determine how well it is satisfying its customers. Process-level analyses identify critical business processes and specify the series of steps that are taken to produce each of the organization's major products and services. Performer-level analyses focus on identifying the factors that enable employees to perform well given the organizational and process goals identified by the organizational and process level analyses.
PSY 642 Performance Management
3 hrs.
The purpose of this course is to teach individuals how to (a) implement performance management and performance improvement techniques in the workplace and (b) evaluate their effectiveness. Change strategies that employ objective measures of work performance, goal setting, performance feedback, and rewards will be emphasized. Applications of the use of these strategies to improve performance (performance quantity, timeliness, and volume), safety, and quality will be examined. Evaluation strategies based on the on-going analysis of work performance over time will be emphasized so that individuals will be able to make data-based management decisions about new and existing performance management systems.

PSY 643 Personnel Selection and Placement
3 hrs.
This course is designed to teach students: (1) the legal and professional requirements for personnel selection and placement programs; (2) how to design and conduct job analyses, interviews, and tests that conform to the legal and professional requirements; and (3) how to evaluate the adequacy (the reliability and validity) of the personnel selection and placement instruments. Prerequisite: An undergraduate course in statistics.

PSY 644 Personnel Training and Development
3 hrs.
The course emphasizes the principles of learning as well as techniques and administrative procedures used in the development of human resources at all levels.

PSY 645 Psychology of Work
3 hrs.
This course is an advanced course designed from a behavioral psychology perspective. Topics covered include: the history of industrial/organizational psychology, motivation, performance improvement techniques, compensation, quality, job satisfaction and its relation to productivity, and the ethics of personnel management. Students entering the course are expected to have an understanding of the basic principles of operant and respondent conditioning because these concepts are used to interpret and analyze worker behavior. Prerequisite: PSY 510 or PSY 610 or permission of instructor.

PSY 648 Instructional Technology I
3 hrs.
The purpose of this course is to teach individuals how to construct and evaluate training materials for the workplace. After completing the course, students will be able to (a) identify employee performances that affect business results, (b) specify the desired results of training in objective, measurable terms, (c) conduct front-end analyses that identify training methods, (d) conceptually analyze the desired performances, (e) identify appropriate training methods, (f) design training materials, and (g) evaluate the impact of training. The course is appropriate for those interested in developing training materials in business and industry and in public sector organizations.

PSY 649 Instructional Technology II
3 hrs.
The purpose of this course is to teach individuals how to develop and evaluate computer-based and web-based instructional materials for the workplace. Principles of learning will be applied to the design and construction of effective instructional material. Students will also be emphasized computer-based instructional materials as part of the course. The course is appropriate for those interested in developing training materials in business and industry and in public sector organizations.

and industry and in public sector organizations. Prerequisite: PSY 648.

PSY 651 Applied Behavior Analysis: A Systems Approach
3 hrs.
The application of systems analysis concepts to the design of systems which yield behavioral measures of complex social situations.

PSY 652 Advanced Systems Analysis
3 hrs.
An advanced course stressing integration of behavior analysis and systems analysis applied to the design, creation, and management of human performance systems. Students analyze complex systems, propose alternative systems, and develop objective measures to determine whether organizational systems are consistent with and effectively contributing to the organization’s mission, goals and objectives. Prerequisite: PSY 651 or permission of instructor.

PSY 655 Seminar in School Psychology
3 hrs.
A seminar devoted to current professional practices in School Psychology. Focus is on studying various model systems for delivery of special services in the schools, as well as the various legal, ethical, and practical constraints on operation of such systems. Techniques of system analyses and synthesis are covered as well as consultation methods employed to implement or facilitate operation of new school programs.

PSY 656 School-Based Consultation
3 hrs.
This course is designed to provide school psychology graduate students the opportunity to acquire knowledge and skills relevant to school-based consultation and problem solving. Students will learn about theories of consultation, empirical work, and practical application. This course will prepare students for the role of school-based behavioral consultant through course reading, lectures, in-class activities, and practical experiences. Although an emphasis will be on triadic consultation, students will be introduced to systems and organizational consultation models for schools.

PSY 658 Social and Cognitive Development in Children
3 hrs.
Consideration and evaluation of theories and empirical findings for a broad range of topics in social and cognitive development. Students will encounter information on the main theories and research methods in developmental psychology. They will also read articles that address current social crises and/or controversies in the area of child development. The first half of the course will focus on cognitive development and will cover areas such as language development, memory, and intelligence and early intervention. The second half will focus on social development including theories of social competence, social skills assessment and intervention, peer relations, and antisocial behavior. Prerequisite: Graduate student in psychology or permission of the instructor.

PSY 659 Treatment of Anxiety Disorders
3 hrs.
This course provides a review of selected anxiety disorders and their treatment. Specific treatment techniques will be reviewed in detail and their relevance to theory and empirical literature discussed. Through lecture, demonstration, and audio-visual presentations the course addresses basic approaches to understanding anxiety behavior and associated emotions. Also covered are historical and scientific concerns, paradigms for the study of anxiety, classification and assessment of anxiety, and research methods appropriate for the study of anxiety. Finally, the course examines the role played by anxiety across several disorders. The course may vary with the instructor. Prerequisite: PSY 620 and PSY 644, or permission of the instructor.

PSY 660 Introduction to Clinical and Community Psychology
3 hrs.
A survey of the fields of Clinical and Community Psychology with emphasis upon the new roles of clinical psychologists and community psychologists. Recommended for beginning graduate students.

PSY 661 Psychotherapy: Theory and Methods
3 hrs.
This is a treatment course which reviews several theoretical approaches to, and problem solving strategies for, a variety of client disorders. The course concentrates on the stages of treatment, the issues involved in treatment and various techniques of treatment. Prerequisite: Permission of instructor.

PSY 662 Group Therapy
3 hrs.
Theory and application of problem solving interventions in a group setting. Various treatment techniques for a variety of problems are practiced through role playing and modeling in a small group setting. Prerequisite: Permission of instructor.

PSY 663 Marital Therapy
3 hrs.
Theory and application of problem solving interventions for a variety of problems associated with couples. A social learning and strategic systems approach is emphasized. Prerequisite: Permission of instructor.

PSY 664 Behavior Therapy
3 hrs.
This is a treatment course designed to familiarize the student with the methods, applications, theory and clinical literature of behavior therapy. This course to be taken concurrently with PSY 669. Prerequisite: Permission of the instructor.

PSY 665 Behavioral Approaches to Treatment
3 hrs.
This is a treatment course designed to familiarize the students with pragmatic issues in the application of behavior management and behavior analysis to the underlying conceptual foundations. Among the topics to be covered are: functional analysis, token economies, behavioral contracting, response accelerating and decelerating techniques, and packaged behavior-management programs in areas such as social skills and assertiveness.

PSY 666 Family Therapy
3 hrs.
This is a treatment course involving problem solving interventions for a variety of problems associated with family units. The specific intervention model emphasized in the course may vary with the instructor. Prerequisite: Permission of instructor.

PSY 667 Cognitive Behavior Therapy
3 hrs.
A course designed to provide the clinical student with the theory and applications of a cognitive-behavioral approach. A variety of therapeutic interventions drawn from cognitive-based treatment models are examined both in terms of individual and group settings. Students are exposed to didactic discussions of the elements of different cognitive models as well as the practice of problem-solving techniques through supervised role-playing situations. Prerequisite: Permission of instructor.
PSY 688 Analysis and Treatment of Developmental Disabilities
3 hrs.
This is a treatment course designed to familiarize students with pragmatic issues in the application of behavior management and behavior analysis techniques to clients who are mentally retarded or traumatically brain injured.

PSY 669 Child Behavior Therapy
3 hrs.
An introduction to behavioral clinical approaches to emotional, social, and behavioral problems of children. This course content emphasizes both the theoretical basis and practical implementation of a range of behavioral therapeutic techniques, including those based on classical and operant conditioning processes, social learning, and cognitive-behavioral models. Students will gain direct experience applying one or more behavior therapy techniques learned in class with a client in the Psychology Clinic. This course is to be taken concurrently with PSY 664. Prerequisite: Permission of instructor.

PSY 670 Basic Behavioral Processes and Their Applications
3 hrs.
This course is an advanced seminar dealing with the basic behavioral concepts, principles, and processes and their application to the interpretation and analysis of behavior as well as the amelioration of behavioral problems. The emphasis is on the behavior of nonhuman animals in research settings and nonverbal human beings. However, the course also continually stresses the relevance of these basic concepts and principles to the everyday life of normal, verbal human beings. The course emphasizes the empirical and logical basis of behavioral concepts and principles in areas such as behavioral contingencies, motivational processes, stimulus control, and respondent conditioning. Prerequisite: Permission of instructor.

PSY 671 Higher-order Behavioral Processes and Their Applications
3 hrs.
This course is a continuation of PSY 670. The emphasis is on the rule governance of complex behavior of verbal human beings. Areas of analysis include behavioral medicine, and rehabilitation, behavioral anthropology, family life, child rearing, community interventions, education, self-management, organizational behavior management, developmental disabilities, autistic behavior, neurotic behavior, and sexual behavior. PSY 670 and 671 combine to provide a behavior-analytic world view. Prerequisite: PSY 670.

PSY 674 Verbal Behavior
3 hrs.
This course covers the experimental analysis of language and verbal behavior, with an emphasis upon the analysis of language as presented in the writings of B. F. Skinner.

PSY 676 Skinner's Behaviorism
3 hrs.
A consideration of About Behaviorism, Beyond Freedom and Dignity, and Contingencies of Reinforcement, especially as they consider issues of broad scientific, philosophic, and social significance. Prerequisite: Nine hours of graduate credit in psychology or permission of instructor.

PSY 681 Personality Assessment
4 hrs.
Survey of the theory of personality assessment and the major concepts of nonprojective measurement, with emphasis on the administration, scoring and interpretation of various instruments for personality evaluation. The course includes, but is not limited to, the supervised practice in the administration of the MMPI, clinical analysis questionnaire, and observational rating scales. Prerequisites: PSY 601 or equivalent and graduate program status.

PSY 683 Cognitive/Intellectual Assessment
3 hrs.
A course in individual assessment with particular emphasis on assessing cognitive functioning. This course covers basic psychometric concepts directly related to test administration and interpretation, and examines the complexities of measuring theoretical notions like intelligence. It also covers administration, scoring, and interpretation of individual assessment techniques. Prerequisites: Graduate program status in school or clinical psychology or permission of the instructor.

PSY 684 Personality Assessment: Projectives
3 hrs.
A study of, and supervised practice in, the administration, scoring, and interpretation of the Rorschach, revised Bender Gestalt, TAT and other projective tests. This course emphasizes the selection and interpretation of an integrated projective test battery for clinical evaluations. Prerequisites: PSY 601, 681, and graduate program status.

PSY 686 Psychosocial Assessment
3 hrs.
A combined lecture and applied course covering both basic measurement principles and concepts and applications to norm-referenced, criterion-referenced, and direct assessment methods. Supervised experience in administering, scoring, and interpreting assessment devices, as well as developing and monitoring individualized intervention plans. There will be particular emphasis on academic and social behavior. Prerequisites: Graduate standing in school psychology, or permission of the instructor.

PSY 688 Advanced Behavioral Assessment
3 hrs.
The course is intended to develop knowledge in the functional analysis of behavior using self-report measures, behavioral interviewing, direct observation techniques, and physical recording. Reliability and validity issues with respect to each assessment method are covered. Behavioral consultation, and efficient alternative to one-on-one counseling in which therapist contact is primarily with the mediator rather than the client, is introduced. Prerequisites: CECP 660, CECP 651, and PSY 702.

PSY 690 Behavioral Approaches to Training and Education
3 hrs.
This course addresses selection and use of test materials, the role of lecture and discussion, examinations, grading practices, all considered from a behavioral perspective. Higher education is emphasized.

PSY 691 College Teaching Practicum
3 hrs.
Supervised practice in the instruction of psychology at the undergraduate level. The student will be responsible for the design, execution, and evaluation of a college course section involving undergraduate students.

PSY 697 Advanced Topical Studies in Psychology
2-4 hrs.
An in depth examination, discussion, and survey of selected research and/or professional topics. May be repeated for credit, although the total number of credits may be limited by the degree program. Students should consult the program advisor. Prerequisite: Permission of instructor.
The Core Program includes course work in the Core Program (18 hours) and research methods. Students select one assumption that candidates already have basic work experience, letters of recommendation, career goals, and personal interviews. The 21 credit hour Health Care Administration Concentration. Pre-career students, the third major component of the MPA is a planned professional field experience, or internship, equivalent to three credit hours (300 contact hours). The goal of the internship is to provide candidates with a work experience which will afford realistic exposure to their world of professional administration and to the organizational and bureaucratic environment in which the dynamics of an agency are developed.

HEALTH CARE ADMINISTRATION CONCENTRATION

The 21 credit hour Health Care Administration (HCA) Concentration in the MPA is composed of one course from each of Areas I, II, III, IV, and VII, one course selected from either Areas V or VI, and two health care electives that are approved by the staff advisor. MPA candidates completing the concentration in addition to all other degree requirements will have "Health Care Administration" noted on their official transcript, beginning with those who graduate in the fall of 1996.

AREA I, LEGAL DIMENSIONS: FCL 668 Health Law; Administration; 669 Legal Problems of Health Care Organizations.


AREA III, HUMAN RESOURCES: PADM 627 Human Resources Administration or PADM 629 Supervisory Skills for Administrators.

AREA IV, HEALTH CARE ENVIRONMENT AND POLICY DEVELOPMENT: PADM 651 The Health Services Environment or PADM 653 Health Policy Analysis.

AREA V, MANAGEMENT ISSUES IN THE DELIVERY OF HEALTH CARE SERVICES: PADM 655 The Administration of Health Services; PADM 658 Application; Current Issues in Health Services Management and Delivery; or MKTG 661 Health Care Marketing.

AREA VI, HEALTH PLANNING AND EVALUATION: PADM 654 Health Care Planning Strategies.


AREA VIII, HUMAN RESOURCES ADMINISTRATION CONCENTRATION

The 21 credit hour Human Resources Administration (HRA) Concentration in the MPA is composed of one course from each of Areas I, II, III, and V, and three courses from Area IV. MPA candidates completing the concentration in addition to all other degree requirements will have "Human Resources Administration" noted on their official transcript, beginning with those who graduate in the fall of 2001.

AREA I, LEGAL DIMENSIONS: PADM 611 Administrative Law and Governmental Regulation, FCL 682 Managerial Aspects of Labor Law, or FSCI 526 Administrative Law and Public Regulation.

AREA II, BUDGETING AND FINANCE: PADM 612 Principles of Public Budgeting.

AREA III, HUMAN RESOURCES: PADM 627 Human Resources Administration or PADM 629 Supervisory Skills for Administrators.


LAW CONCENTRATION

The 21 credit hour Law Concentration is composed of one course from each of Areas I, II, III, IV, and VI, and 6 hours from Area V. Since the Area I course (PADM 626) and the Area II course (PADM 644) are two hours each, the three courses, students who enroll in these courses must take an additional two hours of Nonprofit Leadership and Administration courses. MPA candidates completing the concentration in addition to all other degree requirements will have "Law" noted on their official transcript, beginning with those who graduate in the fall of 2002. Each of the law courses will be taught by Thomas M. Cooley Law School faculty. Students must be admitted to the Thomas M. Cooley Law School JD program and complete the introduction to Law School Online Course (www.cooleylaw.edu) prior to enrolling in any law courses and PADM 600 Foundations of Public Administration, or other MPA core courses. Students are also urged to consult their advisor before pursuing the MPA law concentration.

AREA I, LEGAL DIMENSIONS: Federal Administrative Law (Thomas M. Cooley Law School course).


AREA III, HUMAN RESOURCES: PADM 627 Human Resources Administration; PADM 629 Supervisory Skills for Administrators; PADM 644 Human Resources for Nonprofit Organizations.
Other degree requirements will have "Public Management" noted on their official transcript, beginning with those who graduate in the fall of 2001.

**NONPROFIT LEADERSHIP AND ADMINISTRATION CONCENTRATION**

The 21 credit hour Nonprofit Leadership and Administration (NLA) Concentration in the MPA is composed of one course from each of Areas I, II, III, and V and 12 hours from Area IV. MPA candidates completing the concentration in addition to all other degree requirements will have "Nonprofit Leadership and Administration" noted on their official transcript.

**AREA I: LEGAL DIMENSIONS**

FCL 681 Legal and Ethical Issues for Nonprofit Organizations.

**AREA II: BUDGETING AND FINANCE**

PADM 586 Budget Development for Nonprofit Organizations.

**AREA III: HUMAN RESOURCES**

PADM 644 Human Resources for Nonprofit Organizations.

**AREA IV: ELECTIVES**

PADM 580 Nonprofit Board-Staff Relations; PADM 581 Strategic Planning; PADM 582 Volunteer Recruitment and Retention; PADM 584 Promoting Nonprofit Organizations; PADM 587 Fund Raising for Nonprofit Organizations; PADM 588 Endowment Development/Investments; PADM 583 Grant Writing for Nonprofit Organizations; ACTY 632 Accounting and Financial Reporting by Nonprofit Organizations; COM 685 Public Relations for Managers; EDLD 611 Evaluation for Nonprofit Organizations; MGMT 652 Strategic Human Resource Management; SOC 674 The Nonprofit in Society; SWRK 623 Leadership in Nonprofit Organizations; SWRK 627 Planning in Nonprofit Organizations. Other courses by permission of MPA Advisor.

**AREA V: CAPSTONE PROJECT**

PADM 680 Project Paper Seminar.

**PUBLIC MANAGEMENT CONCENTRATION**

The 21 credit hour Public Management (PM) Concentration in the MPA is composed of one course from each of Areas I, II, III, V, and VI and three hours from Area IV. MPA candidates completing the concentration in addition to all other degree requirements will have "Public Management" noted on their official transcript, beginning with those who graduate in the fall of 2001.

**AREA I: LEGAL DIMENSIONS**

PADM 611 Administrative Law and Governmental Regulation or PSCI 526 Administrative Law and Public Regulation.

**AREA II: BUDGETING AND FINANCE**

PADM 612 Principles of Public Budgeting.

**AREA III: HUMAN RESOURCES**

PADM 627 Human Resources Administration or PADM 629 Supervisory Skills for Administrators.

**AREA IV: ELECTIVES**

Local Government Administration Options: PADM 615 Local Government Administration; PADM 614 Managing Community Growth and Development; PADM 615 State and Local Government Finance; PADM 617 Intergovernmental and Interorganizational Relations; PADM 688 Program Planning and Proposal Writing; GEGG 556 Studies in Urban and Regional Planning; GEOG 557 Environmental Impact Assessment; GEOG 569 International Geographic Systems; GEOG 609 Advanced GIS Seminar; PSCI 643 Relations Between Subnational, National, and International Systems. Other courses by permission of MPA Advisor.

**AREA V: LAW ELECTIVES**

PADM 619 Topics in Administrative Law; PADM 620 Constitutional Law; and PADM 625 State Administrative Law.

**AREA VI: CAPSTONE PROJECT**

PADM 680 Project Paper Seminar.

**Joint Doctor of Laws and Master of Public Administration**

Advisor:

Robert Peters

Room 220E, Walwood Hall

The joint JD/MPA degree program provides advanced practitioner-oriented education in legal, administrative, and policy processes that are essential to the effective management of legal practices as well as health care, nonprofit, and public organizations. The combination of skills and theory is also ideal for pre-career and in-career students who aspire to careers in court administration, criminal justice, regulation, drafting legislation, lobbying, senior management, and politics.

Law courses are offered at Western Michigan University's Lansing Regional Center and the Thomas M. Cooley Law School. The remaining MPA courses are offered on the main campus in Kalamazoo and the University's regional campuses in Battle Creek, Grand Rapids, Lansing, and Berrien County.

**Admission Requirements**

Applicants must meet the minimum requirements for each program. Admission to one degree program does not guarantee admission to the second program.

Students who have been admitted to the Thomas M. Cooley Law School JD program may apply for MPA admission after completing one year of law school courses. Matriculated MPA students may apply for Thomas M. Cooley Law School admission upon completing at least 15 credit hours of core courses and 3 credit hours of required law concentration courses (Budgeting and Finance or Human Resources). MPA students must be admitted to the Thomas M. Cooley Law School JD degree program and complete the Introduction to Law School Online Course (www.cooleylaw.edu/admission) in any MPA law courses and PADM 600 Foundations of Public Administration, or other appropriate MPA core course. Students are also urged to consult an advisor before pursuing the joint JD/MPA degree.

**Program Requirements**

Joint degree students must fulfill the requirement of both degrees. Thomas M. Cooley Law School students may transfer a maximum of six credit hours to the MPA law concentration and waive the MPA law requirement. The combination of transfers and waiver reduces the MPA program requirement for in-career students from 39 to 30 credit hours.

MPA students may transfer to the Thomas M. Cooley Law School JD program a maximum of six credit hours of MPA law courses and three credit hours of PADM 600 Foundations of Public Administration or other appropriate MPA core course.

**Certificate Program in Health Care Administration**

Advisor:

Keon-Hyung Lee

Room 220E, Walwood Hall

The purpose of the Graduate Certificate in Health Care Administration is to enhance the capacity of its graduates to function effectively as managers in the health care system. The program includes the legal, financial, and policy dimensions of contemporary health care administration, critical management issues, strategic planning and evaluation, and critical issues in the delivery of health care services.

**Admission Requirements**

For admission to the Health Care Administration Certificate program, applicants will meet one of the following criteria:

(a) a master's or other graduate degree; (b) current admission to the MBA, MPA, or other participating master's degree program; or (c) a bachelor's degree with 3.25 grade point average or substantial work experience in the field of management or delivery of health care services.

**Program Requirements**

Each student will satisfactorily complete a program consisting of six credit-hour courses (18 hours). Students select one course from each of Areas I, II, and III and three elective courses from at least two of Areas IV, V, and VI.

**AREA I: Legal Dimensions of Health Care Administration**

FCL 688 Health Law Administration

FCL 689 Legal Problems of Health Care Organizations

**AREA II: Health Care Budgeting and Finance**

PADM 652 Financial Management of Health Care Organizations

FCL 662 Health Care Financial Management

**AREA III: Health Care Environment and Policy Development**

PADM 651 The Health Services Environment

PADM 653 Health Policy Analysis

**AREA IV: Management Issues in the Delivery of Health Care Services**

PADM 655 The Administration of Health Services

PADM 658 Hospital Administration or Current Issues in Health Services

**MXGT 661 Health Care Marketing**

**AREA V: Health Planning and Evaluation**

PADM 654 Health Care Planning Strategies

**AREA VI: Special Topics**

HHS 663 Ethical Issues in Human Services Professions

PHIL 534 Social and Moral Philosophy

FOSS 510 Foundations of Health Care

ADA 680 Clinical Supervision in Substance Abuse Services

GRN 681 Program Planning and Development in Gerontology

SOC 640 Social Organization of the Health System
Certificate Program in Nonprofit Leadership and Administration

Advisor: Janice Maatman, Room 220E, Walwood Hall

The purpose of the Graduate Certificate Program in Nonprofit Leadership and Administration is to enhance the capacity of its graduates to function effectively as leaders in nonprofit organizations. It is designed to meet the development needs of professionals currently filling administrative roles in nonprofit organizations, as well as those who plan to fill such roles in the near future.

The Nonprofit Leadership and Administration certificate program may be taken by itself or in conjunction with a graduate degree program.

Admission Requirements

Criteria for admission to this certificate program are (a) a master’s or other graduate degree, or (b) current admission to a graduate degree program, or (c) a bachelor’s degree with an undergraduate grade point average of 3.0 and work or volunteer experience or familiarity with nonprofit organizations. Students may be admitted under probation and later admitted to the program with evaluation of the first six credit hours, with no course below a 3.0. Students may transfer in a maximum of six (6) semester hours of graduate credit from another institution or from courses taken at Western Michigan University as a PTG student. Members of the Nonprofit Leadership and Administration Certificate Governance Committee will also serve in an advisory capacity to the MPA Admissions Committee. Students will be admitted to this certificate program three times per year. The Admissions Committee will review applications in October to admit students for the winter semester; in February to admit students for the spring or summer session; and in June to admit students for the fall semester.

Program Requirements

The Graduate Certificate Program in Nonprofit Leadership and Administration is an eighteen (18) credit hour program of study. Four core courses (10 hrs.) are required. The remaining 8 hours may be taken as electives. The courses are organized into one of four modules of study: Core, External Relations, Finance, and Administrative Skills. Within the Core, the student is required to take four courses (10 hours); three courses are required of all students, and the student will elect one of two capstone courses. The 8 hours of electives are required to be distributed over each of the other three modules, with a minimum of 2 credit hours and a maximum of 4 credit hours selected from each of the three modules.

Core (10 hrs.)

ACTY 632 Accounting and Financial Reporting by Nonprofit Organizations (3 hrs.)
FCL 681 Legal and Ethical Issues for Nonprofit Organizations (2 hrs.)
SOC 674 The Nonprofit Sector in Society (3 hrs.)

PADM 641 Administering Arts Organizations (2 hrs.)

PADM 642 Administering Human Services Organizations (2 hrs.)

External Relations (2-4 hrs.)

COM 685 Public Relations for Managers (3 hrs.)

PADM 584 Promoting Nonprofit Organizations (2 hrs.)

PADM 583 Grant Writing for Nonprofit Organizations (2 hrs.)

Finance (2-4 hrs.)

PADM 588 Endowment Development/Investments (2 hrs.)

PADM 587 Fund Raising for Nonprofit Organizations (2 hrs.)

PADM 586 Budget Development for Nonprofit Organizations (2 hrs.)

Administrative Skills (2-4 hrs.)

PADM 580 Nonprofit Board-Staff Relations (1 hr.)

PADM 581 Strategic Planning (1 hr.)

PADM 582 Volunteer Recruitment and Retention (1 hr.)

EDLD 601 Evaluation in Nonprofit Organizations (2 hrs.)

MGMT 652 Strategic Human Resource Management (3 hrs.)

PADM 644 Human Resources for Nonprofit Organizations (2 hrs.)

SWRK 623 Leadership in Nonprofit Organizations (2 hrs.)

SWRK 627 Planning in Nonprofit Organizations (2 hrs.)

Doctor of Philosophy in Public Administration

Advisor: Peter Kobrak, Room 220E, Walwood Hall

The mission of the Doctor of Philosophy in Public Administration is to give students a deep and pervasive knowledge of the history, theory, practice, and future of the field. The program is designed to encourage broad intellectual inquiry with a scholarly perspective. The curriculum incorporates a diversity of viewpoints, gathered from readings in the great books of the discipline, examination of the contributions of its seminal thinkers, analysis of the institutions and processes of governance, exploration of emerging theories and trends, and an investigation of the challenges of public management in a democracy. Integral to the program is the development and refinement of the skills to conduct both qualitative and quantitative research, practice in statistical and quantitative analysis, and experience with applied skills of leadership and ethical decision making.

The doctoral program is designed both for those who have experience in a supervisory or administrative position with a federal, state, or local government or nonprofit agency and for those wishing to teach public administration in a college or university setting. A major purpose of the doctoral degree is to fill the upper-management ranks of government with public executives who possess excellent skills in leadership, public management, and research. The program is structured to provide decision makers and future professors with a more sophisticated understanding of the governing process.

Completion of the degree will provide doctoral graduates with the background to perform independent research on theoretical public administration concerns and substantive issues, to analyze a wider range of alternative policies, and to weigh competing choices in the decision-making process.

Admission Requirements

1. Master’s degree in public administration or related area.
2. At least four years of experience in a supervisory or administrative position.
3. One academic reference and two letters of recommendation from persons acquainted with the applicant’s professional work.
4. Completion of the Departmental Application which requires responding to several essay questions.
5. Graduate Record Examination (GRE) scores for the quantitative, verbal, and analytical parts of the examination.
6. An interview with members of the School’s faculty.

Program Requirements

The forty-two hours of credit include nine required courses, one elective course, and a minimum of twelve semester hours of dissertation credit.

Required Courses (27 hours)

PADM 660 Intellectual History of Public Administration I (3 hrs.)
PADM 661 Intellectual History of Public Administration II (3 hrs.)
PADM 663 Leading the Public Organization (3 hrs.)
PADM 664 Research Design (3 hrs.)
PADM 665 Public Policy Theory and Research (3 hrs.)
PADM 666 Contemporary Issues in Public Management (3 hrs.)
PADM 684 Management of Public Financial Resources (3 hrs.)
PADM 692 Quantitative Data Analysis (3 hrs.)
PADM 694 Qualitative Research Methods (3 hrs.)

Elective (3 hours)

Course selection to be determined in consultation with doctoral advisor.

PADM 697 Research Tutorial (3 hrs.)

Comprehensive Examinations

Each doctoral student is required to complete successfully two comprehensive examinations. The first comprehensive examination will be taken after completion of four or five required courses. The second comprehensive examination will be taken after completion of all required courses.

Residency

Each student is required to enroll in a minimum of one course each fall and winter semester until completion of the course work. After all classes have been completed, students are required to maintain continuous enrollment in PADM 730 Doctoral Dissertation until graduation.

Dissertation (12 hours)

PADM 730 Doctoral Dissertation (12 hrs.)

Public Affairs and Administration Courses (PADM)

Open to Upperclass and Graduate Students

Undergraduates with junior or senior status and 12 hours of course work in appropriate major fields may enroll in 500-level courses with prior approval of the student’s advisor or consent of the program director.

PADM 580 Nonprofit Board-Staff Relations 1 hr.

This course examines the unique relationship between the governing board and staff of nonprofit organizations. Special attention is given to the relationship between the board and the chief executive officer (CEO) along with strategies for the CEO to build an effective working relationship with the governing board. The role of the governing board with respect to staff in the organization is also examined.
PADM 581 Strategic Planning
1 hr.
Strategic planning in nonprofit organizations should be a leadership activity that is proactive, comprehensive, and long-range. This course examines the theory and practice involved in strategic work and provides real-world practice through the creative development and discussion cases. The discussion includes an introduction to the skills needed to determine the guiding values of the organization in its environmental context, and to develop a corresponding mission, goals, and strategies to achieve these value-grounded ends.

PADM 582 Volunteer Recruitment and Retention
1 hr.
This course will draw on empirical research on volunteer, practice-oriented experiences, and case studies to examine central issues in the recruitment, retention, and development of effective volunteers.

PADM 583 Grant Writing for Nonprofit Organizations
2 hrs.
This course takes students through a proactive grant proposal writing process. The course is conducted in a workshop format, with emphasis on writing a grant proposal and on logical relationships between sections of a proposal.

PADM 584 Promoting Nonprofit Organizations
2 hrs.
A practical course in the application of marketing principles to nonprofit organizations. Emphasis will be placed on techniques for defining and identifying the organization's commitment to quality and measurement of market satisfaction will also be covered. Participants will develop marketing strategies to meet the needs of identified markets. These strategies will include the identification of market offers, communication messages and methods, location issues, and the development of market budgets.

PADM 586 Budget Development for Nonprofit Organizations
2 hrs.
This course will examine procedures for projecting revenues, the extent to which tax policies affect private contributions to nonprofits, and the process for developing budgets. Line item and alternative budget formats will also be considered. An ability to use spreadsheets (e.g., Excel or Lotus) is strongly recommended.

PADM 587 Fund Raising for Nonprofit Organizations
2 hrs.
A practical course for those who wish to develop their fund raising 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 learn to assess their own organizations’ fund raising readiness and develop fund raising plans unique to their organizations.

PADM 588 Endowment Development/Investments
2 hrs.
This course will provide students with the working knowledge of permanent endowment funds. The course will address the appropriate rationale for creating an endowment, endowment management, investment strategy, and utilization of earning the nonprofit environment.

PADM 589 Readings in Public Administration 1–3 hrs.
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 under the guidance of a faculty member. Planning and execution of a topic for investigation is the joint responsibility of the candidate and supervising faculty. Approval is contingent upon the merits of the proposal. Consent of both the supervising faculty member and the School Director is required prior to enrolling in this course.

PADM 590 Topics in Public Administration 1–4 hrs.
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.

Open to Graduate Students Only

PADM 600 Foundations of Public Administration
3 hrs.
This course is designed to introduce and review major ideas and developments in the field of public administration and ethics. Major emphasis is given to tracing the historical evolution of public administration in the United States through the thought and intellectual activity of the leaders whose writings have most dramatically shaped the theory and practice of public administration in the country. Professional codes of ethics and their role in providing guidance to administrators are also examined.

PADM 602 The Political Environment of Public Administration
3 hrs.
This course examines the interaction between administrative agencies and the social, political, and economic forces which constitute their internal and/or external environment. It emphasizes the sources of bureaucratic power, the characteristics of administrative and political elites, and examines the strategies which administrators pursue in seeking both to ensure the survival of their agencies and to expand the programs which they direct. It also explores the influences of our political system and administrative decision making and attempts to evaluate agency responsiveness. This course should be taken as soon as circumstances permit.

PADM 604 Political Economy
3 hrs.
This course reviews basic economic concepts. The course also examines the impact of globalization on local economies, the constraints history, culture, politics, and economics impose on a jurisdiction’s policy options, the implications of privatization and public/private partnerships for the production of public goods and services, and the use of cost-benefit analysis to examine the behaviors of public agencies.

PADM 606 Applied Research Methods
3 hrs.
This course focuses on effective writing for research; the preparation of research questions; design and utilization of various research methods and techniques; the essential distinctions between qualitative and quantitative methods; the collection, manipulation, interpretation, and presentation of data gathered; and the use of information thus obtained in the solution of policy problems confronting professional administrators.

PADM 607 Data Analysis for Administrators
3 hrs.
This course is an introduction to statistical analysis as employed by professional administrators in the collection, manipulation, interpretation, and presentation of data utilized to analyze policy problems. The purpose is to develop basic statistical competency with emphasis upon the use and interpretation of frequency distribution, sampling techniques, measures of central tendency, probability, variability, regression correlation, and various other applied quantitative measures. MPA students should not enroll in this course until a research methods course has been completed.

PADM 608 Organization Theory and Behavior
3 hrs.
This course has the following objectives: a) to familiarize participants with the basic concepts, models, and theories of organization; b) to develop a better understanding of individual, group, and organization behavior; c) to provide a conceptual foundation upon which theoretical knowledge can be applied to organizational and managerial problems. In pursuit of these objectives, the following subjects will be considered: theories of organization and management; individual behavior; group dynamics; organization change; organizational performance, efficiency, and effectiveness.

PADM 609 Organization Development
3 hrs.
This course is an introduction to the theories, models, and intervention modalities of Organization Development (OD). Topics to be explored and discussed include: the underlying organizational philosophy of OD; the OD view of persons in an organizational setting; the major subdivisions or schools of thought in this field; role playing in selected OD interventions, and the specific applications of OD in organizational settings. The objective of this course is to develop competence in the application of OD practices in a variety of agency settings.

PADM 611 Administrative Law and Governmental Regulation
3 hrs.
This course examines how administrative laws and public regulations control and regulate the activities of local, state and federal government officials and the agencies by which they are employed. It will consider the requirements for, and the exercise of power by elected and appointed officials. Special attention is devoted to the development, adoption, and enforcement of administrative laws and government regulation.

PADM 612 Principles of Public Budgeting
3 hrs.
This course utilizes a combination of "hands-on" exercises and theory to examine the preparation of government budgets. Topics to be addressed include criteria for evaluating sources of government revenue, the politics of budgeting, alternative budget formats such as line item and percent allocation accounting, and the methodologies for developing revenue projections, capital improvement programs and operating budgets. A ability to use spreadsheets such as Excel or Lotus is required.

PADM 613 Local Government Administration
3 hrs.
This course addresses the management challenges faced by local government administrators in managing American local government under conditions of substantial physical, economic, social, and political change. Students will review current societal trends affecting local communities and then
PADM 614 Managing Community Growth and Development 3 hrs.
The course is intended for public managers involved in guiding community growth and/or managing local economic development. The course will focus on the dynamics of developing the community’s economy and managing its physical growth and expansion in ways that enhance and sustain the quality of local and regional community life. Students will examine policies, programs, and techniques in the public management of economic development, business attraction and retention, land use, growth management, housing, public facilities and infrastructure, and environmental preservation. The course will also address the economic, demographic, spatial, and political forces driving urban change and impacting community sustainability.

PADM 615 State and Local Government Finance 3 hrs.
This course examines a variety of financial tools that enhance a public official’s ability to cope with the crosscurrents of expanding government responsibilities and public resistance to higher taxes and fees. The tools that are addressed by this course include governmental accounting concepts and procedures; methods of financing infrastructure projects; risk management; calculating the costs of providing goods and services; and cost-benefit, cost effectiveness, and cost revenue analysis.

PADM 617 Intergovernmental and Interorganizational Relations 3 hrs.
This course examines the interactions among governmental and non-governmental entities. A majority of the course examines the political, economic, constitutional, legal, and historical foundations of intergovernmental relations, the types and implications of grants-in-aid, and fluctuations in the powers and responsibilities of local, state, and national governments. The remainder of the course analyzes the relationships among public agencies, legislative bodies, the executive, and interest groups.

PADM 619 Topics in Administrative Law 2-3 hrs.
This variable topics course focuses on issues of interest and concern to students in the MPA law concentration. Since the course content varies, students are advised to read course descriptions distributed by the School prior to enrollment. The course meets for fourteen weeks plus one class session for a final exam, but may vary in the number of credit hours awarded. Prerequisites: Thomas M. Cooley Law School’s course in Federal Administrative Law and advisor consent.

PADM 620 Constitutional Law 3 hrs.
This course covers judicial review, Tenth and Eleventh Amendment doctrines, separation of powers federal-state relations, Congressional powers, state action, and the Contracts Clause. The course meets three hours per week for fourteen weeks plus one class session for a final exam. Prerequisite: Thomas M. Cooley Law School’s course in Federal Administrative Law.

PADM 625 State Administrative Law 2 hrs.
This course examines the principles governing the theory, practice, and procedures of state administrative law. Prerequisites include delegation, separation of powers, access to information, rulemaking, due process, adjudication, and judicial review. The course meets two hours per week for fourteen weeks plus one class session for a final exam. Prerequisites: Thomas M. Cooley Law School’s course in Federal Administrative Law and WMU’s Constitutional Law.

PADM 627 Human Resources Administration 3 hrs.
A survey course that examines the concepts and practices of human resource management and reviews the functions performed by human resource administrators and other agency officials. Areas of consideration may include, but are not limited to human resource planning and recruitment, training and development, compensation, information systems, and employee relations.

PADM 629 Supervisory Skills for Administrators 3 hrs.
This elective course includes a consideration of the five most important functions of middle level managers: locating and developing supervisors; decision making; planning, organizing, leading, and controlling. In order to assist participants develop their supervisory skills, this course uses case studies, small group discussions, role playing, simulations, and other practical skill building exercises.

PADM 641 Administering Arts Organizations 2 hrs.
This is a course in arts administration including a brief review of the implementation of the major areas of administration, i.e., management, planning, and program development; marketing and public relations; funding development, etc. The focus of the course will include both performing and visual arts. The performing arts component will highlight applications of managerial skills to music, dance, and theater, including audience development, union relations, front of house management, concert management techniques, and study of physical facilities. The visual arts component will feature application of management skills to museums, commercial and cooperative galleries, artists’ space, and corporate and individual collections. For students seeking a concentration or certificate in the Nonprofit Leadership and Administration program, this serves as the capstone course. Prerequisite: Completion of 12 hours of Nonprofit Leadership and Administration course work.

PADM 642 Administering Human Service Organizations 2 hrs.
This course deals with how to administer human service organizations (HSOs) and is intended to integrate theoretical and technical-skill content from other courses in the program. None of the course uses a seminar format; along with case studies and problem solving simulations, to focus on a wide range of issues and dilemmas in the administration of HSOs. For students seeking a concentration or certificate in the Nonprofit Leadership and Administration program, this serves as the capstone course. Prerequisite: Completion of 12 hours of Nonprofit Leadership and Administration course work.

PADM 644 Human Resources for Nonprofit Organizations 2 hrs.
This course provides an overview of the functions of human resources activities as they relate to the broad objectives of the whole organization. Emphasis will be on fundamentals of job design, employment techniques, performance appraisals, pay practices, benefits options, employee relations, and termination practices.

PADM 651 The Health Services Environment 3 hrs.
This course provides a comprehensive analysis of the environment in which health services are delivered, with an emphasis on the United States delivery system. The analysis will focus on the historical interplay of competing and collaborative activities within and between institutional and community health care providers and the consumers that they serve. Ethical concerns facing providers and consumers will be discussed. Case studies on salient health care issues will be utilized.

PADM 652 Financial Management of Health Care Resources 3 hrs.
This course examines financial management issues in the rapidly changing health care industry. Students analyze health care reform proposals, the impact of insurance, managed care, and government policies on the operation of health care organizations, how to budget and analyze budgets, the process of costing health care services, the use of financial statements to assess the financial viability of health care organizations, financing options for capital management, the sources and uses of cash, and the preparation of a cash budget.

PADM 653 Health Policy Analysis 3 hrs.
This course examines the public policy process as applicable to the public and mental health fields. The impact of federal, state, and local policy on the delivery of health services within organizations is discussed and compared with international health delivery systems. Underlying ethical issues comprising today’s health delivery system are explored.

PADM 654 Health Care Planning Strategies 3 hrs.
This course provides an introduction to the principles and methods of planning in the health services system. It includes an analysis of the significance of planning effective health care services, alternative planning frameworks, and techniques for planning in the health arena at both macro and micro levels. Preparation of business plans that are common in the health care settings are included in the course.

PADM 655 The Administration of Health Services 3 hrs.
This course addresses the managerial functions in health care agencies and institutions. The responsibilities of health care managers in controlling, organizing, staffing, budgeting, evaluating, and motivating employees are considered. Human resource issues as well as individual and organizational accountability unique to the health care field are explored. Techniques on how to manage rapid organizational change are an integral part of the course.

PADM 656 Seminar: Current Issues in Health Service Management and Delivery 3 hrs.
An advanced seminar that will consider current issues in health service management, finance, and delivery of health services. May be repeated for credit with a different topic.

PADM 660 Intellectual History of Public Administration 3 hrs.
This course is designed to introduce the student to the history of ideas and government practice that form the basis of public
administration in the modern world. Its purview is wider than American public administration, and the level of comprehension expected involves political, philosophical, theological, and psychological thought, in addition to historical analysis and integration. The course implements research techniques in common use by intellectual historians.

PADM 661 Intellectual History of Public Administration II 3 hrs.
This course is a continuation of Intellectual History of Public Administration I, and traces the development of public administration theory from the founding of the American colonies to the present day, implementing research techniques in common use by intellectual historians. The course utilizes an historical approach to understand the contextual influence of thinkers and movements related to American public administration.

PADM 663 Leading the Public Organization 3 hrs.
This course uses a theoretical and methodological research literature, documentation in a variety of media, and practical work experiences to examine the roles of leaders, human behaviors, and human resources systems in public organizations. The course addresses leadership and human behaviors within systems as models in the public arena of work. Attention is given to the management of functions of human resources as well as to the activities of the employees in an organization. External influences, competing organizational systems, and identified public outcomes are also examined to complete an understanding of leader and follower roles.

PADM 664 Research Design 3 hrs.
Students will be instructed in the theoretical schools of thought that are relevant to social science researchers. The course will focus on the appropriate use of experimental, quasi-experimental, and pre-experimental research designs. Individuals will be expected to identify an area of research, develop a research design, and conduct a pilot test.

PADM 665 Public Policy, Theory, and Research 3 hrs.
This course will trace the development of theory in thinking about public policy. It will explore alternative models suggesting the way that public policy is formulated and implemented. Each model reflects a different way of perceiving the relationship between government and society. The application component will require students to apply one or more of the models to a substantive policy area. Emphasis will be placed on primary sources in preparing an analytical paper.

PADM 666 Contemporary Issues in Public Management 3 hrs.
Contemporary public management faces critical challenges in its present standing and future role in American society. This seminar focuses on the future of public management in government and the not-for-profit sector by (1) examining current policy issues, as well as the reform movements, impacting public management today; (2) reviewing the implications of these trends and movements for the future of administering American public organizations; and (3) exploring scenarios for managing public organizations in the future in selected issue and policy areas.

PADM 667 Research Tutorial 3 hrs.
This research tutorial is designed to give the doctoral student experience in conducting a research project under the direct supervision of a faculty member. The tutorial is intended to advance the student’s research skills, prior to writing a dissertation proposal.

PADM 678 Program Evaluation 3 hrs.
Pressure to reduce the size, scale of government, and heightened interest in evaluating the impact of governmental activities. This course will focus on how to measure the effectiveness of policy programs.

PADM 680 Project Paper Seminar 3 hrs.
It is in this seminar that MPA candidates write their project paper (thesis) proposing a solution to a major problem or issue facing the agency by which they are employed, or to which pre-career candidates have been assigned as interns (field experience). Except with the express prior approval of the MPA, Academic Advisor, only candidates who have completed at least 30 semester hours of the MPA degree may enroll in PADM 680.

This course relies on theory, lab assignments, and practical experience to address constitutional, statutory, political, economic, cultural, and social factors affecting fiscal policy. Public finance theory and lab assignments familiarize students with the major facets (revenue projection, capital requests, and operating expenditure requests) of the budgeting process. The role of politics, alternative mechanisms for generating revenue, methods for assessing the fiscal health of organizations, and the implications of utilizing various budget formats are also examined. Students are expected to apply the methodologies from their research courses to a financial issue.

PADM 686 State Agency Administration 3 hrs.
This course examines the organization and administration of state government agencies, with special emphasis on the functions performed by major departments and their principal subunits. Executive agencies in Michigan will serve as a basis for comparing and contrasting services provided by similar agencies in other states. Each course participant will be required to analyze the current status of services provided by a particular state agency and project service demand in the future. Course participants will develop a comprehensive understanding of administration in agencies of state government.

PADM 687 Legislative Relations for Public Administrators 3 hrs.
This course prepares participants to interact with policy making bodies: city councils, county commissions, or the state legislature. Participants will learn to estimate the possible impact upon their agency of legislation under consideration, to assess the probable effect of proposed legislation, and to project the amount of revenue to be generated by a proposed tax, fine, or fee.

PADM 688 Program Planning and Proposal Writing 3 hrs.
This course seeks to build skill in program planning, program management, and proposal writing. The first part of this course will be devoted to the grantmanship process, including how to: formulate and promote a project concept; prepare the project proposal; submit the project proposal; and follow-up after acceptance or rejection of the proposal. Emphasis will be placed upon the project proposal as an integral component of agency planning, program management, and assessment activities, from both grantor and grantee perspectives. In the second part of this course each participant will prepare a project proposal.

PADM 689 Fund Accounting 3 hrs.
This course offers an opportunity to become thoroughly familiar with many different aspects of not-for-profit accounting and financial reporting. In addition to the governmental fund accounting system, the student is also able to explore college and trust accounting systems.

PADM 692 Quantitative Data Analysis 3 hrs.
This course will focus on statistical techniques utilized by social science researchers to answer research questions. It will develop students’ skills to the degree that they can gather, interpret, and present accurate data, enter them into computer-based software packages, manage the information, make calculations on them, and analyze statistical relationships in them.

PADM 694 Qualitative Research Methods 3 hrs.
Students will be instructed in the philosophical and theoretical schools of thought that are relevant to qualitative researchers. Participants will be instructed in the conduct of field research using such qualitative designs as participant-observation, intensive interviewing, comparative, historical, case study, focus group, and historical analysis of diaries and letters.

PADM 697 Dissertation Seminar 1–4 hrs.
Dissertation Seminar is intended to assist students in the preparation of a dissertation proposal and to facilitate the transition from course work to dissertation. PADM 697 will be offered in two blocks over two semesters. The first block (2 hrs.) includes a review of proposal components, with particular emphasis on research design and literature review. The second block (1 hr.) is devoted to a review of the dissertation format and manuscript requirements. This course will focus on identifying and writing the dissertation proposal, and a continuation of proposal development.

Open to Graduate Students Only—Please refer to The Graduate College section for the complete course descriptions.

PADM 710 Independent Research 3 hrs.
Designed for highly qualified graduate students or small groups who wish to pursue independent studies or group projects under the direction of a Graduate Faculty member. An application form, signed by the Graduate Advisor and faculty supervisor, must be submitted to registration at the time of enrollment. Graded on a credit/no credit basis.

PADM 712 Professional Field Experience 3–6 hrs.
This practicum is designed for MPA degree candidates who are to participate in a supervised professional field experience/internship in an agency setting. An application form, signed by the academic advisor and Internship Supervisor, can be submitted to the Registrar’s Office at the time of enrollment. Graded on a credit/no credit basis.

PADM 730 Doctoral Dissertation 12 hrs.
Doctor of Philosophy in Science Education

Advisor: Aletta Zietsman, Room 3145, Wood Hall

The Doctor of Philosophy in Science Education is designed for students who wish to obtain a strong background in science and to pursue research in science education. The program requires a minimum of seventy-two semester hours of graduate work in science and in science education. Appropriate course work at the master’s level will count toward the seventy-two semester hours.

Admission Requirements

The minimum admission requirements to this degree program are:

1. A master’s degree in a science or science education, and
2. teacher certification. Students lacking the above may be admitted provisionally; however, satisfactory completion of necessary undergraduate science and/or education courses will be needed before enrollment in the required graduate courses. These requirements are in addition to the general admission requirements of The Graduate College.

Program Requirements

The program consists of seventy-two semester hours of graduate work. Each student’s program is planned in consultation with the advisor and consists of the following:

1. Twenty-four semester hours of graduate science to include a course in the history and philosophy of science,
2. Fifteen semester hours of science education to include SCI 615, 616, 617, and 690 (617 and 690 must be taken at least twice),
3. Twelve semester hours of research tools and design to include two semesters of statistics and a generic research design course,
4. Six semester hours of electives,
5. Fifteen semester hours of dissertation — SCI 730 Doctoral Dissertation. All candidates for the Doctor of Philosophy in Science Education must have satisfactorily passed a comprehensive examination. The examination should be taken after the student has completed the required course work and will include material from the graduate science education “core” of courses (SCI 615, 616, 617, and 690) and material from the appropriate science area selected by the student and his/her dissertation advisor. The science area material will be prepared and evaluated by faculty in the science area after consultation with the science education faculty. The dissertation advisor may recommend either a written or an oral examination.

The research and dissertation are completed under the direction of a major advisor and a Doctoral Advisory Committee. The major advisor is selected by the student and the Committee members are recommended by the student in consultation with the major advisor. The research problem is formulated by the student and must be approved by the Committee. Dissertation Committee members are subject to the approval of the deans of the College of Arts and Sciences and The Graduate College. The residency requirement for this degree program is an academic year of two consecutive semesters of full-time study on the campus.

To be admitted to candidacy for the doctoral degree the student must have satisfactorily completed the course work, the research tools, the comprehensive examination, and a teaching experience in addition to the other candidacy requirements of doctoral programs in The Graduate College.

Science Education Courses (SCI)

Open to Upperclass and Graduate Students

Undergraduates who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor and otherwise meet the specific course prerequisites may elect 500-level courses in Science Studies.

SCI 560 Science Workshop for Teachers 1–3 hrs.

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. It is a variable topics course and may be repeated for credit if different topics are involved. It is intended for delivery in one- to two-week workshop format.

Prerequisite: Teacher certification or baccalaureate plus work toward certification.

SCI 570 Life Science Workshop for Teachers 1–3 hrs.

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of biology. This course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. It is intended for delivery in one to two week workshop format.

Prerequisite: Teacher certification or baccalaureate plus work toward certification.

SCI 580 Chemistry Workshop for Teachers 1–3 hrs.

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of chemistry. This course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. It is intended for delivery in one to two week workshop format.

Prerequisite: Teacher certification or baccalaureate plus work toward certification.

SCI 585 Physics Workshop for Teachers 1–3 hrs.

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of physics. This course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. It is intended for delivery in one to two week workshop format.

Prerequisite: Teacher certification or baccalaureate plus work toward certification.

SCI 590 Earth Science Workshop for Teachers 1–3 hrs.

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of earth science. This course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. It is intended for delivery in one to two week workshop format.

Prerequisite: Teacher certification or baccalaureate plus work toward certification.
SCI 598 Readings in Science 1–4 hrs.  
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.

Open to Graduate Students Only

SCI 601 Problems in Science Education 1–4 hrs.  
This independent study course allows students to study various problems in Science Education under the direction of a supervising faculty member. Individual or small groups of qualified students may be involved in these problem areas reflecting the current concerns of Science Education. The course is designed to meet the needs of students for first-hand experience in field or laboratory research, pilot projects testing new ideas or concepts, or developing learning materials or resources. The course may be repeated for up to 4 hours of credit.

SCI 610 Science for Elementary Teachers 2–3 hrs.  
This course is designed specifically for elementary and middle (junior high) school teachers who have little or no science background. The course has no prerequisites and prospective teachers as well as experienced teachers are welcome. The objectives of the course are to acquaint teachers with the major concepts of science important at the K-8 level and the appropriate methods of teaching those concepts to children. Science activities and learning by doing will be stressed, and resources for teaching science will be examined.

SCI 614 Science: Historical and Philosophical Perspectives 3 hrs.  
This course utilizes work in the history and philosophy of science to provide a critical perspective for dealing with the question: “What about science is most important for a student to know?” The course will address: the nature of scientific disciplines (the theories and problems which characterize them); the relations between theory and the empirical work; and the nature of theory change in the sciences. SCI 614 is meant to provide a broad foundation for subsequent curriculum development, instructional design, and research into the teaching and learning of the sciences.

SCI 615 Science Education: Historical and Philosophical Foundations 3 hrs.  
This course will familiarize students with the history of science education in the United States, leading up to current national reform efforts. This historical approach will provide a foundation to address curricular and literacy traditions, and provide an understanding of the historical, philosophical, and methodological foundations. Each offering of the course will focus upon a particular tradition, for example, problem-solving research or conceptual change research. This course may be repeated for credit. Prerequisites: SCI 615 and SCI 616.

SCI 620 Topics in Science Education 2–4 hrs.  
This course will present, analyze, and evaluate methods and techniques of teaching science. Topics may include new approaches for teaching science, new science curriculum, laboratory practices, science education research, motivational techniques, and other methodological problems confronting science teachers. Course content may vary, and the course may be repeated for credit provided different topics are involved.

SCI 621 Topics in Science 2–4 hrs.  
This course is designed to examine various science concepts and new developments of science education of interest to science teachers. Each course will be subtitled, and the content will vary to reflect the various sciences, new developments and emphases, and the needs of the science teaching community. The course may be repeated for credit provided different topics are involved.

SCI 625 Environmental Science Seminar 2–4 hrs.  
Analysis of case studies of environmental problems. Covers the scientific, social, and political problems involved in environmental action and will include experiences with management of energy and material resources. May be repeated for credit up to a maximum of six hours.

SCI 690 Science Education Seminar 2–4 hrs.  
Designed to provide an integrating experience for students in the Science Education doctoral program. The topics covered in the seminar will vary from one semester to the next. May be repeated for credit.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

SCI 700 Master's Thesis 6 hrs.
SCI 710 Independent Research 2–6 hrs.
SCI 730 Doctoral Dissertation 15 hrs.
SCI 735 Graduate Research 2–10 hrs.

SOCIOLGY

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Master of Arts in Sociology

Advisor:  
Charles E. Crawford,  
Room 2507, Sangren Hall

OPTION I. DISCIPLINARY AREAS
This option of the Master of Arts in Sociology is designed to give students an advanced understanding of the significant factors and processes of human society; to further the preparation of those planning to teach in secondary or higher education; to prepare students for doctoral study in sociology; and to provide professional training for a variety of occupational opportunities in government, industry, education, research organizations, social agencies, and correctional systems. Each student's program is prepared individually in consultation with a graduate advisor.

Admission Requirements
1. Twenty-four semester hours in undergraduate social sciences, with at least fifteen semester hours in sociology, including courses in theory and research methods.
2. Grade-point average of 3.0 or better in undergraduate sociology courses.
3. If these requirements have not been met, the student may be required to complete additional course work as a condition of admission.
4. Applicants must supply a biographical statement and three letters of recommendation from academic and/or professional sources to the Graduate Admissions Committee, Department of Sociology.

Program Requirements
1. Complete at least thirty-six graduate credit hours, selected in consultation with the student's master's committee. At least twenty hours, including SOC 700 Master's Thesis, must be in sociology; up to nine hours may be in an approved cognate area. SOC 600, SOC 602, SOC 603 or SOC 604, SOC 606, SOC 607, SOC 621, one additional research methods course in sociology, and SOC 700 are required of all master's students.
2. Maintain a grade point average of 3.0 or better in all course work.


**OPTION II. APPLIED MASTER’S**

This option applies to the Master of Arts in Sociology. The 40-42 hour professional degree program is designed to prepare students for non-academic careers in governmental agencies, businesses, non-profit organizations, or (in special circumstances) for non-academic careers in governmental programs. Graduates will be well trained for such positions as data analysts, social systems and policy analyst, survey researchers, field directors, market researchers, and directors of research. This program will prepare graduates for the changing job market and the increased use of survey techniques and quantitative analysis to evaluate programs and shape decision making in organizations.

**Admission Requirements**

The admission requirements for these programs are the same as for Option I above.

**Program Requirements**

1. Complete 40-42 graduate credit hours:
   - Twelve hours in disciplinary core courses, twelve hours of research methods and statistics, and an additional nine hours of research and teaching beyond the degree.
   - Maintain a grade point average of 3.0 or better in all college work.
2. Maintain a grade point average of 3.0 or better in all college work.
3. Complete an internship and internship report (intensive essay) at the conclusion of the program. A thesis option is possible, with the addition of two credits, under special circumstances. Consult the departmental master’s advisor for the exercise of this option.

**Financial Assistance**

A number of departmental, University, and governmental assistantships, fellowships, and associateships are available to qualified students. Educational opportunities and part-time employment may be available through the facilities of the Leonard C. Kercher Center for Social Research. Research through the Center includes studies of education, mental health, marital roles, race relations, group dynamics, deviant behavior, comparative institutions, and numerous other topics. Graduate students frequently participate in the research.

Additional information and application forms may be obtained from the department.

**Doctor of Philosophy in Sociology**

Advisor:
Charles E. Crawford,
Room 2507, Sangren Hall

The Doctor of Philosophy in Sociology prepares students for careers in sociological research and teaching. Broad training in sociology is provided through a wide variety of courses and research experiences.

Guided individually by a doctoral committee, students are provided with core training in general sociology, theory, and research methods. Beyond this, students concentrate in two areas of sociology that are selected from important and active areas, such as applied sociology, criminology, comparative sociology, gender and feminism, medical sociology, social psychology, and race and ethnic relations theory.

Course work in a cognate area complements knowledge gained in selected specialties and the discipline as a whole.

**Admission Requirements**

1. Master’s degree in sociology.
2. Grade point average of 3.25 in all graduate work, and the completion of the Graduate Record Examination.
3. Applicants who hold a master’s degree in a related field may be admitted to the program, but may be required to make up deficiencies as a condition of admission.
4. Applicants must supply a biographical statement, a writing sample, and three letters of recommendation from academic and/or professional sources to: Graduate Admissions Committee, Department of Sociology.

**Program Requirements**

1. Complete, beyond the master’s degree, at least sixty hours of course and dissertation credits, selected in consultation with the student’s doctoral committee. Prerequisites for the doctoral program are SOC 600, 605, 607, and 621. The following courses are required for all doctoral students: SOC 602, 603, 604, 620, and one additional research course selected from SOC 525, 580, 581, 682, 687, or 688.
2. Complete a minimum of six hours of cognate courses from outside the Department of Sociology. The courses selected should be in a field of knowledge related to the student’s major interest.
3. Demonstrate competence in two research tools selected from a foreign language, another than English, research methods, and statistics.
4. Pass oral and written examinations in two departmental areas of concentration selected from applied sociology, comparative sociology, criminology, gender and feminism, medical sociology, race and ethnic relations theory, and social psychology.
5. Complete 15 credit hours of SOC 730 Doctoral Dissertation and submit a dissertation that is acceptable to the Department’s graduate faculty and shows evidence of competence to design, carry out, and report an original sociological investigation.
6. Criteria and procedures for meeting these requirements are described in detail in the department’s Graduate Manual.

**Financial Assistance**

A number of departmental, University, and governmental assistantships, fellowships, and associateships are available to qualified students. Educational opportunities and part-time employment may be available through the facilities of the Leonard C. Kercher Center for Social Research. Research through the Center includes studies of education, mental health, marital roles, race relations, group dynamics, deviant behavior, comparative institutions, and numerous other topics. Graduate students frequently participate in the research.

Additional information and application forms may be obtained from the department.

**Sociology Courses (SOC)**

Open to Upperclass and Graduate Students

500-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status with permission of the director of the Undergraduate Studies Program.

SOC 500 Computer Applications in Social Research

3 hrs.

An introduction to computer applications for graduate students in the social sciences. Since they all have utility in the research process, the full range of applications will be covered, including: word processing, spreadsheets, graphics, data base management, communications, and statistical processing. A hands-on course, it includes assignment relating to each of the application areas. Special attention will be paid to the use of SPSS (The Statistical package for the Social Sciences) in the analysis of quantitative data. Several assignments will relate to the use of this software package. Primarily for graduate students in the social and behavioral sciences with no special mathematical or computer experience. Undergraduates admitted only with the permission of instructor.

SOC 515 Sociology of Mental Illness

3 hrs.

This course will be concerned with examining the contemporary meaning of concepts of mental health and mental illness. The course will also consider the amount and kind of mental illnesses, especially the differences by social class, age, gender, race, marital status, urban versus rural living, and migration, the structure of the mental health delivery system, the nature of help-seeking for mental illness, and community care and public policy for mental illness. Prerequisite: SOC 300.

SOC 520 Studies in Social Psychology: Variable Topics

3 hrs.

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. May be repeated for credit with a different topic. Prerequisite: SOC 320.

SOC 521 Social Psychology of Emotions

3 hrs.

An examination of human emotions as they relate to thinking, motivation, and social action. Emphasis will be given to the ways in which emotions signal the importance of social events for the individual self, the role of group norms in determining appropriate emotional feeling and expression, the management of emotions, the ways that emotions function as both determinants and consequences of patterns of interpersonal activity. Prerequisite: SOC 320 or graduate standing.

SOC 522 Social Psychology of Prejudice

3 hrs.

An analysis of the processes through which prejudice is learned and influences individual thought and social interaction. The nature of contemporary forms of prejudice will be analyzed, along with their cultural, cognitive, and motivational bases. Emphasis will be placed on how stereotypes are acquired and maintained, the consequences of prejudice for social interaction and intergroup conflict, and classical and contemporary strategies for the reduction of prejudice and discrimination. Students will be encouraged to conduct research projects involving topics of their choice. Prerequisite: SOC 320 or graduate standing.

SOC 525 Research Design and Analysis in Social Psychology

3 hrs.

This course will provide students with the knowledge necessary to evaluate research, to understand the relationship between theory and the research operations that are used to
test and generate theory, and to design and carry out original research on social psychological topics. Students will learn about the appropriate use of survey, observational, experimental and quasi-experimental methods and applied to both field and laboratory settings. Class projects will teach students to design and conduct original research in social psychology, and to analyze data using relevant statistical techniques. Prerequisites: SOC 282 and 320, or graduate standing.

SOC 540 Sociology of Medicine 3 hrs.

A comprehensive survey of concepts and research findings in the field of the sociology of medicine. Topics to be covered include: the distribution of illness in society, relationships between social stress and disease, illness as a social process, health care professionals, the sociology of health care delivery. Prerequisite: SOC 373 or graduate standing.

SOC 552 Sociology of Aging 3 hrs.

An examination of the process of aging in American society, with particular emphasis on the theories of life span and developmental processes and the role of medical care in the lives of older persons. Consideration will be given to theories of aging and the social implications of age grading, the meaning of work and retirement, and the status and roles of the aged. Laboratory Six hours of sociology, including SOC 200 or consent of instructor.

SOC 560 Corporate and Governmental Crime 3 hrs.

An examination of the crimes committed by business corporations and government agencies. The course describes the nature, extent, and costs of these organizational crimes, explaining the structural and organizational forces 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: SOC 200 or SOC 210, SOC 260, and SOC 362 and one other 300- or 400-level course.

SOC 561 Violence and U.S. Society 3 hrs.

This course analyzes the nature, extent and causes of violence associated with the United States. The forms of violence to be analyzed include interpersonal, institutional, and structural violence. The course will require students to analyze and research on violence will be reviewed and various prevention and control policies will be discussed. Prerequisites: Graduate standing or SOC 200 or SOC 210, SOC 260, SOC 362 and one other 300- or 400-level course.

SOC 562 Victimization 3 hrs.

The study of crime victims, the probabilities of victimization, victim-offender relationships, the treatment of victims by the criminal justice system and the economic, social, and psychological impact of victimization. Prerequisites: SOC 200 or SOC 210, SOC 260, and SOC 362 and one other 300- or 400-level course.

SOC 583 Gender and Justice 3 hrs.

This course provides an overview of the relatively recent field of women, crime and justice, with particular direction guided by an issues approach. A wide variety of current research and theory in this realm are critically examined. The specific subtopics covered in this course encompass gender and discrimination in society at large, within the sociological/criminological academy, and within the criminal justice system. Broad feminist theoretical and methodological perspectives are drawn upon to contour the examination of women as criminal offenders, as victims of crimes such as rape and intimate violence, and as professional workers within the criminal justice system. Prerequisites: Graduate standing or SOC 200 or 210, SOC 260, SOC 362, and one other 300- or 400-level course (SOC 314 is encouraged).

SOC 568 Race, Ethnicity, and Justice 3 hrs.

This course addresses the multicultural dynamics that effect the definitions (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 examination of the social, political, and economic forces that support the current social structure will direct the inquiry. Prerequisites: Graduate standing or SOC 200 or 210, SOC 260, SOC 362, and one other 300- or 400-level course.

SOC 573 The Sociology of Political Behavior 3 hrs.

Systematic sociological theory and research applied to the study of political organization and behavior in the United States and in selected countries abroad. Such topics as political parties, voting, bureaucracy, and political ideology will be considered. Prerequisite: SOC 200 or consent of instructor.

SOC 578 Sociology of Law 3 hrs.

An examination of legal organization, the legal profession, and legal norms in the United States and other western societies. Emphasis will be placed on the relationship between the legal system and the society in which it functions. Prerequisite: SOC 200 or equivalent.

SOC 590 Variable Topics in Sociology 3 hrs.

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. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.

SOC 605 Studies in Sociological Theory: Variable Topics 3 hrs.

Advanced study and exploration, following seminar format, of topics of interest to faculty and students, for example: various role theory formulations and their usefulness in understanding social behavior, ethnomethodology, philosophy of science, experimental design, Marx, Weber, or other selected theorists. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.

SOC 606 Research Design and Data Collection I 3 hrs.

This course is designed to provide experience with the formulation of research problems and exposure to a range of quantitative and qualitative data gathering techniques. Logistical and ethical issues associated with the various techniques will be discussed (e.g., sampling, informed consent). Students will have experience identifying and collecting archival and observational data, as well as constructing and executing a simple experiment.

SOC 607 Logic and Analysis of Social Research I 3 hrs.

This course is designed to provide a thorough grounding in basic univariate and bivariate descriptive and inferential statistics for social scientists. Manipulation of data using SPSS also will be covered. Prerequisite: SOC 606.

SOC 617 Etiologies of Substance Abuse 3 hrs.

A study of various social and behavioral theories regarding the causation of alcohol and drug addiction. The findings of research will be examined as they tend to support or disconfirm these social and behavioral theories.

SOC 620 Research Design and Data Collection II 3 hrs.

This course focuses on some of the methodological problems and issues related to the design of sociological research and the collection of data (e.g., validity, reliability). Emphasis will be placed on the selection and design of appropriate qualitative and quantitative research methods and their
Students will have experience with the analysis of discrete variables in multiple regression analysis, and an introduction to path analysis. **Prerequisite:** SOC 607.

SOC 622 Advanced General Sociology 3 hrs.
A comprehensive survey of trends in the major fields of sociology. **Prerequisite:** Open only to graduate students in sociology.

SOC 623 Professional Writing for Sociologists 3 hrs.
This course will examine three forms of professional writing: Proposals for funded research, technical research reports, and scholarly journal articles. Students will receive extensive experience in writing, critiquing, and rewriting proposals, reports, and journal articles. **Prerequisite:** Fifteen hours of graduate sociology courses and consent of instructor. Graded on a Credit/No Credit basis.

A detailed study of a social problem area through student reports and seminar discussions. Instructor will select specific topic. Course is intended to provide intensive joint exploration of significant sociological issues. May be repeated for credit with a different topic. **Prerequisite:** Consent of instructor.

SOC 631 Deviance and Social Problems Theory 3 hrs.
An intensive and critical examination of the historical development and current status of the major theoretical orientations in the study of deviance and social problems theory.

SOC 633 Proseminar on Social Problems 3 hrs.
A critical overview of the current state of knowledge in the major subfields of social problems. Emphasis will be placed on conceptual and methodological problems in the areas and the relationship of each of these areas to one another.

SOC 640 Social Organization of the Health System 3 hrs.
An examination of traditional and emerging ways in which health care is organized. A major concern will be the politics of health and the role of various interest groups (professional associations, unions, consumer groups) in the formation of health policy. Among the topics to be considered are the development of American medicine, the relationships of organizational structure to effectiveness in health organizations, the social control of health care organizations, and the growth of medical bureaucracies. **Prerequisite:** SOC 540, or SOC 540 may be taken concurrently.

SOC 642 Social Epidemiology 3 hrs.
An examination of the relationships between sociocultural and demographic variables and variations in the distribution of infectious and chronic diseases, mental disorders and substance abuse. Sources of epidemiological data and methods of research are studied and evaluated. Application to the planning of health services and the development of service systems are presented. **Prerequisite:** SOC 643 Seminar in Medical Sociology 3 hrs.
An advanced seminar in some specialized aspect of medical sociology. May be repeated for credit with a different topic. **Prerequisite:** Consent of instructor.

SOC 644 Epidemiology and Health Statistics 3 hrs.
The course will cover the basic principles of epidemiology and biostatistics. Topics to be considered include: the nature of the epidemiologic perspective, epidemic investigation, rates, screening, risk estimation, the design of epidemiologic investigations, measures of association, tendency, basic inferential statistics, sampling, and hypothesis testing. Open only to Health Care Administration students, except by permission of instructor.

SOC 650 Seminar in Social Psychology: Variable Topics 3 hrs.
An advanced seminar in some specialized aspect of social psychology. May be repeated for credit with a different topic. **Prerequisite:** SOC 651.

SOC 651 Social Psychological Theory 3 hrs.
A study of major theoretical approaches in social psychology and their methodological and substantive implications. **Prerequisite:** SOC 320 or equivalent.

SOC 652 Advanced Social Psychology 3 hrs.
Advanced exploration of contemporary social psychology, with selected examples of theory and research to represent current work in socialization, small groups, and cognitive social psychology. **Prerequisite:** SOC 651.

SOC 653 Social Psychology of Health and Illness 3 hrs.
An examination of the impact of disease or disability on the individual. Individual responses to disease and disability are examined in relation to cultural, social psychological and personality variables. Environmental stress and personality factors are considered as they relate to the onset of disease. Consideration is given to the relevance of social factors for health services planning and communication of health care professionals with patients and clients. **Prerequisite:** SOC 540, or SOC 540 may be taken concurrently.

SOC 655 Seminar in Social Stratification 3 hrs.
This seminar will deal with the sociological explanations of stratification. The functional, conflict and evolutionary paradigms will be used to analyze and explain the nature, causes and consequences of class and status within social systems. The usefulness of such concepts as power, prestige, social class and status within social systems will be stressed. **Prerequisite:** SOC 600.

SOC 661 Seminar on Current Issues in Criminology 3 hrs.
This course will deal with the current debates and controversies in criminology, radical versus traditional perspectives, economic and white-collar crime as areas of research, the ethics of criminological research, environmental design and crime, and other timely and relevant issues emerging from current literature and conference debates. **Prerequisite:** SOC 662 Seminar in Corrections 3 hrs.
Review and analysis of the philosophies, objectives, dilemmas, and critical issues in corrections. Innovative and alternative strategies in Social Control will be reviewed. The role of institutional and non institutional corrections will be reviewed relative to social policy goals and objectives.

SOC 663 Comparative Criminology 3 hrs.
An analysis in depth of crime as this phenomenon is viewed in Sweden, Germany, Poland, and other eastern and western European countries. Emphasis is placed on theoretical and etiological approaches in different societies, and the applicability and tests of theories in these societies. **Prerequisite:** SOC 466.

SOC 664 Studies in Criminology: Variable Topics 3 hrs.
This seminar is designed to provide in depth analysis and assessment of various substantive topics within criminology, including race and crime, gender and crime, capital punishment, and/or specific types of criminal behaviors. May be repeated for credit with a different topic.

SOC 665 Research Issues in Criminology 3 hrs.
An advanced course emphasizing: (1) The examination of current issues in the measurement and analysis of crime, and (2) Development of research skills relevant to criminological research. Students will demonstrate their mastery of research skills by conducting their own analysis of crime data. **Prerequisite:** SOC 665 Seminar in Advanced Criminology 3 hrs.
A detailed study of the theoretical basis of crime. This seminar takes into account the socio-historical and philosophical bases of systems of classical and modern theories of crime. Property crime, violent personal crime and corporate crime are a few of the specific patterns that will be discussed and interpreted within various theoretical paradigms.

SOC 667 Sociology of Criminal Justice 3 hrs.
This course will review and evaluate the theoretical and empirical literature on the criminalization process. Particular attention will be paid to the various discretionary decisions that are made within the criminal justice process in the U.S.

SOC 671 Seminar in Ethnic Relations 3 hrs.
Advanced study of race and ethnic relations, problems, and trends. **Prerequisites:** SOC 314 or consent of instructor.

SOC 672 Patterns of Intercultural Adjustment 3 hrs.
A study of processes of intercultural adjustment involving different racial, national, and religious groups. The factors giving rise to present-day conflict situations are examined and special emphasis is given to techniques of...
SOC 673 Formal Organization
3 hrs.
This course analyzes the nature of large-scale, formal organizations, concentrating on their structure, types of organizational goals, processes of control, authority and leadership, and the relationship of organizations to their social environment. Examples of organizations will be selected from different areas such as education, government, medicine, science, leisure, and industry. Prerequisite: SOC 200 or consent of instructor.

SOC 674 The Nonprofit Sector in Society
3 hrs.
This course will provide an overview of the nonprofit or third sector of society and will explore its interactions with other sectors in society. While the focus will be on nonprofits in American society, cross-cultural comparisons will also be provided. The socio-economic, organizational, and political roles of nonprofits will be examined for a wide range of different organizations. Special attention will be devoted to the changing role of nonprofit and voluntary organizations in society.

SOC 675 Studies in Comparative Sociology: Variable Topics
3 hrs.
Intensive analysis of selected topics using a comparative frame of reference. The seminar will focus on such topics as major theoretical perspectives, methodological issues, and interpretation of studies of such institutions as: educational systems, industrial systems, and family systems. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.

SOC 680 Studies in Research Methodology: Variable Topics
3 hrs.
A seminar on advanced theoretical and methodological problems which are important to systematic research in sociology. Suggested specialized topics include: philosophy of the social sciences, methodology, and model building and testing. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.

SOC 681 Advanced Multivariate Analysis
3 hrs.
This course covers multivariate statistical techniques, including such topics as time-series analysis, structural equation modeling, confirmatory factor analysis, hierarchical modeling techniques, linear probability, logit, tobit and probit estimation of models with discrete dependent variables, and logistic regression. Prerequisite: SOC 621.

SOC 682 Qualitative Methods
3 hrs.
This course covers important techniques in qualitative sociological research, including participant observation and in-depth interviewing. Students will study and practice these methods, incorporating issues of recording and coding data and the ethical norms governing such research. They will also address theoretical and epistemological issues related to the place of qualitative methods in the sociological toolkit.

SOC 686 Applied Sociology
3 hrs.
Provides an overview of the development of applied sociology and an introduction to essential skills. Among the topics covered are proposal writing, budget preparation, systems analysis, presentation of data to clients, and the writing of research reports. Case study material will be used to introduce students to applied sociology in public, private, and non-profit settings.

SOC 687 Evaluation Research I
3 hrs.
The basic purpose of this course is to familiarize students with the various research techniques for evaluating action agencies through a survey of the literature, study of evaluation models, and study of techniques and procedures used in evaluation. Prerequisite: SOC 621.

SOC 688 Methods of Survey Research
3 hrs.
This course is a research seminar structured to provide practical experience in the use of social surveys. Both applied and disciplinary utilizations will be studied as will the conceptualization and measurement phases of survey design, the implications of the cognitive processes at work in survey research, the analysis of survey data, and the administration of large scale survey projects.

SOC 690 Computer Applications for Sociologists
3 hrs.
This class is designed to provide doctoral students in sociology with essential skills in the use of mainframe computers and micro-computers to perform such professional tasks as project design, interviewing, budgeting, and data analysis. Competence in using operating systems, word processing and SPSSX should be attained before enrolling for this class. Prerequisite: CS 501, or equivalent.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

SOC 700 Master's Thesis
6 hrs.

SOC 710 Independent Research
2-6 hrs.

SOC 712 Professional Field Experience
2-12 hrs.

SOC 725 Doctoral Research Seminar
2-6 hrs.

SOC 730 Doctoral Dissertation
15 hrs.

SOC 735 Graduate Research
2-10 hrs.
Admission Procedures
1. The Biostatistics Admission Committee will admit candidates to the program based on the following criteria:
   a. Strength and breadth of the undergraduate course work.
   b. Availability of internships (Admission to the program is limited by the number of opportunities available.)
2. A promising student may be admitted to the program with deficiencies in the admission requirements and be required to complete this work as extra program requirements.
3. Students are urged to submit scores on the Graduate Record Examination (GRE).

Program Requirements
3. Biological Sciences Component (6 credit hours): Two approved 500-level biological sciences courses. These courses are chosen to fit a student's individual interest.
4. Elective Component (3 credit hours): An approved 500-600 level course from Statistics or Biological Sciences.
5. Internship Component (5 credit hours): A professional field experience internship with a health-related industry. Normally this is taken as STAT 712.
6. Final Examination: Before beginning the internship, each program student must have successfully passed a written comprehensive examination covering the material of STAT 562, 660, and 664.

7. Final Report: At the completion of the internship, each candidate must submit a final report on the internship project.

Master of Science in Statistics
Advisor:
Dr. Joshua Naranjo
See Statistics Department Office, 3306 Everett Tower

This program will give students a combination of knowledge of statistical techniques, experience with using these techniques in applied situations, and understanding of the theoretical principles behind these techniques. Students receive excellent training for professional employment in industry or government, and at the same time obtain sufficient theoretical background to qualify them to teach elementary statistics or to continue into advanced programs. The student is encouraged to apply for an internship experience (STAT 712) where it is expected that students will collaborate with professional statisticians in an actual work environment with real problems. A minimum of thirty-two hours is required, and the resulting degree is a Master of Science in Statistics.

Admission Requirements
For admission to this option, candidates must have completed an undergraduate program containing a substantial amount of mathematics, including a complete calculus sequence, a course in probability, a course in statistical methods, and a course in linear algebra. A complete undergraduate mathematics major is not required since the requirements in pure mathematics are not as extensive as in Option I.

Program Requirements
1. A student must pass the Departmental Graduate Examination in Statistics at the doctoral level. This consists of two, three-hour exams in the areas of theoretical statistics (including probability) and applied statistics from the courses STAT 562, 660, 662, and 664. The Departmental Graduate Examination will be given once a year, usually in the Spring.

Doctor of Philosophy in Statistics
Advisor:
Dr. Joseph McKean
Room 5506 Everett Tower

The Doctor of Philosophy in Statistics is designed to prepare students for careers in teaching and research in universities, industry, or government. It is expected that students, through courses and other experiences, will develop facility in theoretical statistics from a variety of career interests.

Admission Requirements
A student may enter this program with a bachelor's degree or directly upon completion of the doctoral degree in Statistics. The student must have acquired a sufficient level of mathematical training with satisfactory grades as determined by the Doctoral Graduate Committee. Upon entrance to the program the student is assigned an advisor who assists him/her in planning his/her program until he/she reaches the stage of having a Dissertation Advisor appointed.

Advising
The Statistics Doctoral Committee will be responsible for arranging the advising of students in the statistics program. The student is assigned to the Departmental Doctoral Committee and the Statistics Doctoral Committee, he/she will be assigned a dissertation advisor. The candidate and the dissertation advisor will select, with the approval of the Departmental Doctoral Committee. This would take place at the end of the first year after passing all three prelims.

Research Tools: In accordance with the requirements of The Graduate College, each student is required to work experience of two approved research tools. Normally for students in Statistics these will consist of demonstrating competence in computer usage or a foreign language. Competence in computer usage can be demonstrated by passing STAT 680 or an equivalent course with a grade of B or better. Competence in a foreign language can be demonstrated by passing a reading course at the 400-level in that language or by translating from a language other than English a statistical paper to the satisfaction of the Statistics Division Committee. A third option for a research tool is a cross-disciplinary research experience involving concepts and language of a discipline other than Statistics (e.g., Biology, Chemistry, Engineering) and resulting in documentation of the student's competence in the other discipline in the form of written reports and/or published papers. The Doctoral Committee shall determine the acceptability of the cross-disciplinary research experience.
Progress Toward Completion
Each year the Doctoral Committee will review the progress of all doctoral students in the Statistics program. Any student not making satisfactory progress may be dropped from the program with approval of the Doctoral Committee. Grades, performance on preliminary exams, the schedule of completed classes, general progress towards completion, etc. will be considered in this decision.

Statistics Courses (STAT)
Open to Underclass and Graduate Students

Undergraduates with junior or senior standing and 12 or more credit hours of work in mathematics and statistics may enroll in 500-level courses with prior approval of the department chairperson.

STAT 560 Applied Probability
3 hrs.
A first course in probability for upper division and graduate students interested in applications. Topics will include: probability spaces, expectation, moment generating functions, central limit theorem, special discrete and continuous distributions. Applications will include reliability and product marketing problems, and Markov chain methods. Not recommended for students who have taken STAT 362 or 660. Prerequisite: MATH 272.

STAT 561 Applied Multivariate Statistical Methods
3 hrs.
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: An introductory course in statistics and a course in linear algebra.

STAT 562 Statistical Theory
4 hrs.
A first course in statistical theory. Topics include random variables, distributions of statistics, limiting distributions, and elementary theory of estimation and hypothesis testing. Prerequisite: STAT 230, STAT 364, (560 or 460) or equivalent.

STAT 563 Sample Survey Methods
3 hrs.
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: An introductory statistics course and consent of instructor.

STAT 565 Design of Experiments for Quality Improvement
3 hrs.
This course covers statistical methods useful for improving the quality of products and systems in an industrial setting. It provides a comprehensive set of tools to use in building better products and in reducing manufacturing and other costs. The focus will be on solving real engineering problems through case studies. Taguchi methods will be discussed along with modifications from standard statistical practice. Topics will include planning an experiment, experimental strategy, Analysis of Variance concepts, factorial designs, orthogonal arrays, loss functions, signal-to-noise ratios, identifying significant factor effects, graphical methods, parameter design and tolerance design. Prerequisite: An introductory course in statistics.

STAT 566 Nonparametric Statistical Methods
3 hrs.
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. Prerequisite: An introductory statistics course.

STAT 567 Statistical Design and Analysis of Experiments
4 hrs.
A course in experimental design and the analysis of variance with particular emphasis on industrial experiments. Topics include: completely randomized, randomized complete block, Latin square, and split-plot designs; orthogonal contrasts and polynomials; multiple comparisons; factorial arrangement of treatments; confounding; fractional replication. This course is molded around the complete analysis of good applied problems. Prerequisite: An introductory statistics course.

STAT 568 Regression Analysis
3 hrs.
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. Prerequisite: An introductory statistics course.

STAT 569 Quality Improvement Concepts and Methods
4 hrs.
A course on quality technology for application in business and industry involving concepts and methods from Statistics, Management, and Psychology and how they must blend together to obtain results. Topics may include: quality concepts for products and services, Deming philosophy of quality improvement, leadership and management concepts, analytic vs. enumerative studies, theory of variability, the seven tools, exploratory data analysis, statistical graphics, Shewhart control charts, cusum charts, process capability, principles of experimental design, robust product and process design. Prerequisites: An introductory statistics course such as STAT 260 or STAT 364.

STAT 599 Independent Study in Statistics
1–6 hrs.
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. May be repeated for credit. Prerequisite: Approval of chairperson of department.

STAT 622 Preparation of Large Data Sets for Statistical Analysis
3 hrs.
Students will use standard database software, spreadsheets and relational databases, to learn how to handle large data sets in preparation for statistical analysis. They will learn how to enter and query Databases that have already been constructed and be exposed to basics of building relational databases. It is anticipated that Excel, Access, and Oracle are software packages to be used in the course, but choice is dependent on course instructor. Prerequisite: STAT 560.

STAT 660 Statistical Inference I
4 hrs.
An advanced course in statistical theory. Topics include measures of quality of estimators, theories of estimation, functions of sufficient statistics, confidence intervals, theories of testing, likelihood ratio tests, and selected topics in statistics. Prerequisite: STAT 562.

STAT 661 Multivariate Statistical Analysis
3 hrs.
A theoretical treatment of multivariate statistical problems and techniques. Topics include: multivariate normal distribution, quadratic forms; multiple and partial correlation; sample correlation coefficients; Hotelling's T2-statistic; Wishart distribution; applications to tests of the mean vector and covariance matrix; principal components; factor analysis; cluster analysis; discriminant analysis. Prerequisite: STAT 663.

STAT 662 Applied Linear Models
3 hrs.
An advanced course in applied statistics. Linear models will be used to treat a wide range of regression and analysis of variance methods. Topics include: matrix review; multiple, curvilinear, nonlinear, and stepwise regression; correlation; residual analysis; model building; use of the regression computer packages at WMU; use of indicator variables for analysis of variance and covariance models. Prerequisites: MATH 230, STAT 364, (560 or 460) or equivalent.

STAT 663 Linear Models
3 hrs.
A theoretical study of the general linear model including random vectors, quadratic forms, multivariate normal distributions, least squares estimation, hypothesis testing for full and reduced models, generalized inverses. Prerequisites: STAT 660 and 662.

STAT 664 Design of Experiments I
3 hrs.
An applied course in the design and analysis of experiments. Topics include: general considerations in the design of an experiment; standard designs such as Latin square, balanced incomplete block, split plot, and nested; pooling of experiments; multiple comparison techniques; orthogonal contrasts and polynomials; factorial arrangement of treatments; fixed, random, and mixed models; confounded designs; fractional replication. Prerequisite: STAT 662.

STAT 665 Statistical Inference II
3 hrs.
Mathematical statistics is considered in a decision theoretic framework. The decision problem; loss and risk function; Bayes procedures; minimax procedures; admissibility; complete classes; sufficiency; hypothesis testing and estimation. Prerequisite: STAT 660.

STAT 666 Nonparametric Statistical Theory
3 hrs.
A theoretical study of nonparametric statistics and robust statistical procedures. Topics may include: order statistics, empirical cdfs, R-estimates, rank statistics, optimality considerations, asymptotic distribution theory. Prerequisite: STAT 660.
STAT 667 Introduction to Random Processes 3 hrs. 
This course is a treatment of random sequences and Markov processes. Discrete and continuous Markov processes; transition and rate matrices; Chapman-Kolmogorov systems, transition and long-run behavior; examples and illustrations; random walks, birth-and-death processes, etc.; stationary processes. **Prerequisite:** STAT 560 or equivalent.

STAT 668 Categorical Data Analysis 3 hrs. 
Statistical methods for discrete multivariate data and contingency tables will be discussed. The log linear model for two way and higher dimensional tables will be emphasized. Subtopics include: maximum likelihood estimates, iterative proportional fitting, model selection, goodness of fit, logistic models, incomplete tables, symmetry, marginal homogeneity, and conditional independence models. **Prerequisite:** STAT 660, 662.

The subject matter for this course is variable. Advanced work is considered and organized around topics not usually considered in the other courses.

STAT 680 SAS Programming 3 hrs. 
Students will use SAS to manipulate data, create effective tables and plots, and write programs for nonstandard problems. **Prerequisite:** STAT 662 or consent of instructor.

STAT 681 Survival Data Analysis 3 hrs. 
This course consists primarily of biostatistical methods used in pharmaceutical and medical research with particular application to cancer studies and toxicological animal studies. Some attention is given to related failure-time methods used in industry to test product reliability. Theoretical development of some of these methods is discussed. Extensive data analyses are done using SAS (or comparable statistical packages). Topics include: censoring, Kaplan-Meier survival curves, life tables, two-sample non-parametric procedures for comparison of survival curves ( Gehan, Cox-Mantel), log rank and generalized Wilcoxon), relative risk, odds ratio, the Mantel-Haenszel procedure, parametric failure-time models (exponential, gamma, Weibull, and lognormal), logistic regression, and Cox's proportional hazards model. **Prerequisites:** STAT 660 and 662.

STAT 682 Time Series Analysis 3 hrs. 
The theoretical development and practical use of seasonal and non-seasonal ARIMA (Auto-regressive 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 BIOMED statistical packages are included. Topics include: autocorrelation function, partial autocorrelation functions, Yule-Walker equations, differencing, stationarity, autocorrelation models, moving average models, seasonality, invertibility, and Box-Pierce tests. **Prerequisites:** STAT 660 and 662.

STAT 683 Robust Statistical Analysis 3 hrs. 
Robust statistical procedures for inference in location, linear and multivariate models are presented. This will include broad classes of robust estimates, including $L^1$-, $M^2$-, and $L^2$-estimates of both regular and bounded influence types. Concepts such as breakdown point, influence function, and asymptotic theory are used to obtain properties of these procedures. Computational aspects of these estimates are discussed along with small sample properties and applications of these procedures. **Prerequisites:** STAT 660 and 662.

STAT 684 Design of Experiments II 3 hrs. 
This course is a continuation of Design of Experiments I. The additional topics include: repeated measurement designs, analysis of covariance designs, response surface designs, partially balanced incomplete block designs, mixture models, study of models with missing data using Types I, II, III, and IV SAS sums of squares, analysis of large experiments with many crossed and nested factors, and some Taguchi methods. **Prerequisite:** STAT 664.

STAT 685 Applied Data Mining 3 hrs. 
Examine the philosophy and practice the methods of using gigantic data collections to discover actionable information. Topics include: Statistical evaluation of gigantic data collections; data warehousing; data form; data transformations; missing data; data reduction; application of neural networks; genetic algorithms, and hybrid models. **Prerequisite:** STAT 464.

STAT 691 Practicum in Statistical Consulting 1 hr. 
Provides graduate students with the opportunity to participate as statistical consultants on real projects. The student consultants are involved with all aspects of the statistical aspects of the project and from interaction and effective communication with a client to the production of a final written report on the statistical aspects of the project. May be taken for credit at most three times. **Prerequisites:** STAT 662 (or concurrent enrollment) and at least one of STAT 563, 566, 567, or 568.

STAT 696 Seminar in Probability and Statistics 1–3 hrs. 
May be repeated for credit.

STAT 698 Reading and Research 1–4 hrs. 
Individual study project available to the graduate student. **Prerequisite:** Consent of Advisor.

STAT 699 Reading and Research 1–6 hrs. 
May be repeated for credit.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

STAT 712 Professional Field Experience 2–12 hrs.

STAT 725 Doctoral Research Seminar 2–6 hrs.

STAT 730 Doctoral Dissertation 15 hrs.

STAT 735 Graduate Research 2–10 hrs.

WOMEN’S STUDIES

Dr. Gwen Raaberg, Director
Main Office: 341 Moore Hall
Telephone: 387-2510
FAX: 387-2507

Women’s Studies Courses

Open to Upperclass and Graduate Students

The prerequisites for admission of undergraduates to 500-level Women’s Studies courses are 12 hours of course work from the Women’s Studies approved list, including WMS 200, and at least junior level status, or departmental approval.

WMS 600 Seminar in Women’s Studies 3 hrs.

A seminar offering variable topics that focus on special problems or issues in Women’s Studies. Emphasis will be placed on developing skills in research approaches and on writing a research paper integrating the student’s disciplinary training with investigation of an interdisciplinary problem in Women’s Studies. May be repeated for credit when topics vary.

WMS 510 Internship Seminar 3 hrs.

Course offers an opportunity for the advanced student to apply theory and knowledge in 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 and K-12 classroom presentations.

WMS 550 Contemporary Feminist Theory 3 hrs.

An advanced course focusing on the analysis of American and European texts in feminist theory. The course will also consider the relation of these texts to other contemporary theoretical approaches. **Prerequisite:** For undergraduates, WMS 401.

WMS 597 Issues in Women’s Studies: Variable Topics 1–3 hrs.

Group study of special issues in 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. May be repeated for credit when topics vary. Course open to graduate students.

WMS 598 Readings in Women’s Studies 1–4 hrs.

Individual study project available to the advanced student by permission of faculty advisor with departmental approval of project application.
HAWORTH COLLEGE OF BUSINESS

James W. Schmotter
Dean

David Burnie
Associate Dean and Director of MBA Programs

Trudy Verser
Associate Dean

Academic Units:
Accountancy
Business Information Systems
Finance and Commercial Law
Management
Marketing
Military Science

Institutes:
Business Research and Service Institute
Service Quality Institute

The Haworth College of Business is committed to partnerships among students, employers, faculty, alumni, and the business community that advance the achievement of high-quality education. Such active partnerships challenge the foundation of our knowledge and skills and enhance our ability to change. Meeting these challenges requires an evolving combination of teaching, research, and service activities among partners.

College Graduate Degree Programs:
The degree programs leading to the Master of Business Administration and the Master of Science in Accountancy are offered within the framework of the graduate education goal of the Haworth College of Business which is, To provide excellent targeted graduate education and business seminars for constituent groups (primarily working professionals and international students) by the year 2004.

The undergraduate and master's business programs offered by the Haworth College of Business, Western Michigan University are accredited by AASCB: The Association to Advance Collegiate Schools of Business. Enrollment in any graduate business course requires active admission to the MBA or MSA program. Students admitted to the University on Permission to Take Graduate Classes (PTG) status are not eligible for enrollment in graduate business courses. Requests for exception to these enrollment policies must be submitted in writing to the Director of MBA Programs, Haworth College of Business, 2110 Schneider Hall.

Application Procedures
Individuals may obtain an application for graduate business degree programs in the Haworth College of Business through one of the following procedures:
1. Personal visit to the Haworth College of Business Office of Student Development, Room 2130 Schneider Hall on the University campus in Kalamazoo, Michigan.
2. Contacting the Admissions Office of Western Michigan University by (a) visiting the Office of Admissions and Orientation in Room 2240 Seibert Administration Building; (b) requesting an application for admission by writing to the Office of Admissions and Orientation, Graduate Admissions, 1201 Oliver Street, Western Michigan University, Kalamazoo, Michigan 49008-5120; or (c) telephoning the Admissions' Voice Enhanced Request Line, 1-800-400-4968.
3. Personal visit to the Grand Rapids Regional Office at 2333 East Beltline, S.E. in Grand Rapids or telephone the Regional Office, 1-616-771-9478, or a personal visit or telephone call to another Western Michigan University Regional Office in Battle Creek, Holland, Muskegon, Lansing, or St. Joseph, Michigan.
4. Electronic access via the Internet, with access to Western Michigan University's homepage at http://www.wmich.edu, selecting the "Graduate Programs" link and following the steps for an on-line application.
5. Applicants who are not U.S. citizens must contact, in writing, the Office of International Student Services, Room A411 Ellsworth Hall, 1201 Oliver Street, Western Michigan University, Kalamazoo, Michigan 49008-5899. International applicants may also E-Mail the Office of International Student Services at oiss.info@wmich.edu, or may telephone the Office at 616-387-5865, or may reach the Office through the Internet at http://www.wmich.edu/oiss and follow the application procedures presented.

Appeals Process
An applicant who has been denied admission to a graduate program in the Haworth College of Business and is choosing to appeal that decision (or whose admission contains conditions that are being appealed) shall contact the Office of Student Development by telephone (616-387-5075) or by mail (Office of Student Development, Haworth College of Business, Western Michigan University, Kalamazoo, Michigan 49008-3899) and request a copy of the College's "Admission Appeal Policy " which provides guidance on the appeal process.

Continuation Requirements
To continue enrollment in graduate programs in the Haworth College of Business students must meet published University standards for graduate education. These standards require active admission status and an overall grade point average of at least 3.00 in all graduate business course work with alternative enrollment conditions possible as defined in the "Academic Standards" section of this Graduate Catalog.
Master of Business Administration
Office of Student Development, Room 2130, Schneider Hall

This professional degree program leading to the Master of Business Administration is designed to prepare graduate students to function effectively in administrative positions. This preparation emphasizes the development of the student’s ability to make and execute decisions. The program of study is designed to provide the student with skills and knowledge in the areas of critical analysis, business operations, changing environments, professional development, and specialized professional interests. Students are challenged to develop the judgment, discriminating capacity, knowledge, and understanding which will permit them to work effectively in administrative and other leadership roles. Under the guidance of the faculty advisors of the Haworth College of Business, personal programming for the participant is provided.

Pre-Business/Pre-Career MBA Co-operative (CO-OP)

This program is an alternate delivery mechanism for the pre-business and pre-career students based on the current MBA program with specific modifications to suit their needs. A pre-business and pre-career student is defined as a student who does not possess an undergraduate business degree and does not have experience in a business career. Students will take a 52-hour program, which includes two semesters of internship or co-operative work experience for 2 credit hours each semester. The remaining 48 hours are course hours. 42 are taken over three on-campus semesters and 6 are taken during two off-campus sessions. This is a lock-step program primarily for students with limited or no prior university business background.

Admission Requirements
1. To be eligible for admission to the MBA degree, a process managed by the Office of Student Development in the College, an applicant must initially meet one of the following criteria.
   a. A GMAT score of 580 or higher with a grade point average for the last two years in an accredited, undergraduate university program of 2.50 or higher.
   b. A GMAT score of 450 or higher with a grade point average for the last two years in an accredited, undergraduate university program of 3.00 or higher.
   c. Satisfactory completion and receipt of a graduate professional degree from a U.S.A. accredited university, for example, a graduate degree in law, education, medicine, or engineering.
   d. A grade point average of 3.0 or higher for the last two years in an accredited, undergraduate degree program and at least seven (7) years of substantial, full-time professional, business work experience (which has occurred within the ten years prior to the date of program application) as reflected in a professional work portfolio, which must be reviewed and accepted by a majority vote of the Haworth College of Business Academic Review Board.
   e. For Western Michigan University international program locations only: A review of academic accomplishment, professional business experience, and educational certification—accompanied (if necessary) by personal interviews—will provide the basis for judging a candidate’s ability. All international applicants must have a bachelor’s degree with an acceptable grade point average from an educational institution approved by Western Michigan University.
   f. Applicants who are not U.S.A. residents (international students) may be required to demonstrate English language proficiency with a TOEFL score of not less than 550.
   g. Each applicant must provide evidence of proficiency in the required basic skills prior to formal graduate program admission. Basic skills are defined as computer literacy, quantitative reasoning, statistics, and writing in English. The writing skill requirement is considered met if the applicant achieves a score of 3.50 or higher on the essay portion of the GMAT.
2. Applicants who meet the requirements must be reviewed and accepted by a majority vote of the Haworth College of Business.

Program Requirements
A potential MBA student will select either the program option for Pre-Business/Pre-Career MBA CO-OP or the MBA (without the CO-OP requirement) based on prior background. A pre-business and pre-career student is defined as a student who does not possess an undergraduate business degree and does not have experience in a business career.

Pre-Business/Pre-Career MBA CO-OP
Students will have all five components of the CO-OP requirement of the MBA CO-OP option, while non-CO-OP MBA students may have less than the full five components. The MBA program includes five components: Prerequisites/Basic Core, Business Management Core, Concentration Electives, and Integrative Business Solutions.

1. Prerequisites/Basic Core (12 hours)
In order to provide students with the background of the common body of knowledge in business and administration, study in the areas of Accounting, Economics, Finance, and Law is required. These requirements are automatically fulfilled if the applicant completed an undergraduate business degree.
   a. ACTY 601 Accountancy (3 hrs.)
   b. ECON 601 Basic Economic Analysis (3 hrs.)
   c. FCL 602 Corporate Finance (3 hrs.)
   d. FCL 604 Legal, Regulatory, and Political Aspects of Business (3 hrs.)

2. Business Context (9 hours)
   a. BUS 615 Global Business and International Business Operations Communication (3 hrs.)
   b. BUS 616 Business Policy and the Social and Ethical Environment (3 hrs.)
   c. BUS 618 Information Technology Management (3 hrs.)

3. Functional Core (15 hours)
   a. ACTY 611 Managerial Accounting (3 hrs.)
   b. FCL 612 Financial Management (3 hrs.)
   c. MKTG 613 Customer-Driven Marketing Management (3 hrs.)
   d. MKTG 614 Business Process Management (3 hrs.)
   e. OR 616 Business Process Management (3 hrs.)
   f. OR 617 Managing Human Resources and Behavior (3 hrs.)

4. Integrative Business Solutions (3 hours)
   a. BUS 699 Business Strategy (3 hrs.)

5. Concentration Electives (9 hours)
   a. An area of concentration may be selected from Accountancy, Computer Information Systems, Economics, Finance, General Business, International Business, Management, Marketing, or Paper Science. Electives are required at the 600-level, with a maximum of the electives which may be approved at the 500-level. Students must consult with an MBA advisor in their area of anticipated concentration during the first semester of enrollment at Western Michigan University.

6. Pre-Business/Pre-Career MBA CO-OP option
For students in the CO-OP program, BUS 699 MBA CO-OP Business Internship (4 hrs. total) is required. This program requirement is a planned professional experience/internship. The internship is in a functional area of business. To meet this requirement of the MBA CO-OP option, students must enroll for 2 hours of internship after completing the first (on-campus) semester of course work and re-enroll for an additional 2 hours of internship again after completion of the second on-campus semester of course work. These are full-time work internships providing the student with experience in a functional area of business. Students are to refer to the College program bulletins for specific course and internship sequencing.

7. Students with an undergraduate major or minor in a business discipline may be allowed to substitute a fourth concentration elective for the MBA core course offered by their undergraduate area of study. The undergraduate majors and the core courses which could be replaced with a higher level elective are:
   a. Accountancy, ACTY 611
   b. Finance, FCL 612
   c. Marketing, MKTG 613
   d. Management, MGMT 617
   e. Production/Operations, MKTG/ MGMT 614
   f. Computer Information Systems, BUS 618

To effect the substitution, students (a) must consult with an advisor in the desired area of MBA concentration; (b) obtain approval from an advisor in the College program; and (c) if the MBA concentration is outside the undergraduate area, a faculty advisor in their area of concentration must also approve the substitute elective.
**Business Courses (BUS)**

Open to Graduate Students Only. Enrollment in HCCB graduate business courses requires admission to the MBA or MSA program or the consent of the Director of MBA Programs.

**BUS 615 Global Business and Intercultural Communication** 3 hrs.
This course enables the student to explore how business practices and policies are affected by international, cultural, political, legal, social, and economic environments. Viewed from the perspective of corporate managers and entrepreneurs, this course provides a global foundation for other business work, for example, in accounting, information management, finance, management, and marketing. Additionally, intercultural communication skills required to conduct business successfully in a global environment will be examined. Written and oral reports will be incorporated to provide practical knowledge about intercultural business communication.

**BUS 616 Business Policy and the Social and Ethical Environment** 3 hrs.
This course introduces students to the concepts of social responsibility and ethics in strategic business settings. Coverage includes strategic business concepts and associated legal issues. An examination of a firm's mission, goals, and business strategy will be considered within an ethical and legal framework. Diverse viewpoints regarding the nature and limits of corporate social responsibility will be explored in the context of alternative strategic choices for the firm. The emphasis will be on understanding the conceptual tools to analyze behaviors in the context of business decision making.

**BUS 618 Information Technology Management** 3 hrs.
This course enables the student to understand the use of information technology as part of business strategy. Issues surrounding information technology such as information and communication systems and services and enterprise-wide systems—traditional, networked, extended, and virtual—in organizations will be explored. The growing convergence of technologies—computer, video, and telecommunications—within sophisticated information networks also will be examined. Students should gain knowledge about strategic issues involving information technology management rather than the development of specific computer skills.

**BUS 697 MBA CO-OP Business Internship** 2 hrs.
Internship practicum in a functional area of business. A requirement of the Pre-Business/Pre-Career MBA Co-operative stream, students must enroll in the internship after completing the first (on-campus) semester of course work and re-enroll in the internship after completion of the second on-campus semester (program Semester III) of course work. These are full-time work internships and provide the student with experience in a functional area of business. An internship report is required. Course is taken twice for credit. Graded on a Credit/No Credit basis. Prerequisite: For Pre-Business/Pre-Career MBA Coop students only. First internship enrollment requires completion of five Semester I courses. Second internship enrollment requires completion of five Semester III courses, as listed in MBA Coop Program requirements.

**BUS 699 Business Strategy** 3 hrs.
An advanced examination of the tasks of formulating long-run strategy for the organization. Using strategic cases and/or simulations, the course includes methods of (1) developing opportunities from analyses of environmental and market trends, (2) understanding company strengths, weaknesses, and dependencies, and (3) directing the integration of strategy with operating plans through formal and informal networks. This is an integrative capstone course designed to provide a total business perspective. Prerequisites: Completion of MBA Business Context and Functional Core courses.

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**ACCOUNTANCY**

**ACCOUNTANCY**

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Jack M. Ruhl
Kathleen E. Sinning
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**Master of Science in Accountancy**

Advisors:
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Sheldon Langsam, Room 3160, Schneider Hall
Kathleen Sinning, Room 3182, Schneider Hall

The Master of Science in Accountancy prepares the student for professional careers in industry, commerce, finance, government, and public accounting. A graduate from the Haworth College of Business with a Master of Science in Accountancy will be qualified 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.

Knowledge and understanding of the theory, literature, and practical professional practice of accounting are developed. The student's understanding of the relationship of accounting to other fields in business and to other disciplines is also stressed. Course work will be selected from the areas of financial accounting, cost and managerial accounting, auditing, taxation, not-for-profit, systems, and accounting theory.

**Admission Requirements**

Admission to the program is obtained through the Master of Science in Accountancy Committee of the Department of Accountancy.

1. To be eligible for admission to the Master of Science in Accountancy (MSA) program, an applicant must meet one of the following criteria, which are managed by the Office of Student Development in the College:
   a. A GMAT score of 600 or higher with a grade point average for the last two years in an accredited undergraduate university program of 2.5 or higher;
   b. A GMAT score of 500 or higher with a grade point average for the last two years in an accredited undergraduate degree program of 3.0 or higher;
   c. A GMAT score of 450 or higher with a grade point average for the last two years in an accredited undergraduate degree program of 3.5 or higher.

2. An applicant whose native language is not English must achieve a minimum score of 550 on the Test of English as a Foreign Language (TOEFL).

3. Each applicant must provide evidence of proficiency in the required basic skills prior to formal graduate program admission.

Basic skills are defined as computer literacy, quantitative analysis, statistics, and writing in English. The writing skill
Minimum of 9 hours of non-accounting Accounting. A graduate of the Haworth College of Business with a Master of Science in Accountancy will be qualified 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. The program is designed to meet the AICPA's 150-hour requirement. A student without a degree in business must complete 24 credit hours of business courses to meet the 150-hour requirement.

The current requirements to sit for the CPA exam in Michigan are 24 hours of accounting, including auditing. The course work also must include a study in systems and governmental accounting. To receive a year's credit toward the experience requirement in Michigan, a 150-hour program must contain 39 semester hours of accounting and 36 hours of general business subjects.

**Accountancy Courses (ACTY)**

**ACTY 513 Advanced Accounting Systems**
3 hrs.
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. Prerequisite: ACTY 211.

**ACTY 514 Governmental and Nonprofit Accounting**
3 hrs.
A study of the accounting methodology and concepts that have been developed to account for both product and period costs of a business enterprise. The course includes product costing for job order and continuous process situations, activity-based costing, divisional performance evaluations, cost allocations among departments, and joint and by-product costing, and standard costing as it relates to inventory pricing. Prerequisite: ACTY 322.

**ACTY 524 Advanced Tax Accounting**
3 hrs.
A study of the federal tax laws that govern the transactions during a corporation’s life cycle. The tax effects of organizing, operating, making distribution, reorganizing, and liquidating regular and S corporations are analyzed. The differences in the taxation of corporations, partnerships, and limited liability companies are also addressed. Prerequisite: ACTY 324.

**ACTY 598 Readings in Accounting**
1–4 hrs.
Directed individual study of topics not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

**Open to Graduate Students Only.** Enrollment in HCOB business courses requires admission to the MBA or MSA program or the consent of the Director of Graduate Business Programs.

**ACTY 601 Accounting**
3 hrs.
This course is designed for graduate students who have no academic background in accounting. It is a study of the fundamental concepts and applications of financial and managerial accounting. The course emphasizes the use of accounting information and the analysis of accounting statements rather than the recording of transactions and the preparation of accounting statements. Students cannot receive credit for both ACTY 601 and equivalent courses. Prerequisite: Admission to the MBA or MSA program or consent of the Chair of the Department.

**ACTY 610 Financial Accounting and Reporting**
3 hrs.
This course examines the pronouncements of authoritative, regulatory organizations, including the American Institute of Certified Public Accountants, the Securities and Exchange Commission, and the Financial Accounting Standards Board. The underlying logic (or lack thereof) behind these pronouncements is investigated. These pronouncements are studies in their broad concepts, including asset and liability recognition and measurement issues, revenue recognition alternatives, the timing of expense matching, and funds flow reporting. Practical, "real world" cases emphasizing these concepts form a major portion of the course. The impact of financial reporting on capital markets, from a user perspective, is also discussed. Prerequisite: ACTY 311 or consent of the Chair of the Department or the Director of the MBA Program.

**ACTY 611 Managerial Accounting**
3 hrs.
This course emphasizes the use of accounting information for planning, control, and decision making. The managerial accounting topics covered include job order costing, cost allocation, service costing, activity-based costing, standard costing, transfer pricing, and global accounting issues. The course is not available for credit to students who have completed ACTY 322 or its equivalent. Prerequisite: ACTY 601 or equivalent.

**ACTY 617 Attestation and Assurance Services**
3 hrs.
A critical study and examination of the theory of auditing and auditing practices, including the demand and supply for auditing services.
and current issues facing auditors in the United States and elsewhere.

ACTY 621 International Accounting
3 hrs.
This course examines international dimensions of accounting and the uses of accounting information for decision making in a multinational environment. Major emphasis is placed upon accounting and managerial issues of multinational corporations such as currency translation, financial reporting and disclosure, international taxation, transfer pricing, and current issues and developments. Prerequisite: ACTY 611 or consent of the Chair of the Department.

ACTY 622 Seminar in Management Accounting
3 hrs.
This course examines a variety of advanced cost management concepts and techniques for manufacturing and service organizations. The topics may include advanced cost-volume-profit analyses, activity-based costing and activity-based management, strategic cost management, total quality management, re-engineering and process improvement, transfer pricing, and other cost management issues in a global environment. Prerequisite: ACTY 322 or ACTY 611.

ACTY 624 Business Tax Planning
3 hrs.
An advanced course in business taxation involving the identification and analysis of tax problems. Income tax strategy is studied involving the timing of income, types of business organizations, and the various alternative tax treatments. Tax problems of corporate acquisitions, reorganizations, liquidations, estates and trusts, partnerships, and capital gains will also be included. Case studies will be used, and research in taxation will be emphasized. The course will be conducted in a seminar setting with group discussion accentuated. Prerequisite: ACTY 324.

ACTY 625 International Taxation
3 hrs.
This course is a study of the concepts and principles that apply to the United States taxation of foreign income earned by U.S. taxpayers and U.S. income earned by foreign taxpayers. Students will learn to analyze and apply fundamental international tax concepts to situations likely to be encountered by businesses and individuals. Prerequisite: ACTY 324.

ACTY 642 Selected Topics in Accountancy
3 hrs.
The advanced study of selected topics in accountancy. Course varies according to topic. Prerequisite: MSA admission or consent of the Chair of the Department.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

ACTY 700 Master's Thesis
6 hrs.
ACTY 710 Independent Research
2-6 hrs.
ACTY 712 Professional Field Experience
2-12 hrs.

BUSINESS INFORMATION SYSTEMS

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Alan I. Rea
Nancy M. Schullery
Andrew S. Targowski
Mike Tarn

Business Information Systems Courses (BIS)

Open to Upperclass and Graduate Students

BIS 555 Topics in Computer Information Systems
3 hrs.
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. May be repeated for credit. Prerequisite: BIS 360.

BIS 560 Office Systems and Procedures
3 hrs.
A study of paperwork systems and procedures. Emphasis is placed on office systems and the techniques of systems development including fact gathering and recording, work analysis, and office work simplification and measurement. Prerequisite: BIS 102.

BIS 596 Independent Study
1–4 hrs.
A directed independent project in an area of administrative systems, business communication, or computer information systems. Prerequisite: Consent of department chair.

BIS 598 Readings
1–4 hrs.
A series of direct readings in the area of administrative systems, business communication, or computer information systems. Prerequisite: Consent of department chair.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

BIS 700 Master's Thesis
6 hrs.
BIS 710 Independent Research
2-6 hrs.
BIS 712 Professional Field Experience
2–12 hrs.
FINANCE AND COMMERCIAL LAW

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Finance Area

Robert Balk
David Burnie
James DeMello
A. Ed Edwards
Theodore Fuger
A. D. Isa
Christopher M. Korth
C. R. K. Parameswaran
Inayat Mangla
Ali Methalli
Craig Peterson
Ajay Samant
Tim F. Scheu
Judith Swisher
Devrim Yaman

Finance Area Courses (FCL)

Open to Graduate Students Only. Enrollment in HCOB graduate business courses requires admission to the MBA or MSA program or the consent of the Director of Graduate Business Programs.

FCL 602 Corporate Finance 3 hrs.
This course will introduce students to financial principles and techniques which are essential for understanding the financial management function of a firm.

FCL 612 Financial Management 3 hrs.
This course will focus on a contemporary study of issues and problems in financial management. Issues to be examined include short-term financing, capital budgeting, asset pricing theory, sources of long-term capital, optimal capital structure, corporate restructuring and international dimensions of corporate financial management. Prerequisite: FCL 602 or equivalent.

FCL 619 Financial Markets and Institutions 3 hrs.
Study of money and capital markets, financial instruments, and intermediaries in a global context. Topics include interest rate and security price determination, term structure theory, hedging techniques with derivatives, and monetary policy methodology and influences. Prerequisite: FCL 612.

FCL 622 Financial Restructuring 3 hrs.
An investigation and analysis of the financial aspects of corporate restructuring. The course emphasizes valuation of public and private companies. In addition, it examines the financial implications of leveraged buyouts, spin-offs, and other types of divestitures. Prerequisites: FCL 612.

FCL 625 Financial Strategy 3 hrs.
The main focus of this course is on value creation. It attempts to bridge the gap between theory and practice. Topics include financial analysis and forecasting, risk management, working capital management, capital budgeting, capital structure theory and dividend policy. Students identify problems facing the financial executive and recommend the best course of action utilizing financial theory. Prerequisites: FCL 612.

FCL 642 International Finance 3 hrs.
A study of contemporary issues in the areas of multinational financial management and international investments with emphasis on the management of currency risk. The areas to be examined include international treasury cash management, multinational capital budgeting and hedging of transactions, operations and translation exposure. Prerequisites: FCL 612.

FCL 645 Computer Applications in Finance 3 hrs.
Spreadsheets, web resources, and statistical analyses are used to analyze finance issues with current computer software. Web research includes searching security databases, downloading stock prices, and using stock screening programs. Statistical analyses use regression. The cases cover topics such as capital budgeting, cash budgeting, estimating beta, financial forecasting, and ratio analysis. Students work in teams to solve cases and give presentations. Prerequisite: FCL 612.

FCL 654 Investment Analysis and Management 3 hrs.
A detailed analysis of the investigation of corporate securities as long-term investment media, largely from the standpoint of the individual investor. Investigates the techniques for security valuation and portfolio management, with some discussion of financial institution investment procedures. Considers mechanics, markets, institutions, and instruments important to the investment process. Not open to students with credit earned in FCL 453 or its equivalent. Prerequisite: FCL 612.

FCL 655 Portfolio Theory and Analysis 3 hrs.
A study of the theoretical structures (models and their applications). Theoretical concepts are used to study model development and evaluate competing models. Extensive use of market-based data for computer applications of models such as Markowitz analysis, single and multiple index models, simplified techniques, duration and convexity. Prerequisite: FCL 612.

FCL 662 Health Care Financial Management 3 hrs.
This course deals with advanced financial management concepts affecting health care institutions. Working-capital management, capital-budgeting, and Medicare reimbursement programs are examined. Prerequisite: FCL 320 or equivalent.

FCL 691 Seminar in Finance 3 hrs.
The analysis of specialized financial problem areas (e.g., financial structures, financial forecasting, commodities, and similar contemporary problems). Topics will vary from semester to semester. Prerequisite: FCL 612.

Law Area

Nicholas C. Batch
Thomas Gossman
Norman Hawker
F. William McCarty
Leo Stevenson

Law Area Courses (FCL)

Open to Graduate Students Only. Enrollment in HCOB graduate business courses requires admission to the MBA or MSA program or the consent of the Director of Graduate Business Programs.

FCL 604 Legal, Regulatory, and Political Aspects of Business 3 hrs.
This course provides an introduction to the legal, regulatory, and political environments of business. The course will examine the role of law in society, the structure of the American legal, regulatory, and political systems, and basic legal principles governing business conduct. The course reviews major legal problems encountered by business managers. The manager's role in dispute resolution and factors affecting the organization of business are also examined.

FCL 681 Legal and Ethical Issues for Nonprofit Organizations 2 hrs.
This course will provide students with the basic understanding and practical applications of the legal framework pertaining to the establishment, operation, and funding of nonprofit organizations. It will also examine ethical behavior in the nonprofit world, provide examples of questionable conduct and unethical behavior, and offer solutions to ethical dilemmas. Not available for credit toward graduate business programs.

FCL 682 Managerial Aspects of Labor Law 3 hrs.
Provides an overview of the background and consequences for business of the laws governing collective relationships between employers and employees and their representatives. Special emphasis is given to the interpretation and evaluation of current legislation. Prerequisite: FCL 380 or 604.

FCL 684 International Business Law 3 hrs.
Private international law and selected regional and national laws affecting foreign investment, licensing, and trade are reviewed. International sales, financing, transportation, intellectual property, and taxation topics are discussed.

FCL 686 Legal and Regulatory Issues in Marketing 3 hrs.
This course examines the legal, regulatory, and political issues which affect marketing. The course offers legal and regulatory information that parallels and affects marketing decision making.

FCL 688 Health Law Administration 3 hrs.
The course provides a study of the law as it relates to the delivery of health care services. The cases, regulations and statutes in state and federal legal systems that affect the health care professional and institutions are examined. Legal concepts such as respondent superior, good Samaritan laws, informed consent, and confidentiality will be explored. Prerequisite: FCL 380 or 604.

FCL 689 Legal Problems of Health Care Organizations 3 hrs.
An analysis of the organization and structure of various health care entities. The Medicare reimbursement program, medical malpractice and risk avoidance concepts will be discussed. Laws affecting the maintenance and disclosure of medical records and organizational certificate of needs will be examined. Prerequisite: FCL 688 or consent of department chair.
General Area

General Area Courses (FCL)

Open to Upperclass and Graduate Students
FCL 594 International Business Seminar
1–6 hrs.
A foreign study seminar designed for qualified and capable undergraduate students, graduate students, teachers, and business executives. The seminar introduces participants to a first-hand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organizations, supplemented by coordinated faculty lectures and assigned readings. Undergraduate or graduate credit of up to six hours, in one or more of the following departments upon consent of department chair: Accountancy, Business Information Systems, Finance and Commercial Law, Management, or Marketing.

Open to Graduate Students Only. Enrollment in HCOB graduate business courses requires admission to the MBA or MSA program or the consent of the Director of Graduate Business Programs.
FCL 600 Seminar in Business
3 hrs.
Intensive problem solving in the primary business fields. Consent of instructor required. May be repeated for credit.
FCL 698 Readings and Research in Finance and Commercial Law
1–3 hrs.
Directed individual study of bodies of knowledge not otherwise treated in departmental courses. Prerequisite: Written consent of department chair.
Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.
FCL 700 Master’s Thesis
6 hrs.
FCL 710 Independent Research
2–6 hrs.
FCL 712 Professional Field Experience
2–12 hrs.

MANAGEMENT

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K.C. O’Shaughnessy
Jennifer Pal
Timothy Palmer
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James Schmotter
Christina Stamper
Trudy G. Verser

Management Courses (MGMT)

Open to Graduate Students Only. Enrollment in HCOB graduate business courses requires admission to the MBA or MSA program or the consent of the Director of Graduate Business Programs.
FCL 600 Seminar in Management (Topic)
3 hrs.
Intensive problem solving in advanced management topics, including the preparation of a major staff report. Repeatable for different topics.

MGMT 610 International Management
3 hrs.
The purpose of this course is to develop the skills, knowledge, and sensitivities necessary to manage successfully in an international environment. Students will learn why and how companies internationalize their operations, and the implications of managing in diverse environments worldwide.

MGMT 614 Business Process Management
3 hrs.
Improving business processes is fundamental to competitive organizations and their significant supply chain partners. Students will be introduced to the increasingly integrated areas of purchasing, operations, and logistics and given an opportunity to examine the fundamental processes that shape business functions. Students will either develop and simulate new systems or improve existing systems within the supply chain of an organization. This course is cross-listed with MKTG 614, Business Process Management.

MGMT 617 Managing Human Resources and Behavior
3 hrs.
Work is a dominant theme in the lives of most people. The way people are managed and relate to one another affects the quality of their lives and the effectiveness of their organizations. Understanding individual differences, sources of behavior, choices people make, and how issues come together in groups and organizations is imperative for today’s managers. A clear understanding of how diverse managerial approaches positively impact the performance of a diverse workforce is of growing importance. The course instructional technology ranges from lecture to self-directed work. There is, however, an emphasis on participative and experiential learning.

MGMT 632 Incentive Compensation
3 hrs.
Incentive compensation covers pay related incentives useful for implementing business strategies. Topics covered include executive compensation (e.g. stock options), special group incentives, gain sharing, and ESOP’s. Students are expected to develop an incentive plan for an existing organization.

MGMT 641 Business Venturing
3 hrs.
Focuses on all aspects of starting a new business, with emphasis on the critical role of recognizing and creating opportunities. Topics include evaluation of opportunities, sources of financing, and challenges of rapid growth. Term project involves development and presentation of a professional business plan. Prerequisite: Completion of MBA core or consent of the HCOB Director of Graduate Business Programs.

MGMT 650 Managing Change
3 hrs.
The process of change inside organizations with particular emphasis on managerial actions that influence effectiveness is investigated. Change is examined at the strategic, organizational, and behavioral levels.

MGMT 652 Strategic Human Resource Management
3 hrs.
The role of HRM in generating sustained competitive advantage is examined. Theory, policies, and practices that guide effective management of diverse human resources are explored. Strategic choices regarding staffing, evaluation, rewards, dismissal, and employment relations in a changing work environment are discussed. Prerequisite: Admission to the MBA program or consent of the HCOB Director of Graduate Business Programs.

MGMT 655 Organization Theory
3 hrs.
Theories, models, and applications relevant to the structure of complex organizations and their subunits. Emphasis on alternative designs, their causes and consequences.

MGMT 658 International Human Resource Management
3 hrs.
The purpose of this course is to investigate issues in the management of human resources on a global basis. It includes topics such as globalization and business strategy, culture, employment law, expatriate staffing, performance appraisals, cross-cultural training, and international labor relations.

MGMT 661 Introduction to Management Science
3 hrs.
A systematic study and application of the scientific method to management decision-making. Introduction to techniques of linear programming, inventory theory, scheduling theory, and other optimizing decision models. For students who will take more specialized courses as well as those in other disciplines desiring a limited exposure to the field. Prerequisite: MATH 210 or equivalent.

MGMT 680 Management of Innovation and Technology (MOIT)
3 hrs.
An understanding of the concepts involved in developing core technological competencies, managing existing technologies, and developing new technologies through innovation. Focus will be on the management dimension of technology and innovation. Topics covered will include: technology and strategy (including technological forecasting), management of technology (including development of core technical competencies...
and technology acquiring options), management of innovation (including internal entrepreneurship and organizational change, and managing R&D), the economics of innovation, and the relevance of Management of Innovation and Technology in helping a firm meet-surpass global competition.

MGMT 685 Quality Management Strategies 3 hrs.
The purpose of this course is to investigate strategic quality management issues as they apply to the management of business in today's competitive environment where the customer satisfaction and continuous improvement have become requirements. Topics covered will include product and process quality, leadership, benchmarking, employee participation and empowerment, quality function deployment, and process innovation. Students will be assigned materials from the latest textbooks and journals. Practice and application will result from participation in group projects conducted in local firms.

Prerequisites: MGMT 300 and MKTG 250.

MGMT 695 Advanced Independent Study 3 hrs.
Independent study of current trends and advanced problems in the organization and management of complex organizations. May be repeated for credit. Prerequisite: Consent of department chairman.

MGMT 699 Policy Formulation and Administration 3 hrs.
This course focuses on the job of the general manager in formulating short and long run strategy. Using cases drawn from actual situations, the course develops ways of (1) perceiving specific opportunities from an analysis of evolving environmental trends; (2) understanding company strengths and (3) integrating strengths and opportunities in setting strategy and detailed operating plans. This is an integrative capstone course in that the tools and skills learned in other core courses are needed to develop practical, company-wide general management decisions. Prerequisite: Completion of MBA core courses.

Open to Graduate Students Only. Please refer to The Graduate College section for course descriptions.

MGMT 700 Master's Thesis 6 hrs.

MGMT 710 Independent Research 2-6 hrs.

MGMT 712 Professional Field Experience 2-12 hrs.

MARKETING
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Marketing Courses (MKTG)

Open to Graduate Students Only. Enrollment in HCOB graduate business courses requires admission to the MBA or MS program or the consent of the Director of Graduate Business Programs.

MKTG 613 Customer-Driven Marketing Management 3 hrs.
An examination of marketing theory, concepts, and processes used by organizations to create customer value, achieve and sustain competitive advantage and accomplish their strategic mission and objectives. Emphasis on planning, implementing, and evaluating customer-driven marketing strategies to respond effectively to complex global, cultural, technological, competitive, and other market or environmental factors.

Improving business processes is fundamental to competitive organizations and their significant supply chain partners. Students will be introduced to the increasingly integrated areas of purchasing, operations, and logistics and given an opportunity to examine the fundamental processes that shape business functions. Students will either develop and simulate new systems or improve existing systems within the supply chain of an organization. This course is cross-listed with MGMT 614, Business Process Management.

MKTG 661 Healthcare Marketing 3 hrs.
This course presents the field of marketing and its application to the healthcare industry. Emphasis is on the design and use of marketing analyses in areas of patient and client satisfaction, critical path and performance models, continuous quality improvement, and the managerial application of market research findings. A range of health care provider services are researched using marketing techniques such as segmentation, fail point and boundary analyses for healthcare services.

MKTG 663 Electronic Marketing 3 hrs.
Electronic marketing links customers directly with companies, suppliers, and other participants for the development and delivery of products and services. This course examines electronic marketing in terms of specific industries and designated target markets. Students will gain knowledge about customer relationship management using electronic technology, for example the Internet, and related methods and tools used to attract, delight, and retain customers via electronic platforms.

Prerequisites: BUS 615 and MKTG 613.

MKTG 671 Applied Marketing Research 3 hrs.
Applications of marketing research methods for marketing management using a variety of analytical techniques. Required for all MBA marketing concentrations; may be waived for those having MKTG 471, or its equivalent, with a grade of "B" or better.

MKTG 672 Distribution Strategy 3 hrs.
The design and implementation of distribution channels emphasizing customer service, least-total-cost design, and time-based competition. The course will include particular attention to the application of information technology; the integration of important strategic issues; the coordination of activities impacting channel efficiency; and the management of channel relationships.

Prerequisite: MKTG 613.

MKTG 673 New Product Management 3 hrs.
A systematic examination of market-driven processes for developing and launching new products and managing them over their life cycles. Includes application of marketing research along with consideration of organizational, technological, competitive, and societal issues. Prerequisite: MKTG 613.

MKTG 674 Integrated Marketing Communications Strategy 3 hrs.
The course focuses on the study of the theoretical and practical sides of integrated marketing communications strategy development from a managerial perspective. Included is exposure to the elements of the integrated marketing communications mix (advertising, sales promotion, public relations, interactive marketing, and selected personal selling actions). Media strategy, creative strategy, integrated marketing communication objectives, and budget determination are also explored. Course format may include case studies and/or group projects. Prerequisite: MKTG 613.

MKTG 675 Services Marketing 3 hrs.
The study of services marketing with an emphasis on service quality and customer satisfaction. Topics will include the nature and environment of services, customer expectations and satisfaction, TQM, competitive benchmarking, service quality measurement and gap analysis, relationship marketing, and strategy planning for services.

MKTG 676 Multinational Marketing Management 3 hrs.
Managerial analysis of the global marketing environment and evaluation of market entry strategies including exporting, licensing and direct investment; developing and assessing multinational product, pricing, promotional, and distribution strategies; critical discussion of contemporary international marketing issues. [Not recommended for students who have completed a recent undergraduate course in international marketing.]

Prerequisites: BUS 615 and MKTG 613.

MKTG 677 Buyer Behavior 3 hrs.
This course presents the theoretical and practical foundations of consumer and organizational behavior from a managerial perspective. Student will develop an
understanding of why consumers and organization decision makers think and act as they do in the marketplace. Emphasis is placed on decision making processes. Resource availability, cultural and intercultural contexts, psychological and sociological influences on decision making are explored. 

_MILITARY SCIENCE_ is an undergraduate program placed on decision making processes. Emphasis is placed on decision making processes. Resource availability, cultural and intercultural contexts, psychological and sociological influences on decision making are explored. Undergraduate Catalog for more information.

**MILITARY SCIENCE**

Military Science is an undergraduate program only. Please refer to the 2001–2003 Undergraduate Catalog for more information.

**MKTG 678 Special Topics in Marketing**
3 hrs.
Critical examination of advanced topics within the marketing discipline. The course topic will be indicated in the student record. Repeatable for different topics. Prerequisite: MKTG 613.

**MKTG 679 Market Planning and Strategy**
3 hrs.
Emphasis on developing comprehensive customer-driven marketing strategies and plans within dynamic competitive environments. Experiential application of advanced marketing concepts and techniques to marketing problem-solving situations. Prerequisite: MKTG 613.

**MKTG 680 Global Sourcing and Logistics**
3 hrs.
This course will examine concepts in international purchasing and logistics to provide an in-depth understanding of the international supply chain. This course will examine how sourcing and logistics activities change and become more complex in the global environment. These aspects will be discussed in terms of opportunities, challenges and changing customer requirements presented by trading blocs, emerging markets and developing countries. Prerequisite: BUS 615.

**MKTG 687 Special Problems in Marketing**
3 hrs.
Special problems based on individual and/or group need or interest under the direction of a member of the graduate faculty. Student application must be submitted to the individual faculty member and approved by the department chair prior to election of the course. May not be repeated for credit.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

**MKTG 700 Master's Thesis**
6 hrs.

**MKTG 710 Independent Research**
2–6 hrs.

**MKTG 712 Professional Field Experience**
2–12 hrs.
COUNSELOR EDUCATION AND COUNSELING PSYCHOLOGY

Dr. Joseph R. Morris, Chair
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Norman M. Kiracofe
Kelly A. McDonnell
Joseph R. Morris
Patrick Munley
Diane K. Swartz
Donna M. Talbot
Jennifer L. Wiebold

Master’s Programs:

Four master’s programs are offered by the Department of Counselor Education and Counseling Psychology: The Master of Arts in Counseling Psychology prepares graduates to be eligible for a limited license as a psychologist in the state of Michigan, the Master of Arts in Marriage and Family Therapy prepares graduates to be eligible for a license as a Marriage and Family Therapist in the state of Michigan, and the Master of Arts in Counselor Education, with four program options, prepares graduates to be eligible for a license as a professional counselor. Additionally, the Master of Arts in Human Resources Development prepares graduates to provide direction, through leadership and consultation, for organizational learning and development in business, government, education, and healthcare settings.

Master of Arts in Counseling Psychology

Advisors:

Department Office, Room 3102, Sangren Hall.

The Master of Arts in Counseling Psychology provides, beyond the departmental required core course work, a focus on psychopathology, psychological assessment, counseling and psychotherapy theories and practices, and advanced practicum experiences. This program is selected by students seeking limited licensure as a psychologist in the State of Michigan.

Admission Requirements

Admission to the Master of Arts in Counseling Psychology is based upon grade point average, educational background, counseling and/or related experiences, as well as other factors. Prior to consideration by the M.A. Admissions Committee, applicants are required to complete and return a questionnaire prepared by the department. Interviews, letters of recommendation, test scores, and other materials may also be required.

Application deadlines are January 15 for the ensuing Fall semester and August 1 for the Winter semester. Applications materials may be obtained from the Office of Admissions and Orientation. Upon admission, each student is assigned an advisor who will assist in preparing a Program of Study. It is recommended that the program of study, which also serves as the application for candidacy, be completed during the first semester or session of enrollment.

The department recognizes the importance of increasing the educational opportunities of racial minority students, as well as the importance of ensuring an increased diversity of role models in the fields represented by its training programs. Therefore, the department strives to create an atmosphere conducive to the concerns of racial minorities and diverse populations, to integrate these concerns into programs and course offerings, and to fulfill its commitment to recruit, admit, support, and graduate a diverse population of students prepared for their chosen careers.

Program Requirements

The counseling psychology program requires a minimum of forty-eight semester hours of course work, including eight, three-semester-hour, core courses. A curriculum guide for the program is available from the Department office.

Students are expected to work with advisors in order to be informed of policies, course offerings, prerequisites, and applications required for designated courses. A student’s performance and progress will be evaluated throughout the program. This process includes “check points,” such as candidacy, assignment of a grade below “B” in any course, and final evaluation prior to graduation. The student is referred to the Department’s Policy on Retention.

Master of Arts in Counselor Education

Advisors:
Mary Anderson, Nicholas Andreedis, Gary Bischof, Robert O. Brinkerhoff, Stephen
The program offers opportunities for students to receive a Michigan teaching certificate. In addition to the core courses, students must complete a minimum of 12 credit hours of coursework. The program provides flexibility in designing a course of study to meet the needs of the student. In addition to the core courses, students must complete a minimum of 12 credit hours of coursework.

Admission Requirements
Admission to one of the four options above is based on grade point average, educational background, and other factors. Prior to consideration by the M.A. Admissions Committee, applicants are required to complete and return a questionnaire prepared by the department. Interviews, letters of recommendation, test scores, and other materials may also be required.

Upon admission, each student is assigned an advisor who will assist in preparing a Program of Study. The department recognizes the importance of increasing the educational opportunities of racial minority students, as well as the importance of ensuring an increased diversity of role models in the field represented by its training programs. Therefore, the department strives to create an atmosphere conducive to the concerns of racial minorities and diverse populations, to integrate these concerns into programs and course offerings, and to fulfill its commitment to recruit, admit, support, and graduate a diverse population of students prepared for their chosen careers.

Program Requirements
All program options require a minimum of 18 credit hours of coursework. The program of study for each of the options includes at least seven, three-semester-hour core courses. Curricular guidelines for the program options are available from the Department office.

Students are expected to work with advisors in order to be informed of policies, course offerings, prerequisites, and application requirements for designated courses. A student's performance and progress will be evaluated throughout the program. This process includes, but is not limited to, such areas as gerontology, criminal justice, alcohol and drug abuse, marriage and family, and holistic health care. This option leads to endorsement as a professional school counselor. Programs in School Counseling (Elementary, Secondary, or Career Development Specialist) incorporate courses emphasizing counseling theory and practice, ethics, testing/appraisal, career development, and psychoeducational consultation. Admissions to counseling programs is competitive.

The M.A. in Human Resources Development provides graduate preparation for students seeking entry into, or advancement in, a career in human resources development (also known as staff development, employee relations, etc.) in business, government, education, and healthcare settings. This program prepares leading-edge HRD practitioners who are able to provide strategic leadership and consulting roles, to assure that organizational learning and development functions are linked to, produced, and can demonstrate worthwhile organizational and individual performance results.

Admission Requirements
Admission to the Master of Arts in Human Resources Development is based on grade point average, educational background, professional work experience, and other factors. Prior to consideration by the M.A. Admissions Committee, applicants are required to complete and return a questionnaire prepared by the department. Interviews, letters of recommendation, test scores, and other materials may also be required.

Application deadlines are January 15 for the Spring semester and August 1 for the Fall semester. Applications materials may be obtained from the Office of Admissions and Orientation. Upon admission, each student is assigned an advisor who will assist in preparing a Program of Study. It is recommended that the program of study, which also serves as the application for candidacy, be completed during the first semester or session of enrollment.

The department recognizes the importance of increasing the educational opportunities of racial minority students, as well as the importance of ensuring an increased diversity of role models in the fields represented by its training programs. Therefore, the department strives to create an atmosphere conducive to the concerns of racial minorities and diverse populations, to integrate these concerns into programs and course offerings, and to fulfill its commitment to recruit, admit, support, and graduate a diverse population of students prepared for their chosen careers.

Program Requirements
The Human Resources Development program requires a minimum of thirty-six semester hours, including seven, three-semester-hour core courses. A curriculum guide for the program is available from the department.

The Human Resources Development program provides great flexibility in designing a course of study to meet the needs and interests of the student. In addition to the core courses, students must complete a minimum of 12 credit hours of coursework. A curriculum guide for the program is available from the department.

Master of Arts in Human Resources Development
Advisors: Nicholas Anreadis, Robert O. Brinkerhoff, Joseph R. Morris, Department Office, Room 3102, Sangren Hall.

The Master of Arts in Human Resources Development (HRD) provides graduate preparation for individuals seeking entry into, or advancement in, a career in human resources development (also known as staff development, employee relations, etc.) in business, government, education, and healthcare settings. This program prepares leading-edge HRD practitioners who are able to provide strategic leadership and consulting roles, to assure that organizational learning and development functions are linked to, produced, and can demonstrate worthwhile organizational and individual performance results.

Admission Requirements
Admission to the Master of Arts in Human Resources Development is based on grade point average, educational background, professional work experience, and other factors. Prior to consideration by the M.A. Admissions Committee, applicants are required to complete and return a questionnaire prepared by the department. Interviews, letters of recommendation, test scores, and other materials may also be required.

Application deadlines are January 15 for the Spring semester and August 1 for the Fall semester. Applications materials may be obtained from the Office of Admissions and Orientation. Upon admission, each student is assigned an advisor who will assist in preparing a Program of Study. It is recommended that the program of study, which also serves as the application for candidacy, be completed during the first semester or session of enrollment.

The department recognizes the importance of increasing the educational opportunities of racial minority students, as well as the importance of ensuring an increased diversity of role models in the fields represented by its training programs. Therefore, the department strives to create an atmosphere conducive to the concerns of racial minorities and diverse populations, to integrate these concerns into programs and course offerings, and to fulfill its commitment to recruit, admit, support, and graduate a diverse population of students prepared for their chosen careers.

Program Requirements
The Human Resources Development program requires a minimum of thirty-six semester hours, including seven, three-semester-hour core courses. A curriculum guide for the program is available from the department.

The Human Resources Development program provides great flexibility in designing a course of study to meet the needs and interests of the student. In addition to the core courses, students must complete a minimum of 12 credit hours of coursework. A curriculum guide for the program is available from the department.
The Master of Arts in Marriage and Family Therapy provides students with academic development and clinical practice designed to prepare individuals for entry level positions as family therapists in medical and private practice settings, and in public, private non-profit, and private agencies. Students who complete the program will have met the academic degree requirements to be eligible to apply for licensure as a Marriage and Family Therapist in the state of Michigan and Clinical Therapist in the state of Wisconsin. Students who complete the program will have met the academic degree requirements to be eligible to apply for licensure as a Marriage and Family Therapist in the state of Michigan and Clinical Therapist in the Apple Valley, Minnesota. This program is offered in collaboration with the Department of Family and Consumer Sciences.

Admission requirements
Admission to the Master of Arts in Marriage and Family Therapy is based upon undergraduate and graduate grade point average, educational background, and related professional and volunteer experience. Prior to consideration by the admissions committee, applicants are required to complete and return a graduate application and program application, academic transcripts from all institutions of previous study, letters of recommendation, and a professional goals statement. Based on a review of the application materials, the admissions committee will invite selected applicants to campus for interviews. Application deadline is January 15 for enrollment in the ensuing fall semester.

Application materials may be obtained from the Office of Admissions and Orientation. Upon admission, each student is assigned an advisor who will assist in preparing a Program of Study. It is expected that the Program of Study, which also serves as the application for candidacy, be completed during the first semester of enrollment.

The department recognizes the importance of increasing the educational opportunities of racial minority students, as well as the importance of ensuring an increased diversity of role models in the fields represented by its training programs. Therefore, the department strives to create an atmosphere conducive to the concerns of racial minorities and diverse populations, to integrate these concerns into programs and course offerings, and to fulfill its commitment to recruit, admit, support, and graduate a diverse population of students prepared for their chosen careers.

Program requirements
The marriage and family therapy program requires a minimum of fifty-one semester hours of course work, including substantive study of academic departments, college and university counseling centers, private practices, and business and industry. Consequently, the program provides broad-based training appropriate to accommodate the potentially diverse career interests of its graduates.

Students are expected to work with advisors in order to be informed of policies, course offerings, electives, and prerequisites. A student's performance and progress will be evaluated throughout the program: at the conclusion of each semester of practicum, after the awarding of a grade below a "B" in any course, and at final evaluation prior to graduation. The student is referred to the Department's Policy on Retention.

Doctoral Programs:
Two doctoral programs are offered by the Department Counselor Education and Counseling Psychology. The doctoral program in Counseling Psychology leads to a Doctor of Philosophy (Ph.D.) and holds accreditation by the American Psychological Association (APA). The doctoral program in Counselor Education leads to a Doctor of Philosophy (Ph.D.) and is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). Three options exist in this latter program: Counselor Education and Supervision, Counseling Psychology, and Leadership, and Student Affairs in Higher Education.

Admission Requirements
Admission to a specific doctoral program or option is considered by the appropriate departmental training committee. Applicants should request current admission information from the Office of Admissions and Orientation and from the Department.

A student admitted to a specific doctoral program is expected to follow the policies, procedures, code of ethics, and course requirements for that program. A student may not change to another option without formal approval. Each student, upon admission to a doctoral program, is assigned a temporary doctoral advisor. Later, as outlined in The Doctoral Handbook, a student selects and requests the appointment of a permanent Doctoral Committee.

The department recognizes the importance of increasing the educational opportunities of racial minority students, as well as the importance of ensuring an increased diversity of role models in the fields represented by its training programs. Therefore, the department strives to create an atmosphere conducive to the concerns of racial minorities and diverse populations, to integrate these concerns into programs and course offerings, and to fulfill its commitment to recruit, admit, support, and graduate a diverse population of students prepared for their chosen careers.

Doctor of Philosophy in Counseling Psychology
The doctoral program in counseling psychology is based on a philosophy that theory, research, and practice are interdependent and complementary dimensions of professional education in a scientist-practitioner training model. The educational curriculum and practical experiences of the program are designed to ensure competency in all three dimensions and to facilitate their integration in the development of a professional identity. Consistent with these goals, the curriculum in counseling psychology consists of course work and related experiences in four broad areas: 1) the science of psychology, 2) specialization in counseling psychology, 3) counseling and psychotherapy, and 4) research. The program recognizes that counseling psychologists may be employed in a variety of professional settings such as academic departments, college and university counseling centers, mental health agencies, private practices, and business and industry. Consequently, the program provides broad-based training appropriate to accommodate the potentially diverse career interests of its graduates.

Training typically fulfills expectations for psychologist licensure/certification eligibility. The program is accredited by the American Psychological Association and is designated as a doctoral program in psychology by the Council for the National Register of Health Service Providers in Psychology.

Program Requirements
The credit hour requirements and the course work for the Counseling Psychology Program include:

1. Basic scientific core (33 hrs.)
   a. Research design and statistics (15 hrs.)
   b. Communication/literacy (9 hrs.)
   "The student will demonstrate doctoral level competency in one of the following areas: foreign language, computers, Braille or American Sign Language,
   c. Biological basis of behavior (3 hrs.)
   d. Cognitive-affective basis of behavior (3 hrs.)
   e. Social basis of behavior (6 hrs.)
   f. Individual behavior and human development (6 hrs.)

2. Specialization in Counseling Psychology (39 hrs.)
   a. Counseling Psychology (21 hrs.)
   b. Human Assessment (6 hrs.)
   c. Supervised Practica (12 hrs.)
   d. Recommended Electives (6 hrs.)
   e. Doctoral Dissertation (12 hrs.)

3. Pre-doctoral Internship (4 hrs.)
   Total Hours 97

Counseling Psychology students are expected to demonstrate competencies in psychological theory, practice, and research by passing a series of doctoral comprehensive examinations in the following areas: 1) counseling psychology information and knowledge, 2) scholarly inquiry and communications, and 3) professional work sample.

Doctor of Philosophy in Counselor Education

Program Requirements
All students enrolled in one of the three options in this doctoral program must complete the following set of requirements in addition to course work related to a particular specialty:

1. Professional Core (21 hrs.)
   a. Professional Seminar (3 hrs.)
   b. Supervision (3 hrs.)
   c. Advanced Theories (3 hrs.)
   d. Multicultural Counseling and Psychotherapy (3 hrs.)
   e. Vocational Development Theory (3 hrs.)
   f. Psychoeducational Consultation (3 hrs.)
   g. Field Experience/internship (3 hrs.)

2. Scientific Inquiry Core (15 hrs.)
   a. Research Design and Data Analysis (6 hrs.)
   b. Qualitative Research (3 hrs.)
   c. Elective in Research Design, Data Analysis, or Data/Program
   d. Evaluation (3 hrs.)
   e. Communication Skills Research Tool Competency
   f. Dissertation Seminar (3 hrs.)
   g. Doctoral Dissertation (12 hrs.)

COUNSELING AND LEADERSHIP
The significant growth in the number of community counseling centers, mental health agencies and opportunities for school counselors has created a need for professionals who possess excellent counseling skills and sound leadership.
Counseling and Leadership doctoral option, services, public and private school systems and other human services agencies which provide educational services for their clientele. Leadership, administrative, and supervisory roles in mental health centers, substance abuse agencies, family counseling services, juvenile delinquency consultation centers, rehabilitation clinics, outpatient and after-care services, public and private school systems and other human services agencies which provide educational services for their clientele. In consultation with a doctoral advisor, some students entering this doctoral option may develop or choose significant skills, attributes, and competencies as they progress through doctoral course work designed to ensure that the student develops: 1) an advanced understanding of human behavior; 2) substantial expertise in counseling and psychotherapy with a wide variety of individuals, groups, couples, and families; 3) a working knowledge of the full spectrum of counseling, consulting, and educational services for their community; 4) research skills; and 5) administrative, leadership and supervisory competencies relevant to the design, funding, organization, implementation, and evaluation of community mental health service delivery systems. Other students, experienced school counselors, and guidance specialists may choose to prepare for administrative and leadership positions in public and private school systems and intermediate school districts. To administer an integrated and systematic program of guidance services, an individual needs to demonstrate 1) competencies in guidance and counseling activities; 2) organizational and administrative skills; 3) competencies in personnel services, program conceptualization, budget development, accountability, evaluation, and research; 4) competencies in public relations; 5) competency in career development; 6) competency in program delivery systems; 7) competencies in planning, goal setting, role development, and coordination; and 8) competencies associated with being a professional educator. Doctoral students are expected to develop leadership skills by actively participating in professional organizations which promote and enhance the school counseling and related personnel fields. The Counseling and Leadership option is accredited by the Council for the Accreditation of Counseling and Related Educational Programs.

COUNSELOR EDUCATION AND SUPERVISION

The Department recognizes its responsibilities to educate persons who will become the counselor educators of the future and in this way contribute to the further development and enhancement of the counseling profession. Doctoral students pursuing this specialization are expected to demonstrate 1) a wide range of individual and group counseling skills; 2) a sound theoretical foundation in counseling; 3) teaching and supervision competencies; 4) an understanding of academic program development, curriculum and administration; 5) research skills; and 6) competencies associated with being an educational leader. Students are expected to involve themselves in appropriate activities of the Department, College, University, and relevant professional associations. Graduates of the program are prepared to function productively and effectively as counselor educators and supervisors in colleges, universities, and in governmental and regulatory agencies. The Counseling Education and Supervision option is accredited by the Council for the Accreditation of Counseling and Related Educational Programs.

STUDENT AFFAIRS IN HIGHER EDUCATION

Other students, experienced school counselors, and guidance specialists may choose to prepare for administrative and leadership positions in public and private school systems and intermediate school districts. To administer an integrated and systematic program of guidance services, an individual needs to demonstrate 1) competencies in guidance and counseling activities; 2) organizational and administrative skills; 3) competencies in personnel services, program conceptualization, budget development, accountability, evaluation, and research; 4) competencies in public relations; 5) competency in career development; 6) competency in program delivery systems; 7) competencies in planning, goal setting, role development, and coordination; and 8) competencies associated with being a professional educator. Doctoral students are expected to develop leadership skills by actively participating in professional organizations which promote and enhance the school counseling and related personnel fields. The Counseling and Leadership option is accredited by the Council for the Accreditation of Counseling and Related Educational Programs.

Counselor Education and Counseling Psychology Courses (CECP)

Open to Upperclass and Graduate Students

CECP 520 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, postemployment, and advocacy. Major emphasis is placed on the operation of the state vocational/federal system.

CECP 580 Principles of Counseling and Guidance

This introductory course focuses on the concepts underlying school guidance programs and related service delivery systems. General principles in guidance counseling are introduced, but are not intended for counseling majors.

CECP 583 Workshops in Counseling Education and Counseling Psychology

Workshops designed to enhance skill development related to Counseling Education and Counseling Psychology practices. Open to all students, but is not intended for counseling majors. May be repeated for credit.

Open to Counseling Education and Counseling Psychology Graduate Students Only. Students from other programs may enroll by special permission.

CECP 601 Research Methods

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, postemployment, and advocacy. Major emphasis is placed on the operation of the state vocational/federal system.

CECP 602 Group Dynamics and Procedures

This introductory course focuses on the concepts underlying school guidance programs and related service delivery systems. General principles in guidance counseling are introduced, but are not intended for counseling majors.

CECP 603 Tests and Measurement

This introductory course focuses on the concepts underlying school guidance programs and related service delivery systems. General principles in guidance counseling are introduced, but are not intended for counseling majors.

CECP 604 Counseling Techniques

This introductory course focuses on the concepts underlying school guidance programs and related service delivery systems. General principles in guidance counseling are introduced, but are not intended for counseling majors.

CECP 605 Professional Issues and Ethics

This introductory course focuses on the concepts underlying school guidance programs and related service delivery systems. General principles in guidance counseling are introduced, but are not intended for counseling majors.

CECP 607 Multicultural Counseling and Psychology

This introductory course focuses on the concepts underlying school guidance programs and related service delivery systems. General principles in guidance counseling are introduced, but are not intended for counseling majors.

CECP 608 Counseling Across the Life Span: A Family Systems Perspective

This introductory course focuses on the concepts underlying school guidance programs and related service delivery systems. General principles in guidance counseling are introduced, but are not intended for counseling majors.

Counselor Education and Counseling Psychology Courses (CECP)

Open to Upperclass and Graduate Students

CECP 520 Foundations of Rehabilitation Counseling

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CECP 580 Principles of Counseling and Guidance

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CECP 583 Workshops in Counseling Education and Counseling Psychology

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Counselor Education and Counseling Psychology Courses (CECP)

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CECP 583 Workshops in Counseling Education and Counseling Psychology

Workshops designed to enhance skill development related to Counseling Education and Counseling Psychology practices. Open to all students, but is not intended for counseling majors. May be repeated for credit.
CECP 610 Career Development: Theory and Practice 3 hrs.
Course content includes: (1) a study of the world of work as it impacts the psychological and sociological life of the individual; (2) an examination of career development theory, decision-making, and the application to counseling and psychotherapy; (3) the identification of informational resources related to career choice; and (4) an exploration of the needs and concerns of clients from a variety of cultural backgrounds.

CECP 611 Theories of Counseling 3 hrs.
The nature, rationales, development, research and use of theories in counseling are studied. Major points of view including the psychoanalytic, the cognitive, the behavioral the phenomenological, and the existential are studied and compared.

CECP 612 Counseling Practicum 4 hrs.
This course emphasizes practical work in the student's area of specialization. Counseling experiences are provided in a laboratory setting so that students can apply knowledge and skills acquired during previous studies. Each student, by participation and observation, will be expected to work with clients from differing social, economic, cultural, and ethnic backgrounds. Graded on a Credit/No Credit basis. Approved application required.

CECP 613 Field Practicum 2-6 hrs.
A supervised field placement in a setting appropriate to the student's M.A. option arranged in consultation with advisor and department coordinator. A minimum of 600 clock hours on site are required for all M.A. options. Graded on a Credit/No Credit basis. Prerequisites: Consent of advisor.

CECP 614 Student Personnel Administration Practicum 4 hrs.
This course emphasizes practical experience in the student's area of specialization. Student personnel administrative experiences are provided in a full-time supervised setting so that students can apply knowledge and skills acquired during previous studies. Graded on a Credit/No Credit basis.

CECP 615 Practicum in School Psychology 3 hrs.
This course emphasizes practical application of the principles of school psychology. Relevant experiences are provided under supervision in order for students to acquire and develop skills learned in previous studies. Students practice in a school setting and work with a variety of presenting problems, educational staff, and school-aged youth.

CECP 621 Psychopathology: Classification and Treatment 3 hrs.
Basic concepts of history, current paradigms, and assessment of psychopathology with special emphasis on the APA diagnostic classification system and counseling/clinical approaches to treatment.

CECP 622 Psychoeducational Consultation 3 hrs.
A study of the process of consultation with emphasis upon methods, stages and strategies used with individuals, small groups and organizations. Consideration will be given to the consultant's role in psycho-educational education and primary prevention.

CECP 623 College Student Development 3 hrs.
Explores the nature and development of college students pertaining to student affairs.

Theories of college student development, administrative strategies and techniques of program implementation are studied.

CECP 624 College Students and the Educational Environment 3 hrs.
This course is designed to help participants understand the impact of campus environments on students, faculty, and staff. Theories and concepts to assist student affairs professionals with understanding the interaction between students (and others) and collegiate environments will be presented. Opportunities for theory-to-practice experiences will be provided. Prerequisites: CECP 623 and 633 or the permission of the instructor.

CECP 625 Legal Issues in Higher Education 3 hrs.
The litigious nature of American (U.S.) society has made knowledge of legal issues related to liability, contracts, hiring and firing, free speech, disabilities, discrimination and many other topics a necessary skill for college administrators. Legal issues, legal enactments and precedents, constitutional provisions, court decisions and the law that impact higher education will be the focus of this course. Current legal issues affecting higher education will be monitored and discussed throughout the course. Prerequisites: CECP 623 and 633 or permission of the instructor.

CECP 626 Applications of Student Affairs Administration 3 hrs.
Emphasis will be upon administration/management aspects of student affairs in higher education. A general overview of administrative concerns will be provided. Primary focus of course content will relate to: (1) organizational models; (2) budgetary systems; (3) personnel practices; and (4) administrative tools and techniques.

CECP 627 Community Agency Counseling and Administration 3 hrs.
This course is designed to acquaint participants with a broad range of policies and procedures of major organizations. They will study selected principles in program evaluation drawn from various organizational settings. The history, role and function of counselors and counseling psychologists will be analyzed. Evolving directions in the field of counselor education/counseling psychology will be considered.

A thorough investigation of philosophical concepts and principles underlining counseling and pupil personnel programs in elementary schools. The history, organization, and administration of the program services are surveyed and practical application of concepts are required.

Enables students to understand, apply, and formulate programs of guidance as they apply to secondary schools. In particular the history, philosophy, role, function, organization, administration, and development of guidance will be examined in depth so that the counselor in preparation will have the necessary skills to assume an entry level position in secondary education.

CECP 631 Seminar in Substance Abuse I 3 hrs.
An interdiscplinary seminar designed to reflect broadly conceived intervention strategies ranging from primary prevention to rehabilitation of the addict. The basic training in the principles of intervention and clinical practice will continue to be broadened within the student's basic professional discipline. In part, the seminar will be used to elaborate upon the application of these principles to the problems of substance abuse. This course is cross-listed with ADA 631 and SWRK 663.

CECP 632 Seminar in Substance Abuse II 3 hrs.
Continuation of CECP 631. This course is cross-listed with ADA 632 and SWRK 665.

CECP 633 Student Affairs in Higher Education 4 hrs.
The introductory course in student affairs will include a section on the history and development of U.S. higher education. The second phase of the course will focus on the following areas in student affairs: (1) history of the profession; (2) philosophical foundations; (3) professional organizations; and (4) functional areas.

CECP 640 Principles of Human Resources Development 3 hrs.
The course provides an overview of the human resource development (HRD) function in an organization. This includes an overview of the HRD professional, the nature of HRD structure and function, and the planning and operation of HRD. Special emphasis is in the course devoted to analysis of the HRD function in any organization to identify those elements and characteristics of HRD associated with successful, state-of-the-art and worthwhile operations. The course is a prerequisite for all HRD concentration students, and a good choice for any other person who wishes to gain a critical understanding of the HRD (staff development, inservice education) function.

CECP 641 Fundamentals of Needs Analysis 3 hrs.
Development of skills in identifying organizational needs for performance improvement related to human resources development. The course is intended for persons whose current or future professional roles involve them in the development of learning strategies and interventions to promote individual and organizational change. The course will emphasize a holistic, performance oriented problem solving approach to needs analysis. The goals of the course are: (1) to familiarize students with principles and strategies related to needs analysis, and 2) to provide students with opportunities to develop skill in applying needs analysis concepts and methods.

CECP 642 Evaluation of Human Resources Development Transfer and Impact 3 hrs.
The course addresses the theories, methods, and issues addressed by human resources development (HRD) practitioners as they recommend, design, install, and assess HRD interventions to meet needs in organizations. Evaluation of HRD interventions is viewed from a macro level versus the micro (instructional design) level to help students develop an understanding of the larger range of organizational and human performance factors that influence successful HRD efforts. Students analyze one or more major HRD interventions for a real or hypothetical organization, including plans for creating the pre- and post-training organizational environment needed to impact effective performance, and design and evaluation approach to assure and assess the quality of the intervention.
CECP 643 Project Management in Human Resources Development
3 hrs.
This course responds to both general project management concerns as well as the particular demands and problems associated with managing human resources development and other educational projects. Students will develop an understanding of project management needs, problems, concepts, and strategies. They will be introduced to and practice particular project management skills, such as project definition, work flow analysis, dependency charting, budgeting, planning, etc. Emphasis in the course is on acquisition of practical skills and knowledge. The course is intended especially for persons who have recently or will in the near future assume responsibility for managing a project and have had little previous management experience.

CECP 644 Learning and Organizational Effectiveness
3 hrs.
Examination of characteristics and elements of effective organizations that can be positively influenced through development theories and interventions, with special attention to the roles of individual and organizational learning in organizational effectiveness, development of skills in critical thinking and designing, and the use of human resources development (HRD) to improve organizational effectiveness efforts in real and hypothetical settings. Completion of HRD required core, or permission of instructor.

CECP 645 Practicum in Human Resources Development
3 hrs.
This course is a supervised practicum integrated with a class meeting component. Students work together on human resources development projects with real clients in the Kalamazoo area. The bulk of work takes place in the field, in project work and client contact. Class meetings will be scheduled to project reviews and group problem solving. Students will develop consultation skills and gain experience in solving HRD application problems.

CECP 650 Intellectual Assessment
3 hrs.
This course provides instruction in clinical assessment with primary emphasis on individually administered intelligence tests. Emphasis is placed on accuracy of administration, scoring, and interpretation of psychological results via written and oral reports. Laboratory experience provides instruction in the administration of the Wechsler scales, Binet IV, and other individually administered measures of intellectual functioning. Additional topics include theories of intellectual development, neuropsychological assessment, test bias, and procedures for non-biased assessment. Prerequisite: CECP 603.

CECP 651 Personality Assessment
3 hrs.
Survey of theory of personality assessment and the basic concepts of non-projective measurement, with emphasis on the administration, scoring, and interpretation of various instruments. Primary attention given to the MMPI. Additional emphasis includes study of the MMPI, 16-PF, CPI, and other measures. Prerequisite: CECP 603.

CECP 654 Psychoeducational Assessment
3 hrs.
This course combines lecture and laboratory experiences in psychoeducational assessment with particular emphasis on academic learning problems. Diagnostic assessment of reading, math written language, perceptual motor, adaptive behavior, and social problems.
Student Affairs options. Prerequisite: Admission to a CLAS doctoral option in the department.

CECP 686 Topical Seminars
1-4 hrs.
Seminars to study current topics relevant to counseling psychological services and related fields. For advanced graduate students with sufficient maturity and experience to engage in seminar-structured learning. Topics will be designated by professors offering the seminars. May be repeated for credit.

CECP 691 Supervision in Counseling and Psychotherapy
3 hrs.
This course is intended for practitioners and advanced graduate students who plan on assuming supervisory roles in counseling and psychotherapy. Attention will focus on models, techniques, roles and functions for supervision in a variety of organizational settings. Students will be expected to demonstrate supervisory style in the laboratory setting. Prerequisite: CECP 693 or permission of the instructor.

CECP 692 Advanced Practicum in Counseling and Psychotherapy
4 hrs.
An advanced practicum designed to increase the competency of experienced counselors and therapists. Staffing conference approach to the analysis of continuing cases presented by the participants will be combined with taped and live demonstrations of advanced techniques. In addition to four hours of group supervision sessions, students are also required to engage in counseling psychotherapy and individual supervision for six clock hours per week. Graded on a Credit/No Credit basis. Prerequisite: Permission of instructor.

CECP 693 Doctoral Practicum
1-4 hrs.
Supervised practicum for doctoral students with emphasis in (a) Individual Counseling and Psychotherapy, (b) Group Counseling, (c) Marital and Family Therapy, (d) Career Counseling, and (e) Clinical Supervision.

CECP 694 Vocational Development Theory
3 hrs.
An advanced course that involves the critical examination of existing theories of vocational development, the motivation to work, and their application to the counseling therapeutic process. Research pertaining to vocational development and the world of work will be analyzed. Prerequisite: CECP 610.

CECP 698 Readings in Counselor Education and Counseling Psychology
1-4 hrs.
Advanced students with good academic records may elect to pursue independently the study of a special topic. The topic chosen must be approved by the instructor involved and arrangements made with instructor's consent. May be selected more than once; total may not exceed four hours.

CECP 699 Dissertation Seminar
3 hrs.
Designed to orient students to the dissertation process. Students interested in beginning the dissertation process may take the course with the concurrence of their doctoral committee chairperson. Graded on a Credit/No Credit basis.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

CECP 700 Master's Thesis
6 hrs.
CECP 710 Independent Research
2-6 hrs.
The Department of Educational Studies offers five major programs, one graduate certificate program, and two doctoral programs. These programs include the Master of Arts in Educational Technology, Master of Arts in Evaluation, Measurement, and Research, Master of Arts in Socio-Cultural Foundations and Educational Thought, Master of Arts in Special Education, Master of Arts in Teaching Children Who Are Visually Impaired, the Graduate Certificate Program in Educational Technology, the Doctor of Philosophy in Evaluation, Measurement, and Research, and the Doctor of Education in Special Education.

Master of Arts in Educational Technology

Advisors: James Bosco, George Haus, Howard Poole, Tracy DuBay
Room 3506, Sangren Hall

The Master of Arts in Educational Technology is designed to prepare educators for the integration of educational technology into academic programs of kindergarten through 12th grade schools. The degree program prepares educators for various school-based technology roles, including technology coordinators, technology instructional consultants/teachers, and special education technology consultants/teachers.

A majority of the courses in the Master of Arts in Educational Technology are offered via distance education means that include two-way video classes, Internet conferencing, and other online teaching/learning methods. Other courses will be offered as residential courses taught in traditional computer labs and classrooms at Western's Kalamazoo campus as well as at various regional centers located in southwestern Michigan. Students should be prepared to handle distance education instruction that often requires more independent work, self-direction, and the meeting of course deadlines outside of regular classroom meetings. Students will also need to have mastered basic computer communications systems, including email, use of web browsing, and submission of assignments via file transfer procedures.

Admission Requirements

In addition to meeting the requirements of The Graduate College, all applicants must possess a baccalaureate degree in education or a related field, provide a statement outlining technology skills and background, career goals, and educational philosophy (1,000 words). Admission decisions will be made by program faculty after review of admission materials.

Program Requirements

Students will complete a planned program of study consisting of 30-33 credit hours of course work with an overall grade point average of 3.0 or better. The degree course work requires a fifteen credit hour Major Technology Core selected from one of two approved Technology Core Areas: Technology Coordinator or Special Education Technology. Students will select the Major Technology Core with the approval of an academic advisor. The course work also requires a nine hour Minor Technology Elective Core that is related to the career goals of the student and approved by an academic advisor. The minor core must be different from the major core and have at least two of the three courses at the 600-level.

I. Major Technology Core (15 hrs.)

Select 15 hours from either Option A or Option B.

Option A: Technology Coordinator

EDT 541 Telecommunications for Teaching and Learning (3 hrs.)
EDT 542 Teaching with Technology: Design and Development for Learning (3 hrs.)
EDT 644 Advanced Information Technologies for Instructional Technology (3 hrs.)
EDT 645 Technical/Operational Issues of Educational Technology (3 hrs.)
EDT 648 Designing Staff Development for Educational Technology (3 hrs.)
EDT 649 Planning and Implementing of District Level Educational Technology (3 hrs.)

Option B: Special Education Technology

SPED 537 Technology in Special Education (3 hrs.)
SPED 601 Acquisition and Critical Analysis of Information in Special Education (3 hrs.)
SPED 603 Dissemination of Special Education Information (3 hrs.)
SPED 680 Instructional Software in Special Education (3 hrs.)
SPED 681 Assistive Technology (3 hrs.)
SPED 682 Current Research in Special Education Technology (3 hrs.)
SPED 712 Professional Field Experience in Special Education Technology (3 hrs.)

II. Technology Minor Elective Core (9 hrs.)

Select 9 hours of elective courses related to the technology career goals of the student and approved by an academic advisor.

One 500- or 600-level course (3 hrs.)
One 600-level course (3 hrs.)
One 600-level course (3 hrs.)

III. Educational Research (3 hrs.)

EMR 640 Introduction to Research (3 hrs.) *or course equivalent to EMR 640

IV. Culminating Learning Activity (3 or 6 hrs.)

Select one of the two courses below.

EDT 710 Independent Research: Capstone Research Project (3 hrs.)
EDT 700 Master's Thesis (6 hrs.)

Admission Requirements

1. Undergraduate grade point average of 3.0 (4.0 = A); graduate grade point average may be accepted upon review of recent and relevant course work completed at an accredited institution.
2. A written statement of purpose (1,000 to 1,500 words). The statement of purpose should indicate the candidate’s career expectations and reasons for seeking admission to the program.
3. Congruence of applicant’s goals and the program concentration.
4. Two letters of recommendation from persons able to judge the applicant’s potential to succeed in a graduate program.

Program Requirements

1. Education and Professional Development Core (9 hrs.)
2. Additional 15 credit hours of coursework
3. Culminating learning activity (3 or 6 hrs.)

The Department of Educational Studies offers the Master of Arts in Evaluation, Measurement, and Research. Students completing this degree program will be qualified to serve in a staff position in evaluation, testing, or research units in school or non-school settings, or in local, state, or federal government agencies.
The Master of Arts in Special Education is based on the Information Literacy Model. Students gain skill in locating, organizing, critically evaluating, using, and disseminating information, effectively using the ever-expanding information base to solve problems in the field of special education, and producing new information related to the field. Competencies in information literacy are acquired via completion of a six-semester hour core of courses (SPED 601, 603, and 637).

Admission Procedures, all options
Students seeking admission to the Master of Arts in Special Education program should submit a Master's Degree Program Application packet from the Department of Educational Studies. They must follow all instructions on the Graduate Self-Managed Application form and send the following supplemental materials to the Department of Educational Studies: 1) Department of Educational Studies Master's Degree Program Application, 2) teaching certificate/endorsement, 3) current resume, 4) written statement of experience and professional goals, and 5) two reference forms. Completed applications are reviewed on a rolling basis. Applicants are evaluated on the basis of: 1) undergraduate grade point average (a graduate grade point average may be used if at least 9 hours of recent and relevant course work have been completed), 2) Graduate Record Examination (GRE) scores - verbal, quantitative, and analytic, 3) special education experience, 4) congruence of goals and requested program option, 5) writing skills, and 6) references.

Program Requirements, all options
All students who receive a Master of Arts in Special Education must complete the following requirements:
1. A minimum of thirty-seven semester hours of prescribed graduate level work with a point-hour ratio of at least 3.00. Advisors will designate specific course and hour requirements for each option described below.
2. A comprehensive written examination. This examination may be taken after the student has completed a minimum of twenty semester hours. Responsibility for scheduling this examination is assumed by the graduate student after consulting with the program advisor.

MASTER TEACHER OPTION
This option is designed for persons who have special education certification and who plan to remain directly involved with students with disabilities in an instructional capacity or who plan to continue to pursue advanced graduate preparation beyond the master's degree. Additional special education teaching endoresments that can be earned through this option are Emotionally Impaired, Learning Disabled, Mentally Impaired, and Visually Impaired.

Prerequisites
1. Michigan Teaching Certificate or equivalent
2. Endorsement in at least one area of Special Education
3. Admission by Department of Educational Studies

SPECIAL EDUCATION TECHNOLOGY OPTION
This option, designed for persons who have special education certification, provides comprehensive knowledge, skills, and experience in the development and use of various special education technologies.

Prerequisites
1. Michigan Teaching Certificate or equivalent
2. Admission by Department of Educational Studies

SPECIAL EDUCATION ADMINISTRATION OPTION
This option, designed for certified and experienced special education teachers, provides course work and field-based experiences necessary to gain State of Michigan Central Office Administrator Certification and approval as either a Director of Special Education or a Supervisor of Special Education.

Prerequisites
1. Michigan Teaching Certificate or equivalent
2. Endorsement in at least one area of Special Education
3. Admission by Department of Educational Studies

Program Requirements
The program requires the satisfactory completion of BLRH 588 (2 hrs.), BLRH 598 (3 hrs.), BLRH 598 (3 hrs.), BLRH 598 (4 hrs.), BLRH 598 (1 hr.), BLRH 598 (2 hrs.), BLRH 590 (2 hrs.), BLRH 597 (2 hrs.), BLRH 605 (1 hr.), BLRH 606 (1 hr.), BLRH 607 (1 hr.), FCS 636 (4 hrs.), SPED 601 (3 hrs.), SPED 637 (3 hrs.), SPED 601 (3 hrs.), SPED 632 (4 hrs.), SPED 544 (3), SPED 661 (3 hrs.), SPED 712 (2 hrs.), and SPED 674 (6 hrs.). In addition, students will complete a 4-hour comprehensive exam as their capstone requirement.

Master of Arts in Teaching Children Who Are Visually Impaired
Advisors: Annette Skellenger, Elizabeth Whitten
Room 3506, Sangren Hall

This fifty-hour degree program prepares teachers to work with children with visual impairments in public and residential schools. Instruction is provided in skills to support the regular educational curriculum as well as the expanded core curriculum specific to children with visual impairments. Graduates are eligible to become certified teachers of children with visual impairments. Students may choose to combine this degree program with preparation as an orientation and mobility specialist to attain dual competency in the Master of Arts in Teaching Children Who Are Visually Impaired/Master of Arts in Orientation and Mobility for Children program.

Admission Requirements
Students seeking admission to the Master of Arts in Teaching Children Who Are Visually Impaired degree program should request a Master's Degree Program Application packet from the Department of Educational Studies.

Program Requirements
The program requires the satisfactory completion of BLRH 588 (2 hrs.), BLRH 598 (3 hrs.), BLRH 598 (3 hrs.), BLRH 598 (4 hrs.), BLRH 598 (1 hr.), BLRH 605 (1 hr.), BLRH 606 (1 hr.), BLRH 607 (1 hr.), FCS 636 (4 hrs.), SPED 601 (3 hrs.), SPED 637 (3 hrs.), SPED 601 (3 hrs.), SPED 632 (4 hrs.), SPED 544 (3), SPED 661 (3 hrs.), SPED 712 (2 hrs.), and SPED 674 (6 hrs.). In addition, students will complete a 4-hour comprehensive exam as their capstone requirement.

Master of Arts in Teaching Children Who Are Visually Impaired/Orientation and Mobility for Children
Advisors: Annette Skellenger, Elizabeth Whitten
Room 3506, Sangren Hall

This dual degree program is offered through the Teaching Children Who Are Visually Impaired/Orientation and Mobility for Children program (SEO) which is jointly administered by the Department of Blindness and Low Vision Studies and the Department of Educational Studies. This sixty-five-hour degree program prepares a dual competency practitioner who is able to serve in the schools as a teacher of children who are visually impaired and as an orientation and mobility specialist. Two degrees are offered in this option: One, a Master of Arts in Teaching Children Who Are Visually Impaired (from the Department of Educational Studies) and the other, a Master of Arts in Orientation and Mobility with a Concentration in Teaching Children (from the Department of Blindness and Low Vision Studies). Graduates of this program are eligible to become certified teachers and certified orientation and mobility specialists.
Program Requirements
The program requires the satisfactory completion of BLRH 588 (2 hrs.), BLRH 594 (3 hrs.), BLRH 584 (3 hrs.), BLRH 591 (2 hrs.), BLRH 593 (2 hrs.), BLRH 590 (2 hrs.), SLRH 597 (1 hr.), BLRH 605 (1 hr.), BLRH 606 (1 hr.), BLRH 607 (1 hr.), FCS 636 (4 hrs.), BLRH 595 (4 hrs.), BLRH 604 (1 hr.), BLRH 592 (2 hrs.), SPED 601 (3 hrs.), SPED 637 (3 hrs.), SPED 610 (3 hrs.), SPED 632 (4 hrs.), SPED 544 (3), SPED 661 (3 hrs.), BLRH 695 (2 hrs.), BLRH 712 (6 hrs.), SPED 712 (2 hrs.), and SPED 674 (6 hrs.). In addition, students will complete two 4-hour comprehensive exams (each program requires a comprehensive exam) as their capstone requirement.

Certificate Program in Educational Technology
Advisors:
James Bosco, Howard Poole, Tracy DuBay
Room 3506, Sangren Hall
This graduate certificate program provides a strong framework for the development of educational technology competencies for individuals who are employed or seek professional development in the field of education as technology specialists. The audience for the program is anticipated to be inservice teachers interested in educational technology in the classroom, inservice teachers with more advanced technology knowledge interested in competencies and responsibilities required for building level technology specialists, inservice teachers or individuals who desire to assume the position of district technology coordinator, and district administrators and staff who desire advanced skills in the area of educational technology coordination.

Admission Requirements
In addition to meeting the requirements of The Graduate College, all applicants must possess a baccalaureate degree in education or a related field, provide a statement outlining technology skills and background, career goals, and future plans, and a written philosophy (1,000 words). Admission decisions will be made by the department's faculty, following a review of the applicant's admission materials.

Program Requirements
Students will complete a planned program of study consisting of 15–21 hours of course work with an overall grade point average of 3.0 or better, with no course grade below a “C.” The courses include EDT 540, Introduction to Computing and Technology for Productivity; EDT 541, Telecommunications for Teaching and Learning; EDT 542, Teaching with Technology: Design and Development for Learning; EDT 644, Advanced Information Technologies for Instructional Technology; EDT 645, Technical/Operational Issues of Educational Technology; EDT 648, Designing Staff Development for Educational Technology; and EDT 649, Planning and Implementing District Level Educational Technology. Students who demonstrate prior competence in each of the performance outcomes required for the degree may petition the advisor to exempt any course of the sequence.

Doctor of Education in Special Education
Advisors:
George Haus, Donna Iacobone, Paula Kohler, Howard Poole, Sarah Summy, Elizabeth Whitten, Teresa Whitt-Walton
Room 3506, Sangren Hall
The Doctor of Education in Special Education is designed to prepare an individual to serve as a college teaching and an optional internship in administration of programs in special education. During the last semester of course work, the student will be required to complete a comprehensive examination.

Doctor of Philosophy in Educational Studies
Advisors:
Brooks Applegate, Jianping Shen, Tianyou Wang, Lilianna Rodriguez-Campos
Room 3312, Sangren Hall
This program prepares graduates to serve in leadership roles in evaluation, measurement, or research units in school or non-school settings, as well as in local, state, or federal government agencies and to serve in faculty positions in evaluation, measurement, and research at institutions of higher education.

Admission Procedures
Students seeking admission to this degree program must provide evidence of credentials appropriate for the graduate level, including a statement of interest, a current resume, and three letters of recommendation. The student must meet the current standards for admission to the graduate program in Educational Studies. In addition, the student must submit a completed application for admission to the Graduate College, including a statement of purpose, a current resume, and three letters of recommendation.

Program Requirements
The following requirements and courses will lead to a Doctor of Philosophy in Evaluation, Measurement, and Research (99 hours minimum):

EMR 641 Introduction to Research; EMR 641 Measurement Techniques in Education; EMR 642 Program Evaluation; EMR 643 Personnel Evaluation; EMR 645 Elementary Statistics; EMR 648 Qualitative Research Methods; EMR 649 Philosophy of Science and Scientific Inquiry; EMR 650 Survey Research; EMR 651 Advanced Applications of Measurement Methods; EMR 652 Evaluation Practicum; EMR 655 Research Design; EMR 656 Qualitative Research Practicum; EMR 659 Contemporary Trends in Research; one of the Advanced Seminars (EMR 660, 661, 662); EMR 665 General Linear Models; EMR 675 Applied Multivariate Statistics or equivalent multivariate statistical course, and EMR 730 Doctoral Dissertation. In addition, 9 credit hours of Social Science Methods are chosen from Psychology, Sociology, or Statistics, and 18 hours are chosen from a cognate area, such as education, nursing, public administration, or another area approved by the advisor.

Educational Studies Courses (ES)
Open to Graduate Students Only
ES 603 Social and Philosophical Foundations 3 hrs.
A cultural approach to the development of American educational policy and practice in its broad social setting. Consideration is given to historical, economic, social, and philosophical factors which influence educational thought and practice. The need for historical perspective and sound analysis of conflicting points of view is emphasized in the development of current educational issues and the alternative solutions of present educational problems.
ES 629 Culture and Schooling 3 hrs.
The purpose of this course is for students to examine culture as a system for organizing thought and perception and to explore its various influences on educational systems and methods of schooling in the United States. Particular attention is given to cultural dissonance among students, teacher, and text, and to culturally grounded ways of knowing that emerge from schooling experiences.
ES 630 History of Education in the United States 3 hrs.
Development of educational thought, practice, and social change in the United States. Critical examination of the development of the American commitment to commonality in education: The changing relationship between school and community since 1800; the rise of the professional educator; and the shift and progress toward educational goals. Implications of historical background for present problems in education with emphasis on the revision of previously held conventional thinking about schooling in America will be addressed.
ES 631 Comparative Education 3 hrs.
This course provides an overview of comparative education, a field concerned with schooling within different national and historical contexts. Educational patterns and their societal determinants around the world will be examined. Selected problems and patterns of American education will also be highlighted from comparative educational perspectives. It will explore major theories and methodological approaches in comparative educational research as well as examine representative cross-national issues and themes.
ES 633 Human Nature and Diversity
3 hrs.
This course examines practical and theoretical issues in the definition of desirable educational aims and practices as related to the perceived needs, interests, and potentials of those involved. The course places the process of defining aims and practices in social, cultural, and historical perspective, with particular attention to the influence of conceptions of human nature and potential. Prominent views of human nature and diversity that have influenced the course of American schooling will be examined. The course provides a basis for ongoing professional inquiry concerning the fit between educational practices and the diverse needs of those subject to them, and the way educational practices tacitly inculcate cultural assumptions regarding human nature, interests, and potential.

ES 634 Culture and Politics of Educational Institutions
3 hrs.
This course examines practical and theoretical issues concerning learning organizations. It examines the ways educational aims and practices relate to wider patterns of belief, value, and controversy, and how these emerge and change in organizational settings. It includes a consideration of the organizational dynamics of institutionalized educational practices, and explores how cultural assumptions influence educational content and method. The course also examines the roles of professional educators in effecting organizational change. Prerequisite: ED 633.

ES 673 Class, Ethnicity, and Gender in Education
3 hrs.
This course centers on the significance of social class, race, gender, and ethnicity in educational practice and outcomes. Social identity and cultural diversity are explored in relation to classroom communication patterns, teacher expectations, and student achievement. Patterns of biases and discrimination will be examined, as well as current issues, challenges, and opportunities of education with respect to student diversity.

ES 675 Multicultural Education
3 hrs.
This course provides a foundation to examine the major ethnic groups that make up school populations in the U.S. Special attention will be given to the subject of prejudice with an analysis of how stereotypes about ethnic groups and women can be eliminated. The origin of racist theories will be studied. Strategies for resolving cross-cultural conflicts will be stressed.

Educational Technology Courses (EDT)
Open to Upperclass and Graduate Students
EDT 503 Educational Technology Academy
1–3 hrs.
This course is designed to permit students to update knowledge and skills in current educational technology and apply this knowledge in developing programs for students in pre-kindergarten through college. Such applications include methods of using computers, video and audiovisual technology in literacy development, content area programs, instructional management, and the arts, as well as others appropriate to preservice and inservice professions. Participation in the course assumes 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 ETA offerings bring students with specific needs, instructors with unique expertise, and facilities with appropriate resources together for intensive and highly-focused learning experiences. May be repeated.

EDT 540 Introduction to Computing and Technology for Productivity
3 hrs.
This course is a basic introduction to computing and technology for productivity software. Designed for the beginning computer user, this course covers necessary information communication tools and successfully a computer and other technology devices (CD-ROM, laserdisc player, etc.). Operation includes running programs, accessing Internet, personal communication, and publication. A variety of computer software programs that enhance personal productivity will be presented. Students will be provided with basic "hands-on" activities with many different software applications. Upon completing this course, the student will have a solid understanding of computer components and terminology, and will be able to use the various types and purposes of software for learning and productivity and will be able to evaluate educational software for classroom application.

EDT 541 Telecommunications for Teaching and Learning
3 hrs.
The course focuses on the implementation of telecommunications for teaching and learning. Telecommunication technologies widely used in the field of education and emerging technologies will be presented. Students enrolled in this course will learn to operate various telecommunication tools to support their own personal productivity, teaching, and instruction. Students will also be equipped with skills necessary to review studies pertaining to the application of technology in education. Many of the telecommunication methods presented in this course will be used to deliver the course material. Prerequisite: EDT 540 or equivalent.

EDT 542 Teaching with Technology: Design and Development for Learning
3 hrs.
This course focuses on the design, development, and integration of educational technology methods for teaching, learning, and personal productivity. This course provides an overview of learning theory and instructional design principles related to the development of educational technology programs. A review of the theory of individual learning styles and application of technology will be presented. Upon completion of this course, students will possess knowledge in the planning, delivery, and evaluation of instruction through the implementation of various technologies. Students will design and develop educational technology products (computer based, hypermedia/multimedia, WWW, etc.) based upon learning theory and instructional design principles. Prerequisite: EDT 540 or equivalent.

EDT 550 Photography and Multimedia Workshop
1–3 hrs.
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 in educational settings. Using digital photography equipment, students are expected to produce visual 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 equipment and software. May be repeated up to a total of six times. Prerequisite: EDT 542 or equivalent experience/skills.

Open to Graduate Students Only
EDT 641 Instructional Development
3 hrs.
Intended for human resources development specialist, media specialists, and experienced teachers, this course employs an accountability model for application of media research and technology to design courses and units of instruction. Students follow a systematic instructional development procedure from task analysis to evaluation, working together with faculty or as assistants and consultants to other professionals. Prerequisite: EDT 540 or equivalent.

EDT 644 Advanced Information Technologies for Instructional Technology
3 hrs.
This course provides a detailed review of the latest technological advancements and their potential impact on educational institutions. Students will receive information on the wide array of media types and methods for transmitting them. Students will also be exposed to and experience a variety of data, voice, and audio technologies. Introduction to management issues with educational technology at the building level will be presented. This course focuses on two primary areas: 1) equipment and costs necessary to implement these systems and 2) the potential impact of these technologies on an educational system. Students will acquire skills that will enable them to connect, configure, troubleshoot, and maintain a variety of advanced technology systems. Prerequisite: EDT 542 or equivalent.

EDT 645 Technical/Operational Issues of Educational Technology
3 hrs.
This course covers management issues related to the selection, purchase, installation, and maintenance of software programs for computers and computer network systems. Students will learn how to conduct a technology needs assessment for a school district. Using information gained from the needs assessment, students will also learn methods of planning for, implementing, and maintaining technology across an entire system. A detailed review of networking items including routers, software, Internet connectivity, and troubleshooting issues will also be addressed. Prerequisite: EDT 542 or equivalent.

EDT 646 Studies in Educational Technology
1–3 hrs.
Explores theory and innovative developments in educational technology and suggests practical, instructional applications. Such topics as the following may be considered: Design and Analysis of Instruction, Instructional Simulation and Gaming, Computer Applications in Instruction, and Diffusion and Adoption of Innovative Practices in Education. This course may be repeated for credit as different topics are offered. Prerequisite: EDT 542 or equivalent experience.

EDT 648 Designing Staff Development for Instructional Technology
3 hrs.
This course will provide students with necessary skills to assume leadership roles in the integration of technology for instruction across educational systems. The course focuses on teaching strategies to promote learning to teach with technology as well as
planning and implementing staff development activities. This course will address teaching strategies for adult learners enabling technology leaders to implement successful training activities. Students will gain skills in designing instruction for a wide variety of adult audiences. **Prerequisite:** EDT 542 or equivalent.

EDT 649 Planning and Implementing District Level Educational Technology 3 hrs. This course focuses on the development of leadership skills for technology integration across an entire school district. Steps involved with planning, implementing, maintaining, and evaluating technology integration will be addressed. Specific management issues include creating technology plans and goals and managing technology finances for a school district. Policy and procedure issues such as staffing, scheduling, and technology security will also be presented. Students will be able to make informed decisions about technology selection, purchase, and implementation based upon school district technology goals and financial resources. **Prerequisite:** EDT 542 or equivalent.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

EDT 700 Master’s Thesis 6 hrs.
EDT 710 Independent Research 2-6 hrs.

**Evaluation, Measurement, and Research Courses (EMR)**

Open to Graduate Students Only

**EMR 640 Introduction to Research** 3 hrs. 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.

**EMR 641 Measurement Techniques in Education** 3 hrs.
The criteria by which instruments are selected and developed serve as the central focus of this course. Information regarding the theory and practice of measurement and testing are applied to educational settings. Students are expected critically to evaluate instrumentation as well as to develop a plan for the creation of an instrument. **Prerequisite:** EMR 640.

**EMR 642 Program Evaluation** 3 hrs. Emphasis is on the theory of program evaluation, on techniques used in program evaluation, and on the standards of quality professional practice. Students are expected to apply the principles of evaluation to design problems. **Prerequisite:** EMR 640.

**EMR 643 Personnel Evaluation** 3 hrs.
Concepts and standards for design of personnel evaluation systems. Course requires design of a personnel evaluation system and an evaluation of the personnel evaluation system. **Prerequisite:** EMR 640 and permission of advisor.

**EMR 645 Elementary Statistics** 3 hrs.
The study of the principles of research design and data analysis is pursued at both the conceptual and applied levels. Emphasis is on the development of the conceptual skills of design analysis and interpretation. Techniques of statistical analysis include the use of computer programs for data analysis. **Prerequisite:** EMR 640.

**EMR 648 Qualitative Research Methods** 3 hrs.
A study of the philosophical and methodological foundations of naturalistic research in education. Students will develop skills in planning and conducting naturalistic studies in education. Standards for judging naturalistic inquiry will be studied and applied to selected naturalistic study reports. **Prerequisite:** EMR 640.

**EMR 649 The Nature of Science and Scientific Inquiry** 3 hrs.
This course is designed for graduate students engaged or preparing to engage in social and educational research. As an introduction to philosophy of science, it centers on conceptual questions concerning the nature and scientific investigation of the world. The questions are both metaphysical, concerned with the most general account of what sorts of things science asserts to represent, and epistemological, concerned with the justification of belief. The course examines debates surrounding the question of what distinguishes science and scientific reasoning from other forms of thought and sources of belief. Particular attention will focus on the rise of historicist, postpositivist conceptions of scientific inquiry and, in light of this, on questions about objectivity, relativism, and value neutrality in scientific research, particularly in social sciences. The course will conclude with examination of the status, aims, social context, and value commitments of educational research as a form of scientific inquiry.

**EMR 650 Survey Research** 3 hrs.
The principles and practices of survey research design and analysis are the focus of this course. Critical examination is made of the appropriate uses of survey research in response to educational issues. Students are expected to develop instrumentation used in survey research, to engage in the design of a survey research study in a field setting, and to critique survey studies and findings. **Prerequisite:** EMR 640, 645.

**EMR 651 Advanced Applications of Measurement Methods** 3 hrs.
Intensive study of applications of educational measurement theory and methodology to specific needs for instrumentation in education. Students will engage in development, validation, and application of new instruments for collecting educationally important data. **Prerequisites:** EMR 640, 641, and 655.

**EMR 652 Evaluation Practicum** 3 hrs.
Planned field applications of principles of program evaluation under the guidance of a qualified instructor. The class meets weekly as a seminar to discuss evaluation progress and issues. **Prerequisites:** EMR 640, 642.

**EMR 655 Research Design** 3 hrs.
A continuation of the study of the principles of research design and data analysis techniques. Advanced skills in design and analysis are developed in addition to an examination of design issues in educational settings. Skills in the use of computer programs for data analysis are required. Statistics for experimental and quasi-experimental designs with uncorrelated independent measures. **Prerequisites:** EMR 640, 642.

**EMR 656 Qualitative Research Practicum** 3 hrs.
The focus of this course is on carrying out the qualitative study designed in EMR 648. Topics of discussion include forms of qualitative data, grounded theory, identifying patterns in data, codes and coding, data interpretation, data presentation, and the use of the computer to facilitate data collection and analysis. The emphasis of the course is on the implementation, analysis, interpretation, and writing of a qualitative research study. The final product is a research paper based on the qualitative study conducted in the course. At the heart of EMR 658 is the praxis experience: Each student will carry out a small-scale research project. If we combine EMR 648 and EMR 658, the goal of the sequence is for students to experience the full cycle of research, from the identification and narrowing of a problem to the final rendering and reporting of results. **Prerequisites:** EMR 640, 648.

**EMR 659 Contemporary Trends in Research** 3 hrs.
This course is intended to develop awareness of current inquiries in the areas of evaluation, measurement, and research methodology. This is an advanced core course in the master’s degree program. Each year the instructor will examine the annual meeting programs of the American Educational Research Association, the American Evaluation Association, and the National Council on Measurement in Education to identify areas of activity in evaluation, measurement, and research methodology. Students will read and critique selected papers from those meeting, identify issues in need of further research and development, and prepare proposals for addressing these issues. **Prerequisites:** EMR 640, 641, 645, 648, 649, and 655.

**EMR 660 Advanced Seminar in Research** 3 hrs.
This is a seminar course focusing on theoretical and methodological research methods and techniques utilized when conducting meta-analyses in the educational and social sciences. This course will cover topics relevant to planning and carrying out a meta-analysis. **Prerequisites:** EMR 640, 641, 645, 648, 649, 655, 658, and 659.

**EMR 661 Advanced Seminar in Measurement** 3 hrs. A seminar for students seeking advanced theoretical understanding of the principles of measurement. Theories of instrument construction beyond classical test theory (e.g., item response theory and generalizability theory) are applied to instruments relevant to education. **Prerequisite:** EMR 640, 641, 651, 655.

**EMR 662 Advance Seminar in Evaluation** 3 hrs. An advanced seminar for the study of theoretical and practical problems in evaluation. Issues of ethics and quality in evaluation are addressed. **Prerequisite:** EMR 640, 642, 652.
EMR 665 General Linear Models 3 hrs.
A continuation of the study of the principles of research design and data analysis techniques concentrating on the general linear model as an over-riding analytical model. Advanced skills in design and analysis are developed in addition to an examination of design issues in educational settings. Skills in the use of computer programs for data analysis are required. Design topics covered will include experimental, quasi-experimental, cross-sectional, and correlational designs. Analytic topics covered will include ANOVA for unbalanced and repeated designs, ANCOVA, stratified analysis, and multiple regression. All topics will be taught from an applied perspective which will include statistical computing using a mainframe or PC environment and interpretation of statistical output.
Prerequisites: EMR 640, 645, and 655.

EMR 675 Applied Multivariate Statistics 3 hrs.
An examination of the study of the principles of research design and data analysis techniques concentrating on the multivariate general linear model as an over-riding analytical model. For advanced students in education and research. Emphasis is placed on meeting the needs of learners with disabilities in middle school and secondary programs. Required adaptations and modifications, and available resources and services for these learners are stressed. Prerequisite: Consent of department. Not acceptable for Special Education majors.

EMR 673 Doctoral Dissertation 15 hrs.
Special Education Courses (SPED)

Open to Upperclass and Graduate Students
SPED 500 Topical Issues in Educating Learners with Disabilities 1-4 hrs.
This course provides a survey or in-depth coverage of a topic or topics directly related to the education of learners with disabilities. The course may be repeated for credit. Prerequisite: Consent of department.

SPED 504 Teaching Practicum in Special Education 1 hr.
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 student 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. Graded on a Credit/No Credit basis. Prerequisites: Consent of department and concurrent enrollment in SPED 533 and 534.

SPED 512 In-Service Professional Development 1-4 hrs.
This course is designed for teachers, counselors, psychologists, social workers, and others interested in studying selected aspects of special education at appropriate locations, such as state hospitals and special schools. A variety of instructional experiences is provided, including conferences. Credit not applicable toward a graduate degree in Special Education.

SPED 515 Introduction to Early Childhood and Special Education 1 hr.
This course will provide an introduction to information related to early development and special education from birth to 3 years of age. Content will include laws specific to the education of young children with disabilities, discussion of early developmental milestones, impact of early development on later functioning, and recommended practices for education of young children with disabilities.

SPED 525 Introduction to Transition Issues for Students with Disabilities 2 hrs.
This course provides an introduction to transition issues for students with disabilities. The purpose of the course is to increase the student's awareness of effective transition practices in grades K-12 and to help the student identify strategies for implementing such. Course topics include transition-related assessment, self-determination, curriculum for transition, and support services.

SPED 527 Learners with Disabilities in General Education and Middle School Programs 3 hrs.
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 adaptations and modifications, and available resources and services for these learners are stressed. Prerequisite: Consent of department. Not acceptable for Special Education majors.

SPED 529 Learners with Disabilities in General Education and Secondary Programs 3 hrs.
This course is designed for prospective and practicing middle school and secondary teachers. Emphasis is placed on meeting the needs of learners with disabilities in middle school and secondary programs. Required adaptations and modifications, and available resources and services for these learners are stressed. Prerequisite: Consent of department. Not acceptable for Special Education majors.

SPED 530 Introduction to Special Education 3 hrs.
This course introduces students to the characteristics and needs of learners with sensory, physical, mental, emotional, and learning disabilities. Students develop an understanding of the psychological, sociological, philosophical, legal, and educational aspects of each type of disability. Prerequisite: Consent of department.

SPED 531 Classroom Practicum in Special Education 1 hr.
This course provides students with an opportunity to work in an elementary, middle school, or secondary classroom with learners who have disabilities. It is intended to provide students with an awareness of the nature and needs of these pupils and the role of the teacher in working with such learners. Graded on a credit/no credit basis. Prerequisites: Consent of department and concurrent enrollment in SPED 530.

SPED 532 Assessment and Prescription in Special Education 3 hrs.
The major focus of this course is understanding the Clinical Teaching Model. Emphasis is placed on the relevance of assessment and prescription to the teaching of learners with disabilities. Prerequisites: Consent of department and concurrent enrollment in SPED 504 and 534.

SPED 534 Curriculum and Instruction in Special Education 3 hrs.
This course focuses on application of the Clinical Teaching Model to the education of learners with mild and moderate disabilities. Emphasis is placed on implementation and evaluation activities. Additional topics include service delivery systems, roles of teachers and ancillary personnel, legal requirements, and major issues confronting the field of special education. Prerequisites: Consent of department and concurrent enrollment in SPED 504 and 534.

SPED 537 Technology in Special Education 3 hrs.
This course is designed to provide specific information, exposure, and experience related to a variety of ways that current and emerging technologies may be used to improve the education and lives of learners with disabilities. This course is required for undergraduate majors in special education. Prerequisite: Consent of department.

SPED 538 Introduction to Classroom Management 3 hrs.
This course deals with methods of managing classroom behavior and dealing with specific behavior problems. Classroom management strategies will be discussed and related to the establishment of a positive classroom climate. Diagnostic and prescriptive techniques will be applied to problems of aggression, conduct, withdrawal, hypervigilance, distractibility, and impulsivity. Prerequisite: Consent of department.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

EMR 710 Independent Research 3-6 hrs.

SPED 539 Consultation and Communication in Special Education
3 hrs.
This course will provide an introduction to consultation and communication skills needed by special educators as they work with other professionals and parents. Prerequisite: Consent of department.

SPED 540 Introduction to Mental Retardation
3 hrs.
This course provides an introduction to the field of mental retardation. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Prerequisite: Consent of department and concurrent enrollment in SPED 545.

SPED 541 Practicum with Learners with Mental Impairments
1 hr.
This course provides students with an opportunity to work 6 hours per week (in two three-hour blocks) in an elementary, middle school, or secondary classroom with learners with mental impairments. It is intended to build upon experiences from SPED 531 and allow students to more fully participate in classroom teaching activities. Prerequisite: Consent of department and concurrent enrollment in SPED 540 and 545.

SPED 542 Introduction to Severe Impairments
3 hrs.
This course provides basic knowledge about individual and severe mental, physical, emotional, and/or sensory disabilities. Biomedical, legal, sociological and educational perspectives are examined. Special emphasis is placed on organization and management of educational programs, as well as assessment and instruction of pupils. Prerequisite: Consent of department.

SPED 544 Educating Individuals with Severe Impairments
3 hrs.
This course develops specific skills in the assessment, prescription, implementation, and evaluation of educational programs for persons with severe impairments. Course content focuses on areas of mobility, communication, sensorimotor development, self-help skills, cognition, and adaptive behavior. Prerequisite: Consent of department.

SPED 545 Education of Learners with Moderate and Severe Retardation
3 hrs.
This course focuses on understanding the ways in which teachers organize curriculum and implement assessment and instruction to insure maximum learning for students with moderate and severe mental retardation. Prerequisites: Consent of department and concurrent enrollment in SPED 540.

SPED 570 Introduction to Emotional Impairments
3 hrs.
This course provides an introduction to the field of emotional impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Prerequisite: Consent of department and concurrent enrollment in SPED 575.

SPED 571 Practicum with Learners with Emotional Impairments
1 hr.
This course provides students with an opportunity to work 6 hours per week (in two three-hour blocks) in an elementary, middle school, or secondary classroom with learners with mental impairments. It is intended to build upon experiences from SPED 531 and allow students to more fully participate in classroom teaching activities. Prerequisite: Consent of department and concurrent enrollment in SPED 570 and 575.

SPED 575 Education of Learners with Emotional Impairments
3 hrs.
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. Prerequisite: Consent of department and concurrent enrollment in SPED 570.

SPED 580 Introduction to Learning Disabilities
3 hrs.
This course provides an introduction to the field of learning disabilities. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Prerequisite: Consent of department and concurrent enrollment in SPED 585.

SPED 581 Practicum with Learners with Learning Disabilities
1 hr.
This course provides students with an opportunity to work 6 hours per week (in two three-hour blocks) in an elementary, middle school, or secondary classroom with learners with mental impairments. It is intended to build upon experiences from SPED 531 and allow students to more fully participate in classroom teaching activities. Prerequisites: Consent of department and concurrent enrollment in SPED 580 and 585.

SPED 585 Advanced Theory and Practice in Learning Disabilities
3 hrs.
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. Prerequisite: Consent of department and concurrent enrollment in SPED 580.

SPED 591 Braille and Other Communication Methods
2 hrs.
This course provides students with a basic knowledge of the Braille literary code—reading and writing, and an overview of other communication methods available to students with visual impairments. Prerequisite: Consent of department.

SPED 593 Methods and Techniques of Teaching Braille and Other Areas of Communication
3 hrs.
This course explores various methods and techniques of teaching essential communication skills—Braille, typing, social communication, handwriting, abacus, computer, the use of electronic devices and other media to students with visual impairments. Opportunity for supervised practical application of methods is afforded to the students. Prerequisite: Consent of department.

SPED 598 Readings in Special Education
1–4 hrs.
This course is designed for advanced students interested in independent study. Topics chosen must be approved by the instructor and the department chairperson. May be repeated for credit. Prerequisite: Consent of department.

Open to Graduate Students Only

SPED 601 Acquisition and Analysis of Special Education Information
3 hrs.
This course is designed to develop skills in information processing techniques in special education. The course will present an information processing model emphasizing methods and techniques for locating, accessing, and organizing text and media source material. The course will also provide students with an opportunity to work 6 hours per week (in two three-hour blocks) in an elementary, middle school, or secondary classroom with learners with mental disabilities. It is intended to build upon experiences from SPED 531 and allow students to more fully participate in classroom teaching activities. Prerequisite: Consent of department.

SPED 603 Special Educator as Information Disseminator
3 hrs.
This course is designed to prepare the special educator to use information to form judgments, make decisions, substantiate positions, persuade others, and/or demonstrate or explain. The processes will be directly related to a variety of special education problems and/or issues. Students will learn to apply the processes through demonstrations and guided instruction, small group activities, and individual assignments. Special Education content domains targeted by this course include: Parent Relations, Collaboration, Community Resources, Advocacy, Interdisciplinary Concerns, and Inservice Training. Prerequisite: Consent of department and SPED 601.

SPED 610 Teaching Nemeth Code to Children
3 hrs.
This course contains intensive study of the Nemeth Code (Braille Mathematics), 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.

SPED 620 Advanced Assessment of Learners with Disabilities
3 hrs.
The emphasis of this course is on basic psychometric concepts related to the theory and interpretation of test results and psychological assessment reports. Special attention is given to the diagnosis of students based upon psychometric data. The selection of remedial education programs related to these test results as well as recent issues in testing are discussed. The course emphasizes the selection of standardized test batteries and norm-referenced and criterion-referenced assessment techniques. Prerequisites: SPED 603 and consent of department.

SPED 621 Curriculum Development for Learners with Disabilities
3 hrs.
This course is designed to provide experienced special education personnel with knowledge and skill in the conceptualization, construction, adaptation, and evaluation of instructional programs for learners with disabilities, including accommodating to state and national curricular trends and issues. Prerequisites: SPED 603 and consent of department.

SPED 622 Development and Assessment of Preprimary Learners with Disabilities
3 hrs.
This course is designed to provide teachers with an in-depth understanding of normal and abnormal developmental patterns of preprimary children (birth to five years of age) as related to mental subnormality, neurologic dysfunction, communication disorders, physical and sensory impairments, and
emotional disturbance. Emphasis will be placed on developmental assessment and the collecting and reporting of diagnostic information. **Prerequisite:** Consent of department.

**SPED 623 Curriculum and Methods for Exceptional Learners with Disabilities**
3 hrs.
This course is designed to provide teachers with skills in translating diagnostic information into a meaningful educational plan for children from birth to five years of age. Emphasis will be placed on situation-specific teaching roles as well as curricular and methodological strategies in preprimary special education. **Prerequisite:** Consent of department.

**SPED 630 Clinical Practice in Special Education**
3 hrs.
This course serves as a clinical/practical experience within the Master Teacher Program, the Clinical Teacher Program, and the Special Education Technology Program. Students will apply their knowledge and skills in a clinical setting with young children with varying handicapping conditions. This course is offered on a credit/no credit basis. **Prerequisite:** SPED 603 and consent of department.

**SPED 632 Teaching Children Who Are Visually Impaired**
4 hrs.
This course is designed to examine how to assess, teach, and modify existing curriculum for infants, preschoolers, and young school-aged children who are blind. This course combines these three elements and prepares teachers for the role of itinerant or classroom teacher, as well as for the role of consultant for parents and other teachers.

**SPED 633 Education of Gifted and Talented Children and Youth**
2 hrs.
This course is designed for regular classroom teachers, administrators and other personnel. The characteristics of gifted and talented learners will be discussed. Personal, social, and multicultural factors which directly or indirectly influence the growth and development of these individuals will be considered. Attention will be given to methods and tasks for identifying and programming for gifted, talented, and creative individuals. **Prerequisite:** Consent of department.

**SPED 636 Terminal Seminar in Special Education**
1-4 hrs.
This course provides a survey or in-depth coverage of topics directly related to the education of learners with disabilities. The course may be repeated for credit. **Prerequisite:** Consent of department.

**SPED 637 Research and Evaluation Techniques in Special Education**
3 hrs.
This course is designed to provide students with fundamental knowledge and skills in research and evaluation in special education. Topics include the use of the scientific approach, research and evaluation designs, observation and measurement instruments, statistical analysis, and report writing. Students will be expected to design and carry through a small research project. **Prerequisite:** SPED 603 and consent of department.

**SPED 638 The Application of Behavior Theory to Classroom Teaching**
3 hrs.
This course examines the principles of behavior theory as related to academic and non-academic behaviors of learners with disabilities. General and specific methods for generating, strengthening, and maintaining desirable behavior, and methods for weakening undesirable behavior are presented. **Prerequisite:** Consent of department.

**SPED 640 Organization and Administration of Services for Learners with Disabilities**
3 hrs.
This course examines the principles and practices of organization and administration of special educational programs at the state, intermediate, and local levels. **Prerequisites:** SPED 603 and consent of department.

**SPED 641 Supervision of Special Education Programs and Services**
3 hrs.
This course is designed to provide the experienced special educator with specific knowledge and skills necessary for supervising personnel who are providing both direct and indirect services to learners with disabilities. Emphasis is placed on procedures utilized in selecting personnel, identifying resources for program development and support, facilitating change in teacher behavior, and evaluating the effectiveness of program operations and personnel. **Prerequisite:** SPED 603 and consent of department.

**SPED 645 Legal and Financial Aspects of Special Education**
3 hrs.
The current legislative and financial basis for special education national, state, and local levels will be examined in relation to the development and modification of special education programs. The basic concept of budgeting of resources and expenditures will be discussed. **Prerequisite:** SPED 603 and consent of department.

**SPED 650 Seminar on Special Education in Higher Education**
3 hrs.
This course examines the structure of higher education and the roles a faculty member plays within a department, a college, and a university (e.g., teaching competence, professional recognition, and service). In addition, current issues in higher education and teacher education will be examined. **Prerequisites:** SPED 603 and consent of department.

**SPED 656 Seminar: Current Issues in Special Education**
3 hrs.
This course is designed to provide an in-depth exploration of current issues in the field of special education and in the various specific areas of exceptionality. Issues relating to the interface of general and special education will also be explored. Utilizing skills acquired in SPED 601, 602, and 603, students will be expected to review, evaluate, present information on the various topics considered. **Prerequisites:** SPED 603 and consent of department.

**SPED 659 Application of Learning Theories to Educational Programming for Learners with Disabilities**
3 hrs.
This course provides an overview of theories of learning as they apply to learners with disabilities. An in-depth analysis of selected theories is conducted in order to compare and contrast the relationship of each to the development of long-term goals for learners with disabilities. **Prerequisite:** SPED 603 and consent of department.

**SPED 661 Transdisciplinary Teamming**
3 hrs.
This course is designed to provide students with the information needed for effective collaboration and interactive teaming in school and agency settings. Emphasis is placed on transdisciplinary learning which will include components of effective communication, problem-solving, and the various direct and indirect service delivery models that can be used by collaborative teaching teams to facilitate the success of all students in the mainstream. **Prerequisite:** SPED 603 and consent of department.

**SPED 662 Service Delivery Models that Foster Collaboration**
3 hrs.
This course is designed to acquaint students with the service delivery models that foster collaboration presently in the schools as well as rural and urban communities. Students will develop collaboration and teaming skills among other communities. **Prerequisites:** SPED 603 and consent of department.

**SPED 663 Professional Field Experience in Collaboration**
3 hrs.
This course will provide students with hands-on, field experiences in the use of collaboration for interagency teams in urban and rural settings. Students will be placed in a school or agency serving students with special needs and participate in the facilitation of a transdisciplinary approach to problem solving.

**SPED 674 Intern Teaching in Special Education**
3 hrs.
This course is designed specifically for students officially admitted to the doctoral program in special education. Field experiences will be expected to evidence ability to plan and execute instructional tasks, develop and apply appropriate evaluative techniques, and interpret student performances. **Prerequisite:** SPED 603 and consent of department.

**SPED 680 Instructional Software in Special Education**
3 hrs.
This course will examine strategies for developing, modifying, and designing computer-assisted instruction for students with learning problems. The course will also address the integration of CAI into the special education curriculum and explore how technology tools can assist teachers. **Prerequisites:** SPED 537 or equivalent and consent of department.

**SPED 681 Assistive Technology for Persons with Physical, Sensory, and Cognitive Impairments**
3 hrs.
This course will examine assistive technology, including both hardware and software, to remove barriers to independence and education for persons with motor, visual, hearing, and cognitive impairments. **Prerequisites:** SPED 537 or equivalent and consent of department.

**SPED 682 Current Research in Special Education**
3 hrs.
This course will examine current research topics in special education technology. As technology rapidly changes, this course will
allow students to examine current issues and trends in technology integration, training, and development. Prerequisite: SPED 537 or equivalent and consent of department.

SPED 683 Authoring and Multimedia Systems 3 hrs.
In this course the student will learn how to use authoring systems for development of special education computer-assisted instruction (CAI) and multimedia. Students will create multimedia instructional materials incorporating text, graphics, sound, animation, and video using a variety of Macintosh and IBM-compatible hardware and software. Prerequisite: SPED 537 or equivalent and consent of department.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

SPED 700 Master's Thesis 6 hrs.

SPED 710 Independent Research 2-6 hrs.

SPED 712 Professional Field Experience 2-12 hrs.

SPED 730 Doctoral Dissertation 15 hrs.

FAMILY AND CONSUMER SCIENCES

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The Department of Family and Consumer Sciences offers the Master of Arts in Career and Technical Education and the Master of Arts in Family and Consumer Sciences. The Department also offers a concentration in Career and Technical Education within the Doctor of Education in Educational Leadership. For more information on this doctoral program, see the catalog listing under the Department of Teaching, Learning, and Leadership.

Master of Arts in Career and Technical Education

Advisor:
Linda Dannison,
Room 3018, Kohrman Hall

This thirty-hour degree program includes course work that will strengthen students' abilities to teach in career and technical education and to assist in developing and implementing new programs or curricula. The program is flexible to provide advanced techniques for teachers and career preparation for administrators, supervisors, counselors, coordinators, and for any other specialized positions in the career and technical education areas of marketing education, business education, family and consumer sciences, and technology education.

The Master of Arts in Career and Technical Education is designed for bachelor's graduates in marketing education, business education, family and consumer sciences, industrial arts, industrial education, or career and technical education, plus professional preparation in teacher education, including directed or supervised student teaching.

Program Requirements
Complete at least thirty graduate credit hours, selected in consultation with a program advisor. The program of study will consist of 3-6 hrs. of professional education courses, 15-18 hrs. of core courses, and 3-12 hrs. of electives.

Master of Arts in Family and Consumer Sciences

Advisor:
Linda Dannison,
Room 3018, Kohrman Hall

The graduate program in Family and Consumer Sciences is designed to provide a comprehensive program of studies in Family and Consumer Sciences or an in depth program of studies for the person desiring to strengthen specialized interest areas in dietetics and human nutrition, family life education, or textile and apparel technology.

The Master of Arts in Family and Consumer Sciences is designed for the person with a Bachelor of Science or Arts in Family and Consumer Sciences or a home economics-related program of study.

Because of the diversity of the field and unique needs of those desiring graduate training, an individualized program plan is designed for each student within the parameters of the program requirements.

The degree may be used as a foundation for continued graduate work leading to a doctoral degree at another institution.

Admission Requirements
For admission to the master's program in Family and Consumer Sciences, students must satisfy all the requirements identified in the Graduate Catalog as well as specific departmental requirements. No one requirement is sufficient to guarantee admission or dictate denial of admission.

1. Possess a Bachelor of Science from an approved accredited school and a major closely related to the selected concentration.

2. Have a minimum undergraduate grade point average of 3.0 on a 4.0 scale in the last two years of undergraduate work.

Non-degree, probationary status may be granted to students with a gpa between 2.5 and 2.99 in the last two years of undergraduate work. Students with that gpa range may establish eligibility for regular admission to WMU by completing nine credit hours of approved graduate-level courses toward their M.A. with a grade of "B" or better in each course.

3. Include a resume indicating previous education experiences and listing positions held over the past ten years. Indicate the exact title of each position, the agency, school, or firm where employed, and the duration of each employment. Also note particular awards or accomplishments.

4. Submit a two-page, wordprocessed essay that provides the following information:
   a. Describe experience(s) that influenced your career choice and your desire to return to graduate school.
   b. Explain how having a Master of Arts in Family and Consumer Sciences degree will advance your career.

Program Requirements
1. All master's programs include a minimum of 30 semester hours, fifteen of which must be in courses at the 600-level or higher, and at least two hours of FCS 710, Independent Research.

2. A total of twenty hours in Family and Consumer Sciences must be completed in graduate level courses, planned in consultation with departmental advisor. Assistantships may be available to those wishing to pursue full-time graduate study.

Career and Technical Education Courses (CTE)

Open to Upperclass and Graduate Students
CTE 510 Special Populations in Career and Technical Education 3 hrs.

Special populations enrolled in Career and Technical Education programs and the identification of appropriate teaching strategies, materials, and support services for effective teaching and learning.
CTE 512 Principles of Career and Technical Education
3 hrs.
Explanation, identification, investigation of the history, philosophy, principles, programs, and services in career and technical education.

CTE 513 Technical Education Methods
3 hrs.
Analysis and methods of organizing instruction in career and technical education. Advanced teaching plans and methodologies.

CTE 514 Workshop in Career and Technical Education
1–3 hrs.
Investigation, research, and development of a particular topic or area of interest for career and technical education. (Students may enroll for more than one topic, but in each topic only once, to a maximum of three hours credit.)
Prerequisite: Vocational certification or consent.

CTE 515 Grant Writing for Career and Technical Educators
3 hrs.
Analysis and method of organizing instruction in career and technical education. (Students may enroll once, to a maximum of three hours credit.)

CTE 517 Seminar in Career and Technical Education
2–6 hrs.
An intensive study of problems related to career and technical education. Topics vary from semester to semester, and a student may take more than one topic up to a maximum of six hours.

CTE 643 Measurement and Evaluation in Career and Technical Education
3 hrs.
Preparing and using written performance and alternative assessments for career and technical education.

CTE 645 Organization of Employment and Training Systems
2 hrs.
Study of various public and private employment and training systems, including the funding sources and authorizing legislation, description of available programs and services, identification of participants/clients served, explanation of participants/client intake and referral process, rationale and need for program and services offered by the agency/institution or organization.

CTE 646 Teaching Issues in Career and Technical Education
2 hrs.
Advanced individual or small group study of teaching methods, techniques, and issues. Emphasis placed on problem solving, teamwork and instructional delivery.

CTE 648 Adult Education in Career and Technical Education
2–3 hrs.
Influence of developmental needs of adults and changes in society affecting families and institutions in developing adult programs in career and technical education.

CTE 650 Business/Industry/Education Work-based Learning
3 hrs.
Current practices and future prospects of national and international work-based learning. Applies school-business partnerships, federal and state regulations, changing work place skill requirements, labor market information, and assessment to work programs. Prepares the student to develop and evaluate transition models between secondary and post secondary institutions, business, industry and the community.

CTE 652 Topics in Family and Consumer Sciences
1–3 hrs.
A study of the current issues impacting the areas of study in Family and Consumer Sciences: Dietetics, human nutrition, family life education, home economics education, textile and apparel technology, career and technical education. Prerequisite: Seniors and graduate students only.

FCS 520 Insurance Education Seminar
1–2 hrs.
Fundamental principles of consumer insurance; overview of insurance availability; family insurance issues involving automobile and home (property and casualty insurance); methods of teaching insurance education in diverse curricula; review and analysis of insurance policies; research in insurance education; and careers in insurance and the insurance industry.

FCS 522 Topics in Family and Consumer Sciences
1–3 hrs.
A study of the current issues impacting the areas of study in Family and Consumer Sciences: Dietetics, human nutrition, family life education, home economics education, textile and apparel technology, career and technical education. Prerequisite: Seniors and graduate students only.

FCS 524 Socio-Psychological Aspects of Dress
3 hrs. Winter—Even Years
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.

FCS 525 The Adolescent in Development
3 hrs.
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.

FCS 535 Communication Skills for Working with Families across the Lifespan
3 hrs.
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.

FCS 556 Problems in Nutrition
3 hrs.
A discussion of current problems in nutrition. Not open to dietetics majors. Prerequisite: FCS 260 or equivalent.

FCS 568 Gender, Culture, and Families
3 hrs.
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.

FCS 575 Administration of Child Development Centers
3 hrs.
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. (Cross-listed with ED 575.)

FCS 590 Project/Problems in Family and Consumer Sciences
1–6 hrs. Fall, Winter, Spring, Summer
Directed independent project in specialized curricula within Family and Consumer Sciences. Prerequisite: Department approval.

FCS 598 Independent Study in Family and Consumer Sciences
1–6 hrs. Fall, Winter, Spring, Summer
Directed independent advanced study in subject matter area not otherwise treated in departmental courses. Department approval required prior to enrollment.

Open to Graduate Students Only

FCS 600 Clothing Techniques
2 hrs.
Meets the needs of the advanced student in clothing construction techniques.

FCS 601 Basic Research Methods and Design
3 hrs.
This course introduces students to applied methods and basic research design. It is appropriate for producers of research and for students who plan to emphasize practice. Emphasis throughout is on concrete examples from applied settings appropriate to Family and Consumer Sciences and Career and Technical Education. Prerequisite: Acceptance in FCS or CTE Master of Arts program.

FCS 610 Nutrition in the Life Cycle
3 hrs.
Concentrated study of nutritional needs throughout the life cycle. Emphasis on (1) maternal and child nutrition, (2) adolescent and young adult nutrition, and (3) aging and
nutrition on a three-year rotation basis. Student can enroll for any stage or for each stage in subsequent semesters. **Prerequisite:** FCS 460 or 565.

**FCS 614 Nutrient Metabolism I** 3 hrs. Study of the functions, requirements, and interrelationships in metabolism of energy, protein, carbohydrate, and lipids.

**FCS 615 Nutrient Metabolism II** 3 hrs. Study of the functions, requirements, and interrelationships in metabolism of vitamins and minerals.

**FCS 616 Consumer Education** 3 hrs. Course includes family resource management; goals and resources in family financial planning; the role of the consumer in the marketplace; decision-making for individuals and families; information processing; clarifying values and determinants of quality in the spending process; and specific consumer economic issues across the life-span and within different economic and family settings.

**FCS 618 Teaching of Specific Subjects in Family and Consumer Sciences** 2–4 hrs. Intensive study of teaching techniques unique to specialized subject matter offered in variety of curricula in Family and Consumer Sciences.

**FCS 622 Practicum in Family and Consumer Sciences** 2–6 hrs. This practicum is designed to give the student an opportunity to apply knowledge and information acquired in the family and consumer sciences academic setting and further develop and refine professional skills with the guidance of professionals currently working in the field. The variation in credit hours allows the program to meet the individual needs of various students, some of whom may be full-time. Each credit hour requires 100 hours of on-site experience. **Prerequisite:** Admission to the M.A. in Family and Consumer Sciences or the M.A. in Career and Technical Education.

**FCS 636 Practicum in Family and Consumer Sciences** 1–4 hrs. Practicum is a part-time clinical experience completed concurrent with didactic course work. Practicum gives the student an opportunity to apply knowledge and skills in couple and family therapy. Qualified couple and family therapy supervisors provide individual and group supervision. The student develops a small caseload of clients and refines skills in case conceptualization, assessment, treatment planning, clinical intervention, documentation, and case management. Students begin practicum in a university laboratory setting, followed by community-based placements. This course is cross-listed with CCEP 667. **Prerequisite:** Permission of instructor.

**FCS 690 Seminar in Family and Consumer Sciences** 2 hrs. Investigation and discussion of current research and literature in specified family and consumer sciences topics.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

**FCS 700 Master's Thesis** 6 hrs.

**FCS 710 Independent Research** 2–6 hrs.

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### HEALTH, PHYSICAL EDUCATION, AND RECREATION

Dr. Debra Berkey, Chair
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Amos Aduroja
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James Lewis
Yuanliang Liu
Allison McFarland
Timothy Michael
Michael Miller
Donna Ritenour
Mary Schutten
Ronald Winter
Roger Zabik
Jiabei Zhang

### Master of Arts in Physical Education

Advisors:
- Debra S. Berkey,
- Jody Brylnsky,

Room 4021, Student Recreation Center

**Room 4024–7, Student Recreation Center**

**Room 4024–19, Student Recreation Center**

Allison McFarland,

**Room 4024–11, Student Recreation Center**

Timothy Michael,

**Room 4024–9, Student Recreation Center**

Michael Miller,

**Room 4024–9, Student Recreation Center**

Roger Zabik,

**Room 4021, Student Recreation Center**

The Department of Health, Physical Education, and Recreation offers a Master of Arts in Physical Education. The Master of Arts in Physical Education will change. For information about these changes and changes in graduate courses offered by the department, consult an advisor.

**Admission Requirements**

To be admitted to the master's degree program in this department, the Graduate College admission standards must be met, and the graduate student must have successfully completed an appropriate undergraduate major or minor or equivalent in Physical Education, Health, Recreation, Athletic Training, or Coaching.

**Program Requirements**

Each graduate student is expected to show competence in four professional areas: research, socio-cultural issues, curriculum and psychological foundations, and a professional area of emphasis. Such competence will be achieved in a manner that reflects the professional standards and values of the field. The program requirements include:

1. **Research Area:**
   - Course work prescribed in an emphasis

2. **Program Area:**
   - Course work prescribed in an emphasis

3. **Comprehensive Examination:**
   - Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.
area. This degree program also requires the successful completion of a minimum of thirty
graduate credit hours beyond the bachelor’s
degree in one of the following areas of
emphasis: Administration, Athletic Training,
Exercise Science, Pedagogy, Special Physical
Education, and Sports Studies. For information
about additional specific course requirements
for each concentration, see the graduate
advisor.

Master’s degree candidates are required to complete a comprehensive, integrated
capstone experience which can be met through (1) HPER 700, Thesis; (2) HPER 710,
Independent Research; or (3) HPER 712,
Professional Field Experience. Graduate
students in the Athletic Training emphasis area
seeking certification must meet the National
Athletic Trainers’ Association standards.

Health, Physical Education, and Recreation Courses (HPER)

Open to Upperclass and Graduate Students

HPER 500 Studies in Health, Physical Education, and Recreation
1–2 hrs.
In depth study of selected topics in HPER.
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: Aesthetics of Sport;
Nutrition and Fitness; Outdoor Education;
Physical Fitness; Relaxation; Special Physical Education Activities; Therapeutic Recreation;
Supervision and Self Assessment in Physical Education.

HPER 510 Modern Health for Teachers and Health Professionals
3 hrs.
This course, designed for teachers and health professionals who have need of current
knowledge in health science, surveys topics such as mental health, nutrition, substance
abuse, physical fitness, chronic diseases, and
stress management. Consideration is given to psychological, sociological, and cultural
factors that influence health improvement.
Attention is given to special factors of health
and illness of children and adolescents. This
course is not open to Health Education majors
and minors.

HPER 512 Principles, Practices, and Methods in Health Education
3 hrs.
This course surveys the history, philosophy, and methods of health education. The
philosophical basis and practices of health education are discussed in terms of needs
and capabilities of people and factors that influence their development and actualization.
Emphasis is placed upon the promotion of
health and prevention of disease, disability,
and premature death. Curriculum
development and teaching methods focus on
text and strategies considered most effective in
teaching disease prevention, health promotion, and self-actualization.

HPER 514 Methods and Materials in Health Education
2 hrs.
Lectures and demonstrations with emphasis on effective health supervision of school
children, principles and practices of health
teaching in the various grades, and
interrelation of this teaching with that of other
subjects in the curriculum. Prerequisite:
HPER 314 and 315, or consent of instructor.

HPER 516 Issues in Health Education
1–4 hrs.
Issues vary or occasionally repeat depending on the timeliness of the issue. Following
are currently recommended topics. Students may
register for 516 more than once but may not
repeat the same issue. Issues include: Aids;
Alcohol and Drug Education; Biofeedback;
Cardiovascular Health; Consumer Health;
Health Careers; Health Promotion; Improving
Health Behavior; Safety and Health in the
Industrial Setting; Sexually Transmitted
Diseases; Stress Management; Wellness and
Lifestyle.

HPER 520 Physical Activities for Exceptional Children
3 hrs.
Physical and recreational activities and games
used in corrective, adaptive, and general
physical education programs for special
educational children.

HPER 521 Therapeutic Trends for Exceptional Children
3 hrs.
A study of past, present, and future trends in
habilitation and rehabilitation programs for handicapped people.

HPER 530 Practicum in Teaching and Coaching
1–2 hrs.
Demonstrations, participation, and evaluation on teaching and coaching fundamentals in
selected sports. A graduate student may
apply a maximum of four credits from 530
courses toward the master’s degree program.
Sports include: Archery; Badminton;
Basketball; Football; Golf; Gymnastics; Ice
Hockey; Judo; Karate; Soccer; Swimming;
Track and Field; Volleyball; Wrestling; Yoga.

HPER 535 Principles and Problems of Coaching
2 hrs.
Various dimensions and forces affecting coaching are identified and explored including
educational implications of sport and
coaching, characteristics of coaches and athletes, vital relationships, motivation,
emotions, behavior, discipline, selecting and
evaluating personnel, scientific principles and
systems of training, the organization and
planning of practices and total programs.

HPER 540 Movement Education
2 hrs.
A concept in physical education which deals with the way children learn the basic principles
of how their bodies move.

HPER 560 Administration of Physical Education
2 hrs.
For administrative officers, as well as for
teachers and directors of physical education.
Includes a study of representative programs
for physical education and discussion of
standards for evaluating such programs.

HPER 562 Administration of Athletics
2 hrs.
Discusses administrative procedures and
problems connected with athletic programs,
including school law and liability, eligibility,
finance, safety, and the conduct of athletic
events.

HPER 580 Studies in Athletic Training
1–2 hrs.
Listed with various topics. A
lecture/demonstration course concerned with
the prevention, diagnosis, and treatment of
sports type injuries. Prerequisites: BIOS 211, 240. HPER 350.

HPER 582 Athletic Training for Coaches
2 hrs.
Basic procedures in injury prevention,
assessment, treatment, and rehabilitation will
be covered. Principles and techniques are
presented in a lecture and laboratory format.
Prevention will be emphasized. Prerequisite:
Permission of instructor.

HPER 590 Exercise Physiology
2 hrs.
The mechanics of muscular contraction, nerve
impulse conduction, oxygen exchange, and
circulatory efficiency are discussed. Basic
principles concerning the adaptation of the
human body to stress in the form of strenuous
physical exercise are applied to the training
and conditioning of competitive athletics.
Prerequisites: BIOS 211, 240.
Open to graduate students only.

HPER 591 Evaluation in HPER
2 hrs.
Acquaints students with the theory, selection,
construction, administration, interpretation of
appropriate tests in the field. Class activity
will include study and discussion of selected tests,
application, scoring, interpretation, and
construction of tests.

HPER 595 Analysis of Movement in Sport
2 hrs.
The study of movement of muscles and the
application of kinesiology to physical activity.
Prerequisite: BIOS 211.

HPER 598 Readings in HPER
1–2 hrs.
Advanced students with good academic
records may elect to pursue independently a
program of readings in areas of special
interest. Prerequisite: Approval of graduate
director in Physical Education.

Open to Graduate Students Only

HPER 620 Developmental Programs in Special Physical Education
3 hrs.
A study of sensory motor systems and how
neurology influences growth and motor
development of children with disabilities.
Students will also be exposed to physical
education programs designed to promote
inclusion. Prerequisites: HPER 520, 521.

HPER 630 Advanced Coaching
1–2 hrs.
Advanced theories of conditioning, training,
practice organization, scouting, game and
tournament planning, skill analysis and
correction, defensive and offensive strategies,
safety procedures, purchases and care of
equipment, public relations, and promotion
specific to each sport. A graduate student
may apply a maximum of eight hours credit
from HPER 530 and 630 combined toward the
master’s degree program.

HPER 641 Physical Education for Preschool, Elementary, and Middle School
2 hrs.
A study of the development needs of the child in
terms of physical activity; the role of
physical education in childhood education; the
responsibility of the teacher in this area;
demonstrations and practice in teaching
activities.

HPER 642 Motor Development
2 hrs.
Scientific evidence studied to determine the
nature of motor learning and its
inter-relationships with physical growth,
biological maturity, and social development.

HPER 643 Psychology of Motor Learning
2 hrs.
An overview of major concepts and conditions
important for the learning of motor skills
and
emphasis on the introduction and explanation of the psychomotor domain.

**HPER 645 Curriculum Building in HPER**
2 hrs.
A critical analysis of Health, Physical Education, and Recreation programs. This interdisciplinary approach reflects local, national, and international developments. Construction of a comprehensive program, curricular models, and program evaluation are highlighted.

**HPER 648 Advanced Studies in Motor Development**
1-3 hrs.
A series of advanced seminars dealing with specific topics in motor development and statistical physical education. Emphasis will be placed on in depth study of theories, problems, practices, and issues with appropriate lectures and experiences leading toward the development of a research project or a master's thesis. Topics include: Play Theory; Psychology of Sport; Mainstreaming; Aquatic Programs in Special Physical Education; Leader Skills and Materials in Physical Education; Teaching Skills and Strategies in Physical Education.

**HPER 650 Socio-Cultural Foundations in HPER**
2 hrs.
The course is intended to investigate and identify the function of sport in contemporary society with special emphasis on the relationship of sport to social institutions. A cross-cultural approach.

**HPER 661 Problems and Trends in HPER**
2 hrs.
Deals with modern trends, and with instructional and supervisory problems involved in conducting an effective program of physical education including a critical appraisal of present practices.

**HPER 662 Legal Liability in Sport**
2 hrs.
This advanced studies in administration course is designed to help the HPER professional become more conscious of legal responsibilities in the physical activity 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.

**HPER 683 Ethics in Sport**
2 hrs.
This course is designed to provide physical activity professionals with an introductory experience in analyzing ethical and moral issues in the sport domain. The focus is on encouraging participants to develop a consistent, reflective value structure to utilize in addressing moral questions. In addition, the course structure is to allow participants to develop a personal model of integrity that will be successful in the physical activity environment. Content will include description of the "great game" and application of the guides to right actions in sport.

**HPER 686 Advanced Studies in Administration of Physical Education and Athletics**
1-3 hrs.
A series of advanced seminars dealing with specific topics in administration of physical education and athletics. Emphasis will be placed on in depth study of theories, problems, practices, and issues with appropriate lectures and experiences. Topics include: Administration of Athletic Programs; Business Procedures; Ethics in Sport; Legal Liability; Planning Facilities; Public Relations and Promotion; Sport Management.

**HPER 572 Exercise Science Lab Techniques**
2 hrs.
The purpose of this course is to educate exercise science graduate students knowledge and experience in use of contemporary laboratory procedures and equipment commonly used in quantitative research in three areas: exercise physiology, biomechanics, and motor learning. Students are provided information and hands-on experience concerning the following: theory of operation, calibration procedures, operational procedures, interpretation of results, and maintenance procedures. The course culminates with a practical examination in which each student must demonstrate competency in the use of equipment and procedures in all three areas. **Prerequisite:** Permission of instructor.

**HPER 674 Exercise Science Adult Fitness**
2 hrs.
This course provides exercise science students knowledge and experience concerning many aspects of exercise programs for adults. Topics include: screening procedures; adult fitness assessment; characteristics of older adults; special populations and exercise; exercise prescription; and body composition, nutrition, and weight management. Students will take both a written and practical examination. **Prerequisite:** Permission of instructor.

**HPER 676 Exercise Science Projects**
2 hrs.
The purpose of this course is to provide exercise science graduate students with the opportunity to integrate the knowledge and skills gained in HPER 560, 595, 672, 690, and 692 in problem-solving situations related to exercise. Students will conduct small, structured investigations in both the biomechanical and exercise physiology areas. The application of the scientific method, quantitative data collection, and scientific report writing are emphasized. **Prerequisite:** Permission of instructor.

**HPER 681 Sports Medicine: Applied Anatomy and Physiology**
3 hrs.
This course will offer comprehensive material regarding anatomy and physiology and their implications in sports medicine. This course will concentrate on functional components of anatomy and physiology and utilize cadavers in lab.

**HPER 682 Sports Trauma Assessment and Management**
3 hrs.
This course will offer comprehensive material regarding assessment and management of sports trauma. An applied, advanced approach utilizing the most up to date techniques will be presented.

**HPER 683 Sports Trauma Rehabilitation**
2 hrs.
This course will offer comprehensive material regarding rehabilitation techniques for sports trauma. An historical perspective, including the most up-to-date techniques will be presented along with hands-on experience. The scientific basis for the techniques will provide the main focus of the course.

**HPER 685 Sports Trauma Modalities**
3 hrs.
This course will offer comprehensive material regarding the use of modalities in sports trauma situations. A historical perspective including the most up to date techniques will be presented along with hands-on expertise. The scientific bases will be the main focus of the course.

**HPER 687 Administration of an Athletic Training Program**
2 hrs.
This course will offer comprehensive material regarding administrative administration of athletic training programs in a high school, college, and clinic scenario. Professional and industrial settings will also be considered.

**HPER 689 Emergency Procedures and Orientation**
2 hrs.
This course will offer comprehensive material covering life threatening situations in sports medicine, including assessment, treatment and transportation. Establishing (orienting) a training room or site complete with procedures, supplies, and scheduling will also be addressed.

**HPER 690 Research Procedures in HPER**
2 hrs.
Research procedures in health, physical education, and recreation and sport—introduces principles of scientific inquiry, research methods applicable to these fields, evaluation of published research, and procedures for developing a research design.

**HPER 691 Psychological Foundations in HPER**
2 hrs.
An overview of the application of psychology to physical education and sport with special emphasis on transcendent experiences in sports and the consciousness of sports.

**HPER 692 Analytical Techniques in HPER**
2 hrs.
An introduction to analytical methods of handling data in HPER. **Prerequisite:** HPER 690.

**HPER 693 Socio-Cultural Foundations in HPER**
3 hrs.
This course is designed to allow the student to develop the knowledge and skills necessary for the effective analysis of qualitative and quantitative data specific to the fields of physical education, exercise science, sports studies, recreation, and health. **Prerequisite:** HPER 690.

**HPER 694 Advanced Studies in Exercise Science**
2 hrs.
A series of advanced seminars dealing with specific topics in exercise science. Emphasis will be placed on in depth study of theories, problems, practices, and issues with appropriate lectures and experiences leading toward the development of a research project or a master's thesis.

**Open For Graduate Students Only—Please refer to The Graduate College Bulletin for course descriptions.** **Prerequisite:** Approval of graduate director in Physical Education.

**HPER 700 Master's Thesis**
6 hrs.

**HPER 710 Independent Research**
2-6 hrs.

**HPER 712 Professional Field Experience**
2-12 hrs.
TEACHING, LEARNING, AND LEADERSHIP

The Department of Teaching, Learning, and Leadership offers the Master of Arts in Education and Professional Development (four concentrations), the Master of Arts in Educational Leadership (with five concentrations), and the Specialist in Education in Educational Leadership, and the Doctor of Education in Educational Leadership (with four concentrations). The requirements for each of the programs are listed below. Descriptions for ED and EDLD courses may be found below, following the program descriptions.

Descriptions for EMR courses may be found under the Department of Educational Studies.

Master of Arts in Education and Professional Development

The Master of Arts in Education and Professional Development provides a comprehensive professional development program with four distinct areas of concentration:

1. Early Childhood Education
2. Elementary School Teaching and Learning
3. Reading
4. Teaching in the Middle School

The Master of Arts in Education and Professional Development is designed to enhance the knowledge and skill of reflective practitioners for a variety of educational settings. It is our belief that teachers ought to be developed as leaders, change agents, intellectuals, and researchers. They should be passionate learners who embrace diversity, actively inquire and reflect upon their own practice, nurture the development of new knowledge and skills, and weave the complexities of modern society into the learning process. This is accomplished through a process of continuous professional, intellectual, and social growth within an interrelated spiral of academic content preparation, professional knowledge, pedagogical skill, and guided practice. The Master of Arts in Education and Professional Development is predicated on the assumption that theory, research, policy, and practice must be integrated on an equal plane to provide innovative models that lead to the improvement of teaching, learning, and reflective practice.

Reflective practice suggests that teachers should be able to demonstrate professional expertise appropriate for their level of experience. They need to have the ability to analyze their own teaching, inquire into how teaching can be improved, and develop strategies to improve teaching that build on individual strengths. Reflective practitioners must also be able to situate their practice within the social, cultural, and economic dimensions of relationships among schooling, society, and the natural environment. It requires teachers to examine, interpret, and evaluate the teaching-learning process using the best practices described by research and experience as the referent for reflection.

Admission Requirements

1. Undergraduate grade point average of 3.0 (4.0 = A). A grade point average may be accepted upon review of recent and relevant course work completed at an accredited institution.
2. A written statement of purpose (1,000 to 1,500 words) outlining the applicant's philosophy of teaching and professional goals. The statement of purpose should indicate the candidate's career expectations and reasons for seeking admission to the program.
3. Congruence of applicant's goals and requested program concentration.
4. Two letters of recommendation from persons able to judge the applicant's potential to succeed in a graduate program.
5. Experience working in a professionally-related setting.

Additional requirements, such as possession of a valid Michigan Teaching Certificate or equivalent at the appropriate level, may be required for some areas of concentration. Candidates who meet all admissions criteria will be considered for admission to the program by the appropriate departmental unit. Because admission to some areas of concentration is governed by the number of available openings, the admission criteria listed above should be considered as minimum standards.

Upon admission, each student will be assigned an advisor who will assist in the preparation of a program of study. The program of study should be completed during the first semester of enrollment. A maximum of nine appropriate Western Michigan University graduate credits taken before admission may be applied to the Master of Arts in Education and Professional Development with advisor approval.

EARLY CHILDHOOD EDUCATION, 36-39 hrs.

Advisors: Ariel Anderson, Josephine B. Davis, Susanne Davis, Barbara Harris, Regena Fails Nelson, Andrea Smith

Room 2112, Sangren Hall

Program Requirements

1. Education and Professional Development Core (9 hrs.)

ED 601 Introduction to Research in Educational Settings (3 hrs.)
ES 633 Human Nature and Diversity (3 hrs.)
ES 634 Culture and Politics of Educational Institutions (3 hrs.)

2. Program Concentration (21 hrs.)

ED/FCS 575 Administration of Child Development Centers (3 hrs.)
ED 606 Early Childhood Curriculum Workshop (6 hrs.)
ED 608 Seminar in Early Childhood Development (3 hrs.)
ED 611 Formal Approaches to Studying Young Children's Development (3 hrs.)
ED 614 Parent Education for Teachers of Young Children (3 hrs.)
ED 615 Play and Cognition in Early Childhood (3 hrs.)

3. Elective (3 hrs.): Each student, with advisor approval, will choose three or four courses from the extensive list of options including, but not limited to, the following:

ED 610 Montessori Education (3 hrs.)
ED 615 Paiget and Young Children (3 hrs.)
ED 652 Oracy and Literacy (3 hrs.)
ED 670 School Climate and Discipline (3 hrs.)
ES 675 Multicultural Education (3 hrs.)
ED 697 Special Topics in Reading (3 hrs.)
SPED 530 Education of Exceptional Persons (3 hrs.)

4. Capstone Research Project or Master's Thesis (3-6 hrs.)

ED 679 Capstone Research Project (3 hrs.)
or
ED 700 Master's Thesis (6 hrs.)

Should additional experience in working with young children be necessary (as determined by the work history statement on the program application form), the student will complete an internship under ED 712 Professional Field Experience (3 hrs.).

ELEMENTARY SCHOOL TEACHING AND LEARNING, 36-39 hrs.

Advisors: Lynn Brice, Susan Edgerton, M. Arthur Garmon, Paul Vellom, Allison Young

Room 2112, Sangren Hall

Program Requirements

1. Education and Professional Development Core (9 hrs.)

ED 601 Introduction to Research in Educational Settings (3 hrs.)
ES 633 Human Nature and Diversity (3 hrs.)
ES 634 Culture and Politics of Educational Institutions (3 hrs.)

2. Program Concentration (18 hrs.)

ED 600 Fundamentals of Measurement and Evaluation (3 hrs.)
ED 602 School Curriculum (3 hrs.)
ED 636 Advanced Instructional Strategies (3 hrs.)

Electives, 9 hrs.

Advisor approved courses to be selected from three of the following five areas:

Area 1. Reading Strategies
2. Program Concentration (21 hrs.)

3. Electives (6 hrs.): In consultation with a faculty advisor, the student will select 6 additional credit from the elective option areas or a course from a content area.

4. Capstone Research Project or Master's Thesis (3-6 hrs.)

ED 679 Capstone Research Project (3 hrs.)

or

ED 700 Master's Thesis (6 hrs.)

TEACHING IN THE MIDDLE SCHOOL, 36-39 hrs.

Advisors:
Lynn Nations Johnson, Lauren Freedman,
G. Thomas Ray, Lynn Brice
Room 2112, Sangren Hall

Program Requirements

1. Education and Professional Development Core (9 hrs.)

   ED 601 Introduction to Research in Educational Settings (3 hrs.)

   or

   ES 633 Human Nature and Diversity (3 hrs.)

   or

   ES 634 Culture and Politics of Educational Institutions (3 hrs.)

2. Program Concentration (15 hrs.)

   ED 621 The Early Adolescent Learner (3 hrs.)

   ED 622 Middle School Curriculum (3 hrs.)

   ED 624 Middle School Methods and Materials (3 hrs.)

   ED 625 Strategic Learning through Texts for Middle School Teachers (3 hrs.)

   or

   ED 617 Reading in the Content Area (3 hrs.)

   or

   SPED 530 Introduction to the Exceptional Learner (3 hrs.)

   or

   SPED 661 Transdisciplinary Teaching (3 hrs.)

3. Electives (9 hrs.)

   Select one course from the following:

   ED 603 Social and Philosophical Foundations (3 hrs.)

   ED 604 Psychological Foundations of Education (3 hrs.)

   ED 631 Comparative Education (3 hrs.)

   ED 670 School Climate and Discipline (3 hrs.)

   ED 671 Structuring Classroom Dialogue (3 hrs.)

   ES 673 Class, Ethnicity, and Gender in Education (3 hrs.)

   ES 675 Multicultural Education (3 hrs.)

   ED 676 Teaching Thinking in the Schools (3 hrs.)

   ED 677 Ethnography of Schooling (3 hrs.)

   Select six hours from one or two subject matter areas that correspond with the student's professional content area assignment and/or professional development interests.

4. Capstone Research Project or Master's Thesis (3-6 hrs.)

   ED 679 Capstone Research Project (3 hrs.)

   or

   ED 700 Master's Thesis (6 hrs.)

Master of Arts in Educational Leadership

Advisors:
Van Cooley, Joseph Kretovics, Jianping Shen, Charles Warfield, Gary Wegenke, Frank Rapley, Sue Popklin, Cheryle Crawford
Room 2110, Sangren Hall

The Department of Teaching, Learning, and Leadership offers a Master of Arts in Educational Leadership with concentrations in five areas: General Leadership, School Principal, Central Office Administrator, Chief School Business Official, and Curriculum and Instructional Leadership. The master's program prepares leaders for a variety of roles in private and public settings. Each concentration includes a leadership core, a specialty core, and a capstone experience. A Performance Driven Leadership model has been created with the emphasis on transferring theory into practice. Students actively engage in a number of activities while exploring effective leadership constructs.

Persons who wish to apply to the Educational Leadership master's program must apply directly to the Office of Admissions and Orientation. Applicants who seek information prior to admission are urged to contact the Department of Teaching, Learning, and Leadership office. Satisfactory completion of courses prior to admission to a Department program does not guarantee admission.

GENERAL LEADERSHIP, 36 hrs.

This Master of Arts program is designed for graduate students who desire to develop and enhance their leadership skills in areas outside of K-12 education. The General Leadership program is designed for students who work in nonprofit organizations, government agencies, hospitals, and other agencies. The required fifteen hours of leadership core include EDLD 602, Educational Leadership; EMR 640, Introduction to Research or ED 601, Introduction to Research in Educational Settings; ED 602, School Curriculum; EDLD 673, Supervision; and EDLD 806, Systems Thinking. The eighteen hours of concentration include EDLD 664, Curriculum Development; EDLD 663, Personnel Administration; EMR 642, Program Evaluation; and nine credit hours of electives that meet student needs and leadership goals. Students also complete a three-hour internship/capstone experience, EDLD 679.

SCHOOL PRINCIPAL, 36 hrs.

This Master of Arts program is designed to prepare students for a leadership role as a building principal. The required fifteen hours of leadership core include EDLD 602, Educational Leadership; EMR 640, Introduction to Research or ED 601, Introduction to Research in Educational Settings; ED 602, School Curriculum; EDLD 673, Supervision; and EDLD 806, Systems Thinking. The eighteen hours of concentration include EDLD 674, School Community Relations; EDLD 664, Curriculum Development; EDLD 665 or 670, Elementary or Secondary Principalship; EDLD 662, School Business Management; EDLD 661, School Law. Students choose one course from EDLD 601, EMR 643, EMR 642, SPED 640, or ES 675, or another advisor-approved course. Students also complete a three-hour internship/capstone experience, EDLD 679.

CENTRAL OFFICE ADMINISTRATOR, 39 hrs.

This Master of Arts program is designed to prepare students for a leadership role in central office administration. The required fifteen hours of leadership core include EDLD 602, Educational Leadership; EMR 640, Introduction to Research or ED 601, Introduction to Research in Educational Settings; ED 602, School Curriculum; EDLD 673, Supervision; and EDLD 606, Systems Thinking. The twenty-one hours of concentration include EDLD 664, Curriculum Development; EDLD 665 or 670, Elementary or Secondary Principalsip; EDLD 662, School Business Management; EDLD 661, School Law; EDLD 672, School Finance; and EDLD 680, The Superintendency. Students also complete a three-hour internship/capstone experience, EDLD 679.
This Master of Arts program is designed to prepare students for a leadership role in a chief school business official. The required fifteen hours of leadership core include EDLD 602, Educational Leadership; EMR 640, Introduction to Research or ED 601, Introduction to Research in Educational Settings; ED 602, School Curriculum; EDLD 673, Supervision; and EDLD 606, Systems Thinking. The twenty-one hours of concentration include EDLD 663, Computer Applications in Administration, EDLD 664, Curriculum Development; EDLD 665, Personnel Administration; EDLD 662, School Business Management; EDLD 661, School Law; EDLD 672, School Finance; and EDLD 685, School Planning. Students also complete a three-hour internship/capstone experience, EDLD 679.

CURRICULUM AND INSTRUCTIONAL LEADERSHIP 36 hrs.

This Master of Arts program is designed to prepare students for a leadership role in curriculum and instruction. The required fifteen hours of leadership core include EDLD 602, Educational Leadership; EMR 640, Introduction to Research or ED 601, Introduction to Research in Educational Settings; ED 602, School Curriculum; EDLD 673, Supervision; and EDLD 606, Systems Thinking. The eighteen hours of concentration include EDLD 674, School and Community Relations; EDLD 664, Curriculum Development; ED 628, Curriculum Theory; ES 675, Multicultural Education; EMR 642, Program Evaluation; and an elective in instruction. Students also complete a three-hour internship/capstone experience, EDLD 679.

Specialist in Education in Educational Leadership

Advisors:
Van Cooley, Cheryl Crawford, Joseph Kretovics, Jianping Shen, Charles Warfield, Gary Wegenke, Frank Rapley, Sue Poppink
Room 3312, Sangren Hall.

The Specialist in Education (Ed.S.) prepares persons for educational administration positions. The Ed.S. is a terminal degree appropriate for students wishing to earn a post-master’s, but not doctoral, degree. Persons seeking admission to the Ed.S. program should be definite about academic and professional goals and aspirations. Students are cautioned that satisfactory completion of courses prior to admission to the Department program does not guarantee admission to the program.

Admission Requirements
Applicants to the Ed.S. program should submit application materials to the Office of Admissions and Orientation, Graduate Admissions, and designate Educational Leadership. In addition to The Graduate College requirements, the Department requires the submission of an autobiography, 3 graduate reference forms, completion of a Resume of Leadership Experience form (available from the Educational Leadership office), an interview with at least two members of the Educational Leadership faculty, and review and acceptance by the faculty as a whole at a meeting scheduled for student admission. The admission meetings are held in November and March.

Program Requirements
A program of study consists of a minimum of 66 credit hours beyond the baccalaureate degree and leads to an Ed.S. degree and endorsement as a central office administrator or superintendent, if the appropriate electives are completed, and includes the following courses: EDLD 602, Educational Leadership; EMR 640, Introduction to Research; EDLD 665, Elementary Administrator or EDLD 670, Secondary Administrator; EDLD 661, School Law; EDLD 662, School Business Management; EDLD 673, Supervision; EDLD 674, School Community Relations; EDLD 680, The Superintendent; EDLD 712, Professional Field Experience (6 credit hours); and EDLD 720, Dissertation Project (6 credit hours).

In addition, 24 semester credit hours of elective courses will be selected, with advisor approval, which will complement and broaden strengths and weaknesses as required. Contact the Teacher Certification Officer at Western Michigan University to be sure you meet the State of Michigan requirements for Certification prior to satisfactory completion of the course work required. Persons wishing additional information are urged to speak with an advisor or with the Educational Leadership Department office.

Doctor of Education in Educational Leadership

Advisors:
Van Cooley, Cheryl Crawford, Joe Kretovics, Jianping Shen, Charles Warfield, Gary Wegenke, Frank Rapley, Sue Poppink
Room 3312, Sangren Hall.

Admission Requirements
Admission to the Doctor of Education in Educational Leadership requires that students meet The Graduate College criteria for admission, submit 3 graduate reference forms, and complete the required Core of Leadership Experience form (available in the Department of Teaching, Learning, and Leadership). Each student will be interviewed by a minimum of two members of the faculty, and each application will be reviewed for acceptance by the entire faculty at a meeting scheduled to consider student admissions. Meetings are scheduled in February and March. After admission, a doctoral chair will be appointed from among the faculty advisors, and the student will work with this advisor to complete an appropriate dissertation advisory committee to guide the student through the program. Students are cautioned that successful completion of courses prior to admission to a Department program does not guarantee admission to the program. Further information can be obtained from advisors by calling the Department of Teaching, Learning, and Leadership.

GENERAL EDUCATIONAL LEADERSHIP
This general concentration within the Doctor of Education in Educational Leadership (90 hours minimum) is designed to develop and enhance leadership skills for those who find an institutional specialization unnecessary.

Required Courses
EDLD 602, Educational Leadership; EDLD 663, Theories of Leadership; EMR 640, Introduction to Research; EMR 665, Research Design; EDLD 673, Supervision; EDLD 655, Dissertation Seminar; EDLD 712, Professional Field Experience (9 credit hours); and EDLD 730, Dissertation (15 credit hours). Additionally, three courses will be selected through approval of the advisory committee.

Career and Technical Education
The Career and Technical Education concentration is designed to enhance skills in
administrative leadership, curriculum, or instruction for individuals involved in adult, secondary, postsecondary, and four-year institutions.

Program Requirements

1. Educational Leadership Courses (9 hrs.)
   - EDLD 602 Educational Leadership (3 hrs.)
   - EDLD 609 Theories of Leadership (3 hrs.)
   - EDLD 673 Supervision (3 hrs.)

2. Research Techniques (9 hrs.)
   - EMR 640 Introduction to Research (3 hrs.)
   - EMR 645 Elementary Statistics (3 hrs.)
   - EMR 655 Research Design (3 hrs.)

3. Leadership, Educational Evaluation, Measurement, or Research Design (18 hrs.)
   - CTE 614 Administration and Supervision of CTE (3 hrs.)
   - CTE 616 Occupational Selection and Training (3 hrs.)
   - CTE 643 Measurement and Evaluation in CTE (3 hrs.)
   - EDLD 674 School and Community Relations (3 hrs.)
   - EDLD 681 Policy Development (3 hrs.)
   - EMR 643 Personnel Evaluation (3 hrs.)
   - Other EDLD or EMR or CTE elective courses may be substituted with doctoral committee approval.
   - addressing leadership, educational evaluation, measurement, or research design

4. Addressing Strengths Needed (12 hrs.)
   - Students may choose among one of the following three areas of study based upon individual career goals in career and technical education.

   **Area #1: Curriculum**
   - ED 602 School Curriculum (3 hrs.)
   - ED 628 Curriculum Theory (3 hrs.)
   - EMR 642 Program Evaluation (3 hrs.)
   - EDLD 664 Curriculum Development (3 hrs.)

   **Area #2: Educational Leadership**
   - EDLD 663 Personnel Administration (3 hrs.)
   - EDLD 670 The Secondary Administrator (3 hrs.)
   - EDLD 672 School Financial Management (3 hrs.)
   - EMR 642 Program Evaluation (3 hrs.)

   **Area #3: Instruction**
   - Focused on further technical knowledge in a particular CTE discipline, i.e., Business Education, Family Life Education, or Technology Education. Courses could be taken within the College of Education or other colleges within the University to enhance technical content proficiencies needed, as a CTE instructor in an adult, secondary, or postsecondary institution.

5. Addressing Career, Professional, and Research Issues in Career and Technical Education (15 hrs. minimum)
   - CTE 612 Studies in Technology (1-4 hrs.)
   - CTE 615 Trends and Developments in CTE (2 hrs.)
   - CTE 617 Seminar in CTE (2-3 hrs.)
   - CTE 645 Lab Planning and Organization in CTE (2 hrs.)
   - CTE 646 Teaching Issues in CTE (2 hrs.)
   - CTE 648 Adult Education in CTE (3 hrs.)
   - CTE 650 Business/Industry Education and Work-based Learning (3 hrs.)

6. Professional Field Experience (9 hrs.)
   - EDLD 712 Professional Field Experience (9 hrs.)

7. Dissertation Seminar (3 hrs.)
   - EDLD 895 Dissertation Seminar (3 hrs.)

8. Dissertation (15 hrs.)
   - EDLD 730 Doctoral Dissertation (15 hrs.)

**Teaching, Learning, and Leadership Courses (ED)**

Open to Upperclass and Graduate Students

ED 500 In-Service Professional Development I 1 hr.
This course develops specific professional skills related to current school responsibilities of teachers and other school personnel. Final course outcomes need to have demonstrated application to the classroom/workplace. May be repeated. Credit hours may be applied to teacher certification programs with approval of the Teacher Certification Office, but will not be applicable to graduate programs within the Department of Education and Professional Development. Graded on a Credit/No Credit basis.

ED 501 In-Service Professional Development II 2–3 hrs.
This course develops specific professional skills over an extended period of time related to current school responsibilities of teachers and other school personnel. Final course outcomes need to have demonstrated application to the classroom/workplace. May be repeated, but only three credit hours may be applied to graduate programs within the Department. Topics included in a department program must be approved in advance of registration by the program advisor.

ED 502 Curriculum Workshop 1–6 hrs.
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 502, 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 502 may be applied toward a master’s degree with advisor’s approval.

ED 504 Adult Development 3 hrs.
This course provides an in-depth look at each age and stage in the life cycle. It explores such problems as the changing role of parents and singles, the changing societal pressures on teachers, new adult styles, mid-life career changes, the changing roles of males and females, and unique health stresses. Emphasis will be placed on the identification of patterns of lifelong learning leading to a more fruitful and fulfilling life.

ED 505 The Adult Learner 3 hrs.
This course provides an in-depth look at the learning adult from approximately age 22 through old age with special emphasis on human variability, unique learning styles, and characteristics of the adult learner. Theories of adult learning, student intelligence and memory, learning capabilities, abilities, approach, and speed of learning will be considered. Motivation as prerequisite for high-level well-being and problem-solving will be studied.

ED 506 Teaching in Adult Education 3 hrs.
This course is designed to provide teachers with a knowledge of special situations incurred in the teaching of adults. It will discuss techniques of interpersonal communication with adults, as well as practical exercise in the designing of learning experiences for adults. Extensive use will be made of audiovisual media, and computers, experts in the field, and field observation in adult learning activities. The course should be helpful to administrators in planning inservice programs for their own staff.

ED 508 Seminar in Parent Education 2 hrs.
Emphasis is placed on cooperative problem-solving between parents and teachers of school-age children and youth. Problems considered will include such topics as grief and loss through death, divorce, or separation; special needs and contributions of multicultural parents; parents as resource persons and paraprofessionals in the schools; and problems identified by members of the seminar. Members of the seminar will report on the current literature available through libraries and community resources and work toward potential solutions of problems.

ED 516 Professional Symposium in Reading 3 hrs.
This course is designed to be the initial course in the graduate program in reading. It is designed to present the basic concepts concerning the nature of the reading process and the teaching of reading. Emphasis will be placed on reading as a thinking process and on factors affecting reading performance. Special emphasis will be placed on child development; language development; concept development; physical, psychological, and environmental factors affecting the child’s literacy development. In addition, the course will provide a brief overview of the delivery systems and procedures used in the U.S. to teach reading. This will involve an historical overview as well as current and potential future practices.

ED 575 Administration of Child Development Centers 3 hrs.
Examination of day care and preschool regulations and/or requirements and knowledge of administrative and supervisory duties in providing optimum growth for young children. Includes management, planning, and organizing child development centers. (Cross-listed with FCS 575.)

ED 597 Reading and Related Language Experiences 3 hrs.
A study of the current research on language related skill acquisition and literacy development.

ED 598 Selected Reading in Education 1–4 hrs.
Designed for highly qualified students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Written consent of departmental advisor and instructor.

Open to Graduate Students Only

ED 600 Fundamentals of Measurement and Evaluation in Education 3 hrs.
This course is designed to develop understandings and competencies in educational measurement and evaluation. Emphasis is placed on the application of research techniques to evaluation, the interpretation of quantitative data in
ED 601 Introduction to Research in Educational Settings 3 hrs.
This course is intended to provide students with an overview of major forms of research models used in educational settings and to provide them with skills in interpreting and evaluating educational research studies. Emphasis is placed on careful reading and critical analysis of current studies that are representative of the various models.

ED 602 School Curriculum 3 hrs.
This course, designed for teachers and administrators at all levels, analyzes the decision factors stemming from societal forces, psychological, cultural, and developmental needs and perceptions of learners, and internal structures of the discipline as guidelines for a curriculum emerging from and serving a democratic society.

ED 604 Psychological Foundations of Education 3 hrs.
An overview of the psychological forces that influence learners in their educational settings, with special emphasis on the nature and significance of human variability, development of self-concept, and evaluation, and a consideration and application of principles of learning in classroom situations.

ED 605 Teaching of Social Studies in the Elementary Schools 3 hrs.
This course is designed to help teachers understand the role of the social studies in the elementary school, gain insight into important considerations in the selection of content, and discover how to guide and assess the learning of children in this field. Planning social studies experiences and ways of working with children in a classroom setting will be emphasized.

ED 606 Early Childhood Workshop: Learning and Curriculum 6 hrs.
This workshop promotes an understanding of how the young child learns; students will use these learning principles as bases for curriculum development. Students will construct materials and equipment and develop curriculum plans. Portions of the course can be designed to meet the individual needs of students. These will be taught by experts from appropriate fields within and outside of the University. Prerequisites: Admission to the master's program in Early Childhood Education and permission of instructor.

ED 607 Research Methods in Early Childhood Education 3 hrs.
The purpose of this course is to acquaint the student with major types of research about young children, the steps involved in conducting such investigations, and the basic statistical concepts needed for understanding and designing research. Students will be required to present a research proposal. Prerequisites: ED 606 and permission of instructor.

ED 608 Seminar in Early Childhood Development 3 hrs.
The content of this seminar may vary each semester depending on the interests and needs of the students, but is invariably designed to provide an in depth exploration of some facet of development in young children. Each student is expected to conduct a search of the literature on a specific topic. Topics may include child-rearing practices, sex-role identification, cognitive development, language acquisition, psychomotor development, and parent education. Prerequisites: ED 606, ED 607 or ED 601, and permission of instructor.

ED 608 Early Childhood Education in Perspective 3 hrs.
A study of the history of the education of young children with emphasis on the philosophy, social settings, and people who have influenced the movement. Prerequisites: ED 606, ED 607 or ED 601. ED 608, and permission of instructor.

ED 610 Montessori Education 3 hrs.
This course is an introduction to the philosophy of Dr. Maria Montessori for teaching the child “for life” and its application to classroom practice. Students will become familiar with the life and work of Dr. Montessori and their influence on her philosophy of education. Students will study the techniques and the learning materials she developed and consider their universal applicability.

ED 611 Informal Approaches to Studying Young Children's Development 3 hrs.
This course helps teachers observe, evaluate, and guide children’s growth while developing their skill in informal observation techniques. Teachers will learn about their children from new perspectives, recognizing and meeting children’s needs. Evaluation procedures will help account for children’s psychological and social growth while creating classroom conditions to maximize this growth.

This course is designed to assist elementary classroom teachers and those interested in literacy for early elementary students in using appropriate strategies for accessing meaning of text. This course will give ways to help students use and apply strategies in using reading and writing as ways of knowing for young children. Prerequisite: ED 516.

ED 613 Early Childhood Problems and the Teacher 3 hrs.
Deals with the concepts of discipline and questions of behavior. Teachers will acquire practical knowledge about research concerning children's social behavior and will review and apply systems for promoting prosocial behavior in their classrooms.

ED 614 Parent Education for Teachers of Young Children 3 hrs.
Presents a variety of techniques for teachers to use in working together with parents. Teachers will study child-rearing factors which parents must know to deal with these factors. The course will help teachers develop their own record-keeping systems, ways of involving parents in their children's education, and ways of making meaningful reports to parents. The education of parents as aides is included.

ED 615 Play and Young Children's Learning 3 hrs.
Students will develop understanding and appreciation of the nature of play in humankind, and of the relationship of play to humanity's artistic endeavor, invention, and problem-solving, and its look at play from historical and anthropological points of view. Emphasis will be placed on the stages of play in young children, and on the intimate relationship between play and young children's cognitive and affective development. Students will make practical application to their own curriculum for children.

ED 616 Piaget and Young Children 3 hrs.
This course examines significant contributions of Piaget to our understanding of young children’s learning. Knowledge of how young children think will be applied to early childhood curriculum. Teachers will apply Piagetian tasks and will be able to improve curriculum for young children with growing understanding of these children’s minds.

ED 617 Reading in the Content Areas 3 hrs.
Designed to acquaint elementary, middle school and high school teachers with reading strategies used in the primary grades. Participants will consider the text factors which affect student learning, and develop and evaluate strategies and materials to enhance their students’ learning in specific content areas.

ED 619 Clinical Studies in Reading 3 hrs.
This course is intended to provide the basic information needed in the examination of persons with reading disabilities. Interviewing techniques and examination procedures will be the basic content of the course. Emphasis will be placed on the educational, physical, psychological, and sociological factors affecting reading performance. Students will be provided with a knowledge of both standardized and informal reading tests. Students will have the opportunity to construct, administer, score, and interpret both standardized and nonstandardized reading tests. Emphasis will be placed on producing a practical bibliography of measurement instruments and materials. Prerequisite: ED 312 or 322.

ED 620 Educational Therapy in Reading 3 hrs.
Laboratory application of knowledge gained concerning the psychological, sociological, and physiological factors affecting children’s reading ability is stressed. The prevention, diagnosis, and treatment of reading problems is experienced through working with disabled readers. Students will become familiar with testing instruments, their use, administration, and interpretation. Students will also learn techniques of therapy and recognize those factors necessary for effective therapy. Prerequisites: ED 312 or 301 and 619.

ED 621 The Early Adolescent Learner 3 hrs.
Theoretical background and research related to the intellectual, emotional, perceptual, social, and personality development are presented and explored. Emphasis is placed upon problems teachers face with early adolescent learners and appropriate strategies for helping these students realize their potential.

ED 622 Middle School Curriculum 3 hrs.
This course examines the historical and philosophical foundations of middle level schools, effective organizational components, supporting research and current trends and issues affecting early adolescent schooling. An emphasis on how appropriate middle level schools strive to meet the developmental needs of young adolescents undergirds all topics. Prerequisite: ED 621.

ED 624 Middle School Methods and Materials 3 hrs.
This course presents instructional strategies designed to meet the developmental needs of young adolescents. It reflects the middle school philosophy by focusing on personal, skill, and cognitive development. Students
work in interdisciplinary teams on a group project. Other topics of concern to middle level educators are examined, including teaching responsibility, grading and evaluation, and whole brain learning. Prerequisites: ED 621 and 622.

ED 625 Strategic Learning through Texts for Middle School Teachers 3 hrs. This course is designed to assist middle school teachers in using appropriate strategies for accessing meaning of text. This course will give ways to help students use and apply strategies in using reading and writing as ways of knowing for middle school students. Prerequisite: ED 516.

ED 628 Curriculum Theory 3 hrs. This course provides students with an in-depth examination of significant historical and philosophical influences on curriculum, as well as important theoretical orientations within the field. The purpose of the course is to enable students to engage in critical reflection from theoretical perspectives on the purposes and practices of schooling, and to bring this critical reflection to curriculum planning and evaluation, and to their own teaching practices.

ED 635 Children, Science, and Technology 3 hrs. The course is intended to help elementary and middle school teachers capitalize on children’s natural interest. In this course students will explore a number of inexpensive and practical activities that teachers can use to encourage children to explore. The activities teach science processes; that is, they involve the children in processes of gaining knowledge similar to what scientists use in their development of scientific knowledge. The processes will include observing, measuring, classifying, recording, and problem solving. This course will explore different uses for computer technology including the World Wide Web. The course will also cover assessment issues for activity oriented science learning.

ED 636 Advanced Instructional Strategies for Elementary Teachers 3 hrs. This is an advanced course on teaching strategies at the elementary grade levels. The course focus is thematic and interdisciplinary. The course is intended to help teachers develop advanced strategies for making instructional connections among the basic disciplines of the elementary curriculum. In addition, the course includes technology and multicultural issues in teaching.

ED 643 Practicum in Clinical Studies in Reading 3 hrs. This course is intended to give students experience in applying informal and formal standardized instruments and techniques necessary for the diagnosis and treatment of the disabled reader. The course emphasizes the use of various measurements pointing out their capabilities and limitations. Skills in interviewing, observing, diagnosing, planning, treatment, and working with parents and school personnel are emphasized. Prerequisites: ED 619 and 620.

ED 652 Oracy and Literacy 3 hrs. The course explores the foundation of language, language acquisition, language development, and the role of oral language and literacy. The role of oral language, applied linguistics, and dialects is studied and applied to the literacy process.

ED 653 Practicum in Reading Therapy 3 hrs. This course affords students the opportunity to build on competencies attained in ED 643. Reading therapy is offered on a one student to clinician basis under the direction of a trained clinical therapist. The course serves as an instructional internship for working with pupils who have problems in reading and related areas. The course will provide graduate students practice in setting up prescriptive instructional objectives, selecting materials in terms of need, and carefully designing instructional procedures for disabled readers. Prerequisites: ED 619, 620, 643.

ED 656 Creating and Administering a Balanced Literacy Program 3 hrs. This course affords an opportunity to investigate and explore procedures to organize and administer elementary and secondary reading programs. The course will have students examine existing programs and study models of balanced literacy programs to improve upon existing programs. This course is intended to employ the best practices in the literacy research to create and administer a balanced literacy program, kindergarten throughadult basic education.

ED 670 School Climate and Discipline 3 hrs. This course is designed for teachers and administrators who wish to develop a school or classroom climate which maximizes learning and minimizes discipline problems. Emphasizes new approaches to working successfully with problem students and classes.

ED 671 Structuring Classroom Dialogue 3 hrs. This course is designed to assist teachers in the development of their ability to conduct dialogue in a classroom. Each student prepares lessons, presents them to a small group of students, and is videotaped and critiqued with each presentation. Some ethnographic research methods are presented and applied during this course, specifically the use of fieldnotes, journals, and transcription as well as observation and self-observation methods. In addition, the course is designed to instruct the student about the ancient historical roots of dialogue, its transmission throughout the history of the western world, and the role that dialogue has played and continues to play in human interaction and learning. Students must be teaching or have access to a classroom for necessary application of course content.

ED 676 Teaching Thinking in the School 3 hrs. This course investigates the issues involved in teaching thinking in classrooms. The focus is on the wide variety of current programs and materials and their underlying concepts. Students will learn to influence the teaching of higher level thinking skills into the curriculum.

ED 679 Capstone Research Project 3 hrs. Completion of an advisor-approved research, application, and curriculum project related to the student’s professional practice. Project must reflect a synthesis of skills and knowledge from all core course work, but at the same time represent a practical application product which can be completed in a one semester time frame. Students will identify and define the nature and scope of the capstone project prior to enrollment in this course, and enroll when completion of the project is planned. Prerequisites: Completion of Master of Arts in Education and Professional Development core courses, program concentration courses, and advisor permission.

ED 680 Early Literacy Learning 3 hrs. Focused on literacy acquisition, this course explores how the young learner creates a network of competencies which generate subsequent independent literacy learning. Explanations of change over time in a child’s control of literacy learning from school entry until the independence at the third year of schooling are emphasized. This cognitive view of literacy processes in a developmental perspective will explore different programmatic emphases which enable the young reader to extend the range and effectiveness of strategic reading.

ED 681 Reading and Writing with Young Children 3 hrs. Reviews the developmental aspects of early writing and reading with young children providing insights for the creation of programs in early literacy development. It aims to develop understanding of the literacy processes, helping teachers create an environment in which learners interrogate oral language learning, learning to read, and learning to write. The relationship of early writing to early reading is a model of interactive assessment with the teaching and learning cycle is stressed. Emphasis in this course will focus primarily on early writing, with a subordinate role for reading instruction.

ED 687 Strategic Learning through Texts for High School Teachers 3 hrs. This course is designed to assist high school classroom teachers and those interested in literacy for high school students in using appropriate strategies for accessing meaning of text. This course will give ways to help students use and apply strategies in using reading and writing as ways of knowing for high school students. Prerequisite: ED 516.

ED 693 Middle School Education Seminar 3 hrs. This seminar serves as the capstone experience for the Teaching in the Middle School master’s program. It provides a forum for synthesizing and integrating the content of prior course work, further examining research and exploring middle level education issues. Students examine curricular issues with an emphasis on integrative approaches to organizing knowledge and then identify topics for study based on their professional interests and goals. These topics are explored along with a variety of middle level education issues and their policy implications. Students identify a culminating project and conduct a review of literature pertaining to the project. Projects are completed in ED 694.

ED 694 Middle School Project 3 hrs. Students continue their investigation of middle level education issues identified in ED 693. The main focus of the course is the completion of the previously identified culminating project. Students work independently on their projects with periodic class sessions designed to discuss education issues and project progress. Students present their projects for critical review and analysis. Prerequisite: ED 693.

ED 695 Reading Seminar 3 hrs. This course is designed to be the culminating course in each of the three streams of the master’s program in reading and is designed to acquaint teachers, reading specialists, and administrators with the current research and literature pertinent to their areas of
specialization. Students should be able to demonstrate an ability to design reading research studies which contribute to the body of knowledge in reading. As this course is intended as the capstone course, it must be taken in the last six hours of graduate work.

ED 697 Special Topics in Reading 1-3 hrs.
A variable credit course designed to provide a vehicle for the development and implementation of special topics in the field of literacy. The purpose is to provide students with the opportunity to study topical current issues.

ED 698 Resolving Educational Problems in the Schools 1-4 hrs.
With variable topics and variable credit, this course is offered for in-service teachers, supervisors, and administrators who come together to solve school problems which they are encountering in the field. Problem-solving techniques, theoretical and evidential support for solutions, and workshops will be applied to actual school or classroom situations. The topic of the course will be stated in the Schedule of Course Offerings. Each time the course is offered, students may repeat this course, providing topics vary. No more than six hours of 698 may be applied toward a graduate degree.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

ED 700 Master's Thesis 6 hrs.

ED 710 Independent Research 2-6 hrs.

ED 712 Professional Field Experience 2-12 hrs.

Educational Leadership Courses (EDLD)

Open to Graduate Students Only

EDLD 600 Academy 1-4 hrs.
Topics of interest to professionals in the field of educational leadership are examined in academies offered by the department. May be repeated. Total credits earned in academies applicable to degree programs not to exceed four hours. Graded on a Credit/No Credit basis.

EDLD 601 Workshop Seminar 1-4 hrs.
Specialized studies requiring integration of theory and practice with application of topics studied provided through site practices, (e.g., personnel evaluation, use of personnel assessment techniques, evaluation of curriculum and instruction). May be repeated. May not be applied to degree programs in educational leadership. Total credits not to exceed six hours.

EDLD 602 Educational Leadership 3 hrs.
This course is an introduction to educational leadership and leadership theory and practice. It provides the foundation for leadership in educational programs and institutions. Students will be required to demonstrate an understanding of transformational leadership and other leadership theories, effective communication and problem solving, motivation and decision making, organizational change and renewal, and consensus building and conflict resolution.

EDLD 604 Contemporary Educational Scene 3 hrs.
Study and critical analysis of issues and trends influencing design, funding, and delivery of educational programs. Special emphasis on changes in societal expectations and values. Discussion of multicultural and international issues and needs of special populations and groups. Prerequisite: EDLD 602.

EDLD 606 Systems Thinking 3 hrs.
This course will focus on steps that leaders take in developing and maintaining a learning organization. The emphasis will be on providing students the tools to develop productive long-term organizational relationships that contribute to worker satisfaction and increased worker commitment. Students will be required to provide a rational for systems thinking, establish a framework to develop team learning, and demonstrate an understanding of shared vision, laws of the fifth discipline, organizational learning disabilities, archetypal patterns, and the importance of systems thinking on mental moods. Prerequisites: EDLD 602 and EMR 640 or ED 601.

EDLD 609 Theories of Leadership 3 hrs.
Critical examination of principles of leadership theory construction; practice with and development of skills in evaluating contending theoretical perspectives regarding leadership. Prerequisite: Admission to the doctoral program.

EDLD 660 Site Based Budgeting 3 hrs.
Development of knowledge and skills needed in decentralized (site based) budgeting. Topics include budgeting theories and budgeting processes. The course examines the impact of process on the budgetary decisions of revenue, expenditure, balance, and implementation. Advantages and disadvantages of site based budgeting are examined as well as issues of accountability and equity. Prerequisites: Recommended EMR 640 and EDLD 602 or equivalent.

EDLD 661 School Law 3 hrs.
Study of federal and state constitutions, legislation, regulatory guidelines, and court decisions as related to operation of educational institutions and organizations. Development of awareness and knowledge of legal parameters related to education. Students will be required to synthesize legal mandates and district responsibilities, apply knowledge of common law and contractual requirements, analyze constitutional provisions such as the separation of church and state, analyze special education litigation, and demonstrate an understanding of legal provisions for student participation, student and parent rights, and liabilities. Completion of EDLD 602 before enrollment in EDLD 661 is recommended.

EDLD 662 School Business Management 3 hrs.
Development of knowledge and skill in management of business operations in schools: budget planning, budget management, standardization, accounting, inventory of equipment and supplies, use of standard budget forms, preparation of required reports. Students will be required to analyze fiscal and non-fiscal resources, plan for faculty and staff involvement in efficient budget planning and demonstrate an understanding of managing financial and material assets, school accounting procedures, consensus building, and budget evaluation. Prerequisite: EDLD 602.

EDLD 663 Personnel Administration 3 hrs.
Systematic study of personnel administration tasks and functions as applied to education and training. Subtopics include recruitment, selection, orientation, supervision, appraisal, and development of personnel. Emphasis placed on understanding of standards for legal and valid personnel administration practices. Effects of styles and behaviors on employee satisfaction and/or productivity are studied. Prerequisites: EDLD 602 and 640.

EDLD 664 Curriculum Development 3 hrs.
This course will provide an introduction to the principles of curriculum and instructional alignment, design, implementation, and evaluation. There will be a strong focus on the foundations and history of curriculum inquiry and school reform, hidden curriculum, ideology, and culture as they affect the organization and administration of the scope and sequence of curricular offerings in educational institutions. Students will be required to design a curriculum aligned with standards, benchmarks, and standardized tests. In addition, students will be required to demonstrate knowledge of ideological critique, effective instructional strategies, the use of technology, and curriculum evaluation. Prerequisites: EDLD 602 and EMR 640 or ED 601.

EDLD 665 The Elementary Administrator 3 hrs.
This course provides a systematic study of the tasks and functions of elementary and middle school administration. Emphasis is given to planning within the context of the community, leadership, and administrative decision making. Students will be required to develop a vision statement and strategic plan based upon the principles of transformative leadership, appraise the duties to various building staff members, and demonstrate an understanding of scheduling, parent and community involvement, procedures that support a safe and positive school climate, motivational strategies for effective instructional leadership, and legal and contractual issues related to the principalship. Prerequisites: EDLD 602 and EMR 640 or ED 601.

EDLD 670 The Secondary Administrator 3 hrs.
This course provides a systematic study of the tasks and functions of middle school and secondary school administration. Emphasis is given to planning within the context of the community, planning and evaluation for program development and school improvement, and planning for supervision of personnel and programs. Students will be required to develop a vision statement and strategic plan based upon the principles of transformative leadership, appraise the duties to various building staff members, and demonstrate an understanding of scheduling, parent and community involvement, procedures that support a safe and positive school climate, motivational strategies for effective instructional leadership, and legal and contractual issues related to the principalship. Prerequisites: EDLD 602 and EMR 640 or ED 601.

EDLD 672 School Finance 3 hrs.
Intensive instruction and discussion of political and economic value premises involved in the funding and financing of schools. Critical examination of alternative patterns for design of public funding formula and practices for funding public schools. Consideration of patterns of fiscal resource development other
than public funds as a means of financing public or private education. Completion of EDLD 662 before enrollment in EDLD 672 is recommended. **Prerequisites:** EDLD 602 and 640.

**EDLD 673 Supervision**
3 hrs.
This course is a study of the principles and practices for the effective supervision of personnel. It will focus on the principles of developmental supervision, mentoring, professional development and renewal, and effective instruction. Students will be required to demonstrate understanding of effective instruction and how to develop a learning organization that supports instructional improvement, models of effective staff development and school renewal, and mentoring and clinical supervision that enhance growth and development. Special attention is given to differing perspectives on the supervision function within organizational contexts. **Prerequisites:** EDLD 602 and EMR 640 or ED 601.

**EDLD 674 School Community Relations**
3 hrs.
This course will provide a thorough examination of the school and its interaction with the community. Consideration will be given to internal and external "communities" and the relationships between and among the communities of the school as an organization. Role of communications in school-community relations and consideration of the balance of rights and responsibilities between schools and communities will also be addressed. Students will be required to conduct a needs assessment, establish a conflict resolution program and a crisis intervention plan, and demonstrate an understanding of public relations, communication, evaluation of school-community relations. **Prerequisite:** EDLD 602.

**EDLD 679 Capstone Experience**
3 hrs.
The capstone is a combination of an eighty-seven hour supervised internship and thirty-three hours of class work. The purpose of the capstone is to merge theory with practice through discussion, case studies, simulations, completion of field-based assignments, and interaction with educational leaders in public and private schools. **Prerequisites:** Students must complete all courses required in the Master of Arts in Educational Leadership prior to registering for EDLD 679.

**EDLD 680 The Superintendency**
3 hrs.
Examination of the line and staff roles involved in the superintendency with emphasis on the role of the superintendent of schools as the chief executive officer in school and school-related organizations. **Prerequisites:** Master of Arts in Educational Leadership or equivalent and permission of advisor.

**EDLD 681 Policy Development**
3 hrs.
The content of this course includes examination of policy issues, purposes, functions, methods, and approaches for policy development. Critical review of development of policies for educational institutions. **Prerequisites:** Master of Arts in Educational Leadership or equivalent and permission of advisor.

**EDLD 682 Computer Applications in Administration**
3 hrs.
Study, design, and application of computer technologies in performance of administrative functions and tasks in educational organizations. **Prerequisite:** Permission of advisor.

**EDLD 683 School Facilities Planning**
3 hrs.
This course will provide a study in evaluation, design, and planning of the present and future facilities and equipment requirements for the school organization. Attention will be given to the educational program and stated philosophy of schools and to the present and future needs of the student and the learning environment respective to facilities development. Integration of technology in the planning and design of facilities will be addressed as well as the human physiological and psychological needs. Current state and Federal regulations will be reviewed as they relate to new facilities and to remodeling of current facilities. **Prerequisites:** EDLD 602 and 640.

**EDLD 690 Professional Development Seminar**
3 hrs.
Field-based and performance-based application of knowledge to major function/task areas of leadership in organizations with emphasis on schools as organizations. Emphasis on career planning and placement for persons enrolled. May be repeated. Total credits not to exceed six hours. **Prerequisite:** EDLD 602 or permission of instructor.

**EDLD 695 Dissertation Seminar**
3 hrs.
This seminar is designed for the doctoral student who has identified the topic for his/her dissertation research and will focus on the production and evaluation of proposals for the doctoral dissertation. Graded on a Credit/No Credit basis. **Prerequisites:** Successful completion of departmental core comprehensive examination, simultaneous registration in one hour of EDLD 730, and approval of advisor.

**EDLD 698 Readings in Educational Leadership**
1–4 hrs.
Directed individual study of topics or bodies of knowledge not otherwise treated in department courses. A maximum of four hours earned in EDLD 698 is applicable on degree programs. **Prerequisite:** Permission of advisor.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

**EDLD 700 Master’s Thesis**
6 hrs.

**EDLD 710 Independent Research**
2–6 hrs.

**EDLD 712 Professional Field Experience**
2–12 hr.

**EDLD 720 Specialist Project**
6 hrs.

**EDLD 725 Doctoral Research Seminar**
2–6 hrs.

**EDLD 730 Doctoral Dissertation**
15 hrs.

**EDLD 735 Graduate Research**
2–10 hrs.
The College of Engineering and Applied Sciences is dedicated to excellence in education and research. Academic programs educate students for life-long learning and responsible professional leadership in the global community. Research addresses both knowledge generation and application to real-world challenges. Our faculty, staff, and students serve as a resource to our constituents, including business and industry. Graduates of our programs are well prepared for professional careers in basic or applied research and in application of engineering principles to the marketplace.

The College of Engineering and Applied Sciences offers the Master of Science in Engineering in Computer Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering. It offers the Master of Science in Computer Science through the Department of Computer Science; the Master of Science in Management, in Manufacturing Engineering, and in Operations Research through the Department of Mechanical Engineering; a Master of Science in Materials Science and Engineering and in Construction Management through the Department of construction Management, Engineering, Materials Engineering, and Industrial Design, and the Master of Science in Paper and Imaging Science and Engineering through the Department of Paper and Printing Science and Engineering. It offers the Doctor of Philosophy in Computer Science, in Electrical and Computer Engineering, in Industrial Engineering, in Mechanical Engineering, and in Paper and Imaging Science and Engineering.

Course descriptions: Numbers following the course title indicate hours of lecture and laboratory per week during a semester (lecture hours—laboratory hours).

Academic Units:
- Computer Science
- Construction Engineering, Materials Engineering, and Industrial Design
- Electrical and Computer Engineering
- Industrial and Manufacturing Engineering
- Mechanical and Aeronautical Engineering
- Paper and Printing Science and Engineering

COMPUTER SCIENCE
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Dalia Motzkin
Donald Nelson
Thomas F. Piątkowski, Graduate Program Director
Li Yang

Master of Science in Computer Science
Advisor: Donald Nelson, Room 3308, Friedmann Hall

The master's program in computer science emphasizes both computer software development and the theoretical foundations of computer science. It is designed to prepare students for professional positions in business, industry, and government and to provide preparation for graduate work at the doctoral level.

Areas of faculty specialization include algorithmic complexity theory, artificial intelligence, computational geometry, computer architecture, computer graphics, computer networking, cooperative problem solving, data warehousing and mining, distributed and mobile data bases, expert systems, fault-tolerant computing, formal specifications, human-computer interaction and visualization, knowledge-based systems, language and automata theory, logic programming, mathematical and computer modeling, multimedia databases and systems, neural networks, parallel and sequential algorithms, pattern recognition and image processing, scientific computing and numerical analysis, simulation, and software engineering. The program also permits student to acquire expertise in closely related fields such as computer engineering and mathematics.

The master's program is designed to allow a full-time student entering with a strong undergraduate background in computer science to complete all degree requirements within sixteen months. However, it is not uncommon for a student to take somewhat longer.

Admission Requirements
A successful applicant to the master's program in computer science must satisfy:

1. All of the general admission criteria identified in the Graduate Catalog.
2. Submission of transcripts of prior education. Applicant should have earned or expect to earn an undergraduate degree in a program with significant computer science and mathematics content.
   a. In computer science: Computer assembly language, computer organization, data structures, object-oriented and structured programming, file structures, and logic design.
   b. In mathematics: Calculus (2 semesters), linear algebra, and discrete structures.

The department welcomes applications to the master's program from strong students who do not have a computer science undergraduate degree but have completed at least two calculus courses and two programming courses at the university level prior to applying. A student applying without a computer science undergraduate degree may be given conditional admission and asked to complete with a grade of B or better designated undergraduate courses from the following list:
   a. CS 111 Computer Science I
   b. CS 112 Computer Science II
   c. CS 223 Computer Organization and Assembly Language
   d. CS 224 Systems Programming Concepts
   e. CS 331 Data and File Structures
   f. ECE 250 Digital Logic I
   g. MATH 122 Calculus I
   h. MATH 123 Calculus II
   i. MATH 145 Discrete Mathematical Structures
   j. MATH 230 Elementary Linear Algebra

Due to the sequential order in which some of the prerequisite courses must be taken, students admitted on a conditional basis may not initially be able to take a full-time course load in only computer science courses.

3. While Graduate Record Examination scores are not required for admission to the master's program, applicants are encouraged to submit them.
4. The TOEFL examination result is required for international students.

Program Requirements
Each student must complete an approved program consisting of at least 33 hours of graduate work including the following:
1. CS 580 and 531 (6 hours).
2. CS 691 (1–3 hrs.)
3. Additional approved electives chosen from CS 516, 525, 526, 527, 530, 532, 540, 543, 554, 555, 581, 582, 589, 599, 625, 626, 627, 628, 631, 632, 633, 634, 640, 643, 655, 660, 661, 672, 679, 680, 681, 682, 685, 697, 699, 700, 710, and MATH 507, 567, 607, 637, 640 for a program total of 33 hours. (NOTE: At least fifteen of the program hours must be at the 600-level or
has met all other entrance requirements may be advised for admission to the Ph.D. program.

3. Submission of the results of the verbal, analytical, quantitative, and computer science area portions of the Graduate Record Examination (GRE). A student with a master’s degree in an area other than computer science may substitute the specialty examination in that area.

4. Submission of three letters of reference from persons able to assess the student’s qualifications for doctoral-level study and likelihood of success; the student and referents will be notified of the forms and procedures available from the department.

5. Submission of a resume that includes a description of academic background and work experience.

6. Submission of an essay describing the applicant’s academic and professional objectives.

7. For international students, the submission of the TOEFL examination result.

Program Requirements

The program of study is designed to allow considerable variety of emphasis; student can take advantage of the strengths of the department in matching their interest in professional development.

A successful candidate for the Ph.D. in Computer Science is responsible for all the general requirements for a doctoral degree as stated in the Graduate Catalog. The remainder of this section restates some of the general requirements and includes additional requirements specific to the doctoral program in computer science.

1. A student having prerequisite requirements as a condition of admission must complete all prerequisites before being considered to have entered the doctoral program.

2. The Ph.D. in Computer Science requires beyond the student’s master’s degree the completion of at least 30 hrs. of course work and 12 to 24 hours of dissertation credits. This implies a total of at least 72 credit hours of graduate work. The following courses are required of each student before completion of the Ph.D. program:

   a. In addition, each doctoral student during the student’s first year in the program will need to complete two to three credit hours of CS 735 accompanied by the production of a technical report.

   b. Each doctoral student will be required to complete two computer science seminar courses for one to three credits each hour, with at least one during the first year in the program.

3. Each Ph.D. candidate must obtain departmental approval and demonstrate mastery of two of the following three research areas.

   a. A foreign language other than English, with competency equivalent to a 400-level course at WMU;

   b. Statistics or probability the level of MATH 362 or MATH 364;


4. Before admission to Candidacy for the doctoral degree, the student must pass a general qualifying examination in Computer Science. Students admitted with a master’s degree must take on qualifying examination no later than the first time offered after completion of 15 credit hours and must take a second examination no later than the first time offered after completion of 390 credit hours. All students must take all their qualifying examinations no later than the first time offered after completion of 45 credit hours. A student has one opportunity to repeat the qualifying examination. There are five examination topic areas in two categories as follows:

   a. Systems: Computer architecture (CS 525, CS 625); Compiler design (CS 581, 681); Operating systems (CS 554, CS 655).

   b. Theory: Design and analysis of algorithms (CS 531, CS 631); Theory of computation (CS 580, CS 680). The student must select three of the five areas for his or her qualifying examination, with at least one exam from each category. These students may have the opportunity to repeat a portion of the qualifying examination once, but may not change the selected areas.

The department must approve the area(s) of the examination, if any, the student must repeat.

5. Each doctoral candidate must obtain approval from his or her dissertation committee for a dissertation topic and research plan. This approval process is called the preliminary examination and is structured by each dissertation committee to fit each candidate’s program. The preliminary examination must be completed within one year after passing the qualifying examination and at least one year in advance of the dissertation defense. A candidate has one opportunity to repeat the preliminary examination.

6. The dissertation examination, which is the culmination of an original and substantive research effort by the candidate, must be completed and publicly defended. This study is done under the supervision of a dissertation director and dissertation committee. A dissertation director is appointed by the department, typically within the candidate’s first two years in the doctoral program and based on the candidate’s interests.

The doctoral dissertation committee is appointed by the Graduate College based on the petition of the candidate and the approval and recommendation of the department chair. The doctoral dissertation committee is comprised of the dissertation director and at least two other members. All members must have the graduate faculty, at least one of whom shall be from outside the department. Committee members facilitate and guide the candidate’s academic and research development.

Before a candidate is awarded the Ph.D. degree, each member of the doctoral dissertation committee must sign the dissertation. The completed dissertation is presented by the candidate at a public seminar and oral defense.

Financial Assistance

Students accepted into the doctoral program may apply for one of the department's numerous graduate teaching and research assistantships. Graduate internship opportunities with local industries are also available. Applications for teaching and research assistantships should be sent directly to the Department of Computer Science. The forms and instructions for applying for financial assistance can be obtained from the department and the departmental website. Information about non-departmental assistantships, fellowships, tuition remission, special assistance for minority graduate students, general research funds, and tuition grants is available from The Graduate College.

In addition, advanced Ph.D. students may apply for one of a limited number of doctoral associateships. Student loans and other federal, state, and University need-based financial aid programs are also available. Applications for teaching assistantships and non-departmental assistantships and fellowships, tuition remission, special assistance for minority graduate students, general research funds, and tuition grants is available from The Graduate College and at the departmental website.
Office of Student Financial Aid and Scholarships.

Computer Science Courses (CS)

Open to Upperclass 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 500-level courses.

CS 503 Programming the Microcomputer for Teachers
3 hrs.
A course in programming at an intermediate level for teachers. An introduction to file handling and graphics on small computers will be provided. Flowcharting, top-down design and the development of algorithms are stressed. Some programming projects in each teacher’s area of interest will be assigned. Not for Computer Science majors or minors (except teaching). Prerequisite: CS 502 or equivalent experience.

CS 518 Introduction to Computer Modeling and Simulation
3 hrs.
An introduction to random variables and elementary frequency distributions is provided. Simulation as a tool for exploring ill-defined systems will also be discussed. Several small programs and a simulation project will be assigned the student. Prerequisites: CS 331 and a course in probability or statistics.

CS 525 Computer Architecture
3 hrs.
General topics in computer architecture, memory systems design and evaluation, pipeline design techniques, RISC architectures, vector computers, VLSI systems architecture. Prerequisites: CS 224, CS 225, or CS 251, and CS 331.

CS 526 Parallel Computations I
3 hrs.
Covers architecture, synchronization and communication aspects of parallel and distributed systems. This course will focus on the design and analysis of algorithms which have a prototype treatment on current machines. These algorithms may include parallel sorting, combinational search, graph search and traversal, applications in graphics, 2-d finite differences, 2-d finite element techniques, matrix algorithms and the Fast Fourier Transform. Prerequisite: CS 331.

CS 527 Theory of Computer Graphics
3 hrs.
A first course in the design of interactive computer graphics systems. Currently available hardware and software systems are described. Emphasis is on theoretical considerations in the design of interactive computer graphics software systems. Prerequisites: CS 331 and MATH 230.

CS 530 Artificial Neural Systems
3 hrs.
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 a neural net (architecture, activation functions, weighting scheme) will be characterized. Standard algorithms will be presented including Hopfield nets, linear associative models, bidirectional associative memories, and adaptive resonance models. The student will use neural net software to experiment with standard models and to develop an application for a project. Prerequisites: CS 331. An introductory statistics course is recommended.

CS 531 Design and Analysis of Algorithms
3 hrs.
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 2-3 search trees and a variety of data structures are discussed along with their applications to algorithm implementation. Algorithms will be analyzed for their complexity. NP-completeness will be introduced. Prerequisites: CS 331 and MATH 145 or equivalent.

CS 532 Introduction to Evolutionary Computation
3 hrs.
Introduction to optimization algorithms which operate using the principles of Darwinian evolution. Both underlying theory and applications. Genetic algorithms, evolutionary programs, and evolution strategies. This course is cross-listed with ECE 532. Prerequisite: CS 331.

CS 540 Designing of User Interfaces
3 hrs.
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. Prerequisite: CS 340 or permission of instructor for undergraduate students. No prerequisite for graduate students in Computer Science.

CS 543 Principles of Database Management Systems
3 hrs.
The fundamental concepts of database design and efficient usage are presented. Topics include: overview of database systems; the three data models—relational, hierarchical, and network; conceptual, logical, and physical database design and evaluation. The design theory of relational data models and the query language will be emphasized. Query languages, query optimization, security, integrity, and concurrency protocols will also be covered. A student may receive credit for both CS 443 and CS 543. Prerequisite: CS 331.

CS 554 Operating Systems
3 hrs.
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, communication and synchronization, deadlocks, scheduling, shared resources, resource allocation, and deadlocks, 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: CS 224 and CS 331.

CS 555 Computer Networks and Distributed Systems
3 hrs.
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 communication. Prerequisites: CS 224 and CS 331.

CS 560 Theory of Computation
3 hrs.
Provides an introduction to the theory of computation in the framework of programming languages. Basic definitions and concepts dealing with algorithms, sets, relations, functions, induction, operations on functions and cardinality are covered. Primitive and partial recursive functions and their properties treated with application to coding techniques. The Chomsky hierarchy of languages, including recursive and recursively enumerable sets and their acceptors, is introduced. Students are assigned theoretical as well as implementation oriented problems. Prerequisites: CS 331 and MATH 145.

CS 581 Compiler Design and Implementation
3 hrs.
Students are introduced to major aspects of compiler design. These include lexical analysis, parsing, and translation. Each student will implement a small compiler using modern compiler writing tools. Prerequisite: CS 485 or CS 550.

CS 582 Artificial Intelligence
3 hrs.
This course provides an overview of artificial intelligence including basic AI techniques and concepts, e.g., production systems, heuristic searching techniques, knowledge representation, predicate calculus, and pattern recognition. It introduces AI applications such as game playing, expert systems, computer vision, natural language processing, and learning. Prerequisite: CS 331.

CS 595 Advanced Topics in Computer and Information Science
1–3 hrs.
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. Prerequisite: Approval of department.

CS 599 Independent Study in Computer Information Science
1–3 hrs.
Subjects 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. Prerequisite: Written approval of instructor.

Open to Graduate Students Only

CS 603 Studies in Computer Science
3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once. Prerequisite: Approval of department.

CS 625 Advanced Computer Architecture
3 hrs.
Multiprocessor architectures, various interconnection networks, communication and
This course will focus on advanced topics in Parallel Computations, such as on algorithms in the areas of graph algorithms, numerical algorithms, computer graphics and VLSI design, and on aspects of operating systems and languages. Students will be expected to read research papers and complete a semester project involving the use and implementation of parallel programming paradigms on current machines. **Prerequisite:** CS 526.

**CS 627 Computer Graphics II** 3 hrs. A course in advanced computer graphics topics selected from current research. Some of the areas of interest include visualization of complex processes, full motion video, virtual reality, client/server protocols and parallel image rendering. Emphasis is on research, and students are expected to participate in a research project with a faculty member during the course. **Prerequisite:** CS 527.

**CS 628 Parallel Scientific Computations** 3 hrs. This course will focus on the design and analysis of parallel numerical algorithms to solve problems such as singular value decomposition and the solution of linear systems for structured/banded and sparse matrices; partial differential equations; and multivariate numerical integration. Applications may include the solution of wave equations, hydrodynamic flow, particle dynamics, finite element applications and Monte Carlo methods. **Prerequisites:** CS 526 and MATH 230.

**CS 631 Advanced Data Structures** 3 hrs. Stresses the representation and implementation of various data structures. The effect of data structures on program complexity is investigated. The use of data structures in a variety of application areas are covered. Introduces complex data structures. **Prerequisite:** CS 531 or 580.

**CS 632 Analysis of Computer Algorithms** 3 hrs. Computing time and space requirements of algorithms are analyzed with emphasis given to the effect of data structure choice on program complexity. Various abstract models of computation are considered. Methods for proving program correctness and the related problems are identified. Students implement a number of algorithms on a computer and discuss aspects of the complexity and correctness of their programs. **Prerequisites:** CS 531 and 580.

**CS 633 Computational Geometry** 3 hrs. Design and analysis of algorithms for computational geometry problems and discussion of applications in databases, computer graphics and VLSI design. Specific topics may include Geometric Formulation, Geometric Searching, Point Location, Multidimensional Problems, Range Trees, Convex Hulls, Simple Polygons, Voronoi Diagrams, and the Geometry of a Rectangle. **Prerequisite:** CS 631.

**CS 634 Combinatorial Optimization** 3 hrs. This course will treat the foundations of mathematical programming and analyze the computational complexity of algorithms in this area. The topics may include: linear programming, algorithms for max-flow, min-cost and shortest path problems, weighted matching, integer and 0/1 linear programming, nonlinear programming techniques, approximation algorithms, branch-and-bound and dynamic programming methods of 0/1 programming, and properties of local search. **Prerequisite:** CS 631.

**CS 640 Advanced Design of User Interfaces** 3 hrs. A course in advanced interaction techniques drawn from the current literature. Topics of interest include information search and display, visualization, virtual reality, and hypermedia interactions. **Prerequisite:** CS 540 or permission of instructor.

**CS 643 Advanced Data Base Management Systems** 3 hrs. This course is an in-depth study of data base management systems with concentration on efficient design and usage. Topics covered include: the design of data models, the theory of relational data bases, query optimization, recently developed protocols to guarantee consistency of data bases, the design of physical models, and performance analysis techniques. Algorithms and data structures such as B-trees, transposed files, phantom flies and hybrid structures are also studied. Distributed data bases, data base machines, and current query languages will be covered. **Prerequisites:** CS 331 and CS 543.

**CS 655 Advanced Operating Systems** 3 hrs. Advanced and current topics in operating systems research will be discussed. Analysis of competing techniques will be undertaken to present a better understanding of tradeoffs in design decisions. Modeling and performance evaluation will also be presented. A detailed and theoretical view of the basic operating system concepts will be emphasized. Programming assignments involving simulation and performance evaluation will be required. **Prerequisite:** CS 554.

**CS 660 Software Engineering I: Formal Specifications of Software Systems** 3 hrs. Students will be introduced to various models of software life cycles. The remainder of the course will focus on formal methods for specifying requirements and design. Students will be introduced to a number of formal systems using axiomatic specification, set theoretic systems (e.g., Larch), and specification based on abstract models using Parnell, PAISLEY, CSP, SF and others. Examples and exercises illustrating the use of several formal systems will be given. Student teams will be expected to complete the specification of requirements and design of a project using one of the methods presented. **Prerequisites:** CS 331 and MATH 145.

**CS 661 Software Engineering II: Verification and Validation of Software Systems** 3 hrs. Students will become familiar with the terminology and will learn the limitations of verification and validation (V and V) approaches. Five approaches will be presented: technical reviews, testing, proofs of correctness, simulation and prototyping, and requirements traceability. Students will define a V and V plan and carry it out for several stages in the development cycle of a project. **Prerequisite:** CS 660.

**CS 672 Pattern Recognition** 3 hrs. A survey of modern methods for computer recognition of patterns in varied applications such as digital images, human speech and sound, and grammar-based sequences. Various approaches are developed, including heuristic search, Fourier analysis, Markov models, template matching, and grammatical inference. Computational aspects and efficiency of different methods and algorithms are emphasized. Students must complete a project using methods developed in the course. **Prerequisites:** CS 531 or CS 532, and MATH 364.

**CS 679 Theory of Computation II** 3 hrs. Recursive, partial recursive and primitive recursive functions, properties of recursive and recursively enumerable index sets, decidability, Turing computability and reducibility are treated in depth, while certain problems are proved to be unsolvable. Concepts from computational complexity, including relationships between complexity classes are covered. **Prerequisite:** CS 580.

**CS 680 Mathematical Theory of Formal Languages** 3 hrs. Definition of grammars and languages, recursive and recursively enumerable sets, decidability and undecidability, the Chomsky hierarchy of languages and grammars and models of automata. **Prerequisite:** CS 580.

**CS 681 Compiling Theory and Practice** 3 hrs. A study of theoretical and applied strategies for designing compilers for various types of language translation systems. Students will be assigned a programming project on compiling. **Prerequisite:** CS 581.

**CS 682 Advanced Artificial Intelligence** 3 hrs. This advanced A.I. course examines current research in one or more artificial intelligence application areas, e.g., computer vision and image processing, natural language and speech processing, expert systems, computer learning or other A.I. topics. **Prerequisite:** CS 582.

**CS 685 Foundations of System Specification** 3 hrs. Semi-formal and formal specification of abstract and real-life systems, with emphasis on computer software and hardware systems and using the State-System Specification Language. State and behavior modeling approaches and specification design philosophy. Theoretical foundations with practical application examples. Implications for validation, implementation, and testing. Alternative modeling techniques. **Prerequisites:** Graduate level competency in one of the following areas: computer architecture (ECE 357 or CS 526) or operating systems (CS 554), or computer networking (CS 555), or control theory, or switching and automata theory (CS 580); or permission of instructor.

**CS 691 Seminar in Computer Science** 1-3 hrs.

**CS 697 Master’s Project** 2-6 hrs. Students will work on a special project in the computer science area. A technical report on the results of each student’s project must be approved by the course instructor and published as a departmental technical report. Graded on a Credit/No Credit basis. Credit cannot be used for both CS 697 and CS 700 in a student’s master’s program. **Prerequisites:** Graduate level competency in computer science and the subject area of the project. Approval of the instructor and the department required.
CONSTRUCTION ENGINEERING, MATERIALS ENGINEERING, AND INDUSTRIAL DESIGN

Dr. James Nelson, Chair
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The Department of Construction Engineering, Materials Engineering, and Industrial Design offers two graduate degree programs, the Master of Science in Construction Management and the Master of Science in Materials Science and Engineering. Courses are offered in the evenings and in off-campus locations to enable working students to study without quitting their jobs. The programs are designed to enable qualified full-time students to complete their studies within two years and fully employed students within three years.

Master of Science in Construction Management

Advisors:
James Nelson,
Room 2007, Kohrman Hall

The principal objective of persons working in the field of construction management is to facilitate completion of each construction project on time and within budget while maintaining an acceptable level of quality. Other objectives include the maintenance of good safety records, efficient operations, quality workmanship, and proper and adequate labor relations with other employees.

The principal objective of persons working in the field of construction management is to facilitate completion of each construction project on time and within budget while maintaining an acceptable level of quality. Other objectives include the maintenance of good safety records, efficient operations, quality workmanship, and proper and adequate labor relations with other employees. Western Michigan University's Master of Science in Construction Management is aimed at graduates of engineering and technology programs who want to play an active role in the management of local, state, national, or international construction. It provides advanced education and training for working construction professionals, as well as broad preparation for those who have recently completed their bachelor's degree.

Students may choose to work on an industrial project or participate in either basic or applied research. They also have the option of emphasizing one of the following areas: Information Management and Computer Applications in Construction, Qualitative Tools for Construction Project Management, and Constructability, Quality, and Safety Issues on Construction Projects.

Admission Requirements
1. Bachelor of Science in Civil Engineering, Construction Science and Management, Construction Engineering and Management, Architecture, Architectural Engineering, or a related discipline. Applicants with other majors aspiring to enter the program are encouraged to apply, but may be required to take prerequisite courses, depending on their background.
2. Grade point average of 3.0 (A = 4.0) or better in the last two years of undergraduate work.

Program Options and Requirements

PROJECT OPTION
The Project Option is intended primarily for students who plan to work in the industry after graduation. Choosing to do an industry-supported project helps prepare students for future jobs by integrating classroom knowledge and real-life experiences.

Program Requirements:
1. An approved program with a minimum of 34 semester hours of credit and an overall average grade of "B" or better.
2. The 34 semester hours must be completed as follows:
   a. 12 semester hours of core course requirements (CMD 530, 630, 631, and 633);
   b. 4 semester hours of CMD 710, Independent Research, which requires a written report and a presentation;
   c. 18 semester hours of approved electives (not more than three hours of CMD 639 can be applied).

THESIS OPTION
The Thesis Option is intended primarily for research-oriented students and those planning to pursue a doctoral degree. But the Thesis Option also serves students pursuing industry jobs, because engineers with a master's degree are often expected to conduct applied research.

Program Requirements:
1. An approved program with a minimum of 30 semester hours of credit and an overall average grade of "B" or better.
2. The 30 semester hours must be completed as follows:
   a. 12 semester hours of core course requirements (CMD 530, 630, 631, and 633);
   b. 6 semester hours of CMD 700, Master's Thesis, which requires a written thesis meeting Graduate College requirements and an oral examination in defense of the thesis;
   c. 12 semester hours of approved electives (not more than three hours of CMD 639 can be applied).

Master of Science in Materials Science and Engineering

Advisors:
Phina Ari-Gur,
Room 2126, Kohrman Hall

This degree program is designed to provide career advancement training for engineers and scientists working in the industry, as well as for recent BS and BSE degree graduates. The program is aimed at graduates of engineering or physical sciences curricula.

Admission Requirements
1. An undergraduate degree in an engineering field or in geology, physics, chemistry, or biology. The degree must include calculus through differential
equations, at least two semesters of calculus-based physics, and at least four credit hours of chemistry. Based on the candidate's background (experience and course-work), the graduate committee may require the incoming student to take some undergraduate courses.  

2. A grade point average of 3.0 or better (A=4.0) in the last two years of undergraduate work.

Applicants with grade point averages lower than 3.0 may be granted Permission to Take Graduate Classes (PTG) status and allowed to establish eligibility for regular admission by completing six hours of approved graduate courses with a grade of "B" or better in each course. Once the student is admitted to the program, no more than nine hours of work taken as a graduate student will be considered part of a degree program.

Program Requirements:

To graduate, the student will be required to take thirty-two credit hours that must include the following:

1. Complete at least eighteen credit hours of courses selected from the list of core courses. These courses will both broaden and deepen the students' knowledge of materials. The accumulated information will enable them to characterize materials, select materials wisely for demanding applications, analyze and avoid materials failure, develop new materials, improve processes, and conduct research. The list of core courses, each for three hours of credit, follows: ME 573 Engineering Materials; ME 652 Mechanics of Composite Materials; ME 654 Composite Materials; ME 655 Advanced Materials Science; CMD 532 Wood Science and Engineering; CMD 566 Ceramics: Structure and Properties; CMD 559 Physical and Mechanical Properties of Polymers; CMD 651 Corrosion Science and Engineering; CMD 653 Advanced Physical Metallurgy; CMD 658 Structure of Polymers and Composites; CMD 657 Analysis of Metal Forming; GEOL 611 Mineral Analysis.

2. Elect eight credit hours of course work to suit the interests and needs of individual students. A graduate advisor will assist the students in tailoring a course program to fit their interests and backgrounds. The courses selected must be approved by the advisor.

3. Complete six hours of a capstone project course (CMD 697) or a Master's Thesis (CMD 700). The project option is intended mainly for students whose objective is to work in industry after graduation. An option of an industrially funded project will prepare the student for the job and help the student integrate the knowledge from the courses to real-life applications. The thesis option can serve students who are inclined towards research, as well as interested in pursuing a position in industry. Students opting to continue study for a Ph.D. will benefit from the thesis research experience, as will those engineers who are often expected to conduct applied research in their occupational careers.

4. Additional courses may be required if the student lacks any necessary course prerequisites.

Open to Upperclass and Graduate Students

CMD 530 Construction Project Delivery Systems 3 hrs.
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. Prerequisites: CMD 436, or equivalent, and departmental approval.

CMD 531 Advanced Construction Project Management 3 hrs.
This course will build on the information that is normally provided to students in the undergraduate construction management courses on planning and control of construction projects. The focus of this course will be to provide the students with knowledge of quantitative tools that can be used in planning and controlling construction projects. Topics to be covered will include cash flow, forecasting, site planning, site administration, risk analysis, contract documents, and contracts administration. Advanced planning tools such as CPM, PERT, CPM diagrams, time-cost trade off, resource planning with applications to construction projects will also be discussed. Prerequisites: CMD 451, 436, and 439, or equivalent, and departmental approval.

CMD 532 Wood Science and Engineering (2-2) 3 hrs.
Scientific study of dendrology and forest products industry. A study of the relationship between the macro and microscopic structure in wood and wood based composites as they relate to Engineering Design. Laboratory activities will involve machining theory, wood fluid relationships, and wood stabilization. Prerequisites: MATH 374, PHYS 207, ME 250, and consent of instructor.

CMD 559 Physical and Mechanical Properties of Polymers (3-0) 3 hrs.

CMD 566 Ceramics: Structure and Properties (2-2) 3 hrs.
Ceramic crystalline structure. Structure imperfections, deformation, and failure of ceramic materials. Processing, properties, and toughening mechanisms. Design with and applications of ceramic materials. Prerequisites: MATH 374, PHYS 207, ME 250, and consent of instructor.

Open to Graduate Students Only

CMD 630 Computer-Aided Construction 3 hrs.
Provide the students with a thorough understanding of the important applications of computing concepts and techniques in the construction industry. The course will provide knowledge of important topics such as data modeling and database design issues related to information management in construction, knowledge-based system design, artificial intelligence, and object-oriented modeling methods. Advanced computing concepts such as neural networks, genetic algorithms, petri nets, collaborative and integrated environments, and 4-D CAD models will be highlighted. Use of real world applications in this course will further strengthen the knowledge and skills attained by the students. Prerequisites: CMD 431, 436, and 438, or equivalent, and departmental approval.

CMD 631 Design and Analysis of Construction Operations 3 hrs.
The basic objective of the course will be to provide the students the knowledge to design and analyze construction operations and processes. The course is designed to provide a thorough understanding of the fundamentals of discrete event simulation methodologies. The CYCLIC Operations Network (CYCLONE) modeling methodology will be used as the basis for design and analysis of construction operations. Recent advancements in the area of simulation based project planning will also be provided. Issues related to object-oriented simulation, hierarchical and modular simulation, query based simulation, and web based simulation will also be covered in this course. Prerequisites: CMD 431, 436, and 438, or equivalent, and departmental approval.

CMD 632 Construction Project Control 3 hrs.
The course will involve instruction on a number of topics related to the administration of construction contracts. The major focus of the course will be on topics such as financial control, cost control, schedule update and monitoring, integrated project management systems, and computer integrated construction. Cost/Schedule Control Systems Criteria (C/CSSC) will be used to demonstrate the importance of monitoring and control functions on a construction project. Prerequisites: CMD 431, 436, and 438, or equivalent, and departmental approval.

CMD 633 Design of Construction Systems 3 hrs.
This course will focus on construction practices, construction equipment, construction methods, construction productivity. It will provide the students with an overview of issues related to construction site logistics such as temporary structures, storing structures, and supporting structures. Knowledge of structural analysis and design and construction practices will form the basis of this course. Prerequisites: CMD 336 and 386, or equivalent, and departmental approval.

CMD 639 Construction Management Seminar 1–3 hrs.
This course will allow graduate students to explore the recent advancements in the area of Construction Engineering and Management. A series of presentations by the graduate students, industry experts, visiting researchers, and the Construction Engineering and Management faculty will provide a broad information base to the students enrolled in this course. The course is repeatable. Prerequisite: Departmental approval.
ELECTRICAL AND COMPUTER ENGINEERING

Dr. S. Hossein Mousavinezhad, Chair
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John Mason
Damon Miller
Hossein Mousavinezhad
Norali Pernalete
Ted Sarma
Frank Severance
Ralph Tanner

Master's Programs:
The Department of Electrical and Computer Engineering offers graduate programs leading to a Master of Science in Engineering (Computer) and to a Master of Science in Engineering (Electrical).

These programs are designed to prepare students for advanced-level graduate study in electrical and computer engineering or professional practice. They provide opportunities for engineering graduates to enhance their background in engineering science analysis and design. Courses are offered in the areas of computer engineering, control systems and signal processing, real-time embedded systems, instrumentation, communications, computer architecture, electromagnetics, and power electronics.

Admission Requirements
Applicants must:
1. Satisfy the general admission requirements of The Graduate College.
2. Possess a Bachelor of Science in Electrical Engineering or Computer Engineering from an ABET accredited program in the U.S. or a reputable overseas school as certified by the WMU office of International Student Services.
3. Have a grade point average of 3.0 or better (A=4) in the last two years of undergraduate work.
4. Submit results of the GRE General Test. A student with a bachelor's degree in computer science, engineering, mathematics, physics, or science can be considered for probationary admission into the MSE (Electrical) or the MSE (Computer) program with full admission granted after completing undergraduate courses in electrical engineering or computer engineering specified by the department.

Master of Science in Engineering (Computer)

Advisors:
John Gesink,
S. Hossein Mousavinezhad,
Room 3058, Kohrman Hall

Program Options and Requirements
The program has two options—a thesis option and a course work option. A common requirement for each option is twenty-four hours of core courses.

THESIS OPTION
The thesis option is open to selected students interested in research or project work. Students interested in this option must petition the department chair, and each student's thesis committee must be approved by the department chair and the graduate dean.

Program Requirements
In addition to the twenty-four hours of core courses—comprised of eighteen (18) hours of approved electrical engineering graduate courses and six (6) hours of approved mathematically-oriented graduate courses—the student will elect six (6) hours of ECE 700 Master's Thesis and successfully defend the thesis.

COURSE WORK OPTION
No thesis is required in this program option.

Program Requirements
In addition to the twenty-four hours of core courses—comprised of eighteen (18) hours of approved electrical engineering graduate courses and six (6) hours of approved mathematically-oriented graduate courses—the student will elect a) three (3) hours of additional electrical engineering graduate courses approved by the department, and b) six (6) hours of additional graduate courses approved by the department from the following disciplines: electrical, computer, industrial, or mechanical engineering; mathematics; computer science; or physics.

Doctoral Program:
The Department offers the Doctor of Philosophy in Electrical and Computer Engineering. A student's doctoral program of study will consist of approved graduate course work, independent research, examinations, and dissertation preparation and defense. The admission and program requirements are listed below.
Doctor of Philosophy in Electrical and Computer Engineering

Advisor:
S. Hossein Mousavi Nezhad, Room 3058, Kohrman Hall

The Doctor of Philosophy in Electrical and Computer Engineering is designed to provide students advanced electrical/computer engineering education and research opportunities. The program will engage doctoral students in independent research in the field of electrical/computer engineering which will prepare them for research and development positions in the rapidly growing information and electronics sectors.

Current research areas in the department include real-time embedded systems, biomedical engineering, signal processing, and control systems. The department supports five laboratories in electric circuits, digital logic, embedded systems design, microcomputer systems, and digital/analog electronics. In addition, there are radio frequency shield rooms, an anechoic chamber, digital signal and speech processing lab, ce research lab, ee research lab, and a fiber optics lab for faculty and graduate student research.

Admission Requirements
To be admitted to the Ph.D. program, a student must satisfy the following requirements:
1. Satisfy the general admission requirements of The Graduate College.
2. Possess an M.S. in electrical or computer engineering, with a minimum 3.0 grade point average. Exceptional applicants with a master's degree in other closely related quantitative fields such as engineering, mathematics, physics, or computer science will be considered on a case-by-case basis, after completing a prescribed set of prerequisite courses.
3. Submit results of the GRE General Test.
4. Three (3) recommendation letters from faculty familiar with the student's work.
5. A personal statement of academic goals and research interests, written by the applicant.

All requirements for the Ph.D. must be completed within seven (7) years preceding the date on which the degree is conferred.

Program Requirements
The credit hour, course work, and general program requirements include:
1. Minimum of 50 credit hours beyond the master's degree to include:
   a. 15 hours of ECE 730, Doctoral Dissertation.
   b. Maximum of 12 hours of ECE 697 Problems in Electrical/Computer Engineering or ECE 710 Independent Research.
   c. A minimum of 2 hours of ECE 725 Doctoral Research Seminar.
   d. A minimum of 21 hours of graduate course work approved by the doctoral dissertation committee, to be taken before a student becomes a doctoral candidate.
2. Ph.D. Qualifying Examination, to be taken within the first year after admission.
3. Comprehensive Examination administered by the doctoral dissertation committee, to be taken before a student becomes a doctoral candidate.
4. The general graduation requirements of The Graduate College.
5. Presentation/publication requirements as specified by the doctoral dissertation committee.

6. Research Tools: The required tools are (1) simulation and modeling and (2) statistics. Competency will be based on successful completion (with a "B" or better grade) ECE/ME 580 and STAT 660.
7. A one-year residency during which the student will conduct research.
8. Final dissertation defense and approval by committee.

Electrical and Computer Engineering Courses (ECE)

Open to Upperclass and Graduate Students
ECE 515 Real-Time Computing
Characterizing, modeling, and specifying real-time systems. Software life cycle. Designing and programming sequential and concurrent computer systems. Scheduling. Distributed real-time computing. Engineering case studies using C++/Ada. Prerequisite: CS 112 or equivalent.
ECE 520 Power Electronics and Motors (3–0)
Basic, transformer isolated and resonant switchmode converter topologies. Steady-state analysis, large-signal, small-signal modeling and analysis, state-space and discrete-time models. Magnetics, control techniques and power conditioning of converters. PWM control using space vector theory. Theory and applications of vector (torque) control of AC machines. Analysis and design of electric motors based on FEM. Prerequisites: ECE 320 and ECE 330 or equivalent.
ECE 532 Introduction to Evolutionary Computation
3 hrs.
Introduction to optimization algorithms which operate using the principles of Darwinian evolution. Both underlying theory and application/algorithmic approaches are considered. Projects and evolution strategies. This course is cross-listed with CS 532. Prerequisite: CS 331.
ECE 551 Application Specific Integrated Circuit Design (4–0)
4 hrs.
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.
ECE 552 Switching and Automata Theory (4–0)
4 hrs.
ECE 553 Advanced Microcontroller Applications (3–0)
3 hrs.
Course is intended to give graduate students and seniors the ability to specify, design, and test microcontroller based digital systems. Prerequisite: ECE 451 or equivalent.
ECE 555 Advanced Digital Signal Processing (3–0)
3 hrs.
Discrete-time signals and systems, time and frequency domain representations. Structures of Discrete-time systems and Digital Filters. DFT and FFT methods of spectral analysis and estimation. Discrete Hilbert Transforms and multidimensional signal processing. Prerequisite: ECE 455 or equivalent.
ECE 557 Design of Reconfigurable Digital Machines
3 hrs.
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 reprogrammable FPGAs. Prerequisites: Computer engineering or electrical engineering major; ECE 357; ECE 451; or equivalent courses.
ECE 560 Time-Varying Fields (3–0)
3 hrs.
Electrodynamics, Maxwell's Equations, boundary value problems and solutions of Helmholtz Equation in different coordinate systems. Green's functions, harmonic and waveguides. Introduction to perturbational and variational methods. Engineering EM Background needed for more advanced topics. Prerequisite: ECE 361.
ECE 570 Digital Control System (3–0)
3 hrs.
State variable technique, controllability and observability, digital control system design with state or output feedback, maximum principle, optimal control and regulator—deterministic and stochastic state observers. Prerequisite: ECE 371.
ECE 580 System Modeling and Simulation (3–0)
3 hrs.
This is a first course in the principles of mathematical modeling of stochastic and deterministic systems. It will focus on analytical models, mathematical rigour and computer simulation of problems. Students will simulate a number of systems using appropriate stochastic and deterministic models using a computer. This course is cross-listed with ME 580. Prerequisites: ECE 371, ECE 380 or equivalent.
ECE 581 Astrodynamics (3–0)
3 hrs.
A course in celestial dynamics as applied to space travel. Students will learn the basics of satellite orbit definition, determination, and navigation. While the general n-body problem will be taken up, the emphasis will be placed on the calculation of geocentric and heliocentric orbits. The primary application will be satellite systems as applied to the Global Positioning System. This course is cross-listed with ME 581. Prerequisite: ME 258.
ECE 585 Mechatronics (3–0)
3 hrs.
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 with ME 585. Prerequisites: ECE 210, ME 258 and ECE 371 or ME 360.
ECE 586 System Identification (3–0)
3 hrs.
This is a course in model determination. Students will learn the basics of defining system structure and techniques for finding parameteric values. The emphasis will be placed on the application of modeling to
practical problems in the student's specific discipline. This course is cross-listed with ME 586. **Prerequisite:** ECE 580 or ME 580.

**ECE 591 Real-time Embedded System Seminar I** 1 hr.
First of a three-semester seminar sequence that provides students opportunities to 1) meet with engineering and scientific experts and discuss the theory and practice of RTES design and implementation, and 2) present technical RTES material to a peer group of students and faculty. **Prerequisite:** Senior standing in computer engineering.

**ECE 592 Real-time Embedded System Seminar II** 1 hr.
Second of a three-semester seminar sequence that provides students opportunities to 1) meet with engineering and scientific experts and discuss the theory and practice of RTES design and implementation and 2) present technical RTES material to a peer group of students and faculty. **Prerequisite:** ECE 591.

**ECE 595 Introduction to Advanced Topics (3-0)** 3 hrs.
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.

**Open to Graduate Students Only**

**ECE 605 Advanced Microprocessor Applications (4-0)** 4 hrs.
Selected topics on designing high-performance microprocessor systems. System design for contemporary RISC and CISC processors. Interfacing to high-speed parallel system bus. Shared memory and cache memory design. **Prerequisite:** ECE 451 or equivalent.

**ECE 636 Applied Optics and Optical System Design** 3 hrs.
Classical and conventional optical methods in use by the engineering and research community. Moiré, Speckle and Speckle-shielding interferometry. Holographic interferometry. Photo-elasticity and electronic speckle pattern interferometry. Optics and lasers for research and industrial applications. Digital image processing and optical system design. This course is cross-listed with ME 636. **Prerequisite:** Consent of instructor.

**ECE 640 Electronic Instruments (3-0)** 3 hrs.
Analysis of instrumentation systems including basic instrument concepts, dynamic analysis of instruments, transducers, classical analog methods, digital methods and application. **Prerequisites:** ECE 320, ECE 371, ECE 251.

**ECE 641 Electronic Instrumentation II (3-0)** 3 hrs.
Description, analysis, and design of instrumentation systems with emphasis on sensors, signal acquisition, amplification, and processing. Both analog and digital sensors and signal processors will be considered. **Prerequisite:** ECE 640.

**ECE 650 Advanced Computer Architecture (3-0)** 3 hrs.
An introduction to the problems involved in designing and analyzing current machine architectures. Simulation and design automation of digital systems. The completion of a substantial design project is required. **Prerequisites:** ECE 355, ECE 357.

**ECE 651 Objects, Architectures, and Parallel Computation** 3 hrs.
Integral approach toward the hardware and software design of computer systems. Design decisions due to interdependence among the different levels (architecture, operating systems, programming languages application programs) of modern computer systems design. **Prerequisite:** ECE 357.

**ECE 664 Digital Communications** 3 hrs.
This course covers advanced concepts of modern digital communication theory, including information theory and coding theory. Important practical topics of recent interest are also covered. **Prerequisite:** ECE 480 or equivalent.

**ECE 670 Modern Control Theory (3-0)** 3 hrs.
Modern control theory using "state variable" formulations provides a unified approach to a wide variety of problems. Depends on matrix theory and linear algebra. **Prerequisite:** ECE 371 or permission of instructor.

**ECE 671 Optimal Control Systems (3-0)** 3 hrs.
Optimal control dynamic programming. Pontryagin's principle, linear optimal regulator, system identification. Stochastic and adaptive control. **Prerequisite:** ECE 670.

**ECE 672 Fuzzy Control Systems** 4 hrs.
Theoretical aspects of fuzzy sets, fuzzy logic, approximate reasoning, and fuzzy control, as well as implementation issues of fuzzy controllers. Supervisory controllers using fuzzy automata. Hardware accelerators for fuzzy logic. **Prerequisites:** ECE 355, ECE 371.

**ECE 673 Artificial Neural Networks** 3 hrs.
Hardware implementations of feedforward, recurrent, and cellular neural networks using analog and/or digital techniques. Both discrete and integrated circuit approaches will be investigated. Applications of neural networks in engineering systems. **Prerequisites:** ECE 320, ECE 371; or consent of instructor. Proficiency in a high level programming language is required.

**ECE 680 Design Factors for Distributed Systems (4-0)** 4 hrs.
An introduction to distributed computing systems operation and design including interprocessor communication techniques, consensus, distributed control, and fault tolerance with an emphasis on real-time environments. Current publications on distributed computing systems design will be surveyed.

**ECE 690 Computer Engineering Seminar (1-0)** 1 hr.
This seminar provides students with opportunities to meet with engineering and scientific experts and discuss the theory and practice of real-time embedded system design and implementation. It is also an opportunity for students to present technical RTES materials to a peer group and faculty. **Prerequisite:** Graduate standing in computer engineering.

**ECE 693 Real-Time Embedded System Seminar III** 1 hr.
Third of a three-semester seminar sequence that provides students opportunities to 1) meet with engineering and scientific experts and discuss the theory and practice of RTES design and implementation, and 2) present technical RTES materials to a peer group of students and faculty. **Prerequisite:** ECE 591.
The Department of Industrial and Manufacturing Engineering offers a Master of Science in Engineering (Industrial), a Master of Science in Engineering Management, a Master of Science in Manufacturing Engineering, a Master of Science in Operations Research, and a Doctor of Philosophy in Industrial Engineering.

Master of Science in Engineering (Industrial)

Advisors:
Abdolazim Houshyar,
Room 2070D, Kohrman Hall

The objectives of the program leading to a Master of Science in Engineering (Industrial) are:
1. To prepare students who hold a baccalaureate degree in engineering or a related discipline for advanced professional practice in industrial engineering;
2. To prepare students for their post-master's and doctoral programs, as their inclination and professional growth require.

Graduates of the program can look forward to career opportunities with higher levels of responsibility and remuneration. These include jobs at a variety of levels in manufacturing and service-related industries.

Admission Requirements
1. Possess a baccalaureate degree with a grade point average of at least 2.5 and less than 3.0.
2. Show evidence of completion of at least eight semester hours of mathematics and at least six semester hours of physics and/or chemistry with a minimum overall grade point average of 2.5 in these areas.
3. Submit GRE (Graduate Record Examination) scores for the General Test.
4. Undergraduate courses should have been completed in calculus, statistics, computer programming, work methods analysis, operations planning and control, and quality control. Where a student's background is deficient, foundation courses will be required.

Program Requirements
1. An approved integrated program with a minimum of 36 hours of graduate work distributed as follows:
   b. Fifteen (15) hours of electives, at least 6 of which will be from the Department of Industrial and Manufacturing Engineering.
   c. Six (6) hours of electives. The specified number of electives may be taken from 500- or 600-level courses offered within the Department of Industrial and Manufacturing Engineering or elsewhere in the University, unless restricted by program requirements.

2. Elective courses (12 hours at minimum) to be selected from graduate courses available in the Department of Industrial and Manufacturing Engineering or elsewhere in the University, unless restricted by program requirements. The elective courses must be compatible with the overall program and the career objectives of the student, and must be approved by the program advisor prior to registration.

3. An overall 3.0 grade point average.

NON-THESIS OPTION

Program Requirements
1. An approved integrated program with a minimum of 36 hours of graduate work distributed as follows:
   b. Fifteen (15) hours of electives, at least 6 of which will be from the Department of Industrial and Manufacturing Engineering.
   c. Six (6) hours of electives. The specified number of electives may be taken from 500- or 600-level courses offered within the Department of Industrial and Manufacturing Engineering or elsewhere in the University, unless restricted by program requirements.

2. Elective courses (12 hours at minimum) to be selected from graduate courses available in the Department of Industrial and Manufacturing Engineering, or any other department within the University. The elected courses must be compatible with the overall program and the career objectives of the student, and must be approved by the program advisor prior to registration.

3. An overall 3.0 grade point average.

Master of Science in Engineering Management

Advisors:
David M. Lyth,
Room 2017, Kohrman Hall
Robert M. Wygant,
Grand Rapids Regional Center

The objectives of the graduate program leading to a Master of Science in Engineering Management are:
1. To increase the breadth of understanding of the students' responsibilities as technically educated individuals through the development of analytical and management skills, and knowledge in cognate areas.
2. To develop the capabilities to deal appropriately with resources available in commerce and industry (i.e., people, time, and money).
3. To prepare students for formal post-master's and doctoral programs, as their inclination and professional growth require.

The scope of the graduate program includes studies in the areas of engineering, technical resource management, and industrial leadership. The program requires completion of a minimum of thirty semester hours beyond the entry level prerequisites in the student's program.

Admission Requirements
1. Possess a baccalaureate degree with a major in a technical field, such as engineering, technology, mathematics, computer science, or the physical sciences. For other majors, see item 2.
2. Show evidence of completion of at least eight semester hours of mathematics and at least six semester hours of physics and/or chemistry with a minimum overall grade point average of 2.5 in these areas.
3. Submit GRE (Graduate Record Examination) scores for the General Test.
4. Undergraduate courses should have been completed in calculus, statistics, computer programming, work methods analysis, operations planning and control, and quality control. Where a student's background is deficient, foundation courses will be required.

Program Requirements
1. The Master of Science in Engineering Management requires a minimum of thirty (30) hours: Eighteen (18) hours of core courses and twelve (12) hours of electives.
   b. Elective courses (12 hours at minimum) to be selected from graduate courses available in the Department of Industrial and Manufacturing Engineering, or any other department within the University. Among the electives is IME 697, with a written report and oral presentation. The elected courses must be compatible with the overall program and the career objectives of the student, and must be approved by the program advisor prior to registration.
   c. An overall 3.0 grade point average.

Master of Science in Manufacturing Engineering

Advisor:
Paul V. Engelman,
Room 2043, Kohrman Hall

The Master of Science in Manufacturing Engineering is designed to provide advanced competencies in the areas of computer-aided manufacturing, computer-aided design and analysis, and integrated processing of polymers, metals, and composite materials. This program is designed for decision-makers in manufacturing engineering, engineering
Admission Requirements
A candidate for admission must possess a baccalaureate degree from a recognized program in engineering, physics, mathematics, or other field related to engineering. A candidate for admission must also:

1. Possess a grade point average of 3.0 or better during the last two years of undergraduate work.
2. Submit GRE (Graduate Record Examination) scores from the General Test.
3. Have completed undergraduate courses in computer-aided design, computer-aided manufacturing, properties of materials, metrology, quality control, and manufacturing processes or equivalent experience. Students who lack this background should consult with an advisor as specialized programs (usually involving additional credit hours over basic requirements) can be provided.

Program Requirements
The Master of Science in Manufacturing Engineering requires a minimum of thirty (30) hours. Fifteen (15) hours of core courses and fifteen (15) hours of electives.

2. Elective courses (15 hours) are chosen in consultation with the academic program advisor. Electives may include a project (IME 697) with a written report and oral presentation or a thesis (IME 683 and IME 700) if desired by the student.
3. An overall 3.0 grade point average.

Master of Science in Operations Research
Advisor: Steven Butt, Room 2014, Kohrman Hall

The Master of Science in Operations Research is an interdisciplinary program permitting the student to build a flexible plan of study emphasizing the relationship between operations research and his or her professional field. The participating departments are Economics, Industrial and Manufacturing Engineering, Management, Mathematics, and Statistics. The responsibility for administering the program is with the Department of Industrial and Manufacturing Engineering.

The objective of the program leading to the Master of Science in Operations Research is to provide the student who has an undergraduate degree in one of the involved disciplines with a basic knowledge of the philosophy and techniques of operations research. The student's program will be based on his or her undergraduate preparation, work experience, and occupational goals.

Admission Requirements
1. Possess a baccalaureate degree in economics, industrial engineering, management, operations research, or mathematics. Students with degrees in other areas will also be considered.
2. IME 261 Engineering Statistics
3. IME 262 Probability for Engineers (or STAT 362 Probability)
4. MATH 230 Elementary Linear Algebra (or MATH 374 Differential Equations and Linear Algebra)
5. MATH 272 Vector and Multivariate Calculus
6. Documented proficiency in at least one programming language
7. Submit GRE (Graduate Record Examination) scores from the General Test.

Program Options and Requirements
PROJECT OPTION—30 hrs.
1. 18 hours of core courses
2. 9 hours of approved electives
3. 3 hrs. of project (IME 697)

THESIS OPTION—30 hrs.
1. 18 hours of core courses
2. 6 hours of approved electives
3. 6 hrs. of thesis (IME 700)

Program Requirements
1. IME 508 Advanced Quality Management
2. IME 509 Facilities Planning and Design
3. IME 511 Reliability Engineering
4. IME 512 Production/Operations Management
5. ECON 603 Advanced Price Theory
6. ECON 619 Introduction to Econometrics
7. IME 606 Capital Budgeting and Cost Analysis
8. IME 626 Advanced Engineering Economics
9. STAT 661 Design of Experiments for Quality Improvement
10. STAT 662 Applied Linear Models
11. STAT 664 Design of Experiments
12. STAT 665 SAS Programming

Statistics
• STAT 562 Statistical Theory
• STAT 565 Design of Experiments for Quality Improvement
• STAT 567 Statistical Design and Analysis of Experiments
• STAT 568 Regression Analysis
• STAT 660 Statistical Inference
• STAT 662 Applied Linear Models
• STAT 664 Design of Experiments
• STAT 680 S4S Programming

Note: Other courses may be used as electives with the approval of the ORG advisor.

Doctor of Philosophy in Industrial Engineering
Advisor: Bob White, Room 2014, Kohrman Hall

The Doctor of Philosophy in Industrial Engineering is designed to intensify the student's knowledge and comprehension in the various disciplines of the subject with emphasis on original research in a chosen area of specialty. It will assist individuals wishing to pursue a career as a research practitioner in industry and government or teaching and research careers in industrial engineering in colleges and universities. The program emphasizes breadth of knowledge and requires students to conduct a significant, focused field study, and to complete a dissertation research project.

Admission Requirements
Application materials may be obtained from the Office of Admissions and Orientation, Graduate Admissions and from the Department of Industrial and Manufacturing Engineering. International students must contact the Office of International Student Services for admission information and to obtain application materials.

Admission decisions will be made by the department doctoral committee. All students must meet the general requirements for a doctoral degree specified elsewhere in this Graduate College Catalog. In addition to these requirements, the student must fulfill either of two educational requirements: a bachelor's degree in engineering or related discipline from an Accreditation Board for Engineering and Technology (ABET/EAC) accredited engineering program, including at least three courses in industrial engineering, or a master's degree in engineering from a department offering an ABET accredited undergraduate program, including at least five courses in industrial engineering. Three letters of recommendation must be submitted. Students not having these requirements may be conditionally admitted, with full admission granted upon completion of additional prerequisites.

Applicability Requirements
The applicability requirements are those stated in the general requirements of The Graduate College. The student should establish a dissertation committee by the end of the first year. The committee will be composed of at least four members of the Department of Industrial and Manufacturing Engineering, and one or more outside examiners.

Candidacy Requirements
The applicant must seek candidacy no later than the end of the third calendar year after enrollment in the Ph.D. program. By this time the student should have completed the course work and have a preliminary plan for the dissertation endorsed by the chair of his/her dissertation committee. To be admitted to candidacy, the student must successfully complete the comprehensive examination. This exam, administered by the doctoral committee, will be composed of both a written and an oral component. The written portion will include questions submitted by the student's doctoral committee and those drawn from the departmental pool of questions relating to the core courses. The questions are designed to evaluate the student's knowledge in the engineering management area of concentration as well as his/her area of specialization. The oral component will be administered by the doctoral committee. The student's performance in this exam will be evaluated by the doctoral committee. If student fails the comprehensive exam, the student can apply to re-take the exam in the next semester. A second failure results in dismissal from the program. Candidacy will be approved or denied based upon the student's performance in the course work, successful completion of the comprehensive examination, and a positive recommendation of the dissertation committee.

Program Requirements
In addition to The Graduate College requirements, the following requirements must be fulfilled:

1. Eighty-four (84) credit hours of courses beyond the baccalaureate. A student with a master's degree may be able to transfer up to thirty-six (36) credit hours, with this decision being made by the doctoral committee at the time of admission:
   a. The determination of how the master's level credits can be used to fulfill the requirements listed below is made at the time of admission.
   b. For a student entering the program with a bachelor's degree, a maximum of twenty-one (21) credit hours of 500-level, post-baccalaureate graduate courses can be applied to the Ph.D. program; for a student entering the program with a master's degree, a
maximum of six (6) credit hours of 500-level courses beyond the master's degree can be applied to the Ph.D. program.

2. The credit hours are grouped into seven areas as follows:
   a. Eighteen (18) hours of core courses with three (3) hours of IME 725 required.
   b. Thirty (30) hours from the engineering management concentration area.
   c. Nine (9) hours from one of the area of specialization course groups.
   d. Thirty (30) hours of electives chosen from the graduate offerings of Industrial and Manufacturing Engineering or other departments appropriate to the student's research interest as mutually agreed upon by the student and the dissertation committee.
   e. Six (6) hours of electives related to teaching methodology.
   f. Six (6) hours of IME 712, Professional Field Experience.
   g. Fifteen (15) hours of IME 730, Doctoral Dissertation.

3. Successful completion of the comprehensive examination after completion of all course work.
4. Successful oral defense of the dissertation and approval of the dissertation by the committee and The Graduate College.
5. Successful completion of the teaching internship requirement.
6. Residency By Requirement: Enrollment on campus in four consecutive semesters or sessions.
7. Research Tool: The required research tools are computer programming and statistics. Competency will be based on successful completion of CS 506 and STAT 660 or equivalent with a grade of "B" or better.

Financial Assistance
The Department of Industrial and Manufacturing Engineering offers opportunities for financial support of doctoral students through doctoral associateships, graduate assistantships, and fellowships. Information is available from the department or The Graduate College.

Industrial and Manufacturing Engineering Courses (IME)
Open to Upperclass and Graduate Students
IME 500 Advanced Industrial Relations (3-0) 3 hrs.
Interplay among government agencies, labor organizations, and management. Particular emphasis is placed on collective bargaining procedures, issues, and applications through case studies. Prerequisite: IME 403 or permission of instructor.
IME 501 Survey of Industrial Engineering Topics (3-0) 3 hrs.
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 materials handling. Emphasis is placed on the application of these techniques to manufacturing related problems. This course cannot be applied for credit toward the Master of Science degree in engineering management or industrial engineering. Prerequisite: MATH 122 or MATH 200, STAT 260 or STAT 366, or equivalent.
IME 502 Manufacturing Engineering Fundamentals (3-3) 4 hrs.
This course reviews the fundamental principles in Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), and metrology used in the practice of manufacturing engineering. Topics covered include: CAD documentation techniques, CAD modeling, Geometric Dimensioning and Tolerancing (GD&T), EIA/ISO format (G&M code) Numerical Control (N/C) programming, graphical N/C programming systems, and Statistical Process Control (SPC). The laboratory includes hands-on experiences with commercial CAD/CAM systems, N/C machines, and instruments of precision measurement. This course cannot be applied for credit toward the Master of Science in Manufacturing Science. This course may be used to meet the stated prerequisite requirements normally satisfied by IME 246, IME 358, and IME 481 in the graduate program. Prerequisites: MATH 122 or MATH 250, CS 104 or CS 105, IME 142 and IME 250.
IME 503 Manufacturing Materials Fundamentals (2-3) 3 hrs.
The course is focused upon the study of identification, properties, processing applications, and testing techniques of industrial materials. Topics discussed include: plastics, metals, ceramics, wood, and composites materials. Analysis and property definition utilizing standardized (appropriate) testing techniques will be carried out for selected industrial materials. Processing of plastics and composites will be investigated. This course cannot be applied for credit toward the Master of Science in Manufacturing Science. This course may be used to meet the stated prerequisite requirements normally satisfied by IME 250 and CMD 256 in the graduate program.
IME 505 Continuous Improvement in Operations (3-0) 3 hrs.
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.
IME 507 Computer Integrated Manufacturing (3-0) 3 hrs.
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. Prerequisite: Course in computer programming.
IME 508 Advanced Quality Management (3-0) 3 hrs.
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. Prerequisite: IME 318 or 328 or 501 or equivalent.
IME 512 Management of Service Operations (3-0) 3 hrs.
An analysis of service industries exploring differences in management and controlling operations. Emphasis will be on service system design, service quality, and comparing customer expectations with their perceptions.
IME 516 Design of Experiments and Regression Analysis (3-0) 3 hrs.
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. Prerequisite: IME 261 or equivalent.
IME 542 Human Factors Engineering (3-0) 3 hrs.
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, workplace design; and the work environment. (Cross listed with PSY 542).
IME 546 Concurrent Engineering (3-0) 3 hrs.
The synthesis of automated design, analysis, and manufacturing processes through integrated computer systems. Topics in automated graphics, wire-frame, surface and solids modeling, boundary element analysis, and manufacturing process generation will be investigated. Prerequisite: CAD experience.
IME 550 Advanced Plastics Processing (3-0) 3 hrs.
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 for injection molding and extrusion systems. Prerequisites: Basic understanding of plastics processing, as documented on work record.
IME 557 Topics in Industrial and Manufacturing Engineering (3-0) 3 hrs.
Group study of special topics in industrial engineering and technology. The specific topic will be shown in the course title when scheduled. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.
Open to Graduate Students Only
IME 600 Concepts and Principles of Engineering Management (3-0) 3 hrs.
To study the concepts of supervision with particular design for those who have had little or no previous academic orientation to the principles, concepts, and philosophy of industrial supervision.
IME 604 Facilities Planning and Design (3-0) 3 hrs.
An analytical approach to the planning and design of manufacturing facilities and material handling systems. Prerequisite: IME 404, 414, or permission of instructor.
IME 606 Capital Budgeting and Cost Analysis (3-0) 3 hrs.
Concepts, principles, and techniques of making decisions pertaining to the acquisition and retirement of capital goods by industry and government. Topics include the time value of money, basic economic decision models, effect of taxation and depreciation on economic decision, and capital allocation.
IME 608 Reliability Engineering (3-0) 3 hrs.
The formulation of mathematical models for reliability allocation and redundancy. Topics include time dependent and time independent prediction measures for both maintained and non-maintained systems. Prerequisites: IME 261 and 262 or STAT 362.
IME 610 Linear Programming for Engineers (3-0) 3 hrs.
The study of linear programming models as applied to engineering problems. Topics include Revised Simplex Method, Duality
IME 643 Physiology of Work (2–3) 3 hrs.
A thorough review of the musculoskeletal system and energy development in the work environment. A practical guide to what the body can do and how this is influenced by the respiratory, circulatory, and metabolic systems. Laboratory projects emphasize applications in actual work tasks.

IME 645 Design for Manufacturability (3–0) 3 hrs.
Production methods and materials will be applied to product development projects that will relate to the design of cost and cost effective manufacturing. Topics include the design of part families, geometric classification coding for storage and retrieval, database transfer compatibility standards, process influence on functional product design, statistical determination and the application of linear and geometric tolerancing.

IME 650 Plastics Processing Improvement (3–0) 3 hrs.

IME 654 Nontraditional Manufacturing Processes (3–0) 3 hrs.
Nontraditional manufacturing processes may use electric currents, amplified light, gases, loose abrasives, chemical solutions, explosives or water to convert materials that are sometimes difficult to process by conventional methods. Topics include nontraditional manufacturing methods, process capabilities, tooling, and fixtureing.

IME 656 Material Selection and Processing (3–0) 3 hrs.
Properties of metals, ceramics, polymers, wood, and composites. Factors in selection of materials and their fabrication process. Failure mechanisms and prevention. Prerequisite: An introductory course in engineering materials or permission of instructor.

IME 657 Studies in Industrial Engineering (3–0) 3 hrs.
Advanced work organized around topics of current interest in engineering and technology. The specific topic will be shown in the course title when scheduled. May be repeated. Graded on a Credit/No Credit basis.

IME 683 Thesis Proposal (1–0) 1 hr.
Study of research methodologies including review and synthesis of previous work, and strategies for conducting investigation. Discussion of format and expectations of the master’s thesis. An approved thesis proposal is required for the completion of this course. Prerequisite: Approval of advisor preceding enrollment.

IME 697 Problems in Industrial and Manufacturing Engineering (3 hrs.
Special problems of individual need or interest under the direction of a member of the graduate faculty. May be elected with approval of department chairperson and faculty member. Application must be submitted and approved prior to the election of the course.

IME 699 Practical Training 1–12 hrs.
Designed for international students who wish to pursue practical training in off-campus activities in industries or institutions. This course will not count toward a degree program. May be elected with approval of department chairperson and faculty member. Application must be submitted and approved prior to election of the course. May be repeated. Graded on a Credit/No Credit basis.

Open to Graduate Students Only—Please refer to The Graduate College section for course description.

IME 700 Master’s Thesis 6 hrs.

IME 712 Professional Field Experience 2–12 hrs.

IME 725 Doctoral Research Seminar 2-6 hrs.

IME 730 Doctoral Dissertation 15 hrs.
MECHANICAL AND AERONAUTICAL ENGINEERING

Dr. Parviz Merati, Chair
Main Office: 2065 Kohrman Hall
Telephone: 387-3366
FAX: 387-3358
URL: http://www.mae.wmich.edu

Admission Requirements

In addition to the general admission requirements for a doctoral degree at Western Michigan University, a Master of Science in Mechanical Engineering or a related engineering discipline will be required. Students with a Master of Science in mathematics or in a natural science discipline may also be admitted if they have a Bachelor of Science in Mechanical Engineering or a related engineering discipline. The Master of Science should be from a university recognized and approved by the Graduate Committee of the department. Evidence of scholarship and potential for independent research in mechanical engineering must be presented to the Graduate Committee. The level of achievement in mathematics, physics, and chemistry courses, which are prerequisites for success in doctoral studies in engineering, will also be considered in evaluating the applicant. The applicant must also submit the results of the verbal, analytical, quantitative, and engineering portions of the Graduate Record Examination.

Program Requirements

The main accomplishment of the Ph.D. student should be an original, high quality research. The program is oriented toward that achievement. The course work and number of credit hours that a student will be required to take depend on the individual qualifications, level of preparation for independent research, and the needs for successful accomplishment of the dissertation.

The doctoral student must acquire through course work and demonstrate in a qualifying examination a broad knowledge and understanding of mathematics and two of the following core areas of mechanical engineering: thermodynamics and heat transfer; fluid mechanics; structural dynamics and vibrations. Prior to taking the qualifying examination a broad knowledge and understanding of the subject, with intensive and successful use of the required area of competency in the research work must be approved by the dissertation faculty advisor. A minimum of 45 graduate credit hours beyond the Master's degree must be taken from the graduate courses of the Department of Mechanical and Aeronautical Engineering. To ensure adequate preparation for the graduate research subject, enrollment in courses from other programs must be approved by the dissertation faculty advisor. A minimum grade point average of 3.25 is required in the doctoral studies. These graduation requirements complement the general university requirements.

Details of the Ph.D. study process may be obtained from the office of the Department of Mechanical and Aeronautical Engineering.

Doctor of Philosophy in Mechanical Engineering

Advisor: Parviz Merati
Room 2065, Kohrman Hall

The Doctor of Philosophy in Mechanical Engineering is designed to intensify the knowledge and comprehension of the student in the various disciplines of the subject, with emphasis on original research in a chosen area of specialty.

Program Requirements

In addition to the general admission requirements for a doctoral degree at Western Michigan University, a Master of Science in Mechanical Engineering or a related engineering discipline will be required. Students with a Master of Science in mathematics or in a natural science discipline may also be admitted if they have a Bachelor of Science in Mechanical Engineering or a related engineering discipline. The Master of Science should be from a university recognized and approved by the Graduate Committee of the department. Evidence of scholarship and potential for independent research in mechanical engineering must be presented to the Graduate Committee. The level of achievement in mathematics, physics, and chemistry courses, which are prerequisites for success in doctoral studies in engineering, will also be considered in evaluating the applicant. The applicant must also submit the results of the verbal, analytical, quantitative, and engineering portions of the Graduate Record Examination.

Program Requirements

The main accomplishment of the Ph.D. student should be an original, high quality research. The program is oriented toward that achievement. The course work and number of credit hours that a student will be required to take depend on the individual qualifications, level of preparation for independent research, and the needs for successful accomplishment of the dissertation.

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Details of the Ph.D. study process may be obtained from the office of the Department of Mechanical and Aeronautical Engineering.

Mechanical and Aeronautical Engineering Courses (ME)

Open to Upperclass and Graduate Students

AERONAUTICAL
ENGINEERING

MECHANICAL AND AERONAUTICAL ENGINEERING 159
ME 530 Theoretical and Computational Fluid Mechanics (3–0)
3 hrs.
The theory and numerical implementation of ideal flow, viscous effects, and exact solutions of Navier-Stokes equations. Special emphasis will be on planing methods, conformal mapping, and singular distributions for flows around two- and three-dimensional bodies. Familiarity with VMS and some FORTRAN experience is required. Prerequisites: ME 356 and consent of instructor.

ME 540 Automatic Control of Flight Vehicles (3–0)
3 hrs.
Synthesis of basic auto pilot and stability augmentation systems for flight vehicles. Advanced flight control structures including integrated flight/ground control, control of inertial cross-coupling. Human pilot plus airframe and the relationship with lying qualities requirements. Extensive use of commercial software tools. Prerequisite: ME 360.

ME 545 Computational Fluid Dynamics I (3–0)
3 hrs.
Basics of Computational Fluid Dynamics (CFD) including classification of partial differential equations, finite difference formulations, parabolic partial differential equations, stability analysis, elliptical equations, hyperbolic equations, scalar representations of the Navier-Stokes equations and grid generation. Prerequisites: ME 356; CS 201 or CS 306.

ME 553 Advanced Product Design (3–0)
3 hrs.
An engineering design project from concept to adoption. Static and dynamic analysis. Mechanical systems design and layout. Prerequisite: ME 360, 453.

ME 555 Intermediate Dynamics (3–0)
3 hrs.
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; introduction to vibrations. Prerequisites: ME 258, MATH 374.

ME 558 Mechanical Vibrations (3–0)
3 hrs.
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: ME 258, MATH 374.

ME 560 Engineering Analysis (3–0)
3 hrs.
Application of vector analysis and differential equations to the solution of complex engineering problems. Prerequisite: ME 360 or equivalent.

ME 561 Finite Element Method (3–0)
3 hrs.
Development of finite element techniques for solution of one-, two-, and three-dimensional problems in heat transfer, fluid flow, structures and elasticity. Prerequisites: ME 257, 356, 431, and MATH 374 or equivalent.

ME 562 Application of Numerical Methods in Engineering (3–0)
3 hrs.
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. Prerequisite: Consent of instructor.

ME 564 Engineering Noise Control (2–3)
3 hrs.
Introduction to basic concepts of noise control, nature of sound and its effect on our environment. Indoor and outdoor sound propagation. Noise standards and measurements. Case studies of real-world implementation of noise control engineering. Laboratory experiments. Prerequisites: MATH 374, ME 258.

ME 569 Principles of Fatigue and Fracture (3–0)
3 hrs.
Basic principles of fatigue, crack growth, and failure mechanics. Fracture mechanics, applied to load bearing structures. Prerequisite: ME 360 or consent of instructor.

ME 571 Gas Dynamic (3–0)
3 hrs.
Basic equations of compressible flow, isentropic relationships, normal and oblique shocks, Prandtl-Meyer expansion, Fanno Line and Rayleigh Line flow. Applications to nozzles, diffusers, supersonic wind tunnels; and linearized Navier-Stokes analysis. Prerequisites: ME 431, 432.

ME 572 Advanced Thermodynamics (3–0)
3 hrs.
Conditions of equilibrium, process and thermodynamic engines; the extremum principle, Maxwell relations, stability of thermodynamic systems, phase transitions, chemical thermodynamics, irreversible thermodynamics, and introduction to the statistical thermodynamics. Prerequisites: ME 431, 432.

ME 573 Engineering Materials (3–0)
3 hrs.
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. Prerequisite: ME 258.

ME 575 Tribology-Principles and Applications (3–0)
3 hrs.
Surface chemistry, topographical measurement and description, contact mechanics, wear mechanisms, lubrication and film formation, hydrodynamic theory and application in bearings, application to friction and wear in machine elements. Prerequisites: ME 356, 365.

ME 576 Principles of Heat Exchanger Design (3–0)
3 hrs.
Overall heat transfer coefficients, UA-LMTD method, E-NTU methods, counterflow and crossflow heat exchangers, heat transfer enhancement, phase-change heat exchangers, fouling phenomena, heat exchanger systems, and optimization of heat exchangers. Prerequisite: ME 431.

ME 580 System Modeling and Simulation (3–0)
3 hrs.
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. This course is cross-listed with ECE 580. Prerequisites: ECE 371, ECE 380 or equivalent.

ME 581 Astronautics (3–0)
3 hrs.
A course in celestial dynamics as applied to space travel. Students will learn the basics of satellite orbit definition, determination, and navigation. While the general subject matter will be taken up, the emphasis will be placed on the calculation of geocentric and heliocentric orbits. The primary application will be to satellite systems as applied to the Global Positioning System. This course is cross-listed with ECE 581. Prerequisite: ME 258.

ME 585 Mechatronics (3–0)
3 hrs.
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 multiaxis servo systems. Appropriate time will be devoted to develop a sound basis in the electro-mechanical discipline. This course is cross-listed with ECE 585. Prerequisite: ECE 210, ME 258 and ECE 371 or ME 360.

ME 586 System Identification (3–0)
3 hrs.
This is a course in model determination. Students will learn the basics of defining system structure and techniques for finding parametric values. The emphasis will be placed on the application of model to practical problems in the student's specific discipline. This course is cross-listed with ECE 586. Prerequisite: ECE 580 or ME 580.

ME 595 Topics in Mechanical Engineering
1–4 hrs.
A specialized course dealing with some particular area of mechanical engineering not included in other course offerings. This course may be repeated for credit with a different topic to a total of six credit hours. Prerequisite: Consent of department.

Open to Graduate Students Only

ME 621 Theory of Plates and Shells (3–0)
3 hrs.

ME 622 Stability of Thin-Walled Structures (3–0)
3 hrs.

ME 630 Advanced Fluid Dynamics (3–0)
3 hrs.
Modern developments in fluid dynamics of compressible and incompressible fluid flow. Includes kinematics of fluid motion, laminar and turbulent flow in pipes, fluid machinery, and supersonic flow. Prerequisites: ME 356, 432, and MATH 374.

ME 631 Elastic and Inelastic Buckling of Bars and Frames (3–0)
3 hrs.
Elastic and inelastic stability of prismatic and non-prismatic columns. Failure of beam-columns, multiply loaded columns, non-prismatic bars under varying axial forces, and systems of bars. Prerequisite: ME 457.

ME 632 Energy Resources and Conversion (3–0)
3 hrs.
availability and economic utilization of energy resources. Terrestrial and thermodynamic limitations. Energy conversion applications. Fission and fusion: Applications of solar, water, wind, and geothermal energy. Prerequisite: ME 222 or consent.

ME 633 Advanced Control Systems (3–0)
3 hrs.
Digital controls, analog controls, introduction to modern control, state variable analysis,
system simulation techniques, optimal design, parameter sensitivity and stability analysis, robotics control applications. **Prerequisite:** ME 360.

**ME 634 Digital Flight Control Systems** (3-0) 3 hrs. Analysis and design of discrete and sampled-data control systems applied to aircraft and missile systems. Basic digital system concepts, mathematical models of open and closed-loop systems containing a digital computer, and Z transform analysis. Compensation techniques applied to aerospace systems. Digital filtering, including Tuvin transform and pole-zero mapping, Z plane and W plane analysis of system stability and performance. Computer simulation of sampled-data systems. Extensive use of commercial software tools. **Prerequisites:** ME 533, or equivalent, and 540.

**ME 636 Applied Optics and Optical System Design** (3-0) 3 hrs. Classical and conventional optical methods in use by the engineering and research community. Moire, Speckle and Speckle-shearing interferometry. Holographic sampled-data systems. Extensive use of lasers for research and industrial applications. Digital image processing and optical system design. This course is cross-listed with ECE 636. **Prerequisite:** Consent of instructor.

**ME 637 Design Optimization** (3-0) 3 hrs. Elements of design optimization. Defining design variables, cost functions, and constraints. Simplex method for linear problems and numerical methods for nonlinear unconstrained and constrained problems. **Prerequisite:** ME 562.

**ME 645 Computational Fluid Dynamics II** (3-0) 3 hrs. Advanced topics in Computational Fluid Dynamics (CFD) including transformation of the equations of fluid motion from physical space to computational space, the Euler equations of gasdynamics, the Parabolicized Navier-Stokes equations of gasdynamics, the Navier-Stokes equation of gasdynamics, finite volume methods and turbulent flows. **Prerequisite:** ME 545.

**ME 651 Advanced Strength of Materials, Elasticity, and Plasticity** (3-0) 3 hrs. Torsion of non-circular cross sections, shear center, composite beams, beams on elastic foundations, flat plates, and an introduction to two-dimensional elasticity and plasticity. **Prerequisite:** ME 453.


**ME 653 Fatigue of Engineering Materials** (3-0) 3 hrs. Advanced approach to the problem of fatigue damage and life prediction, cyclic stress-strain response under uniaxial and multiaxial loading, fatigue limit, high and low cycle fatigue; surface integrity and fatigue life improvement. **Prerequisite:** ME 569 or consent of instructor.

**ME 654 Composite Materials** (3-0) 3 hrs. Introduction to matrix and fiber materials that form the basis of modern composites. Fabrication of these materials into composites. Behavior of unidirectional and short fiber composites. Experimental characterization of composites. Fundamental fatigue, fracture, impact, and environmental effects. **Prerequisite:** ME 350 or consent of instructor.

**ME 655 Advanced Materials Science** (3-0) 3 hrs. Engineering behavior of metals, ceramics, engineering resins and composite materials. Composition and temperature effects on micro and macroscopic properties. Failure mechanisms. Materials selection criteria. **Prerequisites:** ME 250, 350.


**ME 659 Multibody Dynamics** (3-0) 3 hrs. Kinematic and dynamic analyses of constrained mechanical systems consisting of many interconnected rigid bodies. Analytical and numerical methods are presented for the computer-aided formulation and solution of the non-linear equations of motion of complex mechanical systems. **Prerequisite:** ME 555.

**ME 661 Advanced Finite Elements** (3-0) 3 hrs. Implementation of the finite element methods: Mixed formulations. Plate bending. Time dependent problems in solid mechanics and heat transfer. Introduction to nonlinear problems. **Prerequisite:** ME 561.

**ME 663 Structural Vibrations** (3-0) 3 hrs. Vibration response of coupled and uncoupled structures. Wave propagation, transmission, and reflection. Effects of internal and external damping, impedance discontinuities and curvature. Four-pole parameter technique for vibration isolation system design. Modal analysis. Sound and vibration. **Prerequisites:** ME 555 or ME 558.

**ME 664 Acoustics** (3-0) 3 hrs. Principles of acoustics, stressing the physical concepts underlying the derivations, associated assumptions and solutions to the wave equations in bounded and unbounded fluids and solids. Topics include: acoustic wave vibrations; integral equations; attenuation; acoustics of pipes, ducts, cavities, wave guides and resonators; environmental, architectural, underwater, acoustic transducers. **Prerequisite:** ME 564 or consent of instructor.

**ME 665 Sound and Structure Interaction** (3-0) 3 hrs. Introduction to acoustic radiation from vibrating infinite and finite plates and the effect of fluid-loading on them. Acoustic transmission through and reflection from single-leaf and double-leaf partitions. Acoustic excitation of elastic plates and coupling between panels and open and enclosed acoustic spaces. **Prerequisite:** ME 564 or consent of instructor.

**ME 669 Engineering Fracture Mechanics** (3-0) 3 hrs. Fundamentals of the theory of linear elastic fracture mechanics (LEFM), crack-tip opening displacement (CTOD), J-integral, mixed-mode fracture and fracture toughness testing. **Prerequisites:** ME 569 or consent of instructor.

**ME 671 Advanced Heat Transfer I**—**Conduction Heat Transfer** (3-0) 3 hrs. Fundamentals of conductive heat transfer applied to steady state and transient conditions. One-, two-, and three-dimensional conduction problems with exact and approximate solution techniques utilizing the computer are studied. **Prerequisites:** ME 431, 432.

**ME 672 Advanced Heat Transfer II**—**Convection and Radiation Heat Transfer** (3-0) 3 hrs. Fundamentals of thermal radiation for black, gray, non-gray, diffuse, and specular surfaces. Gaseous radiation and special applications of thermal radiation including derivation and application of equations of mass, energy, and momentum transfer. **Prerequisites:** ME 431, 432.

**ME 673 Power Plant Design** (3-0) 3 hrs. Theory and application of internal combustion engines, gas turbine power plants, steam turbine power plants, and other prime movers. Emphasis is on application of thermodynamic principles combined with open-ended design problems in power plant applications. **Prerequisites:** ME 431, 432.

**ME 676 Phase Change Phenomena** (3-0) 3 hrs. Fundamentals of pool boiling and forced convective nucleate and film boiling, critical heat flux, falling-film evaporation, convective condensation, influence of non-condensables, phase-change enhancement techniques, and phase-change in two-component mixtures. **Prerequisite:** ME 431.

**ME 695 Advanced Topics in Mechanical Engineering: Variable Topics** 1–4 hrs. A specialized course dealing with some particular advanced area of Mechanical Engineering not included in other course offerings. May be repeated for credit if the student selects a different topic up to six credits. **Prerequisite:** Consent of instructor.

**ME 697 Problems in Mechanical Engineering** 1–6 hrs. Special problems of individual need or interest under the direction of a member of the graduate faculty. May be elected with approval of department chairperson and faculty member. Application must be submitted and approved prior to the election of the course. May be repeated up to maximum of six hours.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.
PAPER AND PRINTING SCIENCE AND ENGINEERING

Said AbuBakr, Chair
Main Office: 2650 McCracken Hall
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2. A minimum of fifteen (15) semester hours of course work outside the Department of Paper and Printing Science and Engineering.

3. Satisfactory completion of PAPR 700, Master’s Thesis (6 hrs.) based on either an experimental or theoretical topic, under the guidance of a Thesis Committee.

NON-THESIS OPTION

Program Requirements
1. A minimum of thirty-six (36) semester hours of credit.
2. A minimum of twenty-four (24) semester hours of Paper and Printing Science and Engineering courses, including PAPR 620 and PAPR 650.
3. A minimum of six (6) semester hours of course work outside the department approved by the graduate advisor.

Doctor of Philosophy in Paper and Imaging Science and Engineering

Advisor: John Cameron, Room 2690, McCracken Hall

The Doctor of Philosophy in Paper and Imaging Science and Engineering is designed to prepare engineers and scientists for performing advanced research or for teaching at the university level. The emphasis of the program is on paper making processes, paper coating, paper recycling, and imaging technologies.

This is a research-intensive degree, based on fundamental scientific and chemical engineering principles; the emphasis is on learning techniques for advanced research, the production of such advanced research, and the reporting of the research. Close supervision of the research will be maintained by the student’s Dissertation Advisory Committee and, particularly, by the chair of that committee.

A Thesis Option and a Non-thesis Option are available. While the program requirements for each option differ, the admission requirements for both options are identical.

Admission Requirements
1. Applicants with science, engineering, and related baccalaureate degrees may qualify for admission based upon demonstrated competence at an accredited college or university.
2. At least one semester of college chemistry and two semesters of calculus are required.
3. After admission, the student’s graduate advisor will approve a plan of study, which may include courses not eligible for graduate credit.
4. Applicants are encouraged to submit results of the Graduate Record Examination to support their application for admission.

Program Options and Requirements

THESIS OPTION

Program Requirements
1. A minimum of thirty (thirty) semester hours of credit.
2. A minimum of fifteen (15) semester hours of Paper and Printing Science and Engineering courses, including the required courses, PAPR 620 and PAPR 650, but excluding the thesis research credits.

Additional course work required will be determined at the time of admission by the Doctoral Studies Committee to ensure prompt compliance with all University and program requirements. The Graduate College policy requires that all doctoral students complete at least thirty hours of course work, exclusive of the dissertation, at WMU after admission to the doctoral program. However, in this research-based degree program, if an exceptionally well prepared student enters the program having satisfied one or more of the research requirements and/or has completed PAPR 620 and 650, the student may be able to satisfy all the research and competencies with fewer than thirty hours.

Program Options and Requirements

THESIS OPTION

Program Requirements
1. A minimum of thirty (30) semester hours of credit.
2. A minimum of twelve (12) semester hours of course work outside the Department of Paper and Printing Science and Engineering.

The required courses PAPR 620 (Paper, Printing, and Ink) and PAPR 650 (Advanced Paper Processes) must be completed with at least a grade of "B," if not previously elected in a master’s program as described above. Additional course work required will be determined at the time of admission by the Doctoral Studies Committee.
readiness for the research or after admission by the Dissertation Advisory Committee to remedy deficiencies revealed by the Comprehensive Examination.

2. Two research tools chosen in consultation with the Dissertation Advisory Committee from the following three options:
   a. Reading proficiency in one foreign language other than English at the course level of 401 (with a grade of "B" or better).
   b. Statistics and experimental design at the level of MATH 567 (with a grade of "B" or better).
   c. Computer modeling and simulation expertise at the level of CS 581 (with a grade of "B" or better).

3. An oral Comprehensive Examination will evaluate the student's general knowledge of paper and imaging science and engineering and the competency of the formal dissertation research plan. The student is encouraged to take the Comprehensive Examination within one year of completion of PAPR 620 and 650. It is expected that all students will demonstrate knowledge of the fundamentals of paper and imaging science and engineering through the level of PAPR 620 and PAPR 650; additional expected knowledge and competency will be specific to the student's proposed research. The Department's Graduate Committee may give a rating of "Pass" on the Comprehensive Examination; or may give a rating of "Conditional Pass" and recommend additional courses, if the Comprehensive Examination is generally of passable quality but reveals specific areas of deficiency; or may give a rating of "Fail." A student who fails the examination may apply to take the Comprehensive Examination in a subsequent semester or term. A second failure will result in dismissal from the program.

4. Full-time enrollment on campus for at least four semesters.

5. Completion of at least one University-sponsored TA training workshop and completion of at least six hours of PAPR 713, Teaching Practicum. The first three credits of PAPR 713 will be earned by observing a faculty member teach a class and by preparing to teach that course under the guidance of a graduate faculty member. The second three credits will be earned by having primary responsibility for teaching one course under the guidance and supervision of a member of the department's graduate faculty.

6. Completion of at least six hours of PAPR 725, Research Seminar. The objective of this requirement is to participate in discussion of recent research findings which may be used in the student's research and to gain practice in the presentation of research results.

7. Completion of six to ten hours of PAPR 735, Graduate Research. The objective of this requirement is to ensure that the student prepares a thoughtful, coherent research plan for the dissertation under the guidance of the Dissertation Advisory Committee.

8. Completion of at least twelve hours of PAPR 730, Doctoral Dissertation. The objective of this requirement is to ensure that the student carries out the research and prepares the dissertation under the guidance of the Dissertation Advisory Committee. The student must successfully defend the dissertation and have the dissertation approved by the Dissertation Advisory Committee and by the graduate dean. The student, with approval of the Dissertation Advisory Committee, may choose between two dissertation options.

   a. Option 1: The student will present a traditional comprehensive dissertation and two journal papers based on the doctoral research and judged by the Dissertation Advisory Committee to be ready for submission to an identified, refereed journal. These must be submitted with an introduction, review of relevant literature, and a summary explaining the significance of the research.

   b. Option 2: The student will present at least four journal papers based on the doctoral research and judged by the Dissertation Advisory Committee as ready for submission to an identified, refereed journal. These must be submitted with an introduction, review of relevant literature, and a summary explaining the significance of the research.

Financial Assistance

The Department of Paper and Printing Science and Engineering offers opportunities for financial assistance to doctoral students through graduate assistantships and fellowships. Information concerning these opportunities is available from the department's Graduate Advisor or from The Graduate College.

Paper and Printing Science and Engineering Courses (PAPR)

Open to Underclass and Graduate Students

PAPR 510 Printability Analysis (2-3) 3 hrs.

Relationships between printed substrate, ink, printing process and resulting print quality from both the theoretical and measurement standpoints. 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 that include modern optical methods of print interaction with both printed and unprinted substrate, spectrophotometry, and image analysis. Prerequisite: PAPR 204 or 250.

Open to Graduate Students Only

PAPR 600 Surface and Colloid Chemistry (3-0) 3 hrs.

Intermolecular forces are considered in detail to build a sound background for consideration of surface and colloidal behavior of matter. The thermodynamics of interfaces and surfaces is covered in detail considering the topics of adsorption, surface films, wetting, capillary penetration, and diffusion. Colloidal topics covered include areas such as ionic boundary layers, electrokinetic potential, swelling and shrinkage of gels, ion exchange, surface active agents, detergency, and retention of particles.

PAPR 620 Paper, Printing, and Ink (2-3) 3 hrs.

A detailed analysis of the interrelationships of paper and the printing process. Testing methods for printing smoothness, ink receptivity, pickup and runnability are the major areas of concentration. Problems associated with printing are also considered as they are influenced by paper, coating, ink, and press conditions and operations.

PAPR 621 Nonimpact Printing (3-0) 3 hrs.

Nonimpact printing processes are discussed in terms of fundamental printing mechanisms. The effects of substrate, paper, for example, properties on the printing processes are considered. Processes discussed include electrophotography, electrothermography, ink jet, die sublimation, magnetography, and ionography.

PAPR 640 Coating Rheology (2-3) 3 hrs.

The theories of flow of non-Newtonian liquids are discussed as they apply to pigmented coating systems. Further theories are formulated and evaluated in the lab to attempt to explain the behavior of coating under the shear conditions found in coating application systems.

PAPR 641 Coating Formulations (2-3) 3 hrs.

Intensive study of the functional properties and cost considerations involved in developing coating formulations. Contributions of pigments, additives, and binders to optical, mechanical, printing, and surface properties are discussed in the context of coating formulations.

PAPR 650 Advanced Paper Processes (3-0) 3 hrs.

Advanced treatment in the production of paper starting at stock preparation, including paper coating, converting, and printing. Particular emphasis on relationship of paper making to production of printing papers. Role of recycled fibers.

PAPR 655 Recycling and Deinking (3-0) 3 hrs.

Survey of current technology relevant to recycling of paper. Fundamental mechanisms and equipment. Future trends and research needs.

PAPR 660 Mechanics and Optics of Paper and Fibers (2-3) 3 hrs.

The mechanics and optics of individual fibers and fiber networks will be considered from both theoretical and measurement standpoints. Stress-strain-analysis, theory of elasticity and flow, statics, reflection, absorption, transmission, and light scattering of these systems will be covered.

PAPR 660 High Polymer Topics (3-0) 3 hrs.

The physical chemistry, engineering properties, and behavior of synthetic and natural polymers and their solutions are presented. Methods of characterization and significance of molecular parameters are included.

PAPR 690 Pulp and Paper Operations I (3 hrs.

A study of unit operations integral to pulp and paper manufacturing. The interdependence, design and optimization of the unit processes are included. The pulp manufacturing and chemical recovery phases are emphasized.

PAPR 691 Pulp and Paper Operations II (3 hrs.

Continuation of the study of the unit operations integral to pulp and paper manufacturing. Paper manufacturing phases are emphasized while completing the systematic study of unit operations used in the industry.

PAPR 693 Environmental Systems Engineering (3 hrs.

The course will focus on the environmental issues associated with the pulp and paper industries. Air, water, solid waste, thermal, and noise emissions, control processes, economic, and legal issues will be studied in concert with the operation of pulp and paper manufacture.
PAPR 695 Graduate Topics in Paper/Printing
1-4 hrs.
A special course dealing in some particular subject of interest in pulp and paper and/or printing. May be repeated with different topics. **Prerequisite:** Permission of the instructor.

PAPR 696 Paper Industry Control Systems
3 hrs.
A study of the control of pulping and papermaking processes with emphasis on computer control strategies and the sensors and instrument systems unique to the pulp and paper industry. Areas covered include process control concepts, process response analysis, digital and distributed digital control systems, programmable logic controllers and other hardwares of control loops.

PAPR 698 Pulping and Bleaching
3 hrs.
The course will cover principles of kraft and sulfite pulping, use of other pulping chemicals such as anthraquinone, borohydride, and polysulfides. It will also cover all types of high yield pulps and bleaching of both chemical and high yield pulps. Bleaching chemicals that will be discussed will include chlorine, chlorine dioxide, hypochlorite, dithionite, hydrogen peroxide, oxygen, and ozone. Various bleaching sequences that are currently in practice and under development will be discussed. **Prerequisites:** PAPR 203, 333.

PAPR 699 Pilot Plant Research
1 hr.
Research experience using the department’s papermaking, recycling, paper coating, and printing pilot plants. Project management and experimental design of research. Preparation of research reports. Course is repeatable to a maximum of 6 hours.

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.**

PAPR 700 Master’s Thesis
6 hrs.

PAPR 710 Independent Research
2-6 hrs.

PAPR 712 Professional Field Experience
2-12 hrs.

PAPR 713 Practicum in Teaching in the Discipline
3 hrs.
A practicum in teaching in paper and imaging science and engineering done as a collaborative effort with an experienced faculty member in an undergraduate course. Six hours are required for the doctoral degree.

PAPR 725 Doctoral Research Seminar
1-6 hrs.
Seminars presented by graduate students, faculty, and visiting lecturers concerning their research. Course is repeatable. Six hours are required for the doctoral degree.

PAPR 730 Doctoral Dissertation
12 hrs.

PAPR 735 Graduate Research
2-10 hrs.
The mission of the College of Fine Arts is to provide scholarly activity, creative experiences and research that inform and support instruction, performance and exhibitions. In addition, the College must provide the resources that will allow students to become effective performers, artists, educators, practitioners, scholars, researchers and specialists in their chosen disciplines. These professionals will be sensitive and experienced in working with diverse populations in schools, arts organizations, communities and families. Critical to the mission are the constant evolution of effective instruction for students; the exploration of meaningful and ever-changing aesthetic issues; educational and artistic partnerships throughout the region; and national and international outreach that enriches the lives of all. Further, the College of Fine Arts embraces a public purpose to elevate the human condition through the arts.

The Goals are:
- to graduate students who will be artist-practitioners in the various art forms;
- to train teachers who will perpetuate the strong traditions of the arts;
- to train therapists to use the arts in a healing capacity;
- to prepare scholars who will continue to disseminate historical and theoretical information;
- to foster an appreciation of the arts among general university students, who will constitute the growing body of people whose lives are enriched by the arts;
- to contribute to the cultural life of the university and the greater Kalamazoo community;
- and to expand our outreach nationally and internationally.

COLLEGE OF FINE ARTS

Master of Fine Arts in Performing Arts Administration

This professional degree program leading to a Master of Fine Arts is designed to prepare graduate students to function effectively in administration positions. The program of study is designed to provide students with skills and knowledge of administration in dance, music, or theatre in areas of planning, budgeting, volunteerism, public relations, leadership, fund raising, and evaluation. Under the guidance of the Director of the M.F.A. program, students will be placed for their practicum experience with local arts organizations. The Field Experience entails placement in disciplines of choice for an extended internship with national arts organizations.

Admission requirements
1. An undergraduate degree with a major in dance, theatre, or music with a 3.0 grade point average. Applicants with other majors will be reviewed on a case-by-case basis and may be asked to submit additional material.
2. A completed application for admission with two official transcripts from all previous undergraduate and graduate institutions.
3. A current resume.
4. A Personal Statement of Purpose, approximately 1,000 words in length, outlining reasons for seeking admission to the program.
5. At least two letters of recommendation.

Program requirements
1. Arts Administration Courses (38 hrs.)
   - Fundraising
     PADM 587 Fund Raising for Nonprofit Organizations (2 hrs.)
   - Audience Development
     THEA 560 Audience Development (2 hrs.)
   - Volunteers
     PADM 582 Volunteer Recruitment and Retention (1 hr.)
     SOC 674 The Nonprofit Sector in Society (3 hrs.)
   - Financial Planning
     PADM 586 Budget Development for Nonprofit Organizations (2 hrs.)
     ACTY 632 Accounting and Financial Reporting for NPO (3 hrs.)
   - Board of Trustees
     PADM 590 Nonprofit Board-Staff Relations (1 hr.)
   - General Arts Administration
     PADM 641 Administering Arts Organizations (2 hrs.)
   DANC 545 Arts Administration Seminar (1 hr.)
EDLD 601 Evaluations in Nonprofit Organizations (2 hrs.)
THEA 561 Facility and Ticket Office Operations (2 hrs.)
DANC 589 Set Design, Scenic Execution and Production (2 hrs.)
PADM 644 Human Resources for Nonprofit Organizations (2 hrs.)
SWKR 623 Leadership in Nonprofit Organizations (2 hrs.)
PADM 627 Planning in Nonprofit Organizations (2 hrs.)
•Contracts
FCL 681 Legal and Ethical Issues for Nonprofit Organizations (2 hrs.)
•Grant Writing
PADM 649 Grant Writing for Nonprofit Organizations (2 hrs.)
•Marketing
PADM 584 Promoting Nonprofit Organizations (2 hrs.)
COM 685 Public Relations for Managers (3 hrs.)

2. Arts Criticism/Writing (6 hrs.)
ENGL 633 Professional Writing: Form and Technique (3 hrs.)
MUS 645 Arts Administration: Criticism (3 hrs.)

3. Arts Administration Projects (16 hrs.)
THEA 612 Practicum in Arts Administration (3-9 hrs.)
GEAD 712 Professional Field Experience (6-9 hrs.)
PADM 680 Project Paper Seminar (3 hrs.)

Students must complete the Arts Administration courses prior to (or concurrent with) the initial enrollment in THEA 612. Students must complete 36 hours prior to enrollment in GRAD 712. Equivalency to some courses may be available through credit by examination.

The Practicum (THEA 612) is intended to be a placement with one of the many local nonprofit arts organizations in the Greater Kalamazoo Area. The Field Experience (GRAD 712) will involve placement with a national nonprofit arts organization in the student’s area of expertise and will conclude with the Project Paper Seminar (PADM 680).

ART
Professor Phillip Vander Weg, Chair
Main Office: 1420 Sangren Hall
Telephone: 387-2436
FAX: 387-2477

Wendy Babcox
Dina Bangdel
Barbara Brotherton
Cybele Clark-Mendes
Cat Crotchett
Richard dePeaux
Edward Harkness
Tricia Hennessy
Keith Jones
Richard J. Keavany
Joyce Kubiski
Albert Lavergne
John Link
Charles LoVerme
Bruce Nefel
Curtis A. Rhodes
Paul Solomon
Charles Stroh
Vince Torano
Phil VanderWeg

The philosophy underlying the Department of Arts courses and programs is to establish an awareness and understanding of the visual arts, to gain a liberal arts education, and, likewise, that a liberal education is a necessary part of a professional artist's training. To that end, programs in Art seek to meet the objectives of three different types of students: those who have an interest in simply taking courses in the field for personal enjoyment and growth, those with professional ambitions in the various areas of practice and teaching, and those liberal arts oriented persons who seek to major in the general field of the visual arts.

The various programs offered by the Department of Art are designed to promote the education of good artists and artists-teachers and to increase the artistic awareness among students in other areas. Extracurricular activities include many exhibitions, lectures by practicing artists, and student-operated galleries. The purpose of graduate study in the Department of Art is to advance: Individual studio and scholarly talents, interests, and philosophies; used creatively both to expand and preserve our cultural heritage; professional studio competence exemplified by a significant body of work; the student's potential to solve contemporary problems in all aspects of the visual arts and to explore and address new questions and issues; professional competence in the dissemination of knowledge, including logical, clear verbal and written presentation of aesthetic ideas in teaching and other contexts; scholarly competence in the organization, evaluation, and interpretation of knowledge.

Both the Master of Arts, an initial graduate degree, and the Master of Fine Arts, which is the terminal studio degree, are offered in the following practice oriented areas of emphasis: Sculpture, ceramics, printmaking, photography, painting/watercolor, and graphic design. All programs have the same admission requirements.

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.

Art Practice emphasis requires a minimum thirty credit hours, for students interested in advanced study in art practice for professional reasons.

Admission Requirements
1. An undergraduate degree with a major in art or its equivalent.
2. A completed application for admission.
3. A portfolio of slides must be submitted directly to the Graduate Coordinator of the Department of Art. It should include twenty slides in the applicant's area of concentration. The slides must be submitted in a plastic sleeve with artist's name, size of work, year, and medium.
4. A statement of intent outlining the reasons for seeking admission to a graduate program in a specific area of concentration.
5. Three letters of recommendation for admission.
6. A current resume.

Program Requirements
1. Twelve hours in one area of concentration.
2. Six hours in advanced art history.
3. Two hours in ART 625, Graduate Seminar.
4. At the end of each student's first and second semester, a formal review by a Graduate Committee will (a) determine continuation in the degree program; (b) delay review by one semester; (c) drop the student from further degree status in the program.
5. Two hours in ART 613, Graduating Presentation. This course includes a final exhibition and oral presentation which must be approved by the student's Graduate Committee before the Master of Arts is granted.
6. Eight hours in electives, five of which must be taken within the Department of Art.

Master of Fine Arts in Art
Advisors:
Ellen Armstrong, John Kollig,
Room 1406, Sangren Hall
Vince Torano, Graduate Coordinator
Room 1404, Sangren Hall

The sixty-hour Master of Fine Arts program is recommended as a terminal degree for practicing artists and for prospective higher education art professors. It is intended for artists who have a clear notion of their artistic purposes and are primarily interested in continuing their personal and artistic development.

Admission Requirements
1. An undergraduate degree with a major in art or its equivalent.
2. A completed application for admission.
3. A portfolio of slides must be submitted directly to the Graduate Coordinator of the Department of Art. It should include twenty slides in the applicant's area of concentration. The slides must be submitted in a plastic sleeve with artist's name, size of work, year, and medium.
4. A statement of intent outlining the reasons for seeking admission to a graduate program in a specific area of concentration.
5. Three letters of recommendation for admission.
6. A current resume.

Program Requirements
1. Twenty-four hours in the major area of concentration.
2. Nine hours in art history.
3. Eighteen hours in electives, chosen in consultation with the student's faculty advisor.
4. Three hours in ART 610, Advanced Drawing.

Master of Arts in Art
Advisors:
Ellen Armstrong, John Kollig,
Room 1406, Sangren Hall
Vince Torano, Graduate Coordinator
Room 1404, Sangren Hall
Prerequisite: ART 310.

ART 520 Independent Study in Art History 2-3 hrs.
Problems in art history from ancient times to the present selected by the individual student in consultation with the instructor. Repeatable for credit. Prerequisite: ART 220, 221, and a 500-level course in the area of interest; permission of instructor.

ART 521 Topics in Art History: Variable Topics 3 hrs.
Investigation of changing topics in art history in class or seminar sessions by advanced students. Course title varies from term to term. Repeatable for credit under a different title. Prerequisites: Art History major or minor with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

ART 522 Topics in Medieval and Renaissance Art 3 hrs.
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: Art History major or minor with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

ART 523 Topics in Modern Art 3 hrs.
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: Art History major or minor with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

ART 524 Topics in Native American and African Art 3 hrs.
Investigation of changing topics in Native American and African art in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics. Prerequisites: Student must be an Art History major or minor with junior status higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

ART 525 Topics in Asian Art 3 hrs.
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: Art History majors or minors with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

ART 527 Art History Methods 3 hrs.
Intensive study of the methods, literature, and research techniques used in art historical inquiry and writing. Prerequisite: Art History major or minor with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

ART 529 Art History Internship 1 hr.
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. Art History majors and minors only; registration requires approval by supervising faculty member.

ART 530 Ceramics Workshop 1-6 hrs.
Advanced work in ceramics on an independent basis. Repeatable for credit. Prerequisite: ART 330.

ART 531 Sculpture Workshop 1-6 hrs.
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. Repeatable for credit. Prerequisite: ART 331.

ART 535 Multi-Media Workshop 1-6 hrs.
Various forms of art that deviate from the conventional media, such as light, kinetic, and performance art. The student is expected to have a solid background in one of the traditional art forms, such as ceramics, painting, sculpture, printmaking, drawing, graphic design, metals, or textiles. Repeatable for credit. Prerequisite: ART 335.

ART 536 Jewelry and Metalsmithing Workshop 1-6 hrs.
Advanced work in jewelry design and metalsmithing. Students collaborate with the instructor to plan a suitable and particular direction for study. Repeatable for credit. Prerequisite: ART 336.

ART 540 Painting Workshop 1-6 hrs.
Continuation of ART 340. Repeatable for credit. Prerequisite: ART 340.

ART 541 Printmaking Workshop 1-6 hrs.
An advanced seminar for experienced graphic students; all printmaking media available; emphasis on development of personal concepts and refinement of methods appropriate to individual needs through research. Prerequisite: Any 300 level print-making course. Repeatable for credit.

ART 542 Watercolor Workshop 1-6 hrs.
Continuation of advanced watercolor techniques with emphasis on experimentation. Repeatable for credit. Prerequisite: ART 342.

 ART 544 Hand Papermaking 1-6 hrs.
Continuation of ART 244 and ART 344. Prerequisite: ART 344.

ART 548 Photography Workshop 1-6 hrs.
Professional development through research in advanced projects. Repeatable for credit. Prerequisite: ART 348.

ART 552 Preparation for Art Teaching 3 hrs.
A course designed to investigate: the current problems and issues on the social scene which affect teaching and learning in the visual arts at all levels of the public school; the creative person, product, process, and press (environment); the phenomena of perceptual learning; the actual construction of an operant art curriculum for the elementary, middle, and high school programs. Prerequisite: ART 452 and art major status.

ART 553 Independent Studies in Art Education 1-6 hrs.
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.) This course is open to graduate and non-degree level students. Prerequisites: 252, 352, 452, 552, and permission of the art education chairperson.

ART 560 Arts Education for the Elementary Teacher 3 hrs.
A studio course designed for the elementary classroom teacher to provide experiences in qualitative elementary arts and integrated arts programming in the elementary public school. Repeatable for credit.

ART 570 Intern I 3 hrs.
Design Practicum in Design Center. Involves an introduction to problem solving for real 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. Fall and winter semester. Prerequisites: ART 351 and ART 361.

ART 571 Intern II 3-6 hrs.
Design Practicum in Design Center. Involves an introduction to problem solving for real 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. 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. Winter semester only. Prerequisites: ART 460 and ART 580.

Open to Graduate Students Only

ART 610 Advanced Drawing 1-6 hrs.
Graduate level work in drawing. Repeatable for credit. Prerequisite: ART 510 and official admission to an Art graduate program.

ART 613 Graduating Presentation 2 hrs.
Preparation and presentation of graduating exhibition, portfolio, and oral examination with the assistance of the student's major advisor. Evaluated by the student's Graduate Committee. Prerequisite: Last year of graduate study.
ART 620 Independent Study in Art History

1-3 hrs.

Problems in art history from ancient times to the present selected by the individual student. Repeatable for credit. Prerequisite: ART 220, 221, and a 500-level course in the area of interest or the equivalent; permission of instructor.

ART 621 Graduate Topics in Art History

3 hrs.

Graduate level seminar in art history covering varying topics, ranging from prehistoric to modern periods.

ART 625 Graduate Art Seminar

1 hr.

A survey, investigation, discussion, and evaluation of selected topics in contemporary art and associated practicum activities. Topics for investigation may include: Exhibition Preparation in Galleries and Museums; the Artist and the Market; Technology and Computers in Art; Funding Artists and Art Programs; Artists and Society: The Audience and Form of Taste; Moral Philosophy and Art. Graded on a Credit/No Credit basis. Prerequisite: Art major status.

ART 630 Advanced Ceramics

1-6 hrs.

Graduate level work in ceramics. Repeatable for credit. Prerequisite: ART 530 and official admission to an Art graduate program.

ART 631 Advanced Sculpture

1-6 hrs.

Graduate level work in sculpture. Repeatable for credit. Prerequisite: ART 531 and official admission to an Art graduate program.

ART 635 Advanced Multi-Media Art

1-6 hrs.

Graduate level work in Multi-Media Art. Repeatable for credit. Prerequisite: ART 535.

ART 640 Advanced Painting

1-6 hrs.

Graduate level work in painting. Repeatable for credit. Prerequisite: ART 540 and official admission to an Art graduate program.

ART 641 Print Workshop/Seminar

1-6 hrs.

Advanced research in development of personal concept, method, and uses of graphic processes. Emphasis on personal expression; exploration toward an individual and mature imagery. Prerequisite: ART 541 and official admission to an Art graduate program.

ART 642 Advanced Watercolor

1-6 hrs.

Graduate level work in watercolor. Repeatable for credit. Prerequisite: Official admission to an Art graduate program.

ART 645 Advanced Graphic Design

1-6 hrs.

Graduate level work in graphic design. Repeatable for credit. Prerequisite: ART 545 and official admission to an Art graduate program.

ART 648 Advanced Photography

1-6 hrs.

Graduate level work in photography. Repeatable for credit. Prerequisite: ART 548 or equivalent experience and official admission to an Art graduate program.

DANCE

Professor Janet Stillwell, Chair

Main Office: 3107 Dalton Center

Telephone: 387-5850

Fax: 387-5809

Jane Baas

Trudy Cobb

Wendy Cornish

David Curwen

Sharon Garber

Nina Nelson

Janet Stillwell

Lindsey Thomas

Dance Courses (DANC)

Open to Upperclass and Graduate Students

DANC 545 Arts Administration Seminar

1 hr.

To be taken in conjunction with PADM 641 Administering Arts Organizations. The seminar will offer the student an opportunity through readings and discussions to focus on those administrative issues specific to the student's art discipline. Prerequisite: Admission to M.F.A. in Performing Arts Administration program or permission of program director.

DANC 589 Season Planning and Production

2 hrs.

This course will address two components. The Season Planning component will cover the programming of an entire season of live performances focusing on program concepts, choices of facilities, scheduling, budgeting, and marketing. The Production component will address planning, schedules, touring, front-of-house management, contracting, technical production, stage management, rehearsals, and performances. Prerequisite: Admission to M.F.A. in Performing Arts Administration program or permission of program director.

DANC 598 Readings in Dance

1-4 hrs.

Advanced students with good academic standing may elect to pursue independently a program of readings in areas of special interest. Prerequisite: Approved application required.

DANC 599 Non-Reading Independent Study in Dance

1-4 hrs.

Advanced students with good academic standing may elect to pursue independently 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. Prerequisite: Approved application required.

MUSIC

Dr. Richard O'Hearn, Director

Main Office: 2146 Dalton Center

Telephone: 387-4667

Fax: 387-1113

Richard Adams

John Campos

David Lobeg Code

Curtis Curtis-Smith

Igor Fedotov

Delores Gauthier

Daniel Jacobson

Stephan Jones

Renata Artman Knific

Thomas Knific

Trent P. Kynaston

David Little

John A. Lychner

James McCarthy

Margaret Merion

Andrew Miller

Joe Miller

Michael Miller

Judy Moenert

Richard O'Hearn

William Pease

Johnny Pherigo

Carl Ratner

Robert J. Ricci

Silvia Roedener

Wendy Rose

Edward Roth

David A. Sheldon

Lori Sims

Christine Smith

David S. Smith

Robert Spradling

Matthew Steel

Scott W. Thornburg

Linda Trotter

Bruce Uchimura

Karen Wicklund

Brian Wilson

Steve M. Wolfinbarger

Bradley Wong

Stephen Zegree

Master of Music

Advisors:

Johnny Pherigo,
Room 2144, Dalton Center

Brian Wilson,
Room 2305, Dalton Center

The Master of Music is designed to enhance the student's teaching, performing, research, and creative abilities in music. The School of Music offers course work leading to a Master of Music degree in five different areas of concentration: Performance, Composition, Conducting, Music Education, and Music Therapy. Western's School of Music is accredited by the National Association of Schools of Music and all areas of concentration carry curriculum approval from that accrediting association. The Music Therapy program is approved by the American Music Therapy Association.

Admission Requirements

A Bachelor of Music degree, or its equivalent, including sixty (60) semester hours of acceptable work in music, is required for admission. Students are admitted to graduate study in music on the basis of transcripts. Exceptions to admission requirements may be granted if competency can be demonstrated through Preliminary Examinations. Admission to the School of Music does not imply that the student will be permitted to pursue a specific area of concentration (performance, composition, etc.). Program of study will not be determined until Preliminary Examinations are taken and the student has completed 6-10 semester hours of course work. At that time a
concentration. Deficiency course work will not apply toward the degree.

Concentration Requirements
1. Required courses: MUS 610, Introduction to Research in Music (3); MUS 630, Advanced Choral Conducting (2) or MUS 531, Advanced Instrumental Conducting (2); MUS 577, Symphonic Literature (2) or MUS 551, Choral Music Literature (2) or MUS 582, Wind Music Literature (2); MUS 600, Applied Conducting—2 semesters (4); MUS 610, Introduction to Research in Music (3); MUS 664, Form in Music (2); MUS 670, Seminar in Musology (2) or MUS 679, Composers (2); and MUS 690, Graduate Music Literature (cognate)—4 semesters (2) or comprehensive exam.
2. Cognate music studies: composition, music education, history/literature, theory, jazz studies (9-12).
3. Electives to make a total of at least 30 semester hours. Must include a 600-level music theory and a 600-level music history course unless already required in the program.

COMPOSITION
(Minimum of 30 hrs.)

Admission Requirements/Procedures
Preliminary examinations in theory, history/literature, and performance. The performance preliminary examination will determine if the student will be permitted to pursue this major area of concentration.

Concentration Requirements
1. Required courses: MUS 610, Introduction to Research in Music (3); MUS 680, Graduate Recital (2), including oral exam.
2. Cognate music studies: composition, music education, history/literature, theory, and jazz studies (9-12).
3. Electives to make a total of at least 30 semester hours. Must include a 600-level music theory and a 600-level music history course unless already required in the program.

MUSIC THERAPY
(Minimum of 30 hrs.)

Admission Requirements/Procedures
A Bachelor of Music degree or its equivalent, with a major in music education, and a teaching certificate are required for admission. Preliminary Examinations in theory and history/literature.

Concentration Requirements
1. Required courses: MUS 610, Introduction to Research in Music (3); MUS 680, Philosophy of Music Education (2); MUS 650, Seminar in Music Education (2); MUS 681, Research in Music Education (2)* or b) MUS 700, Master's Thesis (6)* or c) eight (8) hours of pre-approved graduate courses, including written comprehensive exam.
2. Electives in music education (5-8).
3. Cognate music studies: applied music, composition, theory, history/literature, jazz studies (9-12).
4. Electives to make a total of 30-36 semester hours. Must include a 600-level music theory and a 600-level music history course, unless already required in the program.

"Every student is required to register for one of these culminating projects, each of which includes an oral exam. For students anticipating doctoral studies, a thesis is strongly recommended.)
2. Elective music courses (6-9).
3. Non-music electives—selected from one of the following departments and including at least one course in statistics: Anthropology, Blind Rehabilitation and Mobility, Counselor Education and Counseling Psychology, Mathematics and Statistics, Occupational Therapy, Psychology, Sociology, Special Education, Speech Pathology and Audiology, Education and Professional Development (8-9).

(*The student must have completed the six-month internship required for Board Certification prior to enrolling in MUS 700, Master's Thesis, and MUS 712, Professional Field Experience.)

Master of Arts in the Teaching of Music

The School of Music and the Department of Education and Professional Development offer a Master of Arts in the Teaching of Music. The purpose of the degree program is to offer course work in music and teacher education which will enhance the student's teaching abilities in general, and more especially in the area of music. This degree program is accredited by the National Association of Schools of Music. A minimum of thirty semester hours of credit are required to complete this degree.

Admission Requirements
A Bachelor of Arts or Science degree, or equivalent, with a major in music, and a teaching certificate are required for admission. Students are admitted on the basis of transcripts, which must include at least forty semester hours of acceptable work in music. Exceptions to admission requirements may be granted if competency can be demonstrated through Preliminary Examinations. Program of study will not be determined until Preliminary Examinations are taken and the student has completed 6-10 semester hours of course work. At that time, a recommendation for degree candidacy will be approved if the student has demonstrated a sufficient level of scholarship and musicianship. Preliminary Examinations will be administered in the areas of music history/literature and music theory.

Program Requirements
The graduate student advisor in the School of Music will work closely with each student in planning and implementing a degree program which will accommodate the student's professional needs and interests and, at the same time, will realize the full value and depth of the University's graduate offering. The student's needs are determined by an evaluation of the results of Preliminary Examinations and a review of the first 6-10 semester hours of course work taken. After this evaluation and review, the graduate advisor provides information to the student regarding probable success in the degree program and any time limitations that may apply to the student's completion of degree requirements.

Program requirements include:
1. Nine hours from the Education core courses: ED 602, School Curriculum (3); ED 603, Social and Philosophical Foundations (3); ED 604, Psychological Foundations of Education (3).
2. Eleven hours of Music Education courses: MUS 610, Introduction to Research in Music (3); MUS 642, Philosophy of Music Education (3); MUS 650, Seminar in Music Education (2); Elective in Music Education (2); Cumulating option (choose a or b a) MUS 691, Special Project in Music (2) with oral exam or MUS 681, Research in Musical Behavior (2) with oral exam, or b) eight (8) hours of pre-approved graduate courses, including written comprehensive exam.
3. Four hours in applied music, music theory, or music history/literature.
4. Six hours of electives, selected in consultation with the graduate advisor.

Music Courses (MUS)

Open to Upperclass and Graduate Students

MUS 501 Master Class 2 hrs.
The study of literature, performance practices, and techniques for a specified musical medium (instrument or voice). Individual performance assignments will be made appropriate to each student's level of accomplishment. Class meetings may vary from small groups of students with common performance levels to meetings for the entire class. The purpose of the degree program is to offer course work in music and teacher education which will enhance the student's teaching abilities in general, and more especially in the area of music. This degree program is accredited by the National Association of Schools of Music. A minimum of thirty semester hours of credit are required to complete this degree.

MUS 514 Instrumental Chamber Music 1 hr.
Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of combinations, e.g., string quartets, woodwind ensembles, brass quintets, percussion ensembles, piano trios, etc. Credit will be given only if a sufficient rehearsal/performance schedule warrants.

MUS 516 Music Theatre Practicum 1 hr.
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.

MUS 517 Collegium Musicum 1 hr.
Performance of early Western music. Open to all students of the University. Additional transcription, arranging, editing, and conducting of early music is required of enrolled Music History majors. Graduate students may count not more than two hours of this course for graduation. Membership by audition.

MUS 518 Improvisation 2 hrs.
A course in the fundamentals of instrumental improvisation, including the techniques of scales, chords, and melodies, as well as "free" improvisations. Prerequisite: MUS 161.

MUS 630 Advanced Choral Conducting 2 hrs.
Supervised experience in conducting vocal groups. The student may be called upon to prepare an ensemble for public performance. Prerequisite: Audition required.

MUS 531 Advanced Instrumental Conducting 2 hrs.
Supervised experience in conducting instrumental groups. The student may be called upon to prepare an ensemble for public performance. Prerequisite: Audition required.

MUS 542 Studies in Music Education 2 hrs.
Topic to be announced. Selection will be made from the following topics: MUS in the Humanities, Evaluation of Music Education Materials, and Curriculum Planning for Innovation in Music Education. This course may be repeated to an accumulation of no more than four credits.

MUS 546 Computer Assisted Instruction in Music 3 hrs.
The primary goal of the course is to teach students, who already program, some of the specific techniques used in developing original software for CAI in music. The main activity in the course will be programming, and one of the products of the course should be, for example, a program of sufficient sophistication as to at least nominally qualify it for publication. Prerequisite: CS 105 or 502 or consent of instructor.

MUS 555 Advanced Jazz Arranging 2 hrs.
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 arrangements, scoring practices, calligraphy, and contemporary trends within the medium. Prerequisite: MUS 158 (or consent of Instructor) and MUS 161; "C" or better required in each course.

MUS 556 Advanced Jazz Arranging I 2 hrs.
A study and application of the art of arranging for the jazz ensemble, studio orchestra and show orchestra. The course undertakes a detailed study of scoring for winds, brass, strings, voices and percussion in relation to traditional and contemporary trends within the medium. Prerequisite: MUS 555 and MUS 264 or concurrently.

MUS 558 Jazz Improvisation I 2 hrs.
A study and directed application of the fundamentals of jazz improvisation including chord extension, voicing, inversions and substitutions, chord function and progressions, and comprehension of the applications. All students will be required to develop aural and performance skills relative to those theory skills. Prerequisite: MUS 158 (or consent of Instructor) and MUS 161; C or better required in each course.

MUS 559 Jazz Improvisation II 2 hrs.
A study and directed application of advanced techniques of jazz improvisation including chord extension, voicing, inversions and substitutions, chord function and progressions, and comprehension of the applications. All students will be required to develop aural and performance skills relative to those theory skills. Prerequisite: MUS 558 and MUS 218 Jazz Ensemble or concurrently.

MUS 560 Counterpoint 2 hrs.
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. Prerequisite: MUS 161 with a grade of C or better.

MUS 561 Counterpoint 2 hrs.
A continuation of MUS 560, MUS 560.

MUS 564 Electronic Music Composition 2 hrs.
Original music composition with digital and analogue synthesizers and computers. Creation of sound scores for concert performance, film, video, dance, theatre, or art installations. Includes the investigation of various types of sound synthesis, as well as the operation of studio sound mixers and mult-track recorders. In addition to the weekly seminar, the student will be assigned a number of hours weekly for independent work in the studio for the realization of the project,
which will receive periodic guidance and
criticism from the instructor. May be repeated
credit. Lab fee required ($30). Prerequisite:
MUS 263 or permission of the instructor.
MUS 565 Seminar in Music Theory
2 hrs.
Research projects in music theory. Research
trends and an analytic discipline are stressed.
Study will be focused in an area of
the student's interest or need. Prerequisite:
MUS 261.
MUS 566 Musical Acoustics
3 hrs.
A course designed for the music student.
Discussion as well as laboratory demonstration
of such concepts as: simple vibrating systems,
waves and wave propagation, complex
vibrations, resonance, intensity and loudness
levels; tone quality; frequency and pitch;
intervals and scales; tuning and temperament;
auditorium and room acoustics; psychoacoustics.
In addition, the instruments of the orchestra, the human voice, and recent developments in sound system components will be investigated. Prerequisite: MUS 161.
MUS 567 Orchestration
2 hrs.
A study of the characteristics of instruments,
and of arranging for the various individual
choirs, for combinations of choirs, and for full
orchestra. Prerequisite: MUS 261.
MUS 568 Orchestration
2 hrs.
A continuation of MUS 567. Prerequisite: MUS 567.
MUS 570 Introduction to Musicology I
3 hrs.
A course in general methods and techniques
or research in the field of music. Students will
complete annotated note cards on important
reference works and write a research paper on
a topic of their choice. Prerequisite: Permisson of instructor.
MUS 571 Introduction to Musicology II
3 hrs.
The course will deal with the history, purposes,
and scope of musicology. Topics to be studied
include leading historians, past and present;
modern methods of research, with special
emphasis on primary sources; and bibliography of the field. Prerequisite: MUS 570.
MUS 572 Baroque Music (1600-1750)
3 hrs.
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: MUS 270 and 271.
MUS 573 Classical Music (1750-1800)
2 hrs.
Examination of the choral works of Mozart and
Haydn, with intensive study of symphonic form
and the development of the classic opera.
Prerequisites: MUS 270 and 271.
MUS 574 Romantic Music (1800-1910)
3 hrs.
Music of the important composers of the
period beginning with Beethoven, along with
the historical, cultural, and political
background of the era. Prerequisites: MUS 270 and 271.
MUS 577 Symphonic Literature
2 hrs.
A survey of music written for symphony orchestra during the Classic and Romantic periods.
MUS 578 Chamber Music Literature
2 hrs.
A survey of chamber music literature of the
Classic and Romantic periods.
MUS 579 Operatic Literature
2 hrs.
A survey of opera from 1600 to the present.
MUS 580 Solo Literature: (topics)
2 hrs.
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: MUS 270 and 271.
MUS 581 Choral Music Literature
2 hrs.
A survey of choral music (mass, motet,
antehm, cantatas, oratorios) from the
Renaissance through the Romantic period.
MUS 582 Wind Music Literature
2 hrs.
A survey of windband ensembles and
literature from the Renaissance period through
the twentieth century.
MUS 583 Jazz History and Literature
3 hrs.
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. Prerequisite: MUS 558 or department's consent.
MUS 585 Medieval Music
2 hrs.
A survey of music in Western Europe from the
end of Antiquity to the early 15th 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: MUS 270 and MUS 271.
MUS 586 Renaissance Music
2 hrs.
A survey of music in Western Europe from the
early 15th century to the early 17th century.
Developments in the major musical genres of
the era will be examined with emphasis on a
comparison of the Franco-Flemish tradition with
the emerging national styles. Performance
practice options will be explored. Prerequisites: MUS 270 and MUS 271.
MUS 587 Contemporary Music
2 hrs.
A survey of trends in European music and
music of the Americas from about 1910 to the
present.
MUS 588 Music Cultures of the World
3 hrs.
This topics course is designed to provide
students with an intensive study of the musical
traditions of a single cultural-geographic area.
Attention will focus on the characteristics of
instruments and instrumental ensembles, vocal
traditions, sound structures, and theatrical
traditions as well as the historical, political,
and socio-demographic factors that shape the
area's performing traditions. May be repeated for credit with different topics. Prerequisite: Consent of instructor for non-music majors.
MUS 589 Topics in Ethnomusicology
3 hrs.
This topics course examines various methods,
problems, and issues in ethnomusicological
writing and research. Topics will vary and be announced each semester. The approach
taken in the course reflects current practice in
the field of ethnomusicology, drawing upon
theoretical writings in a variety of disciplines
including ethnomusicology, musicology,
antropology, the history of music, and women's studies. May be repeated for credit
with different topics. Prerequisite: Consent of
instructor for non-music majors.
MUS 590 Studies in Pedagogy
1-4 hrs.
Topics to be announced. Selection will be
made from the following: Piano Pedagogy,
Vocal Pedagogy, String Pedagogy, Brass
Pedagogy, Woodwind Pedagogy, Pedagogy of
Teaching Theory, or similar topics. May be
repeated for credit. Prerequisite: 300-level
applied voice or permission of instructor.
MUS 594 Electronic Media
2 hrs.
The purpose of this course is to expose the
student to the equipment used in various
recording situations and its operations, as well
as discussing the artistic use of this equipment.
Although predomately a technique course, areas
will be covered that will include the creative aspects of the final recording will be discussed (such as microphone placement,
tasteful vs. inappropriate editing, etc.) In
addition to the recording aspects, other
electronic instruments used in performances
will be surveyed, including synthesizers of
various types (both keyboard and non-keyboard) and traditional electronic
instruments (guitars, electronic organs,
electronic pianos, and various sound
modification devices).
MUS 595 Workshops in Music Education
1-4 hrs.
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. Prerequisite: Advisor consent.
MUS 596 Multi-track Recording
2 hrs.
A course in the theory and techniques of
multi-track recording and mixing. Students begin with an in-depth study of the mechanics of
a multi-track recorder and the signal flow of
a recording/mixing console. Microphone
techniques as well as various approaches to
room set-up are presented through reading
assignments and studio demonstrations.
Attention is given both to traditional techniques and
the need for engineers to try new
approaches to familiar circumstances.
Students also study the most commonly used
signal processors and how they might be used
during recording of mixing for best results.
Various listening assignments introduce
students to the subtleties of mixing. A final
project is required wherein each student must
organize and execute a full 24-track
production, from microphone selection
through the final mix. Prerequisite: MUS 594 or
instructor consent.
MUS 597 Projects in Music
1-4 hrs.
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 department. The initiative for
planning the project must come from the
student and must be approved by the faculty
member proposed to supervise the study.
Prerequisite: Application approved by School of Music.

MUS 599 Projects in Recording Technology
1–4 hrs.
An independent study allowing the unusually qualified student the opportunity to explore a topic or problem in recording technology. Prerequisites: MUS 596, approved application, and instructor permission required.

Open to Graduate Students Only

MUS 500 Applied Music
1–2 hrs.
Private lessons for the graduate student in a non-major area of performance.

MUS 600 Applied Music
1–4 hrs.
Private lessons for the graduate student in the major performance area. Includes conducting.

MUS 610 Introduction to Research in Music
3 hrs.
A course in the general methods and techniques of research in the field of music. Students will complete a comprehensive bibliography, an annotated bibliography, and a research paper in the area of concentration of their graduate program of study.

MUS 614 Chamber Music Ensemble
1 hr.
Special ensembles comprised of graduate students to perform chamber music works. Ensembles may include a variety of combinations, e.g., string quartets, woodwind quintets, percussion ensembles, piano trios, vocal ensembles, etc. The course may be repeated for credit. Prerequisite: Approved application.

MUS 617 Opera Workshop
2 hrs.
A production experience in 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.

MUS 640 Band Techniques and Organization
2 hrs.

MUS 641 Choral Techniques and Organization
2 hrs.
The study of choral activities in relation to organization, repertoire, style, diction, singing technique, balance, blend, tone quality, phrasing, rehearsal technique, and conducting.

MUS 642 Philosophy of Music Education
2 hrs.
Designed to acquaint the student with aesthetic and pragmatic thinking regarding the nature and value of music, and to provide a rationale for curricular development and teacher behavior.

MUS 645 Arts: Aesthetics and Criticism
3 hrs.
This course will focus on addressing the "common threads" in the performing arts utilizing theories of aesthetics and criticism as well as the elements that are unique to each discipline. Extensive readings in aesthetics and critical theory will be required, as well as the study of historical aspects of the discipline. Students will be expected to attend a number of arts performances/ events in dance, music and theatre disciplines, and reflect their understanding of readings and discussions through written assignments. Prerequisite: Admission to the Master of Music or the M.F.A. in Performing Arts Administration programs or permission of instructor.

MUS 650 Seminar in Music Education
2 hrs.
Each participant will be expected to develop a project which is of interest to him or her, but each project will be subject to group discussion, review and analysis. The lectures and reading will deal with the entire field of music education. This course may be repeated for credit.

MUS 662 Seminar in Composition
2 hrs.
The completion of an original composition of larger scope for any combination of acoustic instruments, and which may include multi-media. Seminars will include analysis of advanced contemporary works, discussion of current trends in music composition, and reading assignments. May be repeated for credit. Prerequisite: MUS 362 or equivalent.

MUS 666 The Teaching of Theory
2 hrs.
Analysis of various techniques, philosophies, and materials used in teaching theory and their relative strengths and weaknesses. Application of what we know about the learning processes to theory and the practical application of theory to all musical study.

MUS 670 Seminar in Musicology
2 hrs.
A course designed to permit the student to explore selected areas of music history. A project is required which will be subject to group analysis and discussion. The course may be repeated for credit.

MUS 672 Seminar in Jazz
2 hrs.
A course designed to permit the student to explore selected areas in jazz studies. A project is required which will be subject to group analysis and discussion. The course may be repeated for credit.

MUS 674 Seminar in Music Theory
2 hrs.
A course designed to permit the student to explore areas of music theory. A project is required which will be subject to group analysis and discussion. The course may be repeated for credit.

MUS 679 Composers
2 hrs.
An investigation of the life and works of a significant composer. The particular composer selected for study during a given semester will be indicated in the Schedule of Course Offerings. The course may be repeated for credit when dealing with a different composer.

MUS 680 Seminar in Music Therapy
2 hrs.
A course designed to permit the student to explore selected areas of music therapy, i.e., therapeutic techniques, evaluation procedures, or role of music therapy in a variety of settings (hospital, school, community). A project is required, which will be subject to group analysis and discussion. The course may be repeated for credit.

MUS 681 Research in Musical Behavior
2 hrs.
Development and employment of research methods and techniques applied to the psychology of music and/or music education. Students enrolled in this course will be responsible for an experimental research project which, in the case of music education students, will satisfy the "terminal project" requirement (MUS 691) or, in the case of music therapy students, will provide the data basis for the required MUS 700, Master's Thesis. When this course is the culminating project for the master's degree, an oral examination on the project and related areas is an integral part of the requirements. Prerequisite: MUS 610 or ED 601.

MUS 689 Music Teaching Practicum
2 hrs.
A course for teaching assistants which provides for faculty instruction, observation, and supervision in the area of the teaching assignment. The course shall be taken during the first semester of appointment.

MUS 690 Graduate Recital
2 hrs.
Presentation of a full-length recital in the student's area of concentration (music performance or composition). When this course is the culminating project for the master's degree, an oral examination on the recital materials and related areas is an integral part of the requirement.

MUS 691 Special Project in Music Education
2 hrs.
A research project in the area of the teaching of music. The nature of the special project is to be determined in consultation with the Graduate Advisor and appropriate members of the graduate faculty. Projects must be approved prior to registration. When this course is the culminating project for the master's degree, an oral examination on the project and related areas is an integral part of the requirements. May be repeated for credit.

MUS 698 Readings in Music
1–4 hrs.
An advanced, designated project of study. Graduate students may enroll in this course after consultation with the graduate advisor. Prerequisite: Approval of graduate advisor.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

MUS 700 Master's Thesis
6 hrs.

MUS 710 Independent Research
2–6 hrs.

MUS 712 Professional Field Experience
2–12 hrs.
Theatre Courses (THEA)

Open to Upperclass and Graduate Students

THEA 560 Audience Development
2 hrs.
This course will focus on the goals, functions, and means of audience development, with special attention to audience education in the arts. Topics will include the use of quantitative and qualitative analytical techniques to determine bases for creating programs to reach targeted, potential audiences based on demographics; developing master classes, residencies, special presentation, instructional material and post-performance experiences for targeted groups; and methods of evaluating the results of specific programs developed for a specific purpose.
Prerequisite: Admission to the M.F.A. in Performing Arts Administration or permission of program director.

THEA 561 Facility and Ticket Office Operations
2 hrs.
This course will address issues in facility management for presenting and producing performances and special events (e.g., handling food service for premieres and openings of shows, fundraisers, rentals, etc.) with consideration for the size of the performance space including an overview of the physical operations of such a facility, and the use of auxiliary spaces (e.g., Miller Auditorium, Gilmore Theatre Complex, Dalton Center Recital Hall, Multi-Media Room, Dance Studio B, etc.). The course will also include basics of setting up and running a ticket office for both manual and computerized systems, as well as special sales, audit requirements and artist payments based on percentages. Personnel requirements will be included in relation to the variable above. Prerequisite: Admission to the M.F.A. in Performing Arts Administration or permission of program director.

THEA 564 Drama in Education
3 hrs.
Study of the principles, materials, and techniques of using informal drama as a classroom activity in elementary grades. Emphasizes theoretical and practical application through the planning and teaching of drama experiences. Prerequisites: EED admission; ART, DANC, MUS, or THEA 148; ART 200; ED 230; DANC 290; MUS 140; consent of instructor.
Open to Graduate Students Only

THEA 612 Practicum in Arts Administration
3-9 hrs.
Students in the M.F.A. in Performing Arts Administration will be placed with area arts organizations and at some campus sites (e.g., Miller Auditorium) in situations where they will work along side professionals in various aspects of arts administration. These experiences may take place during various times of the academic year and are offered for variable credit to allow for the greatest flexibility. Prerequisite: Admission to the M.F.A. in Performing Arts Administration or permission of program director.
COLLEGE OF
HEALTH AND HUMAN SERVICES

BLINDNESS AND LOW VISION STUDIES

Dr. Paul Ponchillia, Chair
Main Office: 3405 Sangren Hall
Telephone: 387-3449
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URL: http://www.wmich.edu/hhs/blrh/html/blrh.htm

David Guth
Robert LaDuke
Helen Lee
James Leja
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Susan Ponchillia
Annette Skallengar
Marvin Weessies
Jennifer Wiebold
William R. Wiener

The Department of Blindness and Low Vision Studies offers four master's degree programs. The programs in Orientation and Mobility and in Rehabilitation Teaching are approved by the Association for Education and Rehabilitation of the Blind and Visually Impaired. The program in Rehabilitation Counseling is accredited by the Council on Rehabilitation Education. It is the mission of the Department to provide instruction, conduct research, and offer professional service in an effort to prepare students to serve individuals with visual impairments.

Federal grants from the United States Department of Education provide students enrolled in most masters' programs with tuition assistance and stipend awards. The programs are designed to prepare individuals for entry level positions in Orientation and Mobility, Rehabilitation Teaching, Rehabilitation Counseling/Teaching, and Teaching Children Who Are Visually Impaired. Orientation and Mobility and Mobility in public and private blindness agencies, in schools, and in rehabilitation facilities. The Orientation and Mobility and the Rehabilitation Teaching programs require 36 and 39 semester hours of course work respectively and can each be completed in three consecutive semesters. The Rehabilitation Counseling/Teaching program requires 77 semester hours of course work and can be completed in six consecutive semesters. The Teaching Children Who Are Visually Impaired program requires 65 semester hours and can be completed in four consecutive semesters.

Curriculum guides for the four programs are available from the Department office.

Admission Requirements
Admission to a Master of Arts program in the department is based upon undergraduate academic record, appropriate goals, related experience, interpersonal and communication skills, emotional maturity, and functional independence. Prior to consideration by the M.A. Admissions Committee, applicants are required to complete and return a departmental application obtained from the Department of Blindness and Low Vision Studies and a Graduate Self-Managed Application obtained from the Office of Admissions and Orientation. Upon admission, an applicant is assigned an advisor who will assist in preparing a Program of Study.

The Department recognizes the importance of increasing the educational opportunities of minority students as well as insuring diversity of role models in the field of rehabilitation. Therefore, the Department strives to create an atmosphere conducive to the concerns of diverse populations, to integrate these concerns into programs and course offerings, and to fulfill its commitment to recruit, admit, and graduate minority students prepared for their chosen careers. Toward this end, the Department, the College of Health and Human Services, and The Graduate College provide additional financial and program support for eligible minority students.

Master of Arts in Orientation and Mobility
Advisor:
Marvin Weessies,
Room 3410, Sangren Hall

The thirty-six hour Orientation and Mobility (OMS) degree program prepares specialists who teach adults who have blindness or low vision, the conceptual and physical processes involved in moving independently, safely, and efficiently in their homes and communities. One may also earn dual degrees in Orientation and Mobility and in Rehabilitation Teaching, which can be accomplished in two additional semesters.

Master of Arts in Rehabilitation Teaching
Advisor:
Susan Ponchillia,
Room 3413, Sangren Hall

The thirty-nine hour Rehabilitation Teaching (HTB) degree program prepares a practitioner to offer instruction to people who have blindness or low vision in the following skills of independent living: communications, adapted computer technology, personal management, home management, minor household repairs, and leisure time activities. One may also earn dual degrees in Orientation and Mobility and in Rehabilitation Teaching, which can be accomplished in two additional semesters.
Master of Arts in Rehabilitation Counseling/Teaching
Advisor: Jennifer Webold, Room 3411, Sangren Hall

This program** (RCT) is jointly administered by the Department of Blindness and Low Vision Studies and the Department of Counselor Education and Counseling Psychology. The seventy-seven hour Rehabilitation Counseling/Teaching degree program prepares a dualy competent practitioner who is able to provide both rehabilitation counseling and rehabilitation teaching skills. Graduates receive two Master of Arts degrees that make them eligible to become certified rehabilitation counselors and AER certified rehabilitation teachers. Graduates are prepared to provide a full range of vocational rehabilitation counseling services to individuals with physical, intellectual, cognitive, and psychiatric disabilities. As rehabilitation counselors, the graduates assist clients with career choices, manage their acquisition of work-related skills, develop jobs, and assist with placement into employment. As rehabilitation teachers, they serve people with blindness and low vision by providing instruction in the activities of daily living, communications, and recreation/leisure.

Master of Arts in Orientation and Mobility with a Concentration in Teaching Children
Advisor: Annette Skellenger, Room 3404, Sangren Hall

The thirty-seven hour Orientation and Mobility degree program prepares Orientation and Mobility specialists to work with children. This program includes instruction in the typical O&M curriculum to prepare children to move independently, safely, and efficiently in their homes and communities. In addition, this degree provides focus on areas such as body image, sensory-motor skills, and concept development. Graduates are eligible to become certified orientation and mobility specialists. Students may choose to complete this degree program with preparation as a teacher of children with visual impairments to attain dual competency.

Master of Arts in Teaching Children Who Are Visually Impaired/Orientation and Mobility with a Concentration in Teaching Children
Advisors: Annette Skellenger, Room 3404, Sangren Hall

This dual degree program is offered through the Teaching Children Who Are Visually Impaired/Orientation and Mobility with a Concentration in Teaching Children program (SEC) which is jointly administered by the Department of Blindness and Low Vision Studies and the Department of Educational Studies. This sixty-five hour degree program prepares a dual competency practitioner who is able to serve in the schools as a teacher of children who have blindness or low vision and as an orientation and mobility specialist. Two degrees are offered in this option: One, a Master of Arts in Teaching Children Who Are Visually Impaired (from the Department of Educational Studies); and the other, a Master of Arts in Orientation and Mobility with a Concentration in Teaching Children (from the Department of Blindness and Low Vision Studies). Graduates of this program are eligible to become certified teachers and certified orientation and mobility specialists. It is also possible to specialize in only one of these degrees.

Blindness and Low Vision Studies Courses (BLRH)

Open to Upperclass and Graduate Students
BLRH 577 Services for Persons Who Are Blind or Have Other Disabilities
1-2 hrs.
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 service delivery, national and international agencies and organizations, national and international resources, social service programs, and trends and future issues.

BLRH 584 Computer Technology in Rehabilitation
3 hrs.
This course is designed to introduce the student to computer technology, as it relates to persons with disabilities. Students will learn the uses, parts, and operating commands of common adaptive computers, as well as the software used with them. In addition, the major adaptive forms of input and output are investigated.

BLRH 586 Job Analysis and Job Placement
2 hrs.
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.

BLRH 588 Psychosocial Aspects of Disability
2 hrs.
This course provides an understanding of the psychosocial 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, psychosocial losses, issues relating to sexuality, personal adjustment training, the role of the family, the use of effective interaction skills, and the logistics of group process.

BLRH 589 Medical and Functional Aspects of Rehabilitation
2 hrs.
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 selected disabilities. Emphasis is placed upon the cumulative effects of concomitant disabilities with additional emphasis on visual impairment.

BLRH 590 Physiology and Function of the Eye
2 hrs.
The anatomy, structure, and function of the eye, along with various eye diseases and malfunctions, are stressed in this course. The student is familiarized with various eye conditions and their relationship to rehabilitation practice is emphasized.

BLRH 591 Braile and Tactual Communication Systems
2 hrs.
This course is designed to teach the Braille literary code as it applies to Rehabilitation Teaching. Braile teaching methods are also presented.

BLRH 592 Orientation and Mobility with Children
2 hrs.
This course will provide strategies for teaching orientation and mobility to children. Methods for teaching the typical orientation and mobility curriculum to children (indoor travel to business travel) 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.

BLRH 593 Methods of Teaching Adaptive Communications
2-3 hrs.
Adaptive communication methods used by visually impaired persons and the techniques of teaching them are explored in this course. Specifically, Braille, handwriting, listening, and recording devices, and typewriting are presented. This course also includes a supervised practical teaching experience with a visually impaired person.

BLRH 594 Principles of Orientation and Mobility
3 hrs.
An examination and application of the fundamental principles underlying the acquisition of sensory information by severely visually impaired individuals.

BLRH 595 Introduction to Orientation and Mobility
2-4 hrs.
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.

BLRH 596 Electronic Devices
1 hr.
Systematic instruction in use of fundamental electronic travel aids and overview of major electronic devices. Prerequisite: BLRH 595.

BLRH 597 Principles and Practices of Low Vision
2 hrs.
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. **Prerequisite:** Approval of advisor.

**BLRH 598 Readings in Blind Rehabilitation**
1–4 hrs.
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.

**Open to Graduate Students Only**

**BLRH 601 Small “N” Research: Design and Analysis**
3 hrs.
This course explores standard group research
design, single subject and small numbers
design. The emphasis is placed upon
providing students with a working knowledge of
an experimental methodology for
demonstrating control in social/behavioral
research where more traditional experimental
control group paradigms are not feasible or
desirable. This approach is based on an
experimental methodology for demonstrating
control with single or small numbers of
subjects which includes design, internal
replication, measurement, reliability, and visual
or statistical analysis.

**BLRH 602 Gerontology in Orientation and Mobility and Rehabilitation Teaching**
2 hrs.
Elderly individuals who are visually impaired have
specific rehabilitation needs that differ from those of younger people. This course is
intended to provide students with discipline
specific knowledge and adapted skills
necessary to assist older persons who are
blind or visually impaired meet their
independent living and travel needs. The
course begins with a brief overview of aging.
Topics then include vision loss related to
aging, assessment, hearing and vision
screening, environmental evaluation and
modification, and adaptation of independent
living and travel techniques for people who are elderly.

**BLRH 604 Issues in Travel**
1 hr.
This course is taken concurrently with BLRH 595. It presents theoretical content which
facilitates effective teaching of independent travel skills to visually handicapped
individuals. The topics of this course include development and use of spatial maps, use of
the computer in mobility, conditions of travel,
orientation to various environments, and types of
guidance devices.

**BLRH 605 Practice in Low Vision**
1 hr.
This is a laboratory course which provides
experiences in 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.
**Prerequisite:** Approval of advisor.

**BLRH 606 Adaptive Sports Activities for Visually Impaired Children**
1 hr.
This course introduces students to the
adapted methods that are utilized in teaching
physical education, recreation, and sports
skills to young learners with visual impairments. The course will include a
combination of lecture and practice. It will present: a) basic techniques and rules for
each sport, b) techniques for adapting the
activities, c) methods for teaching these
techniques, d) an overview of appropriate
elementary games, and e) resources useful for
obtaining sports and recreational materials and information. Participation will be required.
Each enrollee will take part in many physical
activities while under the blindfold or using low vision simulators.

**BLRH 607 Adaptive Art Activities for Visually Impaired Children**
1 hr.
This course will prepare students to instruct
children who are visually impaired in the
application of three-dimensional media such as
raised line drawing, braille graphics, clay,
plaster, wood, etc. **Prerequisite:** Approval of
advisor.

**BLRH 610 Assisted Research**
2–6 hrs.
This course requires a semi-independent
research project related to rehabilitation. The
student contributes a project that has been
developed by a faculty member and is
conducted by more than one student.

**BLRH 664 Principles of Rehabilitation Teaching**
3 hrs.
This course is concerned with the
development and the current status of
rehabilitation teaching as an occupation, with
particular emphasis upon the teaching
methods and human interrelationships which are
essential in instructing visually impaired
adults in skills of independent living.

**BLRH 691 Practicum in Rehabilitation Teaching**
1–2 hrs.
This course provides supervised teaching
experiences with blind or visually impaired
individuals in a variety of settings. Course may be repeated. Graded on a Credit/No Credit
basis.

**BLRH 696 Practicum in Orientation and Mobility**
1–3 hrs.
This course provides supervised teaching
experiences with blind or visually impaired
individuals in a variety of settings. Included
within this course is a weekly seminar to
discuss procedures of assessment, principles of
professional practice and effective
strategies.

**BLRH 697 Clinical Practice in Low Vision**
3 hrs.
The course will familiarize the student with current practice and resources in the
administration of a comprehensive low vision
service. Further, the course allows for a
practicum to be served in a low vision clinic
where the student gains experience both in
administration of the service, and in applied
training methodologies with low vision clients.
**Prerequisites:** BLRH 587 and 597.

Open to Graduate Students Only—Please refer to The Graduate College section for
course descriptions.

**BLRH 710 Independent Research**
2–6 hrs.
This course requires the completion of a
creditable research project related to
rehabilitation and conducted with faculty
guidance.

**BLRH 712 Professional Field Experience**
2–12 hrs.
This course requires a supervised internship
experience in an organization that serves blind
and visually impaired persons, during which
the opportunity is provided for practical
application of principles and methods in blind rehabilitation.
COMMUNITY HEALTH SERVICES

Dr. James Leja, Associate Dean
Main Office: B302 Ellsworth Hall
Telephone: 387-3903
FAX: 387-3348

Thomas Holmes
James Kendrick
Janet Piasneschi
C. Dennis Simpson
Molly Vass
Edu Weerts
Donna Weinreich

The School of Community Health Services encompasses educational programs targeted at significant unmet health and human service needs of our society, at developing human service specialties and research areas. Units within the School of Community Health Services offer courses and programs in alcohol and drug abuse, community health services, gerontology, holistic health care, and interdisciplinary health studies.

Alcohol and Drug Abuse

Dr. C. Dennis Simpson, Director
Main Office: B304 Ellsworth Hall
Telephone: 387-3350
FAX: 387-3348

Certificate Program in Alcohol and Drug Abuse

Advisors:
Dr. C. Dennis Simpson, Director
Room B304, Ellsworth Hall
Janice Dekker, Coordinator of Student Services
Room B329, Ellsworth Hall

Western Michigan University offers a program for the training of substance abuse specialists through the Graduate Certificate Program in Alcohol and Drug Abuse (SPADA). The departments of Biological Sciences, Counselor Education and Counseling Psychology, Occupational Therapy, Psychology, Public Affairs and Administration, Sociology, and the School of Social Work provide the multidisciplinary and interdisciplinary bases to the specialty. Courses are planned and taught by program faculty and faculty from the contributing disciplines.

Students receive training for dealing with varied aspects of substance abuse, including prevention, community education, treatment and rehabilitation, program management, and evaluation. Program graduates are employed by many public and private organizations, including social agencies, psychological clinics, family counseling services, alcohol and drug councils, hospitals, schools, and industries.

Admission Requirements
Persons who are eligible for graduate credit may apply for admission to the SPADA Program.

Program Requirements
Each student will satisfactorily complete a program consisting of nine semester hours of courses related to substance abuse, three hours from a list of approved electives, and a six-hour field placement in one or more agencies dealing with some phase of substance abuse. Credit for the field placement will be elected from the courses designed for such activities in a department or school in which the student earns his or her graduate degree or in the certificate program. In some graduate degree programs the required SPADA courses may be integrated with the regular degree requirements. Specific requirements of this integration vary and cannot be determined for each department or school. In addition to the six semester hour field training experience, the following courses are required in the Graduate Certificate Program in Alcohol and Drug Abuse: ADA 630 Legal and Illegal Drugs of Abuse (3 hrs.); SOC 617 The Etiologies of Substance Abuse (3 hrs.); and ADA 631, CECP 631, or SWRK 663—Seminar in Substance Abuse I (3 hrs.)* or ADA 632, CECP 632, or SWRK 665—Seminar in Substance Abuse II (3 hrs.)*.

*These courses are cross-listed in the departments and school indicated.

SPADA participants must also elect one of the following courses: PSY 526 Human Drug Use and Abuse (3 hrs.), PSY 663 Marital Therapy (3 hrs.), SOC 642 Social Epidemiology (3 hrs.); SOC 687 Evaluation Research I (3 hrs.); SWRK 636 Theory and Practice of Group Treatment (3 hrs.); SWRK 687 Seminar in Social Policy, Planning, and Administration (3 hrs.); or any one of the twenty-one Alcohol and Drug Abuse (ADA) courses offered for graduate credit.

Open to Upperclass and Graduate Students
ADA 520 Family and Addiction 3 hrs.
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.

ADA 525 Women and Substance Abuse Treatment 3 hrs.
This course provides knowledge on gender specific treatment of substance abusers. This includes physiological aspects of women, as well as cultural aspects and methods to enhance the treatment of women substance abusers.

ADA 530 Clinical Theory in Substance Abuse Services 1–4 hrs.
This course covers selected theories which form the foundation for substance abuse services practice in specific areas. Students are expected to master the content as a basis for building foundation knowledge for applied practice. The specific topics are announced each semester offering.

ADA 535 Drug Testing 3 hrs.
This course explores the theory and practice of drug testing and its applications in both clinical practice and employment settings. The spectrum of testing ranges from field dexterity to gas chromatography. Federal requirements are reviewed for application in both clinic and work settings.

ADA 537 Constructive Confrontation and Referral in Substance Abuse Services 3 hrs.
This course provides students with knowledge of intervention strategies for active substance abusers. Emphasis is placed on strategic constructive confrontation techniques and effective referral processes.

ADA 540 Current Issues in Alcohol and Drug Abuse 1 hr.
This course, taught in seminar, reviews basic and applied research advances in prevention and treatment of substance abuse. Emphasis is on bridging research advances to practice areas. The focus of the course is research published in the previous year.

ADA 541 Group Home Treatment 1–6 hrs.
This course reviews custodial, milieu, and function aspects of group home treatment. Theories and practices are presented with emphasis on long-term treatment outcomes.

ADA 545 Alcohol, Drugs, and Aging 3 hrs.
The problems of alcohol, medication, and legal and illegal drug use, misuse, and abuse among older persons will be discussed. Prevention, intervention, and treatment will be considered. This course is cross-listed with GRN 545.

ADA 560 Clinical Practice in Selected Substance Abuse Services Areas 1–4 hrs.
This course covers variable topics in clinical substance abuse services practice. It is a skills development course which helps students to become proficient in specific techniques and procedures related to client service. The specific areas are announced with each semester.

ADA 565 Alcohol, Drug Abuse, and Violence 3 hrs.
This course provides the student with knowledge on the multiple relationships of substance abuse and violence, child abuse, and other assaultive behaviors.

ADA 567 Legal Offenders and Substance Abuse 3 hrs.
This course provides the student with knowledge on the theories associating substance abuse with criminal and civil offenses. Specific focus is on the treatment strategies and techniques related to the offending population and long-term outcomes of decreased recidivism.

ADA 570 Field Education: Substance Abuse 1–6 hrs.
A clinical, prevention, research, or administrative field experience in substance abuse services. The field experience involves direct supervision by faculty and clinical supervisors. Graded on a Credit/No Credit basis. Prerequisite: Admission to certificate program and permission of instructor.

ADA 580 Substance Abuse Prevention 3 hrs.
This course explores the multiple theories and techniques used in the prevention of substance abuse. The history and evolution of prevention is presented, as well as cognitive, affective, and behavioral strategies.

ADA 585 Student Assistance Programs 3 hrs.
This course provides students with knowledge of the theories and practices of student involvement with drugs, intervention strategies, referrals, and follow-up.

ADA 590 Applied Alcohol and Drug Dependence Recovery Techniques 3 hrs.
This course provides the student with knowledge of self-help groups and formal relapse prevention strategies. Application of relapse prevention strategies are integrated into multiple aspects of the continuum of care.
Gerontology Courses

ADA 596 Readings in Substance Abuse Services 1-4 hrs.
This course is offered as independent study and reading under the guidance of a faculty member. Initiative for planning the topic for investigation and seeking the appropriate faculty member comes from the student, with consultation from the advisor. May be repeated up to a maximum of 4 hours in a program of study. Prerequisite: Consent of instructor and program advisor.

Open to Graduate Students Only

ADA 610 Drugs and the Workplace 3 hrs.
This course provides knowledge of work based programming theories and practices regarding drugs of abuse. Course work and readings focus on policy formulation and implementation of procedures.

ADA 630 Legal and Illegal Drugs of Abuse 3 hrs.
This course deals with the pharmacological aspects of psychoactive/psychotropic drugs having abuse potential. Special emphasis is placed on observable signs and symptoms resulting from use/abuse/dependence of those drugs.

ADA 631 Seminar in Substance Abuse I 3 hrs.
This interdisciplinary seminar is designed to reflect broadly conceived intervention strategies ranging from primary prevention to rehabilitation of the addict. (Cross-listed with CECP 631 and SWRK 663.)

ADA 632 Seminar in Substance Abuse II 3 hrs.
Continuation of ADA 631. This course is cross-listed with CECP 632 and SWRK 665.

ADA 650 Substance Abuse Assessment 3 hrs.
This course deals with the physical, social, psychological, vocational, economic, and legal symptoms of substance abuse. Instrumentation for assessment in clinical practice is presented as well as medical and non-medical diagnostic criteria. This course includes clinic-based instruction in assessment strategies.

ADA 680 Clinical Supervision in Substance Abuse Service 3 hrs.
This course explores the theories and techniques used in the provision of clinical supervision to substance abuse service practitioners. Direct clinical supervisory skills are covered in detail and clinic-based instruction in clinical supervision is included.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

ADA 710 Independent Research 2-6 hrs.
ADA 712 Professional Field Experience 2-12 hrs.

Community Health Services Courses (CHS)

Community Health Services

CHS 530 Seminar in Community Health Services 1-4 hrs.
This course focuses on emerging issues relevant to the certificate programs in the School of Community Health Services.

CHS 596 Readings in Community Health Services 1-4 hrs.
This course is arranged on an individual basis to provide students an opportunity to pursue independently the study of interdisciplinary areas of interest. May be repeated up to a maximum of four hours in a program of study. Prerequisite: Consent of instructor.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

CHS 700 Master's Thesis 6 hrs.

Gerontology Courses (GRN)

Gerontology

Dr. Donna M. Weinreich, Director
Main Office: B303 Eellsworth Hall
Phone: 387-2647
Fax: 387-3348

Certificate Program in Gerontology

Advisor:
Dr. Donna M. Weinreich, Director,
B303 Eellsworth Hall

Western Michigan University offers a multidisciplinary Graduate Certificate Program in Gerontology. This program consists of 20 hours of course work, field experience, and/or thesis/dissertation credit. A certificate in gerontology will be awarded at the completion of the course of study.

Admission Requirements
Students apply for admission to the Graduate Certificate Program through the Admissions Office and the Gerontology Program Office.

Program Requirements
Persons seeking the Graduate Certificate in Gerontology must complete a course of study of at least 21 semester hours. Some required courses for the certificate may be integrated into related graduate degree programs. Five courses are required: GRN 670 Approaches to Aging, 3 hrs.; GRN 680 Multidisciplinary Seminar in Gerontology, 3 hrs.; GRN 681 Program Planning and Development in Gerontology, 3 hrs.; GRN 690 Field Education in Gerontology, 6 hrs.; and BIOS 531 Biology of Aging, 3 hrs. Up to six hours of thesis/dissertation or field experience from a related graduate department may also be counted. (Concurrent registration for 1 hr. of GRN 690 is required.) The thesis/dissertation topic or field placement must be approved by the Gerontology advisor. The remainder of the 21-hour requirement will be acquired through elective courses chosen from a list of approved courses available through the Gerontology Program Office.

Open to Upperclass and Graduate Students

GRN 521 Women and Aging 3 hrs.
This course offers an examination of the impact of aging on women, with special emphasis on the diverse experiences, challenges, and social and economic conditions of older women. The course will explore the status and roles of women in an aging society. Topics to be covered include the economics and politics of aging, the health status of women, women as caregivers, and retirees. The plight of minority older women will be addressed.

GRN 525 Religion and Aging 3 hrs.
A survey of the views of and attitudes toward the aging process and older people held by the world’s major religions will be explored. Particular attention will be paid to the relation of religious views and social policy in the U.S.

GRN 530 Special Topics in Gerontology 1-4 hrs.
This is a variable topic, variable credit course for consideration of current and special interests in gerontology. 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.

GRN 543 Survey of Geriatric Medicine 3 hrs.
This course provides an overview and survey of the care of the elderly patient from a medical perspective. The issues of medical problems, long-term care, nursing, rehabilitation, and the social considerations will be broadly discussed. In addition, the interaction of all of the issues of elderly care will be analyzed.

GRN 544 Aging and Mental Health 3 hrs.
This is a survey of mental health and mental health treatment problems of older adults. Topics include the courses of major mental illness in old age, depression, and dementias. Consideration will be given to etiologies, current therapies, and treatments, as well as barriers to treatment in this population.

GRN 545 Alcohol, Drugs, and Aging 3 hrs.
The problems of alcohol, medication, and legal and illegal drug use, misuse, and abuse among older persons will be discussed. Prevention, intervention, and treatment will be considered. This course is cross-listed with ADA 545.

GRN 547 Alzheimer's Disease and Other Dementias 3 hrs.
Dementia is a complex issue compounded by stereotypical views of aging and the aged. This course focuses on social, psychological, etiologic, and epidemiological issues related to dementia together with the problems of diagnosis and treatment. Alzheimer's Disease, probably the most common cause of dementia, will receive specific attention. The purpose of this course is to help students gain an understanding of dementia as both a social and medical problem.

GRN 598 Readings in Gerontology 1-4 hrs.
This course is offered as independent study and reading under the guidance of a faculty member. Initiative for planning the topic for investigation and seeking the appropriate faculty member comes from the student, with consultation from the advisor. May be repeated up to a maximum of 4 hours in a program of study. Prerequisite: Consent of instructor and director.

Open to Graduate Students Only
funding agencies and meetings with service providers and caretakers. Professional interest in multidisciplinary, cultural, ethnic, and non-western approaches to aging are some of the features of gerontology that will be discussed during the semester. The format of this course is a combination of traditional didactic instruction and online synchronous and asynchronous discussion.

GRN 680 Multidisciplinary Seminar in Gerontology 3 hrs.
This seminar introduces students from different disciplines to older persons and their concerns through publications written by older persons and surveys of current issues in health care and health care policy. Readings present the personal perspectives of older persons in a variety of situations. Students will be required to analyze these perspectives within the context of their academic discipline. Current events are surveyed through multiple media. Students will analyze the impact of medical and social breakthroughs and legislative decisions.

GRN 681 Program Planning and Development in Gerontology 3 hrs.
This seminar explores program planning and development through meetings with national, state, and local funding agencies and meetings with service providers in various kinds of programs for older persons throughout the region.

GRN 690 Field Education in Gerontology 1–6 hrs.
This course is designed to give the student a learning experience during which the student can apply some of the knowledge and information acquired in the gerontology academic setting and further develop and refine his/her professional skills with the guidance and assistance of those professionals currently working in gerontology.

Prerequisite: Admission to the program and permission of instructor.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

GRN 710 Independent Research 2–6 hrs.

GRN 712 Professional Field Experience 2–12 hrs.

Holistic Health Care
Dr. Thomas Holmes, Director
Main Office: B329 Ellsworth Hall
Telefons: 287-3389
FAX: 287-3348

Certificate Program in Holistic Health Care
Advisors:
Dr. Thomas Holmes, Director
B313 Ellsworth Hall
Dr. Jan Dekker, Coordinator of Student Services
B329 Ellsworth Hall

The Graduate Certificate Program in Holistic Health Care is designed to provide education and experience in holistic approaches to health. Multidisciplinary in nature, it includes eighteen semester hours of study in holistic health care and related topics.

The Holistic Health Care specialization may be taken independently or can be used to supplement graduate training in related fields such as counselor education and counselor psychology, psychology, social work, speech pathology and audiology, occupational therapy, blind rehabilitation, and physical education and recreation. It also complements many other graduate areas such as business, public administration, theology, nursing, medicine, and education.

The certificate program can help health and human service professionals gain new knowledge and skills to be more effective in their present professional role or to equip themselves for new job opportunities in a health care setting that emphasizes holistic approaches. The program is designed to provide opportunities for advanced training in the following areas: emerging health care paradigms, lifestyle assessment, health counseling, stress management and biofeedback, spirituality in health and healing, community and healing, and environment and health. Graduates of the program are employed by public and private agencies and often work with interdisciplinary teams of health care professionals.

Admission Requirements
Successful completion of HOL 531 Introduction to Holistic Health Care (3 credit hours) is a prerequisite to admission. Admission forms are available through the Holistic Health Program Office and the Office of Admissions and Orientation, Graduate Admissions.

Program Requirements
The academic program consists of eighteen semester hours, distributed in the following manner:

HOL 531 Introduction to Holistic Health Care (3 hrs.)
HOL 650 Holistic Methods I (3 hrs.)
HOL 651 Holistic Methods II (3 hrs.)
HOL 570 Field Education in Holistic Health (3 hrs.)

or

HOL 712 Professional Field Experience (3 hrs.) or equivalent credit from a related graduate degree program with approval of the Holistic Health Faculty Advisor.

HOL 534 Holistic Health and Spirituality (3 hrs.)

HOL 535 Holistic Approaches to Stress (3 hrs.)

HOL 536 Holistic Counseling Skills for Health Professionals (3 hrs.)

This course is designed to give the student a learning experience during which the student can apply some of the knowledge and information obtained in the health and human services academic setting and further develop and refine his/her professional skills with the guidance and assistance of those professionals currently working in gerontology.

Open to Upperclass and Graduate Students
HOL 530 Special Topics in Holistic Health 1–4 hrs.
This is a variable topics, 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.

HOL 531 Introduction to Holistic Health Care 3 hrs.
The primary purpose of this course is to provide an introduction to the philosophies, concepts, principles and approaches involved in holistic health care. It is meant to serve both as a general educational experience for persons wishing to become familiar with holism and as essential basic instruction for persons wishing to apply for admission to the graduate specialty program in Holistic Health Care.

Prerequisite: Senior undergraduate or graduate status.

HOL 532 Holistic Approaches to Relationships 3 hrs.
The purpose of this course is to provide an understanding of relationship development. In order to do this students will acquire knowledge in self-concept formation, social systems theory, values development, and communication models. A major emphasis in the course will be on how to assist people in establishing and maintaining healthy relationships.

HOL 533 Holism and Community 3 hrs.
This course is designed to help students better understand the dynamics of community and the potential for holistic growth and health through the investment of self in a common and purposeful experience with others.

HOL 534 Holistic Health and Spirituality 3 hrs.
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 audiovisual presentations.

HOL 535 Holistic Approaches to Stress 3 hrs.
This course will focus on the nature, sources, and symptoms of stress, and provide a holistic approach for the management of stress. The relationship between stress and personality, lifestyle, health, illness, work and academic performance will be explored. In addition, the reasons for and management of professional and organizational "burnout" will be presented.

HOL 536 Counseling Skills for Health Professionals 3 hrs.
This course is an introduction to basic counseling approaches for students and professionals working in the health and human services fields. This course is designed to provide basic information on the counseling process and techniques as they apply to health care settings. This course is designed for health care professionals in allied health professions and not for majors in Counselor Education and Counseling Psychology or in Social Work.

HOL 555 Holistic Perspectives on Successful Aging 3 hrs.
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.

Prerequisite: Senior or graduate level status.

HOL 570 Field Education in Holistic Health 1–6 hrs.
This course is designed to give the student a total learning experience during which the student can apply some of the knowledge and information obtained in the health and human services academic setting and further develop and refine his/her professional skills with the
Interdisciplinary Health Studies

Doctor of Philosophy in Interdisciplinary Health Studies

Advisor:
James Leja, Advisor
Main Office: B302 Ellsworth Hall

The Doctor of Philosophy in Interdisciplinary Health Studies is designed to meet the career advancement needs of working Health and Human Service professionals. Several recent national commissions, including the Pew Health Professions Commission and the National Commission on Allied Health, have challenged higher educational institutions to respond to the fundamental changes which are occurring in health care by designing more flexible curricula, removing disciplinary boundaries, and increasing research in allied health. The College of Health and Human Services has met this challenge by developing a unique student-centered curriculum, which focuses on an interdisciplinary core curriculum, strengthens research preparation, and the teaching of innovative pedagogy. In order to meet the needs of working professionals, the courses will be delivered through intensive weekend and summer on-campus sessions and distance learning modalities. Students will enter the program as a cohort once every two years and complete the didactic sequence in two years. Dissertation research should take a further one to two years.

Admission requirements
Applicants to the Program will be expected to meet the entrance requirements of The Graduate College. In addition to these, the Program applicants are required to have:
1. Minimum of two years of professional experience in the health and human service field.
2. Master's degree with a minimum graduate grade point average of 3.25/4.00.
3. Completion of at least one graduate level course in statistics and research methods, with a minimum of a grade B within the last 10 years. If a student completed this course more than 10 years ago, s/he must retake it prior to beginning the Program or demonstrate current competency in the graduate level research and statistical methods.
4. Computer competency in the use of databases, word-processing, spreadsheets, and Internet use.

Application must be made both to the Office of Admissions and Orientation—Graduate Admissions and to the College of Health and Human Services. The application must include a 1,000 word essay outlining career goals and these letters of recommendation from academic or professional sources.

Program Requirements
Students will be admitted to the Program as a cohort once every two years. The courses will be presented in sequential order, so that the didactic portion of the curriculum can be completed in two years. A slower four-year sequence is also available. Courses will be completed in two years. As long as four-year sequence is completed, the student will be required to take 9 hours of additional coursework. Therefore, the student must retake the Program prior to beginning the Program or demonstrate current competency in the graduate level research and statistical methods.

4. Computer competency in the use of databases, word-processing, spreadsheets, and Internet use.

Application must be made both to the Office of Admissions and Orientation—Graduate Admissions and to the College of Health and Human Services. The application must include a 1,000 word essay outlining career goals and these letters of recommendation from academic or professional sources.

Program Requirements
Students will be admitted to the Program as a cohort once every two years. The courses will be presented in sequential order, so that the didactic portion of the curriculum can be completed in two years. A slower four-year sequence is also available. Courses will be delivered through distance education, on-campus intensive weekend sessions held three times per semester, or on-campus three-week intensive summer sessions. Students are required to:
1. Attend a week-long on-campus Orientation session, prior to beginning the Program. This will familiarize the student with the Program, the learning expectations, and the university's resources. The student will receive computer instruction in required software for distance delivery courses and begin preliminary discussions on the topic for the group interdisciplinary research practicum.
2. Select an academic advisor during the Orientation session. Prior to the supervised teaching practicum in the second year, the student must establish a teaching committee. The chair of this committee must be a specialist in the course content and act as the student's mentor. A dissertation committee should be established by the beginning of the Spring semester of the second year of the Program and must conform to Graduate College policy.
3. Complete, with a 3.25 grade point average, a total of 63 semester hours of credit as follows:

- Interdisciplinary core (15 hours)
  IHS 625, IHS 627, IHS 633, IHS 634, IHS 635.
- Research and statistics module (12 hours)
  IHS 626, IHS 628, IHS 630, IHS 631.
- Group interdisciplinary research practicum (6 hours)
  IHS 735. This is a fifteen-month research project.
- Pedagogy module (9 hours)
  IHS 629, IHS 632, IHS 713.
- Disciplinary cognate (9 hours)
  The student may select a cognate to meet his/her own learning objectives, with the prior approval of the Program Director and the student's advisor.
- Dissertation research (12 hours)
  IHS 730

Disciplinary cognates and some research courses (specifically IHS 626 and IHS 628) may be taken at other accredited, doctoral institutions with the prior approval of the Program Director and the student's advisor.

Financial Assistance
For students wishing to pursue this curriculum full-time on-campus, the College of Health and Human Services offers financial support through two doctoral associations per two-year cohort cycle.

Interdisciplinary Health Studies Courses (IHS)

Open to Graduate Students Only

IHS 625 Health and Human Service Organization and Delivery Systems
This course will provide students with an understanding of health from a whole perspective. Through experiential activities and the exploration of new models and paradigms of health, students will develop a deeper knowledge of the relationship between body, mind, and spirit, and the effect on health and healing. The course will provide an opportunity for students to experience the processes of holistic health care settings or practices and to work with other health care providers. The format for this course will be a combination of experiential, lecture, discussion, small group activities, guest speakers, and audio and video presentations. Prerequisite: HOL 531.

Open to Graduate Students Only—Please refer to The Graduate College section for complete course description.

IHS 712 Professional Field Experience
This course will provide advanced students in a health care related area an opportunity to become familiar with the "holistic" approach to health care. While using their own discipline as a take-off point, each student will become acquainted with different approaches to health care from both traditional and non-traditional perspectives. The principal goal is to encourage a perception of clients as whole persons whose symptoms represent an underlying discoordination in mind, emotions, and body. Prerequisites: HOL 531, 650, 651.
collection. Students will learn to determine the strengths and limitations of qualitative research methods for expanding the knowledge base in health and human services. **Prerequisite:** Admission to the Ph.D. in Interdisciplinary Health Studies or permission of director.

**IHS 627 Health and Human Services Policy and Politics**
3 hrs.
Develops a systematic and analytical framework for understanding policy-making processes in health and human services, including identification of need and the formulation, implementation, and evaluation of policy. The political processes by which decisions are made and resources allocated and the ethics, laws, institutions, and forces, which affect these processes at local, state, and federal levels, are also considered. **Prerequisite:** Admission to the Ph.D. in Interdisciplinary Health Studies or permission of director.

**IHS 628 Quantitative Research Concepts in Health and Human Services**
3 hrs.
Provides an overview of the statistical concepts and methods often used in HHS research. Course content will include concepts of probability, hypothesis testing, measures of central tendency and dispersion, and sampling. Students will learn to conduct bivariate and multivariate statistical tests common in HHS research, and to interpret the results. Correlation and linear regression will also be described, and students will be introduced to basic concepts in non-parametric statistical analyses. Examples will be drawn from current research in health and human services, and students will acquire skills in critiquing research designs and statistical approaches. **Prerequisite:** Admission to the Ph.D. in Interdisciplinary Health Studies or permission of director.

**IHS 629 College Instruction and Assessment**
3 hrs.
Examines current theories on learning, intelligence, memory, and learning styles and individual capabilities, and their application to curriculum design, instruction, and methods of assessment. The effects of class, gender, and culture on learning and teaching are analyzed, as well as curricular issues related to accreditation of programs and to professional licensure and certification. **Prerequisite:** Admission to the Ph.D. in Interdisciplinary Health Studies or permission of director.

**IHS 630 Designing and Conducting Health and Human Services Research**
3 hrs.
Provides students who are beginning to plan their dissertation research an opportunity to learn about formulating and focusing research questions, collecting and managing data, and analyzing and evaluating data. Topics included in this course include commonly used theoretical and quasi-experimental research designs, threats to internal and external validity of research results, and scaling of data. Ethical issues in designing, conducting, and reporting of research findings will also be discussed, along with issues of multiculturalism in research design. This course offers students an opportunity for development of their dissertation research proposal with guidance from the course instructor and other faculty. **Prerequisite:** Admission to the Ph.D. in Interdisciplinary Health Studies or permission of director.

**IHS 631 Proposal Development and Management**
3 hrs.
Provides students with skills needed to compete successfully for funding in various health and human services venues. This course provides an overview of grantmanship, including identifying sources of research and program development support and developing successful proposals, including drafting budgets, preparing evaluation plans, and developing collaborative relationships to strengthen grant proposals. Principles of project management will also be discussed. These include ensuring fiscal and ethical accountability, supervision of staff, and documenting progress toward project goals. **Prerequisite:** Admission to the Ph.D. in Interdisciplinary Health Studies or permission of director.

**IHS 632 Innovative Pedagogy and Instructional Design**
3 hrs.
Examines models of teaching and related research and the inclusion of innovative pedagogy, including teaching through technology, problem-based learning, collaborative learning, and distance learning. Techniques for instructional design and assessment are discussed. Issues relating the shift from teacher-centered to learner-centered instruction are explored. Learners will be expected to apply one or more innovative pedagogies in an applied area. **Prerequisite:** Admission to the Ph.D. in Interdisciplinary Health Studies or permission of director.

**IHS 633 Ethics and Law in Health and Human Services Professions and Scientific Research**
3 hrs.
Applies principles of ethics to health and human service decision-making, policy formulation, and to clinical and research situations. Current issues and research in biomedical and social ethics are examined, together with the legal and ethical concerns which affect interdisciplinary collaborative practice. Laws which influence the provision and delivery of care and services at local, state, and federal levels are discussed. **Prerequisite:** Admission to the Ph.D. in Interdisciplinary Health Studies or permission of director.

**IHS 634 Health and Human Services Current Issues Seminar**
3 hrs.
Analyzes current issues in health care and human services, including psycho-social aspects of disease and wellness, and recent trends in health promotion and education. Topics include evidence-based medicine, patient/centered care, and risk management. The course also examines the research on strategies for quality and cost control, measurement of outcomes, and service evaluation. **Prerequisite:** Admission to the Ph.D. in Interdisciplinary Health Studies or permission of director.

**IHS 635 Interdisciplinary Practice in Health and Human Services**
3 hrs.
Examines the principles associated with interdisciplinary practice and presents a variety of team organization models. Discusses the historical forces behind team practice and the impact of individual professional philosophies on team utilization, participation, and maintenance. Additional issues analyzed include management structure, team building, case management, and outcomes measurement. An in-depth look at team dynamics will include communication, collaborative decision making, collective responsibility and accountability, and conflict resolution. The impact of the team members' organizational behavior will also be explored. **Prerequisite:** Admission to the Ph.D. in Interdisciplinary Health Studies or permission of director.
HEALTH AND HUMAN SERVICES

Dr. Janet Pisaneschi, Dean
College of Health and Human Services
Main Office: 9-124 Henry Hall
Telephone: 387-2638
FAX: 387-2683

Health and Human Services

Health and Human Services Courses (HHS)

Open to Upperclass and Graduate Students

HHS 511 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 health services as well as the processes of operation 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 between the system and its environment.

HHS 512 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 decision making.

HHS 513 Special Studies in Health Care Organization and Delivery
Variable
This course deals with intensive analysis of the organization, design, and delivery of health care services in specialized areas. The specialized areas cover long-term, mental health, and group medical practice.

HHS 514 Basic Principles and Organization of Health Planning
3 hrs.
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 structure arrangements for carrying out planning in the health arena both at the macro- and micro-levels.

HHS 515 Administrative Functions in the Health Care Setting
3 hrs.
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.

HHS 530 Clinical Theory for Health and Human Services
1–4 hrs.
This course covers selected theories which form the foundation for health and human service practice in specialized areas. Students are expected to master the content as a basis for building foundation knowledge for clinical practice. Theory of environmental health, systems, theory for the health setting, and community health theory are among the possible areas of study. The specific topics are announced each semester offering. Prerequisite: Consent of instructor.

HHS 535 Pharmacology for Health Professionals
3 hrs.
This course focuses on basic principles in pharmacology and pharmacotherapeutics. Principles necessary for a general understanding of the medical management of acute and chronic disease states will be highlighted. Discussion will center on classes of drugs with pharmacology, side effects, and contraindications identified. Case studies may be utilized to emphasize commonly encountered patient care scenarios. Prerequisite: One year of college general chemistry or one year of health professions chemistry.

HHS 560 Clinical Practice in Selected Health and Human Service Areas
1–4 hrs.
This course covers variable topics in clinical health and human service practice. It is a skills development course which helps students to become proficient in specific techniques and procedures related to patient care or client service. Clinical applications of biofeedback, clinical practice in genetic counseling, the role of the health team in clinical practice, the patient and clinical laboratory services, and community health education practice are among the possible areas of study. The specific areas are announced with each semester offering. Prerequisite: Consent of instructor.

HHS 561 Problem Solving in Health and Human Service Organizations
1–4 hrs.
This seminar covers variable topics relating to problem solving in health and human services. It is a skills development course which helps students to become proficient with theoretical constructs and specific procedures for application in the health and human services system. Technology for health planning, the health system and its environment, organization of health practice teams, and financial problem solving in the health agency are among the topics covered. The specific topics to be discussed are announced with each semester offering. Prerequisite: Consent of instructor.

HHS 569 AIDS/HIV: Perspective on an Epidemic
3 hrs.
This course is intended to provide a historical perspective and introduction to the social, psychological, biological, political, economic, ethical, and medical implications of HIV infection and the Acquired Immune Deficiency Syndrome (AIDS). The course will be taught by faculty and others in a variety of fields.

HHS 570 Field Education
1–6 hrs.
This course is designed to give the student a total learning experience during which the student can apply some of the knowledge and information obtained in the health and human services academic setting and further develop and refine his/her professional skills with the guidance and assistance of those professionals currently working in the health and human service areas. Prerequisite: Consent of instructor.

HHS 598 Readings in Health and Human Services
1–4 hrs.
This course is offered as independent study and reading under the guidance of a faculty member. Initiative for planning the topic for investigation and seeking the appropriate faculty member comes from the student, with consultation from the advisor. Prerequisite: Consent of instructor and program advisor.

Open to Graduate Students Only

HHS 663 Ethical Issues in Human Service Professions
3 hrs.
This course provides knowledge about the contribution of ethics and moral values to the development of one's professional competence. The course will cover ethical problems which exist at different levels of society: (a) in direct practice with clients and their families; (b) within human service agencies; and (c) at state and national levels of socio-political policy debate. Consideration will be given to such issues as client rights and confidentiality, professional advocacy and liabilities, and distribution of scarce resources.

Open to Graduate Students Only—Please refer to The Graduate College section for course description.

HHS 712 Professional Field Experience
2–12 hrs.
THERAPY

Jaclyn West-Frasier offers two graduate programs which lead to the Master of Science: The graduate occupational therapy—and the graduate level). The Department also offers a Graduate Certificate Program in Hypnotherapy.

The Department of Occupational Therapy offers two graduate programs which lead to the Master of Science: The graduate occupational therapy—and the graduate level. The Department also offers a Graduate Certificate Program in Hypnotherapy.

Master of Science in Occupational Therapy

Advisor: Dr. Ben Atchison, Room 1163, Ernest Whitley Building

THE GRADUATE—PROFESSIONAL PROGRAM

This entry-level program for non-therapists is designed to prepare the student to treat clients with various disabilities, and to be eligible for certification as an occupational therapist after successful completion of the Master of Science. This twenty-eight month program of combined academic and clinical education is intended for the student who has a baccalaureate degree in an area other than occupational therapy. It consists of seventy-nine semester credit hours with forty-nine semester hours in professional undergraduate courses and thirty semester hours of graduate courses. The program is accredited by the Accreditation Council for Occupational Therapy Education. A.C.O.T.E., Accreditation Department, 4720 Montgomery Lane, P.O. Box 31220, Bethesda, MD 20824-1220, 301-652-2682. Graduates are eligible to take the National Board for Certification in Occupational Therapy and are eligible to apply for licensure/registration in those states regulating the practice of occupational therapy.

The Professional Curriculum

The curriculum design of the occupational therapy program is based on a developmental progression intended to provide students with entry-level competencies in their chosen profession and to develop the personal and professional characteristics that will allow them to assume the role(s) of occupational therapy practitioners in a variety of settings. In recognition of the fact that clinical practice occurs in an increasingly technological, interdependent and rapidly changing world, the curriculum simultaneously focuses on the development of self-directed, adult—and hence potentially life-long—learning.

Admission Requirements

To be eligible for regular admission to this program, each applicant must present evidence of the following criteria:

1. An earned bachelor’s degree from an accredited college or university.
   - A cumulative grade point average of 3.0 or better in the most recent 60 hours of undergraduate and graduate academic course work.
   - Because admission is considered competitive, the academic criteria listed above should be considered as minimum standards.

Prerequisite Course Work

The following courses (with the WMU equivalent noted in parentheses) are required prerequisites for enrollment in the professional occupational therapy courses; some prerequisites may be elected as self-instructional courses (*). All prerequisite course work must be completed before the first semester of the occupational therapy program. All prerequisite courses must be completed with a grade of “C” (2.00) or better. Students are allowed to repeat only one course. For the course that is repeated, only one repeat is allowed.
   - Human Growth and Development through the Life Span (OT 225)*
   - A course in, or demonstration of, basic computer literacy skills (CS 105 or BIS 102)
   - A course in introduction to occupational therapy (OT 202)
   - A course in social/behavioral sciences
   - English composition (Proficiency 1 of General Education requirements)
   - Six to eight credit hours of biological sciences, including human anatomy and physiology (BIOS 191, or BIOS 211 and 240)

Admission Procedure

To apply, the applicant must complete both the university application for admission and the departmental application. The equal consideration date (deadline) for receiving all applications is February 1 of each year.

Full-time study commences in the fall semester.
   - Cumulative grade point average
   - Documentation of knowledge and experience as demonstrated by answers to narrated essays on the application form in the following areas:
     - Work and/or volunteer experiences
     - Statement of leadership roles
     - Statement of cultural/ethnic diversity and competency
     - Statement of research
   - Space available in program

Program Requirements

The graduate professional program consists of seventy-nine semester hours in the following areas:

1. Completion of forty-nine hours of professional occupational therapy education, including six months of full-time fieldwork. This forty-nine semester hour sequence of undergraduate professional education is designed to prepare the student to treat clients with various disabilities and to be eligible for certification.
2. Completion of thirty hours of graduate courses, designed to enhance growth in professional leadership potential by developing skills in administration, program development, theories of practice, professional issue resolution and research. This thirty-hour component includes the following:
   a. OT 600 Advanced Clinical Practice in Occupational Therapy 3 hours
   b. OT 640 Theory in Occupational Therapy 3 hours
   c. OT 660 Research in Occupational Therapy I 3 hours
   d. OT 661 Research in Occupational Therapy II 3 hours
   e. OT 686 Graduate Seminar 3 hours

Prerequisites

2. A. OT 700 Master’s Thesis 6 hours
   3. OT 710 Independent Research 6 hours
   4. Cognates in OT or OTED, with advisor consent 6 hours
   5. Electives 3 hours

The student must manifest emotional and behavioral characteristics which, in the judgment of the department faculty, will not jeopardize his/her professional competence.

It is expected that students will complete their 710/700 projects by the end of the winter semester for which they enrolled. To assure that graduate students have completed all course work prior to making application for the NBCOT examination, the following Graduate Advisory Committee policy governs the removal of an Incomplete grade (“I”) held in OT 700 or OT 710:

All graduate students must complete all department and Graduate College requirements for OT 700, Master’s Thesis, or for OT 710, Independent Research, by October 1 for the March exam and by April 1 for the September exam. The student must complete all requirements given above by the due dates and the submission of a grade or change of grade by the first reader, and notification of acceptance of the thesis from The Graduate College. Graduate students who do not complete the requirements given above by the due dates will have their names removed from the department list of students eligible for the NBCOT examination.

An overall grade point average of at least 3.0 (A=4.0) is required in the graduate program. No undergraduate credit is computed into the graduate grade point average. Honor point deficiencies acquired in credits earned at Western Michigan University cannot be made up by credits earned at another university.

Course Sequence

Courses in the professional program are completed in a sequential pattern toward developing complex clinical problem solving skills. The courses are not designed to stand alone, but to build upon the knowledge base from previous semesters.

The prerequisite and pre-professional courses build a solid knowledge base in the biological and behavioral sciences. The first semester centers on human function, pathology, dysfunction and activity analysis. Students also learn the history of the profession and current practice roles of therapists. The second semester students learn theory and techniques for evaluation and treatment. The third semester centers on additional treatment techniques used in therapy, and a clinical treatment experience with clients. The fourth semester of the professional program centers on a clinical treatment experience with clients in clinical programs in the Kalamazoo area and a graduate research course to develop research and writing skills as applied to occupational therapy.

The final fall and winter semesters are devoted fully to the graduate component designed to enhance growth in professional leadership. Students enrolled in OT 490 and OT 491 for the required six months, full-time fieldwork experience as a student therapist in two clinical practice sites (one being a medical model site and one being a community model site). Western Michigan University utilizes fieldwork sites primarily in

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Michigan and the midwest states with some sites throughout the United States. All fieldwork must be completed within 24 months following the completion of academic course work. Part-time enrollment is possible.

Remediation and Continuance Policy
1. Students will complete all required departmental courses and prerequisites with a grade of "C" or better. Subsequent courses cannot be taken until prerequisites are completed successfully.
2. Students can repeat only one required pre-professional or departmental course, and that course only once to attain a grade of "C" or better.
3. Students who fail to attain a grade of "C" or better in a professional or pre-professional course will be placed on departmental probation following the grade lower than "C".
4. Students who do not successfully complete departmental probation will not be permitted to continue in the program.
5. The department may refuse to permit a student with a grade of "C" or better in the OT curriculum if at any time it is deemed by a review committee that the student will not be able to perform at a professional level.

Fieldwork Remediation and Continuance Policy
1. Successful completion of OT 475 is a prerequisite for OT 482.
2. Students who receive a failing grade in fieldwork level I (OT 475, OT 482) or level II (OT 490, OT 491) are subject to the academic policy for remediation and continuance, and will repeat the experience in a similar setting.
3. Successful completion of OT 475 and all professional and prerequisite course work is required for OT 476.
4. Successful completion of all undergraduate course work required for graduation is required for OT 491.
5. Students who fail fieldwork, or who are asked to withdraw, are subject to review in accordance with the departmental remediation and continuance policy.

THE GRADUATE POST PROFESSIONAL PROGRAM
This advanced level program for the certified occupational therapist leads to the Master of Science in Occupational Therapy and is designed to enhance growth in professional leadership potential by developing skills in administration, program development, theories of practice, professional issue resolution and research. This thirty hour component includes the following:

OT 600 Advanced Clinical Practice in Occupational Therapy (3 hours)
OT 640 Theory in Occupational Therapy (3 hours)
OT 660 Research in Occupational Therapy I (3 hours)
OT 661 Research in Occupational Therapy II (3 hours)
OT 666 Graduate Seminar (3 hours)
OT 700 Master's Thesis (6 hours) or
OT 710 Independent Research (6 hours) Cognates in OT or related fields, with advisor consent (6 hours) Electives (3 hours)

It is expected that students will complete their 710/700 projects by the end of the winter semester for which they enrolled.

An overall grade point average of at least 3.0 (A=4.0) is required for graduation from the graduate program. Students will complete all required departmental courses with a grade of "C" or better. Subsequent courses cannot be taken until prerequisites are completed successfully. Honor point deficiencies acquired in credits earned at Western Michigan University cannot be made up by any credits earned at another university. Please read the WMU Graduate College Catalog for information on other requirements for the completion of a master's degree.

Course Sequence
The thirty hour graduate program requires twenty-one hours of graduate course work which has been designed to build skills in program development, administration and consultation (OT 633); advanced treatment theory (OT 640); research (OT 660 and OT 710 or OT 703); and professionalism (OT 610, OT 698). The nine hours of required cognate courses allow the student to develop advanced skills in occupational therapy, related fields, or areas of special interest. The program may be completed on either a full-time or part-time basis. The full-time student may complete the program in 10 months with courses beginning in the summer session. Part-time enrollment is possible.

Certificate Program in Hippotherapy
Advisor: Jodi L. Haugen, MS, OTR
Hippotherapy Program Room 1203, Ernest Whitney Bldg.

The term hippotherapy, from the Greek word “hippos” for horse, literally means “treatment with the help of the horse.” In hippotherapy, the horse influences the patient rather than the patient influencing the horse. The patient works with a specially trained occupational, physical, or speech therapist who uses the horse as a mobile therapeutic tool. The action of the horse, coupled with traditional therapy, influences muscle tone, mobilizes joints, activates muscle action, increases sensorimotor integration, and improves balance and midline control. The three-dimensional movement of the horse, combined with the unique environment surrounding the horse, makes it a tool unmatched by traditional therapeutic tools.

Admissions Requirements
Prerequisites for admission will include a baccalaureate degree and certification or licensing as an occupational or physical therapist or speech/language pathologist. Other characteristics considered for admission include clinical and riding experience. Admission materials may be obtained from the Hippotherapy, Occupational Therapy Department, (616) 387-7273.

Program Requirements
The Graduate Certificate Program in Hippotherapy is comprised of six courses (HT 602, 603, 604, 605, 610, and 660) totaling 18 hours. Four of the required courses are offered in a convenient distance learning format which allows students to complete the course work from their homes via video and on-line interaction. The required on-campus lab courses are condensed to allow students to gain direct, hands-on hippotherapy experience, while minimizing time away from home. Students learn to screen, select and evaluate patients for hippotherapy, select and train horses for hippotherapy, conduct hippotherapy research in their own practice, and develop a hippotherapy business management plan.

Occupational Therapy Courses (OT)
Open to Upperclass and Graduate Students
OT 530 Sensory Integration and the Child 3 hrs.
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: OT 335, 351, and 443; or OTR, RPT, or consent.
OT 597 Studies in Occupational Therapy 2–4 hrs.
Examines selected topics within the field of Occupational Therapy. Topics considered will vary from semester to semester. May be repeated for credit. Prerequisites: Advanced O.T. major or departmental permission.
Open to Graduate Students Only
OT 600 Advanced Clinical Practice in Occupational Therapy 3 hrs.
This lecture/lab/discussion course is focused on the development of advanced knowledge and skills in both traditional and emerging areas of occupational therapy practice. Students will review and discuss current literature related to theory and research in three selected clinical practice areas followed by application through participation in intensive hands-on workshops. Prerequisite: Admission to program.
OT 602 Function and Treatment of the Upper Extremity 3 hrs.
This lecture/lab course provides advanced study of function, dysfunction, and treatment of the upper extremities. Topics include the gross anatomy, neuroanatomy, neuropsychology, and kinesiology of the upper extremities; clinical conditions affecting upper extremity function; and current treatment methods and modalities used by occupational therapists.
OT 620 Introduction to Neuromuscular Therapy for Pediatrics 3 hrs.
Foundations of neuromuscular and motor development in neuromuscular treatment. Application of neuromuscular theory, treatment principles and techniques to occupational therapy. Special attention will be given to the occupational therapy
management problems of children with neuromotor disorders. Prerequisites: OTR, RPT, or consent.

OT 621 Introduction to Neurodevelopmental Treatment for Adults
3 hrs.
Foundations of neurophysiology and motor development are discussed. Opportunity is provided for application of neurodevelopmental theory, treatment principles and techniques to occupational therapy. Special attention is given to management problems of adults with hemiplegia. Prerequisites: OT 443, OT 453, OTR, or RPT, or consent of instructor.

OT 622 Application of Biofeedback in Occupational Therapy
3 hrs.
Basic principles of biofeedback and their application in occupational therapy. Students will design biofeedback programs for selected client problems. Prerequisites: OT 443, OT 453, OTR or RPT, or consent of instructor.

OT 633 Administration of Occupational Therapy
3 hrs.
This course utilizes the basic skills of administration (planning, organizing, directing, coordinating, and controlling) in the development of a model of practice for occupational therapy services. These services will be developed for an agency or institution that does not now offer occupational therapy services, or for an agency or institution whose occupational therapy services need to be expanded. In addition to the model of practice, the student will prepare a grant proposal that could be used to initiate funding for the model. Prerequisites: All required undergraduate course work except Fieldwork II (OT 453 may be taken concurrently).

OT 640 Theory in Occupational Therapy
3 hrs.
This course explores core concepts, models, and paradigms of the past, present, and future and their influence on education, research, administration, and practice of occupational therapy. Components of theory, formulation of theory, and the effect of theory development on occupational therapy will also be explored. Prerequisites: All required undergraduate course work except Fieldwork II (OT 453 may be taken concurrently).

OT 660 Research in OT I
3 hrs.
This course explores research in occupational therapy and related fields while developing research skills. It will include principles of research design, analysis and critique of research, ethical research practices, proposal development, and beginning familiarity with statistical analysis. Prerequisites: All required undergraduate course work except Fieldwork I and II.

OT 661 Research in OT II
3 hrs.
The purpose of this course is to build the research skills necessary to engage in scholarly scientific inquiry. It will include data analysis, basic statistical procedures, dissemination of research, critiques of research, funding and basic computer use for statistical analysis. Prerequisites: OT 660.

OT 686 Graduate Seminar
3 hrs.
This course examines topics relevant to new developments in environmental adaptations, treatment techniques, and/or innovations in the delivery of occupational therapy services. Prerequisites: All required undergraduate course work except Fieldwork II (OT 453 may be taken concurrently).

OT 697 Investigations in Occupational Therapy
1–3 hrs.
Independent study provided for the qualified occupational therapy student under the guidance of a departmental faculty member. May be repeated for credit. Prerequisite: Consent of graduate coordinator and proposed faculty supervisor.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

OT 700 Master’s Thesis
6 hrs.
Prerequisite: OT 660

OT 710 Independent Research
2–6 hrs.
Prerequisite: OT 660

OT 712 Professional Field Experience
2–6 hrs.
Prerequisite: Consent.

Hippotherapy Courses (HT)

Open to Graduate Students Only

HT 602 Hippotherapy Principles and Applications
3 hrs.
This web-based course is an introduction to the classic hippotherapy principles and their applications. Emphasis is on understanding equine movement as a treatment tool and how this affects movement and function. Students will learn the principles of patient screening, evaluation, and treatment planning relative to the hippotherapy setting. Prerequisites: HT 604 or permission of department.

HT 603 Clinical Application of Hippotherapy Principles
3 hrs.
This course will focus on integrating rehabilitative theories and equine assisted techniques in a practicum setting. Special attention will be directed toward the evaluation process, treatment planning, including developing long- and short-term goals, indicators of progress, coordination of the hippotherapy team, and progression of treatment sessions. Prerequisites: HT 610.

HT 604 Equine Skills for Hippotherapy
3 hrs.
This web-based course will provide students with a thorough understanding of the hippotherapy horse. Emphasis is on dressage, theory, equine anatomy, conformation and movement of the hippotherapy horse, handling techniques, and equine training and maintenance programs. Prerequisites: Admission to the hippotherapy program or permission of department.

HT 605 Hippotherapy Practice Management
3 hrs.
Utilizing hippotherapy as a treatment tool often requires venturing into an autonomous and unconventional practice arena. This web-based course will present an organized approach to problem-solving unique issues within the hippotherapy environment while providing concrete information for the application of basic business management strategies. Prerequisites: HT 602, HT 604, or permission of department.

HT 610 Equine and Treatment Skills Lab
3 hrs.
This course will provide students with an opportunity to improve their skills in the areas of horsemanship and basic patient treatment in the hippotherapy setting. With an emphasis on developing safe and effective techniques, students will practice and implement both clinical and equine skills. Topics covered include basic dressage, long-lining, proper leading, therapeutic lungeing, backing, horse training and maintenance, mounting and dismounting, emergency procedures, and patient evaluation and treatment planning. Prerequisites: HT 602, 604.

HT 660 Hippotherapy Research
3 hrs.
This course explores research in hippotherapy and related therapies while helping students to develop research skills. It will include principles of research design, analysis and critique of applied research, ethical research practices, proposal development and small "n" and multiple case research design. Prerequisites: HT 602, 604.

HT 697 Independent Study
2–4 hrs.
Independent study provided for the qualified student in the Hippotherapy Program under the guidance of a program faculty member. Prerequisites: Consent and HT 603 or concurrent with HT 603.

Open to Graduate Students Only—Please refer to The Graduate College section for complete course descriptions.

HT 710 Independent Research
2–6 hrs.
Designed for highly qualified advanced graduate students, or small groups, who wish to pursue individual studies or projects under the direction of a member of the graduate faculty. A Permission to Elect form, signed by the student's advisor and the faculty supervisor, must be submitted to the Graduate College prior to registration. Prerequisites: OT 660 or equivalent, HT 602 and HT 603 or concurrent.

HT 713 Independent Study
2–6 hrs.
This open subject is designed for the graduate student who wishes to pursue research, writing, or other scholarly projects outside the regular offerings of the graduate program. This project may be pursued with the approval and under the supervision of a faculty member. Prerequisites: Consent and HT 603 or concurrent.
Master of Science in Medicine in Physician Assistant

Advisors: James VanRhee
Room A310, Ellsworth Hall

The Department of Physician Assistant offers a professional entry-level program leading to the Master of Science in Medicine in Physician Assistant. This program is solely intended as a full-time professional curriculum, accredited by the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA), allowing graduates to sit for the Physician Assistant National Certifying Examination, required by most states for licensure to practice.

Admission Requirements
To be eligible to apply for admission, prospective applicants must present evidence of the following:
1. Earned baccalaureate degree from an accredited institution, with a grade point average of 3.0 or better in the most recent 60 hours.
2. Completion of one course in developmental psychology.
3. Completion of one course in biochemistry (for science majors).
4. Completion of one course in microbiology (for science majors).
5. Completion of one course in human anatomy (for science majors).
6. Completion of one course in human physiology (upper division).
7. Completion of one course in introductory statistics.
8. Completion of one course in cultural anthropology.
9. Completion of 1,000 hours of patient contact hours acceptable to the department.

Due to the competitive nature of this program, the above should be viewed as minimum standards.

Admission Procedures
To apply, the applicant must complete both the University’s Application for Admission and the application to the Central Application Service for Physician Assistants (CASPA). Applicants must be completed and received no later than December 31 of each year for the full-time class beginning the following fall. Selected candidates will be invited for a personal interview. Admissions decisions will be based on a weighted scoring of academic history, healthcare experience, and information gleaned from letters of recommendation, and interviews, and will be limited by available space.

Program Requirements
The graduate professional program consists of 48 hours of primarily classroom education, while the second year consists of 47 hours of primarily clinical placement education. Each student must complete all MDSC course offerings (listed elsewhere) and satisfy all the department’s professional standards criteria to meet graduation requirements.

Certificate Program in Clinical Trials Administration

Advisor: Program Director
Main Office: A310 Ellsworth Hall
Telephone: 387-5311
FAX: 387-5319

Clinical trials are used to evaluate and test new pharmaceuticals and medical devices for toxicity, safety, and efficacy. The information and data collected in these trials are carefully reviewed by the Food and Drug Administration before the drug or device is approved and made available to patients. The requirements for clinical trials have become more complex and expensive in recent years requiring growing numbers of qualified research personnel to administer the trials. These people are employed by pharmaceutical/medical device companies, contract research organizations, or by the physicians in offices in which the trial is conducted. They can occupy positions such as Clinical Research Coordinators, Clinical Research Associates, and Clinical Trial Managers.

The Graduate Certificate Program in Clinical Trials Administration will provide individuals with the essential competencies that are required by clinical trial administrators. The curriculum will educate students in the processes of drug and medical device development and the planning and management of clinical trials. The courses will also include instruction in the statistical concepts used in the design, analysis, and regulatory review of clinical studies, in the principles of pharmacology, and in the ethical and legal issues of clinical trials. The certificate may be taken independently or may be used to supplement graduate training in related fields such as physician assistant, occupational therapy, speech pathology and audiology, biological sciences, medicine, pharmacology, engineering, and marketing. The program is designed to provide education for students wishing to enter the expanding field of clinical trials and for those already employed in the profession who wish to upgrade their knowledge and abilities.

Admission Requirements
Applicants to the Program will be expected to meet the entrance requirements of the Graduate College. In addition, the program requires that applicants hold a bachelor’s degree in a health-related domain, including but not limited to physician assistant, nursing, occupational therapy, speech pathology and audiology, biological sciences, medicine, dentistry, and pharmacy. Applicants whose bachelor’s degrees are in non-health related fields may be admitted with the approval of the Program Director, who may require those applicants complete additional courses.

Application must be made to both the Graduate College and the College of Health and Human Services/Physician Assistant Department.

Program Requirements
Each student must satisfactorily complete an 18-hour semester course of study with a minimum of grade ‘B’ in each course in order to be awarded a Certificate in Clinical Trials Administration. The required courses are CTA 500, 510, 520, 530, 540, and 550.

Physician Assistant Courses (MDSC)

Open to Graduate Students Only

MDSC 601 Introduction to Medicine 4 hrs.
This course is designed to provide an introduction to the bio-psycho-social competencies required in PA practice. The material presented will focus on the knowledge, attitudes, and skills required for interviewing, medical history taking, and physical examination necessary for the formulation of differential diagnoses and development of therapeutic and patient education plans. Students will begin to learn counseling techniques with an emphasis on health promotion and wellness, and how to identify and screen for populations at risk. Students will be introduced to pathophysiology, clinical anatomy, and pharmacokinetics, and pharmacodynamics. The basic principles of office laboratory procedures and interpretation will be examined. In this course students will also explore the role of the Physician Assistant, including the legal aspects of PA practice and the ethical and practice standards expected. Graded on a Credit/No Credit basis. Prerequisite: Enrollment in the Physician Assistant program.

MDSC 602 EENT and Allergy 5 hrs.
This course provides a foundation for the understanding, diagnosis, and treatment of allergic disorders and of diseases of the ear, nose, and throat, throughout the life span. Students will examine the pathophysiology of diseases of this system, with an emphasis on the cellular mechanisms of disease and the body’s response to them. The course is designed to develop the competencies required for patient counseling and for focused medical history taking and physical examination, including sinusitis and chronic and complex regional relationships. The selection, utilization, and interpretation of clinical laboratory, imaging, and other diagnostic tests used to evaluate systems are examined along with concepts of pharmaco-therapeutic principles necessary to provide a rational basis for clinical prescribing decisions. An integrative test approach is used to encourage application of information through clinical problem solving in the formulation of differential diagnoses and development of therapeutic and patient education plans. Graded on a Credit/No Credit basis. Prerequisite: Enrollment in the Physician Assistant program and successful completion of previous MDSC courses.

MDSC 603 Cardiovascular and Pulmonary 7 hrs.
This course provides a foundation for the understanding, diagnosis, and treatment of diseases of the cardiovascular and pulmonary systems, throughout the life span. Students will examine the pathophysiology of diseases of these systems, with an emphasis on the cellular mechanisms of disease and the body’s response to them. The course is designed to develop the competencies required for patient counseling and for focused medical history taking and physical examination, including system anatomy and complex regional relationships. The selection, utilization, and interpretation of clinical laboratory, imaging, and other diagnostic tests used to evaluate system function are examined along with the study of the pathophysiology of these diseases, including the role of the Physician Assistant in patient care.
The course provides a foundation for the understanding, diagnosis, and treatment of diseases of the renal, musculoskeletal, and dermatological systems, throughout the life span. Students will examine the pathophysiology of diseases of these systems, with an emphasis on the cellular mechanisms of disease and the body's response to them. The course is designed to develop the competencies required for patient counseling and focused medical history taking and physical examination, including system anatomy and complex regional relationships. The selection, utilization, and interpretation of clinical laboratory, imaging, and other diagnostic tests used to evaluate system function are examined along with concepts of pharmacotherapeutic principles necessary to provide a rational basis for clinical prescribing decisions. An integrative approach is used to encourage application of information through clinical problem solving in the formulation of differential diagnoses and development of therapeutic and patient education plans. Graded on a Credit/No Credit basis. 

Prerequisite: Enrollment in the Physician Assistant program and successful completion of previous MDSC courses.

MDSC 606 Renal, Musculoskeletal, and Dermatology 8 hrs.

The course provides a foundation for the understanding, diagnosis, and treatment of diseases of the neuropsychiatric and endocrine systems, throughout the life span. Students will examine the bio-psycho-social model, wellness, as well as pathophysiology of diseases of these systems, with an emphasis on the cellular mechanisms of disease and the body's response to them. The course is designed to develop the competencies required for focused medical history taking and physical examination, including system anatomy and complex regional relationships. The selection, utilization, and interpretation of clinical laboratory, imaging, and other diagnostic tests used to evaluate system function are examined along with concepts of pharmacotherapeutic principles necessary to provide a rational basis for clinical prescribing decisions. An integrative approach is used to encourage application of information through clinical problem solving in the formulation of differential diagnoses and development of therapeutic and patient education plans. Graded on a Credit/No Credit basis. 

Prerequisite: Enrollment in the Physician Assistant program and successful completion of previous MDSC courses.

MDSC 607 Reproduction and Urology 7 hrs.

This course provides a foundation for the understanding, diagnosis, and treatment of diseases of the reproductive and urological systems, throughout the life span. Students will examine the pathophysiology of diseases of these systems, with an emphasis on the cellular mechanisms of disease and the body's response to them. The course is designed to develop the competencies required for patient counseling and focused medical history taking and physical examination, including system anatomy and complex regional relationships. The selection, utilization, and interpretation of clinical laboratory, imaging, and other diagnostic tests used to evaluate system function are examined along with concepts of pharmacotherapeutic principles necessary to provide a rational basis for clinical prescribing decisions. An integrative approach is used to encourage application of information through clinical problem solving in the formulation of differential diagnoses and development of therapeutic and patient education plans. Graded on a Credit/No Credit basis. 

Prerequisite: Enrollment in the Physician Assistant program and successful completion of previous MDSC courses.

MDSC 611 The Diagnostic Process I 2 hrs.

This is the first in a series of three courses designed to develop the knowledge, attitudes and skills requisite for medical history taking, physical examination, clinical problem solving, diagnostic and therapeutic decision making, role playing, individual and group problem solving, and for focused medical history taking and physical examination, including system anatomy and complex regional relationships. The selection, utilization, and interpretation of clinical laboratory, imaging, and other diagnostic tests used to evaluate system function are examined along with concepts of pharmacotherapeutic principles necessary to provide a rational basis for clinical prescribing decisions. An integrative approach is used to encourage application of information through clinical problem solving in the formulation of differential diagnoses and development of therapeutic and patient education plans. Graded on a Credit/No Credit basis. 

Prerequisite: Enrollment in the Physician Assistant program and successful completion of previous MDSC courses.

MDSC 612 The Diagnostic Process II 2 hrs.

This is the second in a series of three courses designed to develop the knowledge, attitudes and skills requisite for medical history taking, physical examination, clinical problem solving, diagnostic and therapeutic decision making, role playing, individual and group problem solving, and for focused medical history taking and physical examination, including system anatomy and complex regional relationships. The selection, utilization, and interpretation of clinical laboratory, imaging, and other diagnostic tests used to evaluate system function are examined along with concepts of pharmacotherapeutic principles necessary to provide a rational basis for clinical prescribing decisions. An integrative approach is used to encourage application of information through clinical problem solving in the formulation of differential diagnoses and development of therapeutic and patient education plans. Graded on a Credit/No Credit basis. 

Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 613 The Diagnostic Process III 2 hrs.

This is the summative offering in this series of three courses designed to develop competence in both the art and science of patient evaluation. Students will continue to assess patients utilizing history taking and physical examination skills. Students will master special examinations such as for the pediatric patient, as well as the pregnant patient. Further emphasis will be placed on formulating diagnoses, therapeutic and patient education plans. Students will examine and apply competencies in prevention strategies, and recording and communicating information in a medical team model. 

Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 621 Medical Pathophysiology I 1 hr.

This is the first in a three part sequence designed to provide the physician assistant student with a foundation for understanding human diseases. Students will review clinically relevant physiology and acquire a working knowledge of pathophysiology. Emphasis will be on the cellular mechanisms of disease and the body's reactions to them. Topics covered will parallel those in concurrent clinical science courses. 

Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 622 Medical Pathophysiology II 1 hr.

This is the second in a three part sequence designed to provide the physician assistant student with a foundation for understanding human diseases. Students will review clinically relevant physiology and acquire a working knowledge of pathophysiology. Emphasis will be on the cellular mechanisms of disease and the body's reactions to them. Topics covered will parallel those in concurrent clinical science courses. 

Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 623 Medical Pathophysiology III 1 hr.

This is the third in a three part sequence designed to provide the physician assistant student with a foundation for understanding human diseases. Students will review clinically relevant physiology and acquire a working knowledge of pathophysiology. Emphasis will be on the cellular mechanisms of disease and the body's reactions to them. Topics covered will parallel those in concurrent clinical science courses. 

Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 631 Primary Care Medicine I 6 hrs.

This is the first of three primary care medicine courses. This sequence forms the basis for the P.A. student to the practice of medicine. The course will cover disease states using a systems approach. Within each system, a lifespan approach will be used to look at diseases from the pediatric patient through the geriatric patient. Each disease will be examined using the integration of epidemiology, lab tests/procedures, diagnosis, treatment, nutritional issues, and available alternative medicine options. The primary care medicine courses will form the basis for clinical evaluation, diagnosis and appropriate referral, when necessary, of various health and wellness processes throughout a person's life. 

Prerequisite: Admission to the Physician Assistant program or departmental permission.
MDSC 632 Primary Care Medicine II
6 hrs.
This is the second of three primary care medicine courses. This course is a continuation of the Primary care medicine I course. This series of courses introduces the PA student to the practice of medicine. The course will cover disease states using a systems approach. Within each system, a lifespan approach will be used to look at diseases that are the predominant part of the geriatric patient. Each disease will be examined using the integration of epidemiology, lab tests/procedures, diagnosis, treatment, nutritional issues, and available alternative medicine options. The primary care medicine courses will form the basis for clinical evaluation, diagnosis, management, and appropriate referral, when necessary, of various health and wellness processes throughout a person’s life. Prerequisite: Successful completion of prior semester PA course work or departmental permission.

MDSC 633 Primary Care Medicine III
5 hrs.
This is the third of three primary care medicine courses. This course is a continuation of the Primary care medicine II course. This series of courses introduces the PA student to the practice of medicine. The course will cover disease states using a systems approach. Within each system, a lifespan approach will be used to look at diseases that are the predominant part of the geriatric patient. Each disease will be examined using the integration of epidemiology, lab tests/procedures, diagnosis, treatment, nutritional issues, and available alternative medicine options. The primary care medicine courses will form the basis for clinical evaluation, diagnosis, management, and appropriate referral, when necessary, of various health and wellness processes throughout a person’s life. Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 641 Procedures and Diagnostic Testing I
1 hr.
This is the first in a three course series. The series presents a foundation for understanding the appropriate uses and interpretations of clinical diagnostic testing. Through exploration of each of the major body systems, this course presents instruction in medical procedures used in the diagnosis or treatment of the common disorders of each system. It also provides the basis for the selection, utilization and interpretation of clinical laboratory, imaging, and other diagnostic tests used to evaluate each system’s principal functions. Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 642 Procedures and Diagnostic Testing II
1 hr.
This is the second in a three course series. The series presents a foundation for understanding the appropriate uses and interpretations of clinical diagnostic testing. Through exploration of each of the major body systems, this course presents instruction in medical procedures used in the diagnosis or treatment of the common disorders of each system. It also provides the basis for the selection, utilization and interpretation of clinical laboratory, imaging, and other diagnostic tests used to evaluate each system’s principal functions. Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 643 Procedures and Diagnostic Testing III
1 hr.
This is the third in a three course series. The series presents a foundation for understanding the appropriate uses and interpretations of clinical diagnostic testing. Through exploration of each of the major body systems, this course presents instruction in medical procedures used in the diagnosis or treatment of the common disorders of each system. It also provides the basis for the selection, utilization and interpretation of clinical laboratory, imaging, and other diagnostic tests used to evaluate each system’s principal functions. Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 651 Health Promotion and Patient Counseling I
1 hr.
This is the first course in a three-semester series presented sequentially through the preclinical year of training. This course will focus on the knowledge, skills, and attitudes necessary for counseling and educating patients. These courses will emphasize counseling techniques with application to clinical problems such as crisis intervention, substance abuse, human sexuality, multiculturalism, and patient/practitioner transferecence/counter transference. Theories of personality and psychopathology will be investigated as they relate to patient and practitioner coping styles and effectiveness. Students will also develop expertise in educating patients in wellness and disease prevention. Students will investigate the caregiver role and become insightful regarding their own needs and limitations. Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 652 Health Promotion and Patient Counseling II
1 hr.
This is the second course in a three-semester series presented sequentially through the preclinical year of training. This course will focus on the knowledge, skills, and attitudes necessary for counseling and educating patients. These courses will emphasize counseling techniques with application to clinical problems such as crisis intervention, substance abuse, human sexuality, multiculturalism, and patient/practitioner transferecence/counter transference. Theories of personality and psychopathology will be investigated as they relate to patient and practitioner coping styles and effectiveness. Students will also develop expertise in educating patients in wellness and disease prevention. Students will investigate the caregiver role and become insightful regarding their own needs and limitations. Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 653 Health Promotion and Patient Counseling III
1 hr.
This is the third course in a three-semester series presented sequentially through the preclinical year of training. This course will focus on the knowledge, skills, and attitudes necessary for counseling and educating patients. These courses will emphasize counseling techniques with application to clinical problems such as crisis intervention, substance abuse, human sexuality, multiculturalism, and patient/practitioner transferecence/counter transference. Theories of personality and psychopathology will be investigated as they relate to patient and practitioner coping styles and effectiveness. Students will also develop expertise in educating patients in wellness and disease prevention. Students will investigate the caregiver role and become insightful regarding their own needs and limitations. Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 661 Pharmacotherapeutics I
2 hrs.
This is the first of three courses that focus on the concepts of pharmacotherapeutic principles necessary to provide a rational basis for clinical prescribing decisions. This course sequence will present the pharmacology, pharmacokinetics, side-effects, complications, dosages, and contraindications using a systems approach. Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 662 Pharmacotherapeutics II
2 hrs.
This is the second of three courses that focus on the concepts of pharmacotherapeutic principles necessary to provide a rational basis for clinical prescribing decisions. This course sequence will present the pharmacology, pharmacokinetics, side-effects, complications, dosages, and contraindications using a systems approach. Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 663 Pharmacotherapeutics III
2 hrs.
This is the third of three courses that focus on the concepts of pharmacotherapeutic principles necessary to provide a rational basis for clinical prescribing decisions. This course sequence will present the pharmacology, pharmacokinetics, side-effects, complications, dosages, and contraindications using a systems approach. Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 671 Advanced Clinical Anatomy I
2 hrs.
This is the first course in a three-semester human anatomy sequence designed to parallel and support clinical science courses in the Physician Assistant curriculum. Emphasis will be on achieving an understanding of anatomical concepts as they pertain to clinical problem solving and physical diagnosis. A laboratory component involving the study of cadaver specimens is
This is the third course in a three-semester human anatomy sequence designed to parallel and support clinical science courses in the Physician Assistant curriculum. Emphasis will be on achieving an understanding of anatomical concepts as they pertain to clinical problem solving and physical diagnosis. A laboratory component involving the study of cadaveric dissections is included. **Prerequisite:** Admission to the Physician Assistant graduate program.

**MDSC 673 Advanced Clinical Anatomy III** 1 hr. This is the third course in a three-semester human anatomy sequence designed to parallel and support clinical science courses in the Physician Assistant curriculum. Emphasis will be on achieving an understanding of anatomical concepts as they pertain to clinical problem solving and physical diagnosis. A laboratory component involving the study of cadaveric dissections is included. **Prerequisite:** Admission to the Physician Assistant graduate program.

**MDSC 680 Research Concepts for Physician Assistants** 3 hrs. This course will prepare students to understand methods and limitations of various types of research that will impact their practice of medicine. Topics included are a review of statistics and epidemiology, study design, methods and measures, critical evaluation of medical literature, and medical informatics as it relates to research. Emphasis will be placed on the clinical relevance and applications in clinical decision-making skills. **Prerequisite:** Successful completion of prior semester P.A. course work or departmental permission.

**MDSC 681 Professional Field Experience – Women's Health** 4 hrs. This course will place the student in a structured obstetrics/gynecology medicine clinical elective field experience focus on a women's health clinical rotation under the direct supervision of a qualified preceptor. Students will be expected to become proficient with a variety of clinical presentations and procedures, subject to site limitations, and develop competence in diagnosing, evaluating, monitoring, teaching, educating and/or referring patients. Selected readings will also be assigned to the students. These readings will change frequently to reflect current medical literature. Graded on a Credit/No Credit basis. **Prerequisite:** Completion of the preclinical year of the Physician Assistant program or departmental permission.

**MDSC 682 Professional Field Experience – Pediatrics** 4 hrs. This course will place the student in a structured pediatrics medicine clinical rotation under the direct supervision of a qualified preceptor. Students will be expected to become proficient with a variety of clinical presentations and procedures, subject to site limitations, and develop competence in diagnosing, evaluating, monitoring, teaching, educating and/or referring patients. Selected readings will also be assigned to the students. These readings will change frequently to reflect current medical literature. Graded on a Credit/No Credit basis. **Prerequisite:** Completion of the preclinical year of the Physician Assistant program or departmental permission.

**MDSC 683 Professional Field Experience – Surgery** 4 hrs. This course will place the student in a structured surgical medicine clinical rotation under the direct supervision of a qualified preceptor. Students will be expected to become proficient with a variety of clinical presentations and procedures, subject to site limitations, and develop competence in diagnosing, evaluating, monitoring, teaching, educating and/or referring patients. Selected readings will also be assigned to the students. These readings will change frequently to reflect current medical literature. Graded on a Credit/No Credit basis. **Prerequisite:** Completion of the preclinical year of the Physician Assistant program or departmental permission.

**MDSC 684 Professional Field Experience – Medical Psychiatry** 4 hrs. This course will place the student in a structured mental health clinical rotation under the direct supervision of a qualified preceptor. Students will be expected to become proficient with a variety of clinical presentations and procedures, subject to site limitations, and develop competence in diagnosing, evaluating, monitoring, treating, educating and/or referring patients. Selected readings will also be assigned to the students. These readings will change frequently to reflect current medical literature. Graded on a Credit/No Credit basis. **Prerequisite:** Completion of the preclinical year of the Physician Assistant program or departmental permission.

**MDSC 685 Professional Field Experience – Emergency Medicine** 4 hrs. This course will place the student in a structured clinical emergency medicine rotation under the direct supervision of a qualified preceptor. Students will be expected to become proficient with a variety of clinical presentations and procedures, subject to site limitations, and develop competence in diagnosing, evaluating, monitoring, treating, educating and/or referring patients. Selected readings will also be assigned to the students. These readings will change frequently to reflect current medical literature. Graded on a Credit/No Credit basis. **Prerequisite:** Completion of the preclinical year of the Physician Assistant program or departmental permission.

**MDSC 686 Professional Field Experience – Family Medicine** 6 hrs. This course will place the student in a structured family medicine clinical rotation under the direct supervision of a qualified preceptor. Students will be expected to become proficient with a variety of clinical presentations and procedures, subject to site limitations, and develop competence in diagnosing, evaluating, monitoring, treating, educating and/or referring patients. Selected readings will also be assigned to the students. These readings will change frequently to reflect current medical literature. Graded on a Credit/No Credit basis. **Prerequisite:** Completion of the preclinical year of the Physician Assistant program or departmental permission.

**MDSC 687 Professional Field Experience – Internal Medicine** 8 hrs. This course will place the student in a structured clinical internal medicine rotation under the direct supervision of a qualified preceptor. Students will be expected to become proficient with a variety of clinical presentations and procedures, subject to site limitations, and will develop competence in diagnosing, evaluating, monitoring, treating, educating and/or referring patients. Selected readings will also be assigned to the students. These readings will change frequently to reflect current medical literature. Graded on a Credit/No Credit basis. **Prerequisite:** Completion of the preclinical year of the Physician Assistant program or departmental permission.

**MDSC 691 Clinical Practice Issues I** 1 hr. This is the first course of a three-course seminar series designed to present and discuss various topics relevant to current clinical practice. The topics will be generated by the challenges the students will encounter in the practice of medicine. This course will address the evolutionary trends in the healthcare arena and will facilitate the student's transition to professional practice. Graded on a Credit/No Credit basis. **Prerequisite:** Completion of the preclinical year and concurrently enrolled in a professional field experience course or departmental permission.

**MDSC 692 Clinical Practice Issues II** 1 hr. This is the second course of a three-course seminar series designed to present and discuss various topics relevant to current clinical practice. The topics will be generated by the challenges the students will encounter in the practice of medicine. This course will also address the evolutionary trends in the healthcare arena and will facilitate the student's transition to professional practice. Graded on a Credit/No Credit basis. **Prerequisite:** Successful completion of MDSC 691 and concurrently enrolled in a professional field experience course or departmental permission.

**MDSC 693 Clinical Practice Issues III** 1 hr. This is the third course of a three-course seminar series designed to present and discuss various topics relevant to current clinical practice. The topics will be generated by the challenges the students will encounter in the practice of medicine. This course will also address the evolutionary trends in the healthcare arena and will facilitate the student's transition to professional practice. Graded on a Credit/No Credit basis. **Prerequisite:** Successful completion of MDSC 692 and concurrently enrolled in a professional field experience course or departmental permission.

Open to Graduate Students Only—Please refer to The Graduate College section for complete course descriptions.

**MDSC 710 Research Project/Professional Experience** 2–6 hrs. (8 hrs. required in program) This course will ensure that students are qualified in applying the lessons learned in MDSC 690 in a practical clinical manner. This is the culmination course of the master's curriculum, and requires a paper of publishable quality and presentation of the same. Several permutations are possible, including research under faculty supervision, clinical elective field experience focus on a research topic, clinical case investigation, and others. Course is repeatable for credit. Graded on a Credit/No Credit basis. **Prerequisite:** Completion of the preclinical year and at least one MDSC Field Experience or departmental permission.
Clinical Trials Administration Courses (CTA)

CTA 500 Introduction to Drug and Device Development
3 hrs.
This course introduces the student to the pharmaceutical and medical device industry and the process of drug and device development. Drug Development Phases I-IV are discussed. Preclinical (animal) research, regulatory requirements, are reviewed along with the content of the Investigational New Drug Application (INDA), the New Drug Application (NDA), Pre-Market Approval (PMA), and the Marketing Authorization Application (international). The roles of the Investigator, Study Coordinator, Sponsor, and Monitor are discussed. Students are exposed to the skills necessary to function as a mid-level research employee.

CTA 510 Clinical Pharmacology in Drug Development
3 hrs.
This course provides an overview of pharmacology, highlighting pharmacodynamics and pharmacokinetics, both of which are necessary to understand new drug discovery and development. A review of selected therapeutic areas will be reviewed, including oncology, cardiovascular, central nervous system, and anti-infectives.

CTA 520 Clinical Trial Design and Statistical Concepts
3 hrs.
The course is designed to allow the student to develop an understanding of the use and importance of statistics in drug development. This course will teach the fundamental statistical concepts used in the design, analysis and regulatory review of clinical studies and drug dossiers. It will provide an understanding of the basic statistical theory used in the interpretation of clinical trial efficacy and safety results. It will give the student an understanding of the statistical requirements applied by regulatory agencies in their review processes.

CTA 530 Clinical Study Administration I
3 hrs.
This course covers the planning, development, implementation and management of clinical trials. Topics include protocols, protocol development, case report form design, clinical data management, operation, writing and conducting informed consent, Institutional Review Boards, contracting, budget development, selection and evaluation of research sites and activities required for implementation of a clinical trial. Prerequisite: CTA 500.

CTA 540 Clinical Study Administration II
3 hrs.
The course builds on the content of Clinical Study Administration I and presents the steps necessary to initiate, monitor, and close clinical trials within the context of Food and Drug Administration (FDA) regulations, Canadian Health Protection Branch regulations, and International Conference on Harmonization guidelines for Good Clinical Practices. Topics include study monitoring, source document review, drug and device distribution and accounting, data correction and management, adverse event reporting, auditing and preparing for FDA inspection, Data review and summarization and final study reports. Prerequisite: CTA 530.

CTA 550 Ethical and Legal Issues in Clinical Research
3 hrs.
Generally, biomedical professionals are expected to learn the high standards of their chosen profession by example and experience. In the area of clinical trials that involve human volunteers, the assimilation of ethical standards cannot be left to chance. Personnel involved in clinical trials must balance the dual goals of scientific merit and ethical acceptability. Ethical principles (respect for autonomy, non-maleficence, beneficence, justice), and other ethical concerns (privacy, confidentiality, compassion, relationships among patients and professionals) are studied and applied to contemporary problems in medicine and clinical research. This course is designed to be practical, incorporating the use of case studies that illustrate problems arising in the design and conduct of research trials.

SPECIAL WORK

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Betsy Voshel
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Susan Wenger
Robert Woffkin

Master of Social Work

Director of Admissions and Student Services
Nancy McFadden
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387-3201

The Master of Social Work program in professional social work is designed to prepare students for direct service and leadership positions in the field of social welfare. The program is accredited by the Council on Social Work Education. The curriculum is structured as an integrated and sequential set of conceptual and practicum educational experiences. In preparing students for practice, the School of Social Work recognizes a variety of theoretical paradigms and values and welcomes the challenge and benefits of intellectual and philosophical diversity. It supports students in their personal synthesis of these paradigms and values. In addition, the School stresses development and dissemination of social work knowledge and practice skills.

The graduate program prepares students for specialized and advanced levels of practice. It also incorporates a foundation curriculum, built on a liberal arts base. The foundation has two goals: To provide students with the knowledge, values, and skills leading to an informed perspective on the profession of social work and its service delivery systems, and to prepare students for entry into the concentrations.

There are two methods concentrations in the graduate program: 1. Interpersonal Practice and 2. Policy, Planning, and Administration. These concentrations build on the foundation curriculum and are the vehicles through which students learn the specific advanced skills of their chosen area of concentration.

The Interpersonal Practice concentration prepares students to become informed practitioners and leaders in working with individuals, families, and groups. Practice courses in the concentration are designed to provide expert competencies in interpersonal practice. Such competencies include the ability to assess situations, carry out appropriate interventions, and evaluate one's own practice framework, strategies, and results when working with clients.

The Policy, Planning, and Administration concentration has four essential components: Organizational leadership and management, program planning, analytic tools and technology, and policy practice. The desired outcome of the Policy, Planning, and Administration concentration is the
empowerment of practitioners to facilitate changes in organizational, community, and societal structures and processes that contribute to a just distribution of opportunities and resources.

In addition, the College of Health and Human Services offers opportunities for participation in social work-related graduate certificate programs. Included are Alcohol and Drug Abuse (SPADA), Gerontology, Holistic Health Care, and Nonprofit Leadership and Administration.

Admission Requirements
Applicants for graduate study in social work must complete two applications—one for the Office of Admissions and Orientation (the Graduate Self-Managed Application) and one for the School of Social Work. Both applications can be obtained either from the Office of Admissions and Orientation or the School of Social Work. Admission is granted for the spring session only for applicants to the Advanced Standing program; admission is granted for the fall semester only for applicants to the full-time or extended-study programs. The deadline for filing applications is January 15th for advanced standing and March 15th for the full-time or extended-study programs each year. In addition to The Graduate College's requirements for admission to a master's degree program, the following criteria will be considered:

1. Evidence of adequate academic preparation for graduate study in social work. This includes consideration of both undergraduate performance and area of study. Undergraduate preparation in the social and behavioral sciences and social work/social welfare is given particular attention.

2. Evidence of personal qualifications considered desirable for successful social work practice. These include motivation for a human service profession, social work related work experience, personal maturity, and leadership ability.

3. For those with a Bachelor of Social Work earned in an accredited B.S.W. program, an Advanced Standing Program is available for a selected number of qualified applicants. Such applicants, in addition to meeting and adhering to admission criteria above, will need to have earned, minimally, an overall grade point average of 3.5 (A = 4.0) in social work courses with no individual social work grade below a 3.0. Including all work required in the social work major, as well as an overall grade point average of 3.0 in the final sixty hours of the undergraduate degree program. Moreover, the applicant to the Advanced Standing Program must provide written evidence of having the time and financial resources necessary to complete the advanced standing program within its twelve-month schedule. Applicants for the Advanced Standing Program must have completed the B.S.W. within 6 years of application to the program.

Program Requirements
1. The successful completion of sixty hours of credit is required for the conventional master's degree in social work. The degree program includes the following course requirements:
   - Required Foundation Courses in the School of Social Work (21 hours)
   - Required Concentration Courses in the Social Work Major (15 hours)
   - Elective Courses in Social Work or in other University departments (6 to 9 hours)
   - Field Education (12 hours: 6 in the Foundation and 6 in the Concentration)

2. Advanced Social Work Research (SWRK 642 for 3 hours or SWRK 688 for 6 hours)
3. Field Education: Students are required to complete two years of field education. The student's first-year field assignment is a Foundation placement encompassing a wide range of social welfare practice situations. The student's second-year field assignment is a Concentration placement, selected relative to the student's career interests. Field education requires two days per week in the agency setting, averaging 16 hours per week in both fall and winter semesters. Full-time students begin field education the first semester, taking foundation courses concurrently. Extended-study students begin field education in the second fall semester of the program, taking foundation courses both in the first year and concurrent with field education in the second year. Advanced-standing students begin the concentration placement in the fall semester. First-year placement requires 428 hours; second year, 472 hours; and advanced-standing, 500 hours.
4. Proficiency exams are available in SWRK 610, 630, 631, 633 and 640. Students have the option to earn credit for those courses in which proficiency exams are passed.
5. Students admitted to the M.S.W. Advanced Standing Program must complete a minimum of 39 credit hours of required graduate courses.
6. Students who have successfully completed the first year of an M.S.W. program from an accredited school of social work may apply for admission to the second year of Western Michigan University's M.S.W. program. For those who are not transferring one year of graduate social work credit, up to 12 credit hours of graduate credit from other institutions or another degree program may be transferred into an M.S.W. program.
7. Transfer credit requests are processed after admission by the Director of Admissions and Student Services.

8. Students may take up to 9 hours of PTG (Permission to Take Graduate Classes) credit before admission is offered. An additional 3 credit hours of PTG credit (up to a maximum total of 12 PTG hours) may be taken and transferred in after the student receives an offer of admission. Please contact the Director of Social Work Admissions and Student Services in the School of Social Work for information regarding available PTG classes.

In addition to the conventional two-year, full-time program and the twelve-month Advanced Standing Program, the School of Social Work offers an extended-study program on campus in Kalamazoo and an extended-study program off-campus in Grand Rapids. Persons interested in extended-study programming should contact the Director of Admissions and Student Services in the School of Social Work.

Financial aid is available to a limited number of qualified, full-time students. Information regarding the various types of available assistance may be obtained by writing to Director of Financial Aid and Student Services, School of Social Work, Room 402 Moore Hall.

Social Work Courses (SWRK)
SOCIAL WORK FOUNDATION COURSES
Open to Graduate Students Only

SWRK 610 Foundations of Social Welfare Policy
3 hrs.
This is the first course in the graduate program offered in the social welfare policy sequence of courses. Its general 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 identify evolving socio-cultural 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. While SWRK 610 places primary focus on the content of social welfare policy, other policy courses focus on specific subject areas or on the development of policy practice skills. Prerequisite: Consent of instructor.

SWRK 630 Social Change and Community Analysis
3 hrs.
Social workers have a responsibility to promote social justice and to strive to abolish injustice. The course identifies and explores historical, theoretical, and ideological perspectives on social change. Social change is studied by examining the community at the local, national and international level and by exploring strategies for change at each level. Emphasis is placed on racism, sexism, and classism, and on social movements to alleviate these problems. Prerequisite: Consent of instructor.

SWRK 631 Human Behavior and the Social Environment
3 hrs.
This course provides students with a conceptual and theoretical framework for understanding human behavior as it is influenced by the social environment across the life span. Human development and behavior are approached as part of historical and contemporary sociocultural processes acting interdependently with psychology, biology, economics, geography, and politics. Diversity issues such as race/ethnicity, gender, sexual orientation, and social class are taken into consideration as critical elements in these processes and their relationships. The role of social welfare policy issues relevant to this course is also explored. Prerequisite: Consent of instructor.

SWRK 633 Advanced Seminar in Culture, Ethnicity, and Institutional Inequality in Social Work Practice
3 hrs.
This course explores the social, psychological and structural implications of race and culture for social work practice. In order to relate more effectively to individuals and groups of different ethnic, cultural, and philosophical backgrounds, it is essential to: 1) gain knowledge about those differences; 2) understand our individual and collective reactions to those differences; and 3) discover ways in which those differences can be bridged within the context of social work practice. Prerequisite: Consent of instructor.

SWRK 640 Research and Evaluation Methods in Social Work
3 hrs.
This course is designed to increase student knowledge of research and evaluation as a tool for social work practice. Students will acquire the basic skills and knowledge to utilize existing social research and evaluation for practice-related decision-making as well as the capacity to carry out systematic, thorough methods of inquiry in practice. Basic statistical methods are also covered. Prerequisite: Consent of instructor.
SWRK 661 Social Work Practice: Individuals and Families
3 hrs.
This course focuses on foundation level knowledge and skills necessary to help individuals and families. This includes engagement, assessment, contracting, problem-solving, and evaluation with attention to social work values, theoretical knowledge and practice conditions. Problem-solving in a biopsychosocial framework and facilitation of client competence and empowerment undergird this course. SWRK 661 is taken concurrently with SWRK 671, Field Education in Social Work Practice, to facilitate interaction between field and classroom learning. Concurrent enrollment in SWRK 671 is required.

SWRK 662 Social Work Practice: Groups and Organizations
3 hrs.
The course focuses on knowledge and skills related to social work practice with groups and organizations. Attention is paid to interpersonal, intrapersonal, and organizational levels of intervention. Practice skills in working with groups and organizations are developed. Prerequisite: SWRK 661. Concurrent enrollment in SWRK 672 is required.

SWRK 671 Field Education and Social Work Practice I
3 hrs.
This is the first of two field practice courses that entails 220 hours in a human service agency. Students apply knowledge and develop skills in conducting interviews, problem identification, data collection, problem assessment, and goal formulation with client systems in the context of social work values. Students integrate self-awareness and appreciation of diversity into professional practice. Students develop a working knowledge of the agency’s functions, structure, processes, and its service provider role within the community. Graded on a Credit/No Credit basis. Prerequisite: Concurrent enrollment in SWRK 661 is required.

SWRK 672 Field Education and Social Work Practice II
3 hrs.
This is the second of two field practice courses that entails 220 hours in a human service agency. Students further integrate and apply social work knowledge, skills, and values in their field practicum, including the problem-solving process, interviewing, use of self and understanding of diversity. Graded on a Credit/No Credit basis. Prerequisite: Completion of SWRK 661 and SWRK 671, and concurrent enrollment in SWRK 662.

ADVANCED RESEARCH COURSES

Open to Graduate Students Only

SWRK 668 Applied Social Work Research
3–6 hrs.
This course involves working as a member of a faculty-led research team. Students will be involved in the conceptualization of a research problem, the design of a methodology, the collection and analysis of data, and the development of a report of the findings. This course is offered occasionally, depending on the existence of an appropriate research project. SWRK 668 may replace SWRK 642 and one elective as part of the student’s plan of study. Graded on a Credit/No Credit basis.

Prerequisites: SWRK 640, 672.

INTERPERSONAL PRACTICE CONCENTRATION COURSES

Open to Graduate Students Only

SWRK 636 Social Work Practice with Groups
3 hrs.
Focus of the seminar is on the theory and practice of social group work in clinical settings. Consideration is given to such issues as group dynamics, therapeutic factors, leadership, composition, direct and indirect intervention, and activities in social treatment. Prerequisite: SWRK 662.

SWRK 638 Psychopathology for Social Work Practice
3 hrs.
This course provides students with knowledge of psychopathology as an aspect of human functioning and cultural labeling. Primary focus is on the interaction between physiological, developmental, emotional, and social aspects of adult and child psychopathology from both descriptive and psychodynamic points of view. General implications for social work intervention, ethical and value issues, and relevant research will receive some consideration. Emphasis of course sections may be adults, children, or adolescents. Prerequisite: SWRK 631 or consent of instructor.

SWRK 666 Social Work Practice with Individuals
3 hrs.
This course will introduce the student to social work practice with individuals. Social, psychological, economic, and biological stressors are considered as they impact on the individual’s efforts to grow and survive. The ego developmental and crisis intervention approaches are the major orientations presented, augmented by concepts from cognitive theory. Particular attention will be paid to client’s coping capacities. Prerequisite: SWRK 661.

SWRK 668 Social Work Practice with Families
3 hrs.
This course provides knowledge and skills in clinical social work practice with families. Family systems theory and principles and techniques of structural family therapy are the central focus of the course. Concepts from communications, therapy and related interventions are also covered. Aspects of human diversity are discussed in relation to their impact on family functioning. Prerequisite: SWRK 666 or consent of instructor.

SWRK 676 Field Education in Interpersonal Practice
3 hrs.
Placement will be in an agency unit offering direct service experiences with some combination of individuals, families, and groups and additional experiences consistent with the student's learning needs. Campus- or field-based seminars may supplement the field experiences. Graded on a Credit/No Credit basis. Prerequisites: SWRK 666, 672, and concurrent enrollment in SWRK 636, and/or SWRK 668, or consent of the instructor.

SWRK 678 Advanced Field Education in Interpersonal Practice
3 hrs.
Continuation of SWRK 676. Students remain in field placement; direct service experiences and other activities continue. Campus- or field-based seminars may supplement the field experience. Graded on a Credit/No Credit basis. Prerequisite: SWRK 676 and concurrent enrollment in a course from the 690 series, or consent of instructor.

SWRK 691 Advanced Social Work Practice with Individuals
3 hrs.
This course provides students in interpersonal practice with an opportunity to deepen their knowledge and application of advanced clinical social work practice directed to work with at-risk individuals. Special attention is paid to interventions which promote optimal psychosocial functioning and development. This course builds on SWRK 666 and SWRK 638, and meets requirements for the advanced practice course in interpersonal practice. Prerequisites: SWRK 638 and 666.

SWRK 692 Advanced Social Work Practice with Children
3 hrs.
This course provides students in interpersonal practice with an opportunity to deepen their knowledge of advanced clinical social work practice with children and adolescents in a variety of practice settings; e.g., child guidance, mental health, child welfare, school, corrections, and medical settings. This course builds on the content of SWRK 666, SWRK 668, and SWRK 638, and meets the requirement for the advanced practice course in interpersonal practice. Prerequisites: SWRK 638, 666, 668.

SWRK 693 Advanced Social Work Practice with Groups
3 hrs.
This is an advanced course for social work students that prepares them for therapeutic intervention in group treatment. The course will examine interpersonal relations, transference, counter-transference, communication, group processes, problem-solving, authority and leadership in groups, and group development from both an affective and cognitive perspective. The course will be experimental in nature with the student participating as a member of a small, face-to-face group. The course builds on the content of SWRK 636, Theory and Practice of Group Treatment, and meets the requirement for advanced practice course in social treatment. Prerequisites: SWRK 636, 666.

SWRK 694 Advanced Social Work Practice in Industry
3 hrs.
Study of advanced treatment strategies and interventions to help individuals with vulnerabilities in self-esteem development, early structure formation, and ego development as manifested in the work context. Clinical strategies directed to client internal organization and identity formation are examined. Meets requirement for advanced practice course in social treatment. Prerequisites: SWRK 631, 666.

SWRK 695 Advanced Social Work Practice in Supervision
3 hrs.
This course explores processes, strategies, and problems in supervision. It prepares students for supervisory roles in social work agencies, highlighting the importance of this role in maintaining professional expertise, in developing professional social work practice models, and in linking organizational goals to service delivery. Direct supervisory skills are covered in detail. Student participation is
essential. Meets requirement for advanced practice course in social treatment. **Prerequisite:** SWRK 661 or consent of instructor.

SWRK 696 Advanced Social Work Practice with Families 3 hrs. This course provides students with the opportunity to broaden and deepen their knowledge of advanced clinical social work with families. Building on SWRK 688, it provides theoretical content on structural strategic family therapy and may provide additional consideration of other perspectives such as communications and intergenerational approaches. Application of theoretical content is made to practice with families often encountered in social work practice, and seen as being at risk for problems in social and emotional functioning. The course meets the requirements for an advanced practice course in interpersonal practice. **Prerequisites:** SWRK 638, 668.

SWRK 697 Advanced Social Work Practice in Selected Areas 3 hrs. This variable topics course provides students an in-depth study of advanced interpersonal practice methods, models, and skills outside the scope of present course offerings. Topics vary from year-to-year, dependent upon student interest and timeliness of topic. **Prerequisite:** SWRK 666 and current enrollment in 636 or 668, or consent of instructor.

POLICY, PLANNING, AND ADMINISTRATION CONCENTRATION COURSES

Open to Graduate Students Only

SWRK 643 Leadership and Management in Human Services 3 hrs. This course addresses knowledge, skills, and attitudes essential in building leadership for developing, supporting, and maintaining effective service delivery in human service agencies. The course focuses on leadership styles; power, motivation, and conflict; task group skills; supervision; women and minorities in management, and values and ethics in leading human service organizations. **Prerequisite:** Enrollment in School of Social Work or consent of instructor.

SWRK 645 Administration in Human Service Organizations 3 hrs. The course introduces students to elements of administration in human service organizations. It focuses on project management, budgeting, fund development and marketing, and the role of governing boards in nonprofit organizations. **Prerequisite:** SWRK 671 or consent of instructor.

SWRK 667 Program Planning 3 hrs. The course addresses the models, stages, and tasks of program planning in the human services. Students will learn how to develop a team in planning a service program. The course focuses on the tasks that are essential in carrying out a problem analysis and needs assessment, formulating program goals and objectives, designing service programs, and writing program proposals. **Prerequisite:** Concurrent enrollment in SWRK 677 or consent of instructor.

SWRK 669 Advanced Seminar in Planning and Administration 3 hrs. This course addresses the recruitment, selection, development, supervision, and evaluation of program staff. Selected aspects of personnel law, affirmative action, and sexual harassment are examined. Students have opportunities to develop skill in the analysis and management of critical incidents in staff relationships. SWRK 669 is also used as the structure for assisting students in writing a program proposal that builds on content learned in PP&A courses and in the practicum. **Prerequisite:** SWRK 667 and concurrent enrollment in SWRK 679, or consent of instructor.

SWRK 670 Seminar in Social Policy Practice 3 hrs. This course is an integrative seminar in the Policy, Planning, and Administration concentration that focuses on the skills needed for participation in the development and implementation of social policy in program planning and executive positions in the human services environment. The course focuses on technical and interactive aspects of practice, theoretical and ethical frameworks, and skills in the application of selected techniques of social policy practice. **Prerequisite:** SWRK 610.

SWRK 677 Field Education in Social Policy, Planning, and Administration 3 hrs. Field education in the Social Policy, Planning, and Administration concentration is intended to provide students with opportunities to develop and exercise practice skills for designing, maintaining, and changing social systems. Field education in social welfare organizations and special programs are arranged in accordance with student interests and abilities. Graded on a Credit/No Credit basis. **Prerequisite:** SWRK 672 and concurrent enrollment in SWRK 667, or consent of instructor.

SWRK 679 Advanced Field Education in Social Policy, Planning, and Administration 3 hrs. The advanced field education experience for students concentrating in social policy, planning, and administration builds on the work which the student began in SWRK 677 during the fall semester. Students remain in the same field work setting and work under the direction of the same field instructor. During the winter semester, the emphasis will be upon the development of skills in the implementation of change and administration activities. It is expected that students will be assigned increased responsibilities in accordance with their professional development. Graded on a Credit/No Credit basis. **Prerequisite:** SWRK 677, concurrent with SWRK 669.

ADVANCED STANDING COURSES

Open to Graduate Students Only

SWRK 632 Organizations, Communities, Societies: A Change Perspective 3 hrs. The course reviews frameworks for analyzing organizations, communities, and societies as a means of preparing students to engage in planned change. Students learn strategies and tactics to influence change in organizational, communal, and societal structures and processes. The course explores historical, theoretical, and ideological perspectives on change. **Prerequisite:** Admission to the Advanced Standing Program.

SWRK 660 Seminar on Social Work Practice with Individuals, Families, and Groups 3 hrs. This course provides a conceptual framework for understanding, analyzing, and implementing social work practice with individuals, families, and groups from various theoretical perspectives within a "systems" framework of reference. The ultimate goal is for students to initiate the development of a practice model that is logically sound and consistent with their convictions and style and congruent with professional social work values. This course also focuses on the concrete relationship building, maintenance skills, and knowledge necessary for working with diverse human systems. Such diversity should include gender, race, religion, sexual orientation, age, physical capabilities, socio-economic status, and political orientations. **Prerequisite:** Admission to the Advanced Standing Program.

ELECTIVE SOCIAL WORK COURSES

Open to Upperclass and Graduate Students

SWRK 512 Social Policy and Service Delivery in Selected Problem Areas 3 hrs. 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. **Prerequisite:** Open only to senior undergraduates and graduate students.

SWRK 560 Social Work with Communities 3 hrs. This course involves an examination of major theoretical and conceptual tenets of community practice from a social work perspective. It also involves a practical integration of the conceptual knowledge of community practice through assignments which will focus on communities that are available through field placements or other arrangements. Students will examine the contributions communities make to the functioning of individuals, families, groups, and organizations, as well as how individuals, families, groups, and organizations contribute to the functioning of communities. Students will integrate into an understanding of community practice social work's historical and contemporary emphasis on "empowerment" and the person-environment interface (i.e., interaction among biological, cultural, social, psychological, political, and economic aspects of human development and functioning). **Prerequisite:** Undergraduate senior status.

SWRK 561 Social Workers and Social Movements 3 hrs. This course aims at helping social workers understand how social movements operate and how they can effectively and uniquely contribute to the just goals of social movements. The course addresses the rich heritage of social movements' accomplishments in American history; the theories exploring how social movements begin, endure, and effectively influence society; and how social movements have impacted critical issues in our nation's history. Students will learn elements of strategy to mobilize successful nonviolent social movements. The unique and specific contributions social workers make to social movements are explored.

SWRK 562 Community Organization in Urban Areas 3 hrs. Social welfare planning and social action methods are studied as approaches for preventing and resolving aspects of social problems. Emphasis is placed on the organizing of neighborhood and consumer groups in order to increase social interaction and improve social conditions. **Prerequisite:** Consent of instructor.

SWRK 564 Special Studies in Social Welfare Practice 1–4 hrs. 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.

**Prerequisite:** Consent of instructor.

**SWRK 566 Social Services in Schools**

3 hrs.

The role of the social worker in elementary and secondary schools and the necessary adaptations in the changes taking place in the educational scene are examined and evaluated. Problem solving approaches are given special attention within the structure and organization of the schools and their relationships with the surrounding community. The specific contributions of a school social worker as a helping person to the pupils, the school staff, and the homes by various interventive means are explored. **Prerequisite:** Consent of instructor.

**SWRK 597 Teaching Apprenticeship in Selected Social Work Curriculum Areas**

1–4 hrs.

The 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 clinical toward degree) by a student who wishes to increase teaching skills through applied practice in another social work area.

**SWRK 598 Readings in Social Work**

1–4 hrs.

Offers advanced students with good scholastic records an independent program of study, arranged in consultation with the instructor. One to four hours credit per semester.

Open to Graduate Students Only

**SWRK 623 Leadership in Nonprofit Organizations**

2 hrs.

This course addresses knowledge, skills, and attitudes in building leadership for developing, supporting, and maintaining effective service delivery in nonprofit organizations. The course focuses on such topics as leadership styles, power, motivation and conflict, task-group skills, supervision, women and other minorities in management, and ethics and values in leading nonprofit organizations.

**SWRK 627 Planning in Nonprofit Organizations**

2 hrs.

The course focuses on planning program changes and new programs in nonprofit organizations. Program planning is viewed as a creative, dynamic process carried out by a team. The stages and tasks of program planning are studied from analytical, technical, and interactional perspectives.

**SWRK 663 Seminar in Substance Abuse I**

3 hrs.

An interdisciplinary seminar designed to reflect broadly conceived intervention strategies ranging from primary prevention to rehabilitation of the addict. The basic training in the principles of intervention and clinical practice will continue to be taught within the student's basic professional discipline. The seminar will be used to elaborate upon the application of these principles to the problems of substance abuse. This course is cross-listed with ADA 631 and CECP 631. Open to SPADA students only.

**SWRK 684 Social Work Practice in Special Areas**

3 hrs.

Study of problem-solving in specialized areas of social work practice. Focus upon the role of the social work practitioner in assessment, goal establishment, and intervention in the use of various social work methods in different arenas of practice. Specific topic will be announced each semester. May be repeated for credit up to a maximum of six hours. **Prerequisite:** Consent of instructor.

**SWRK 665 Seminar in Substance Abuse II**

3 hrs.

Continuation of SWRK 663. This course is cross-listed with ADA 632 and CECP 632.

Open to Graduate Students Only—Please refer to The Graduate College section for course description.

**SWRK 710 Independent Research**

2–6 hrs.
Doctor of Audiology

This program becomes effective Fall 2003

Advisors:
Gary D. Lawson,
Room 224, Speech and Hearing Center

Gary D. Lawson,
Room 203, Speech and Hearing Center

Harold L. Bate,
Room 224, Speech and Hearing Center

A four-year post baccalaureate program in audiology will provide academic and practicum experiences leading to the Doctor of Audiology (Au.D.) Degree. The program is designed to prepare practitioners in audiology and to meet the accreditation standards of the Council on Academic Accreditation (CAA) in Audiology and Speech-Language-Hearing Association (ASHA). Students who complete the program will meet the standards for certification of clinical competence by ASHA. The Au.D. program will consist of a minimum of 118 credit hours. Supervised clinical practice will be required during every term of full-time registration and will include at least four academic assignments to clinical sites in addition to assignments in the Charles Van Riper Language, Speech and Hearing Clinic. At least two assignments to off-campus sites will be for full-time clinical practice. A list of required courses is available from the department.

Admission Requirements

For applicants with a bachelor's degree from an accredited college or university.

1. A grade point average of at least 3.0 in the last sixty credit hours of undergraduate study.

2. Undergraduate preparation including:
   a. at least 15 semester credit hours (or equivalent) in courses providing basic information about human communication processes (at least one course in biological sciences, one course in the physical sciences, and one course in mathematics); and at least six semester credit hours in the behavioral and/or social sciences.
   b. at least 12 semester credit hours (or equivalent) of coursework in audiology and speech and language disorders.

3. All research tool requirements; and

4. All requirements other than three or fewer semesters of full-time study.

For applicants holding a graduate degree with emphasis in audiology from an accredited college or university.

1. Grade point average of at least 3.25 in the previous graduate work.

2. Scores on the General Test of the Graduate Record Examination.

3. Evidence of personal and professional qualifications considered necessary for successful professional practice, as reflected in:
   a. three letters of recommendation from individuals able to comment on the applicant's achievements and potential for successful graduate work and professional practice in audiology, and
   b. the applicant's responses to a departmental questionnaire-application.

Applicancy Requirements

Applicants must submit official transcripts of all previous undergraduate and graduate work, scores on the General Test of the Graduate Record Examination, three letters of recommendation, evidence of any professional certification or licensure, and a written response to a departmental questionnaire-application. Admission is based on evaluation of the requested credentials, the availability of doctoral committee members, and availability of practicum. Not every applicant who meets minimum admission requirements can be admitted; the department reserves discretion in admission of the most highly qualified applicants.

Although applicancy status is typically determined before students begin graduate study at Western Michigan University, every winter semester the audiology faculty will review all doctoral students in audiology for satisfactory progress toward completion. Any student not making satisfactory progress may be dropped from the program with the approval of the department's Academic and Clinical Education Committee. The faculty review will consider grades, practicum performance, and demonstration of personal and professional characteristics suitable for professional practice in audiology.

Candidacy Requirements

For applicants with a bachelor's degree from an accredited college or university, a candidate for the Au.D. degree must, prior to the semester in which the doctoral project is to be defended, have received approval from the department to continue study toward the Au.D. degree and have satisfactorily earned or completed the following:

1. An overall grade point average of 3.25 or better;

2. Appointment of a scholarly project committee and formal approval by the committee of the scholarly project proposal;

3. All research tool requirements;

4. All requirements other than three or fewer courses, professional field experience, and independent research in a healthcare setting is recommended.

5. A summative examination (Examination for the ASHA Certificate of Clinical Competence in Audiology) with a passing score; and

6. A one year residency (two consecutive semesters of full time study).

For applicants holding a graduate degree with emphasis in audiology from an accredited college or university, candidacy requirements will be the same as for applicants with a bachelor's degree, but the practicum requirements and the examination for the CCC-A will have been completed prior to enrollment in the Au.D. program.

Graduation Requirements

Most students will enter the program with a bachelor's degree. These students must...

should be at least one course in phonetics, one course in speech and language development, and one course in the science of speech and hearing.

b. Undergraduate preparation must also include at least twelve semester hours (or equivalent) in courses which provide basic information on speech, language, and hearing disorders.

3. Accumulation of a grade point average of at least 3.00 in all undergraduate speech pathology and audiology course work.

4. Completion of at least twelve semester hours (or equivalent) of basic science course work, including courses in (a) biological and physical science, (b) mathematics, and (c) behavioral and social science. The student who has not completed this course work as an undergraduate will need to so as a graduate development of his/her ASHA standards for clinical certification.

5. Submission of scores on the General Test of the Graduate Record Examination.

6. Evidence of personal and professional qualifications considered necessary for successful professional practice, as reflected in:
   a. Three letters of recommendation from individuals able to comment on the applicant's academic and practicum achievements and potential for successful graduate work.
   b. Recital in an departmental questionnaire-application.

Program Requirements

Specific program requirements are as follows:

1. Completion of a core of required graduate courses specified by the department. The usual sequence of courses takes one calendar year, or two semesters (six terms of enrollment).

2. ASHA certification requirements are normally a part of the master's degree program. The student must complete at least 350 hours of supervised clinical practicum, at least 250 of them at the graduate level. (The student who enters the graduate program with very few undergraduate clinical hours may anticipate some extension in program duration.) Under certain circumstances a student may consult with their graduate advisor to seek the master's degree without qualifying for ASHA clinical certification; students interested in such an arrangement must consult with their graduate advisor.

3. The student must manifest emotional and behavioral characteristics which, in the judgment of the departmental faculty, will support development of his/her professional competence. Behavior to the contrary may lead to dismissal from the program.

4. As an option, a Master's thesis (six hours) or one or more independent research registrations may be applied toward degree requirements by students who demonstrate research aptitude and interest. Students anticipating study toward a doctoral degree are expected to evidence the ability to conduct a research project.

5. As an option, speech-language pathology students may wish to qualify for Michigan Teaching Certification in order to work as a Teacher of the Speech and Language Impaired (TSLI) in Michigan schools. Students desiring this credential should consult with departmental advisors and/or contact the Certification Office of the WMU College of Education.
Speech Pathology and Audiology Courses (SPPA)

Open to Upperclass and Graduate Students

SPPA 552 Communication Problems of the Aged
3 hrs.
This course acquaints the student with receptive and expressive communication problems common to older adults. Emphasis is on the clinical management of organic speech disorders and impaired auditory functions associated with aging.

SPPA 554 Speech and Hearing Therapy in the Schools
2 hrs.
Study of clinical work with speech and hearing handicapped children in the school setting. Prerequisite: Any SPPA course or Department approval.

SPPA 556 Rehabilitative Audiology
3 hrs.
Orientation to the clinical management of communication problems associated with auditory impairment.

SPPA 595 Oral Language Development and Dysfunction
2 hrs.
This course provides the student preparing to be a classroom or special teacher with information about the nature of oral language, its development, conditions associated with dysfunction, and the principles and methods of treatment for children with specific speech or language disorders. Not applicable toward the master's degree in Speech Pathology and Audiology.

SPPA 597 Topics in Speech Pathology and Audiology
1-4 hrs.
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, electrophysiology, audiometry, computer applications to speech communication, and contemporary professional issues.

a. Autism 
3 hrs.
b. American Sign Language I 3 hrs.
c. American Sign Language II 
3 hrs.

SPPA 598 Readings in Speech Pathology and Audiology
1-4 hrs.
Arranged on an individual basis to provide students the opportunity to pursue independently the study of special areas of interest in depth.

Open to Graduate Students Only

SPPA 601 Advanced Speech Science
3 hrs.
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. Prerequisite: Department approval.

SPPA 603 Anatomy of Audition and Balance
2 hrs.
A study of the anatomy and function of structures important to audition and balance. Prerequisite: Department approval.

SPPA 604 Psychoacoustics
2 hrs.
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. Prerequisite: Department approval.

SPPA 605 Laboratory Instrumentation in Hearing and Speech Sciences
2 hrs.
Basic principles of electronics and electronic instrumentation and application of laboratory instrumentation to measurements in hearing and speech sciences.

SPPA 615 Research Methods in Speech-Language Pathology and Audiology
3 hrs.
This course deals with methods and procedures for gathering, reducing and analyzing data to reach conclusions concerning hypotheses regarding communication disorders and processes. Prerequisite: Department approval.

SPPA 616 Instrumentation in Audiology
3 hrs.
This course introduces the basic principles and applications of electronics and electronic instruments as they pertain to audiology. The first section of the course will be an introduction to basic principles of DC and AC electronics; the second section will focus on the concept of electrical impedance. The second section of the course will consist of a survey of the principles of operation and use of a variety of instruments that are used to generate, record, reproduce, control, calibrate, and measure electrical signals. Prerequisite: Department approval.

SPPA 619 Seminar in Speech and Hearing Science
1-4 hrs.
Selected topics in speech and hearing science are systematically explored through individual study projects. Instrumentation, procedures, and techniques employed in perceptual, physical and physiological analyses of normal speech and hearing are among the areas considered. Topics vary from semester to semester and are announced in advance. May be repeated. Prerequisite: Department approval.

SPPA 620 Auditory Disorders
2 hrs.
This course deals with pathologies and disorders of the outer ear, middle ear, inner ear, the auditory nerve, and the central auditory pathways, including causes, treatments, and impact on hearing. Coverage of tinnitus and hyperacusis also is included. Prerequisite: Department approval.

SPPA 621 Diagnostic Audiology I
4 hrs.
This course, which is one of two courses devoted to diagnostic audiology, deals with routine and special audiometric techniques for assessing hearing disorders to determine the need for medical or rehabilitative intervention. Prerequisite: Department approval.

SPPA 622 Hearing Aids
3 hrs.
Components, characteristics, evaluation, selection, use and maintenance of hearing aids are studied in detail. Prerequisite: Department approval.

SPPA 623 Pediatric Audiology
3 hrs.
This course deals with the identification, measurement, and management of hearing impairment in infants and young children. Prerequisite: Department approval.

SPPA 624 Educational Audiology
3 hrs.
This course deals with educational, psychological, and vocational needs of the hearing impaired child and the parameters of educational programming. Prerequisite: Department approval.

SPPA 625 Industrial and Public Health Audiology
2 hrs.
A study of hearing conservation programs in industry, including noise measurement, damage-risk criteria, hearing measurement, and medicolegal problems; noise as a public health hazard; and hearing screening and deafness prevention programs. Prerequisite: Department approval.

SPPA 631 Diagnostic Audiology II
4 hrs.
A course dealing with electrophysiological and other advanced audiological techniques for assessing peripheral and central auditory disorders to determine the need for medical or rehabilitative intervention. Prerequisite: SPPA 621 Diagnostic Audiology I or equivalent.

SPPA 632 Diagnostic Audiology III
3 hrs.
This course focuses on physiological and electrophysiological techniques for the evaluation of cochlear and vestibular disorders, specifically otoacoustic emissions and electromyellography, to determine the need for further medical or audiological intervention. Prerequisite: SPPA 631 Diagnostic Audiology II or equivalent.

SPPA 633 Auditory Habilitation of Children
2 hrs.
This course deals with the assessment, management, and remediation of hearing impaired children in the areas of language,
SPEECH PATHOLOGY AND AUDIOLOGY

SPPA 634 Management of Audiologic Practice
2 hrs.
A study of principles important to establishing and managing an audiologic practice. Topics include professional credentials, ethics, quality of service, legal issues, and business management. Prerequisite: Department approval.

SPPA 639 Seminar in Audiology
1–4 hrs.
Selected topics in audiology are systematically explored through critical analyses of literature and through individual study projects. Pediatric audiology, geriatric audiology, hearing aids, residual hearing, and aural rehabilitation are among the possible areas of study. Topics vary from semester to semester and are announced in advance. May be repeated. Prerequisite: Department approval.

SPPA 640 Voice Disorders
3 hrs.
Organic and functional disorders of laryngeal and resonator origin are studied in depth. Prerequisite: Department approval.

SPPA 641 Articulation Disorders
3 hrs.
This course considers in detail the nature and treatment of functional misarticulations and of misarticulation associated with various organic disorders. Prerequisite: Department approval.

SPPA 642 Stuttering
3 hrs.
Theories and therapies applicable to the understanding and clinical management of stuttering are studied in depth. Prerequisite: Department approval.

SPPA 643 Aphasia in Adults
3 hrs.
This course deals comprehensively with the identification and treatment of communication problems in the adult aphasic individual. Prerequisite: Department approval.

SPPA 644 Motor Speech Disorders
3 hrs.
This course examines dysarthrias and verbal apraxis as manifested in children and adults. Prerequisite: Department approval.

SPPA 645 Augmentative and Alternative Communication
3 hrs.
This course deals with alternative and augmentative communication (AAC) for individuals with severe communicative disorders. Strategies and technologies for establishing or restoring functional communication are investigated. Communication disorders of various etiologies are surveyed in relation to intervention needs. Assessment, intervention, and advocacy are discussed in detail. Practical and simulated experiences with low- and high-technological AAC are included. Overall communication needs are highlighted in reference to educational, vocational, and social interaction purposes. Prerequisite: Department approval.

SPPA 649 Seminar in Speech-Language Pathology
1–4 hrs.
Selected topics in speech pathology are systematically explored through critical analysis of literature and through individual study projects. Voice disorders, articulation disorders, language disorders, cleft palate, and stuttering are among the possible areas of study. Topics vary from semester to semester and are announced in advance. May be repeated. Prerequisite: Department approval.

SPPA 653 Diagnosis and Appraisal
3 hrs.
The student is instructed in methods and procedures for evaluation of speech and language disorders. Prerequisite: Department approval.

SPPA 657 Disordered Language Development
3 hrs.
Procedures and techniques for the identification, diagnosis, and clinical management of developmental disorders of language are explored intensively in this course. Prerequisite: Department approval.

SPPA 658 Theoretical Bases for Therapy
3 hrs.
In this course disorders of communication are examined in terms of servo-system, learning theory, and personality theory.

SPPA 669 Principles of Professional Practice
2 hrs.
Current professional and philosophical questions are studied with reference to the history of the profession of speech pathology and audiology. Prerequisite: Department approval.

SPPA 670 Clinical Practicum
1–4 hrs.
Supervised clinical experience in the evaluation and/or management of speech, language and/or hearing disorders. Prerequisite: Department approval.

SPPA 671 School Internship in Speech-Language Pathology
6 hrs.
This is a 10-week intensive speech-language pathology practicum in the school setting for students seeking endorsement as Teachers of Speech-Language Impaired in the state of Michigan or teacher certification in other states requiring school speech-language therapy internships. Prerequisite: Department approval.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

SPPA 700 Master's Thesis
6 hrs.

SPPA 710 Independent Research
2–6 hrs.

SPPA 712 Professional Field Experience
2–12 hrs.
THE GRADUATE COLLEGE

William R. Wiener
Dean
Telephone: (616) 387-8212
Fax: (616) 387-8232
URL: http://www.wmich.edu/grad

Graduate Studies Courses (GRAD)

Open to Graduate Students Only
A graduate student should register for 700-level courses in his or her instructor's department. If the appropriate 700-level course is not offered by that department, the student should seek permission to register for it as a Graduate Studies (GRAD) course.

Please Note: Students conducting research in any 700-level course 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. For more information, call the Office of the Vice President for Research, 387-8298.

ALL 700-LEVEL COURSES ARE GRADED ON A CREDIT/NO CREDIT BASIS.

GRAD 700 Master's Thesis
6 hrs.
Candidates for the master's degree may elect to write a thesis in their field of specialization under the supervision of a thesis committee. Prior to the first registration in 700, Master's Thesis, a Permission to Elect form (available in all departments) must be completed and the student must meet with the Coordinator of Theses and Dissertations in The Graduate College so that the student is informed about the regulations pertaining to the preparation and publication of the manuscript and to the requirements for research involving regulated subjects and hazardous materials.

Master's theses involving research with protected or regulated subjects must include documentation indicating compliance with federal, state, and University requirements for the protection of human/animal subjects or appropriate use of genetic or radioactive materials and chemical hazards. Written approval from the board/committee/officer must be included as an appendix to the thesis.

The use of Guidelines for the Preparation of Theses, Projects, and Dissertations is required. This publication is available for purchase in Western's Campus Bookstore, or for free downloading at <http://www.wmich.edu/grad/guidelines.PM.pdf>.

The course 700, Master's Thesis, is six credit hours and may be registered for in increments of one to six hours. Following a student's first enrollment in 700, the student must have continuous enrollment in 700 until all thesis requirements are completed satisfactorily and approved by the appropriate bodies. A student unable to complete the thesis within the first six hours of registration will be required to continue to enroll in 700; however, only six hours of 700 will count toward meeting the program requirements for the master's degree. For students not enrolled in summer I and summer II sessions, pre-enrollment in the subsequent fall semester is necessary for access to library resources during summer I and summer II. Continuous enrollment is defined as enrollment in all fall and spring semesters from the initial enrollment to the semester in which the student graduates. If the student will graduate in summer I or summer II, the student must be enrolled in that session. The thesis is graded on a Credit/No Credit basis.

In case a student wishes to appeal a negative decision by the student's master's thesis committee, the student shall first take the appeal to this same committee, which shall hear the appeal and render a decision. In case a master's thesis committee cannot reach unanimous agreement and the student wishes to appeal further a negative decision, a Review Committee shall be established consisting of the Dean of The Graduate College, the appropriate academic dean, and the chairperson or director of the unit. The Review Committee shall seek to resolve the controversy without passing on the thesis. The Review Committee handling such a case is limited to procedural actions, such as reconstituting the thesis committee if the case merits it.

GRAD 710 Independent Research
2-6 hrs.
Designed for highly qualified advanced graduate students, or small groups, who wish to pursue individual studies or projects under the direction of a member of the Graduate Faculty. The faculty member shall be the instructor of record who is responsible for turning in a grade to the Registrar's Office. A Permission to Elect form, signed by the student's graduate advisor and the faculty supervisor, must be submitted to the Records Office prior to registration. Graded on a Credit/No Credit basis.

GRAD 711 Readings in Doctoral Specialization
Credit/No Credit basis.

Designed for graduate students nearing completion of their degree who wish to pursue internships or apprenticeships. Effective internships relate to the student's professional goals, require the student to function within the standard procedures of the setting, and require the student to assume increased specified professional activities. Because the work for a 712 is ordinarily a culminating experience, students may enroll for 712 only when the departmental graduate advisor or director deems that they have

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ALL 700-LEVEL COURSES ARE GRADED ON A CREDIT/NO CREDIT BASIS.

GRAD 700 Master's Thesis
6 hrs.
Candidates for the master's degree may elect to write a thesis in their field of specialization under the supervision of a thesis committee. Prior to the first registration in 700, Master's Thesis, a Permission to Elect form (available in all departments) must be completed and the student must meet with the Coordinator of Theses and Dissertations in The Graduate College so that the student is informed about the regulations pertaining to the preparation and publication of the manuscript and to the requirements for research involving regulated subjects and hazardous materials.

Master's theses involving research with protected or regulated subjects must include documentation indicating compliance with federal, state, and University requirements for the protection of human/animal subjects or appropriate use of genetic or radioactive materials and chemical hazards. Written approval from the board/committee/officer must be included as an appendix to the thesis.

The use of Guidelines for the Preparation of Theses, Projects, and Dissertations is required. This publication is available for purchase in Western's Campus Bookstore, or for free downloading at <http://www.wmich.edu/grad/guidelines.PM.pdf>.

The course 700, Master's Thesis, is six credit hours and may be registered for in increments of one to six hours. Following a student's first enrollment in 700, the student must have continuous enrollment in 700 until all thesis requirements are completed satisfactorily and approved by the appropriate bodies. A student unable to complete the thesis within the first six hours of registration will be required to continue to enroll in 700; however, only six hours of 700 will count toward meeting the program requirements for the master's degree. For students not enrolled in summer I and summer II sessions, pre-enrollment in the subsequent fall semester is necessary for access to library resources during summer I and summer II. Continuous enrollment is defined as enrollment in all fall and spring semesters from the initial enrollment to the semester in which the student graduates. If the student will graduate in summer I or summer II, the student must be enrolled in that session. The thesis is graded on a Credit/No Credit basis.

In case a student wishes to appeal a negative decision by the student's master's thesis committee, the student shall first take the appeal to this same committee, which shall hear the appeal and render a decision. In case a master's thesis committee cannot reach unanimous agreement and the student wishes to appeal further a negative decision, a Review Committee shall be established consisting of the Dean of The Graduate College, the appropriate academic dean, and the chairperson or director of the unit. The Review Committee shall seek to resolve the controversy without passing on the thesis. The Review Committee handling such a case is limited to procedural actions, such as reconstituting the thesis committee if the case merits it.

GRAD 710 Independent Research
2-6 hrs.
Designed for highly qualified advanced graduate students, or small groups, who wish to pursue individual studies or projects under the direction of a member of the Graduate Faculty. The faculty member shall be the instructor of record who is responsible for turning in a grade to the Registrar's Office. A Permission to Elect form, signed by the student's graduate advisor and the faculty supervisor, must be submitted to the Records Office prior to registration. Graded on a Credit/No Credit basis.

GRAD 711 Readings in Doctoral Specialization
Credit/No Credit basis.

Designed for graduate students nearing completion of their degree who wish to pursue internships or apprenticeships. Effective internships relate to the student's professional goals, require the student to function within the standard procedures of the setting, and require the student to assume increased specified professional activities. Because the work for a 712 is ordinarily a culminating experience, students may enroll for 712 only when the departmental graduate advisor or director deems that they have
The project is graded on a Credit/No Credit basis. In case a student wishes to appeal a negative decision by the student's project committee, the student shall first take the appeal to the same committee, which shall hear the appeal and render its decision. In case a project committee cannot reach unanimous agreement and the student wishes to appeal further a negative decision, a Review Committee shall be established consisting of the Dean of The Graduate College, the appropriate academic dean, and the chairperson or director of the unit. The Review Committee shall seek to resolve the controversy without passing on the dissertation. The Review Committee handling such a case is limited to procedural actions, such as reconstituting the project committee if the case merits it.

GRAD 725 Doctoral Research Seminar 2–6 hrs.
Units offering doctoral programs may use this number to designate their research seminars. Such seminars may be taken more than once by the student. Permission of instructor is required. Graded on a Credit/No Credit basis.

GRAD 730 Doctoral Dissertation 12–24 hrs.
The Doctoral Dissertation is required in all doctoral programs and is completed under the supervision of a dissertation committee. Prior to the first registration in 730, Doctoral Dissertation, a Permission to Elect form (available in all departments) must be completed and the student must meet with the Coordinator of Theses and Dissertations in The Graduate College so that the student is informed about the regulations pertaining to the preparation and publication of the manuscript and to the requirements for research involving protected subjects and hazardous materials. Doctoral dissertations involving research with protected or regulated subjects must include documentation indicating compliance with federal, state, and University requirements for the protection of human/animal subjects or appropriate use of genetic or radioactive materials and chemical hazards. Written approval from the board/committee/officer must be included as an appendix to the dissertation.

The use of Guidelines for the Preparation of Theses, Projects, and Dissertations is required. Permission of instructor is required. Graded on a Credit/No Credit basis.

GRAD 732 Doctoral Clinical Internship 1–4 hrs.
Designed for doctoral students pursuing a program-required 2,000 clock-hour internship at an approved professional site. Enrollment is approved for students with the prerequisite academic preparation by the academic department supervising the area of the student's training. Permission of department is required. Graded on a Credit/No Credit basis.

GRAD 735 Graduate Research 2–10 hrs.
Units offering doctoral programs may use this number to designate research projects for their doctoral students. Such projects may be taken more than once by the student. Permission of instructor is required. Graded on a Credit/No Credit basis.

The dissertation is graded on a Credit/No Credit basis. In case a student wishes to appeal a negative decision by the student's doctoral dissertation committee, the student shall first take the appeal to this same committee, which shall hear the appeal and render its decision. In case a doctoral dissertation committee cannot reach unanimous agreement and the student wishes to appeal further a negative decision, a Review Committee shall be established consisting of the Dean of The Graduate College, the appropriate academic dean, and the chairperson or director of the unit. The Review Committee shall seek to resolve the controversy without passing on the dissertation. The Review Committee handling such a case is limited to procedural actions, such as reconstituting the doctoral dissertation committee if the case merits it. All doctoral dissertations will be microfilmed by Bell & Howell (formerly UMI). The student is also required to prepare an abstract of the dissertation for publication in Dissertation Abstracts International.

THE GRADUATE COLLEGE 199
EXTENDED UNIVERSITY PROGRAMS

Dr. Alan Walker
Vice Provost of Academic Affairs for Extended University Programs

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Fax: (269) 387-4222
URL: http://www.wmich.edu/eup

Extended University Programs (formerly the Division of Continuing Education) offers educational opportunities to qualified persons who wish to pursue their education on a part-time basis. Increasing numbers of men and women are interested and involved in improving their educational backgrounds for a variety of reasons—to improve career opportunities, to supplement past educational experience, to meet certification and licensure requirements, and to satisfy personal learning needs.

In response to the needs of these adult learners, Western's extended programs include undergraduate and graduate courses; distance learning via compressed video television, correspondence, Internet, and other types of self-instructional courses; conferences, seminars, and workshops; and non-credit short courses for the health care community, educational leaders, and other interested adults. Course and program offerings in West Michigan counties served by Western Michigan University's extended University Programs are planned collaboratively with representatives from academic units continuously to analyze students' needs and interests. Inservice educational programs are planned with civic, educational, and professional groups.

Western Michigan University's on-campus adult, part-time, and evening students are served by the Extended University Programs central offices located in E11sworth Hall. This central office and the Office of Admissions and Orientation will provide admission and registration assistance.

Kalamazoo and Statewide Programs

Kalamazoo and Statewide Programs provide undergraduate and graduate courses in a variety of formats, including weekends and workshops in support of the General University Studies program and several graduate certificate programs. Courses may be applied to degrees or certificates or can be taken for personal or professional development. For more information, call (269) 387-4167.

Distance Education

The Department of Distance Education within Extended University Programs offers an increasingly broad spectrum of courses and programs via multiple distance learning methods and techniques. WMU utilizes synchronous and asynchronous methodologies with courses delivered by compressed video television, videotape, Internet, and correspondence instruction. Students may enroll in courses from the School of Public Affairs and Administration, the College of Engineering and Applied Sciences, the College of Education, general education, and other selected programs. Courses are offered during the evening or on the weekend to many key sites around Michigan. The Department is continually developing new programming to deliver courses to students at a distance using the latest technologies. For more information, call (269) 387-4195.

Conferences and Seminars

The Office of Conference and Seminar Services provides professional program development and management of conferences and non-credit seminars in cooperation with University departments, professional groups, and community organizations. In addition to program development, management includes registration, fiscal services, marketing, AV and teleconferencing, speaker and exhibit coordination and all other logistics. Programs can take place anywhere in the U.S. Telephone: (269) 387-4174.

www.wmich.edu/conferences

Graduate Programs and Courses Offered in Branch Campuses

A listing of the University's graduate degree programs and courses offered in each of the branch campuses is available in the current Schedule of Course Offerings, which may be obtained at any branch campus office, the main office of Extended University Programs in Kalamazoo (269-387-4160), the Registrar's Office in the Seibert Administration Building in Kalamazoo, or on the World Wide Web at the following address (http://www.wmich.edu/eup). Admission and registration information is also contained in the Schedule of Course Offerings. The Schedule of Course Offerings is published for each semester and session and is available well in advance of the registration period.

Branch Campuses

Extended University Programs' administrative offices are located in E11sworth Hall on Western's main campus in Kalamazoo. Branch campuses and sites follow:

Grand Rapids Graduate Centers
2333 East Beltline, S.E.
Grand Rapids, MI 49546-5936
(616) 771-9470

200 Ionia Avenue, S.W.
Grand Rapids, MI 49503
(616) 771-4100

Holland Regional Site at Hope College
100 East 8th St.
Holland, MI 49423
(616) 392-1143

Kendall Center
50 W. Jackson
Battle Creek, MI 49017
(269) 965-5380

Lansing
Verndale Office Park
6150 W. St. Joseph Highway, Suite 205
Lansing, MI 48917-4850
(517) 327-1480

Muskegon
Stevenson Center for Higher Education
221 S. Quarterline Road
Muskegon, MI 49442-1742
(231) 777-0500

Southwest
2510 Lakeview Avenue
St. Joseph, MI 49085
(269) 983-1968

Traverse City at NMC University Center
2200 Dendrinos Dr., Suite 200-S
Traverse City, MI 49684
(231) 995-1788
GLOSSARY OF TERMS

Academic advisor
A faculty or professional staff member trained to help students select courses and plan programs of study for degree or program completion.

Academic dismissal
Dismissal from an academic unit or program for not maintaining the required grade point average. Dismissal indicates that a student is no longer admitted to the University and may not register.

Academic standing
The status of a student determined by the student's grade point average (GPA). All graduate students must have a 3.0 or better grade point average to maintain "good standing." A "warning" will be issued to a student whose GPA falls below a 3.0 in any semester or session even though the overall GPA is 3.0 or better. A student will be placed on "probation" if the overall GPA falls below 3.0, and will receive a "dismissal" notice if the overall GPA is not raised to or above 3.0 at the end of a semester or session on "probation."

Active admission status
An applicant admitted to a graduate degree or graduate certificate program or to Permission to Take Graduate Classes (PTG) status retains active admission status for two years from the time of admission, as well as for one year from the date of the last enrollment as a graduate student at Western Michigan University. If a student never enrolls during the two years following the effective admission date, the student's admission status is canceled and thereafter the student must submit an entirely new application and be formally admitted again before registration may occur. An enrolled student who has not registered for more than one year must complete and have approved a Readmission Application before registration may occur.

Assistantship
A University-administered salary (payment for service) and stipend (gift) awarded by an academic or service unit to an appointed graduate student who is enrolled in a program leading to a graduate degree. Assistants are apprentices in the profession and assist in doing part of the work of the department, teaching or research service.

Associateship
A specially designated assistantship awarded to an appointed doctoral student.

Audit
A registration category in which a student registers for and attends class(es) regularly without being held responsible for the work required for credit. A student who registers for a course in this way is not eligible to sit for examinations, earns no credit hours for the registration, and pays full tuition. The designation "AU" appears on the transcript if the auditor attends at least three-fourths of the class or laboratory sessions and gives evidence to the course instructor that the role as auditor has been satisfactory. See also Graduation audit below.

Bell & Howell
All doctoral dissertations written at Western Michigan University are required to be published and available to a public audience. The common method of publication is to have Bell & Howell (formerly University Microfilms, Inc., UMI) microfilm the dissertation and have it available for dissemination to scholars and researchers around the world.

Capstone course or experience
A culminating holistic experience (e.g., thesis, dissertation, comprehensive examination) 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.

CELGIS
The Career English Language Center for International Students (CELGIS) provides intensive English language instruction for those prospective students who need further training in English in order to qualify for regular admission to the University. Classes at various levels include: Speaking and Listening Comprehension, Grammar, Reading and Vocabulary, Writing, Research Paper Writing, and work in the Language Laboratory. For further information and application forms, contact the Center by telephone, (616) 387-4800, or by Fax, (616) 387-4906.

Certificate program
A graduate certificate is awarded for the satisfactory completion of a nondenominational graduate program designed around a narrow, applied, and coordinated curriculum which has a professional focus. A graduate certificate program may be either multidisciplinary or unidisciplinary in organization and may be taken separately or in conjunction with a graduate degree program. The graduate 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 graduate certificate program curriculum.

Class or credit hour load
For all graduate students taking courses for a stated degree or certificate program, six hours constitutes full-time status, and three hours constitutes half-time status for fall and spring semesters. In the summer I and summer II sessions, three hours in either session constitutes full-time status for that session and two hours constitutes half-time status.

Continuing education courses and programs
Graduate courses and programs offered through Extended University Programs in the branch campuses of Battle Creek, Benton Harbor/St. Joseph, Grand Rapids, Lansing, and Muskegon, or elsewhere away from the Kalamazoo campus.

Continuing education unit (CEU)
Recognition for participation in a non-credit program or workshop.

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.

Conformation
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.

Course or credit hour load
For all graduate students taking courses for a stated degree or certificate program, six hours constitutes full-time status, and three hours constitutes half-time status for fall and spring semesters. In the summer I and summer II sessions, three hours in either session constitutes full-time status for that session and two hours constitutes half-time status.

Credit
earning students taking courses for a stated degree or certificate program, six hours constitutes full-time status, and three hours constitutes half-time status in fall and spring semesters. In the summer I and summer II sessions, three hours in either session constitutes full-time status for that session and two hours constitutes half-time status.
Continuous enrollment
Following a student's first enrollment in 700 (Master's Thesis) or 720 (Specialist Project) or 730 (Dissertation), the student must have continuous enrollment in 700/720/730 until all thesis/project/dissertation requirements are completed satisfactorily and approved by the appropriate bodies. A student unable to complete their thesis/dissertation within the program-specified hours of registration will be required to continue to enroll in 700/720/730; however, only the program-specified hours will count toward meeting the program requirements for the degree. For students not enrolled in the summer I and summer II sessions, pre-enrollment in the subsequent fall semester is necessary for access to library resources during summer I and summer II. Continuous enrollment is defined as enrollment in all fall and spring semesters from the initial enrollment to the semester in which the student graduates. If the student will graduate in summer I or summer II, the student must be enrolled in that session.

Corequisite
A course that must be taken at the same time as another course. See also Prerequisite below.

Course numbering system
Undergraduate courses are numbered from 100 through 499. Courses numbered 500 through 599 are for upperclass and graduate students. (Graduate students register for graduate courses in 500-level or above; undergraduate students register for undergraduate credit in 500-level courses.) Courses for graduate students only are numbered 600 through 799.

Credit
Western Michigan University will consider graduate credit as that earned in an accredited, postsecondary educational institution in which the course was approved by that institution for graduate credit and was supervised by that institution. Western Michigan University will also consider graduate credit as that earned in an examination program recognized and approved by the Graduate Studies Council.

Credit toward a degree program will be granted only for graduate courses in which a grade of "C" or better is earned.

Grade point average (GPA)
The numerical value given to letter grades. "A" is equivalent to 4 points; "B" to 3.5 points; "C" to 3 points; "D" to 2.5 points; "E" to 2 points; "F" to 0 points; "C" to 1.5 points; and "D" to 1 point. An "E" or "F" is equivalent to zero points.

Grade point average (GPA)
A student must request dual enrollment status on the application for admission to a master's degree program; however, official entry is not immediate. Graduate credits earned but not cumulative will be applied toward graduate requirements. The official entry date must follow the semesters or sessions of dual enrollment status and the completion of the bachelor's degree.

Elective
A course which will count as credit toward a degree, if approved by the advisor, but is not specified in the program's course requirements.

Emphasis
See Concentration above.

Fellowship
A University-administered stipend (gift) awarded by an academic or service unit within the University or by another donor to an appointed graduate student who is enrolled in a program leading to a graduate degree. The fellowship stipend is a gift to help the Fellow achieve an educational goal, rather than a payment for services.

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 carried 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 student spends a part of their time on an actual job in a school, business, or industry.

Gate course
A course in fundamentals in which a student must achieve a specified grade or "Credit" in order to qualify for enrollment in more advanced courses.

Good standing
See Academic standing above.

Graduate certificate program
See Certificate program above.

Graduate credit
See Credit above.

Graduate faculty
Faculty who are approved to perform the functions of graduate education, to include teaching graduate courses, advising graduate students, and serving on graduate student...
committees. Only members of the graduate faculty may serve on thesis, specialist project, and dissertation committees.

Graduate Research and Creative Scholars Award

The Graduate Studies Council and The Graduate College annually present two categories of recognition awards to graduate students: the Department Graduate Research and Creative Scholars Award and the University Graduate Research and Creative Scholars Award. These awards acknowledge graduate students’ contributions to the scholarly and artistic productivity of Western Michigan University. Each department with a graduate program may nominate one graduate student for each level of degree offered by the department, by virtue of this nomination, the student will be designated as a Department Graduate Research and Creative Scholar. From among the Department awardees, a faculty committee will select those students whose research or creative activity has exceptional merit to be designated as University Graduate Research and Creative Scholars.

Graduate Student Advisory Committee

The Graduate Student Advisory Committee is a standing committee of the Graduate Studies Council. It addresses services and needs of graduate students; makes recommendations to appropriate officials and offices; recommends graduate students for appointments to University councils and committees, and serves as liaison between departmental graduate student organizations, the Graduate Studies Council, and the dean of The Graduate College.

Graduate Student Permanent Program of Study

A Graduate Student Permanent Program of Study is a document composed by a graduate student’s program advisor, listing all course and other requirements necessary for completion of the degree program to which the student was admitted. The program of study is approved by the program advisor and the graduate dean, filed in the student’s academic folder in the Records Office, and used to audit the student’s eligibility for the degree at the time the student applies for graduation.

Graduate Studies Council

The Graduate Studies Council of the Faculty Senate reviews, develops, and recommends policy regarding graduate education at Western Michigan University.

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. See also Audit above.

Deadlines for all degree recipients to apply for graduation are August 1 for December graduation, December 1 for April graduation, February 1 for June graduation, and April 1 for August graduation.

Students who change a graduation date must complete a new application for graduation. No fee for the change is required. The Records 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. See also MIGS below.

Guidelines for the Preparation of Theses, Projects, and Dissertations

The University’s official formatting guide for master’s theses, specialist projects, and doctoral dissertations, published by The Graduate College. This publication is available for purchase in Western’s Campus Bookstore, or for free downloading at <http://www.emich.edu/grad/guidelines.PM.pdf>.

Hold

A restraint placed on a student’s ability to register for classes as a result of an unfulfilled monetary obligation or other action by the University.

Honor points

A numerical value of the letter grade and credit earned in a course, determined by multiplying the grade point earned in the course by the number of credit hours for the course. See also Grade point above.

Human Subjects Institutional Review Board of Western Michigan University (HSIRB)

All research involving contact with human subject requires prior approval by the Human Subjects Institutional Review Board of Western Michigan University. No research involving human subjects is exempt from review by the Council. For more information, telephone the Research Compliance Officer in the Office of the Vice President for Research, 387-8293.

Incomplete

A temporary course grade (“I”) granted by an instructor 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. A student must be passing the course to be eligible for an “I.” An “I” is not given as a substitute for a failing or low grade. Incomplete grades will convert to an “F” if not removed within one calendar year, or sooner if stipulated by the instructor.

The instructor assigning the grade of “I” will complete an audit of the student’s record indicating the remaining requirement(s) for the student to complete and the time allowed for the completion of this work. The instructor will keep a copy of this form, and the student will receive another copy along with the grade report issued by the Registrar’s Office.

Independent study

Enrollment in an appropriately designated, variable credit course for a specific plan of study, authorized and supervised by a designated, consenting faculty member. Normally, it is a project designed to allow students to investigate areas of interest not within the scope of a regular course or to obtain an educational experience outside that normally offered by a regular course. A contract is developed between a faculty member and a student to describe the experience of completing the research on a specific topic.

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 a grade to the Registrar’s Office. See also Readings course below.

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.

Institutional Animal Care and Use Committee of Western Michigan University (IACUC)

The use of any vertebrate animals in research, testing, or instructional projects requires prior approval by the Institutional Animal Care and Use Committee of Western Michigan University. For more information, telephone the Research Compliance Officer in the Office of the Vice President for Research, 387-8293.

Institutional Biosafety Committee of Western Michigan University (IBC)

Any activity involving the construction or handling of recombinant DNA molecules or organisms and viruses containing recombinant DNA molecules requires prior notification or approval from the Institutional Biosafety Committee of Western Michigan University. For more information, telephone the Office of the Vice President for Research, 387-8298.

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 degree program and/or career plans. Usually involves earning college credit and may involve receiving payment. See also Field experience, practicum, work experience, co-op above.

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.

Michigan Intercolligate Graduate Studies (MIGS) Program

An admissions category for graduate students from any Michigan colleges offering graduate degree programs to take advantage of unique educational opportunities on the campuses of other institutions. Western Michigan University participates in this program.

Michigan residence requirements

The requirements for identifying or establishing permanent residence in Michigan for tuition assessment purposes.

Multiple topic or umbrella course

A variable topic, variable credit course that involves earning college credit and may involve receiving payment. See also Field experience, practicum, work experience, co-op above.

Multiple topic or umbrella course

A variable topic, variable credit course that involves earning college credit and may involve receiving payment. See also Field experience, practicum, work experience, co-op above.

Part-time student

A student who takes fewer than nine hours during a semester (fall and spring), or fewer than five hours during a session (summer I and summer II). See also Class or credit hour load above.
Permission to Take Graduate Classes (PTG)

Permission to Take Classes (PTG status) is a limited admission status for a student with a baccalaureate degree to enable enrollment in graduate courses without pursuing a graduate degree. This status is also granted to a guest student from another university. Permission to Take Graduate Classes does not constitute admission to a graduate degree program, and departments may exclude students with this status from taking courses or may limit the transfer of PTG hours to a degree program should the student later be admitted to a degree program.

Portfolio

A collection of work (e.g., paintings, writings, etc.) which may be used to demonstrate competency in an academic area.

Practicum

See Field experience, practicum, work experience, co-op above.

Prerequisite

A requirement, often the completion of a prescribed course, which must be met before a student may register for a specific course. See also prerequisite above.

Probation

As a condition of admission: Probationary admission may be granted to a department to a student who does not meet all normal requirements for regular admission. The probationary student may then establish eligibility for regular admission by completing satisfactorily the specified departmental prerequisites declared in the letter of admission. See also the section entitled “Admission Types” in this catalog.

A condition of academic standing: A student will be placed on probation if the student's average grade point average falls below 3.0. See also Academic standing above.

Program of study (Graduate Student Project Program)

A document listing the course and other requirements necessary to earn a degree in a specific discipline. The program of study is composed by the advisor and the student, and approved by the graduate dean as meeting all University, program, and degree requirements. The Graduate Student Project Program is led to conduct the graduate audit, and therefore must be filed well in advance of the student's application for graduation.

Project committee

A specialist project committee shall be appointed for each student undertaking a project as partial fulfillment of the requirements for a specialist degree. The purpose of the project committee is twofold: a) to provide the range of expertise necessary to advise a student in the conduct of the specialist project, and b) to ensure that evaluation of the project represents a consensus of professionals in the student's chosen discipline.

The specialist project committee is charged with the supervision and evaluation of the specialist project, a task that includes but is not limited to the following responsibilities: a) advise the student on selection and/or development of a specialist project topic; b) review and approve a proposal for the specialist project; c) provide consultation regarding progress on the project; d) evaluate the final document, and e) in those departments requiring an oral defense, evaluate the oral defense of the project.

In addition to the previously described responsibilities that are generic to all project committee members, the chairperson of the committee assumes the following additional responsibilities: a) in those departments where this responsibility is not discharged through other mechanisms, advise the student regarding selection of project committee members; b) routinely monitor student progress on the project; c) call project committee meetings; d) evaluate the readiness of the project proposal and of the project for committee review and action; and e) inform the student of the need to adhere to the Guidelines for the Preparation of Theses, Projects, and Dissertations.

Each project committee shall consist of a minimum of three members or associate members of the graduate faculty of Western Michigan University. Two of the committee members must be from the department or academic program in which the student is pursuing the specialist degree. The appointment of a specialist committee is a three-stage process requiring, first, a mutual agreement between the specialist student and the prospective committee members; second, a formal appointment by the chairperson of the department or the advisor (if a student has one); and third, notification of and approval by the office of the dean of The Graduate College regarding this appointment.

As each unit offers a specialist degree in which the project is either required or optional may approve and disseminate additional guidelines concerning specialist project committees. These guidelines may include the qualifications for committee membership, the procedures used to select and appoint committee members, and the specific functions and responsibilities that the members of these committees have. Additionally, each unit is encouraged to disseminate an updated list of faculty who qualify to serve on specialist project committees and their respective areas of expertise.

Quarter or term hour

A unit of academic credit, usually representing one hour of class time per week for one quarter or term. A "quarter" or "term" is a unit of time, usually 10 to 12 weeks long, in the academic calendar of an institution. Western Michigan University uses the semester calendar. See also Semester hour below.

Radiation Safety Committee (RSC)

All uses of radioactive material, including research-related uses, must be approved by the Radiation Safety Committee prior to initiation. For more information, telephone the Radiation Safety Officer in the Office of the Vice President for Research, 387-5933.

Readings course

A form of independent study, designed to provide a graduate student with an opportunity to read intensively within an area in which further knowledge would be appropriate. Enrollment in the reading or designated course (599, in most departments) requires a specific plan of study, authorized and supervised by a consenting faculty member, which includes the amount of reading, a description of the student's reporting method(s), and the number of credit hours to be earned by the completion of the plan of study. The maximum number of credits able to be earned and applied to a degree program is four, whether the readings course credits are all taken in one department or more than one, and the grade earned will be a letter grade.

Readmission

An appeal procedure for a student who has been dismissed or who seeks to be continued on probation. Readmission must be sought from the academic program's admission body in order for the student to register. See also Academic standards above.

Re-entry

An enrollment procedure followed by a student who was previously enrolled in good standing at Western Michigan University but whose active admission status was canceled. See also Active admission status above.

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 Schedule of Course Offerings available in the Registrar's Office.

Repeated course

With the exception of courses that are approved by the University Curriculum Review Policy as repeatable (e.g., general education, corequisite or umbrella courses), no more than two courses may be retaken and no course may be repeated more than once during the student's graduate career (inclusive of both master's and doctoral programs) at WMU. This number may be further limited by individual departments. Permission to retake a course must be obtained from the program advisor and graduate dean before registration for the course to be repeated takes place. The original grade for the course will remain on the student's transcript, and both the original and repeated course grade will be computed into the degree program grade point average.

Research tool

An ability that serves in the manner of a tool that assists in one's research. Doctoral students are expected to acquire the ability to use two research tools, at minimum. Normally, the research tools are selected (and or from among foreign language, statistics, research methodology, and computer programming, although other tools are acceptable in some doctoral programs. Consult the program advisor for a full explanation.

Residency requirement

In specialist and doctoral degree programs, the student will devote at least one academic year of two consecutive semesters to sustained, full-time study to meet the "residency requirement." (Full-time enrollment in consecutive summer I and summer II sessions may count for one semester.) Some academic programs, however, have different residency requirements, and the student should consult with the appropriate program advisor for information about a specific program's requirement. See also Class or credit hour load above.

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.

Semester

A unit of time, 15 weeks long, in the academic calendar of Western Michigan University. The semesters occur in the fall and the spring. See also Session below.
Semester hour
A unit of academic credit, usually representing one hour of class time per week for one semester. A "semester" is a unit of time, usually 15 weeks long, in the academic calendar of an institution. Western Michigan University uses the semester calendar. See also Quarter or term hour above.

Senior citizen, SCOPE admission status
A special admission status for persons sixty-two years of age or older that provides senior citizens special privileges and opportunities for study at Western Michigan University. The Schedule of Course Offerings should be consulted for eligibility and registration information.

Session
A unit of time, 7 1/2 weeks long, in the academic calendar of Western Michigan University. The sessions occur in summer I and summer II. See also Semester above.

Time limit for completion of a degree
Master's students must elect and complete all work for the degree, including transfer work, within six years preceding the date on which the master's degree is conferred; specialist students entering with a master's degree, within five years preceding the date on which the specialist degree is conferred; specialist students entering with a bachelor's degree, within six years preceding the date on which the specialist degree is conferred; doctoral students, within seven years preceding the date on which the doctoral degree is conferred. Students whose degrees are taken primarily through part-time study have the option of requesting an extension from the graduate dean; extensions may also be granted for other students by the graduate dean for such legitimate reasons as illness, injury, or hardship.

Thesis committee
A master's thesis committee shall be appointed for each student undertaking a thesis as partial fulfillment of the requirements for a master's degree. The purpose of the thesis committee is twofold: (a) to provide the range of expertise necessary to advise a student in the conduct of the master's thesis, and (b) to ensure that evaluation of the thesis represents a consensus of professionals in the student's chosen discipline. The master's thesis committee is charged with supervision and evaluation of the master's thesis, a task that includes but is not limited to the following responsibilities: (a) advise the student on selection and/or development of a master's thesis topic; (b) review and approve a proposal for the master's thesis; (c) provide consultation regarding progress on the thesis; (d) evaluate the final document; and (e) in those departments requiring an oral defense, evaluate the oral defense of the thesis.

In addition to the previously described responsibilities that are generic to all thesis committee members, the chairperson of the committee assumes the following additional responsibilities: (a) in those department where this responsibility is not discharged through other mechanisms, advise the student regarding selection of thesis committee members; (b) routinely monitor student progress on the thesis; (c) call thesis committee meetings; (d) evaluate the readiness of the thesis proposal and of the thesis for committee review and action; and (e) inform the student program advisor of the status of the student's progress.

Each thesis committee shall consist of a minimum of three members or associate members of the graduate faculty of Western Michigan University. Two of the committee members must be from the department or academic program in which the student is pursuing the master's degree. The appointment of a master's thesis committee is a three-stage process requiring, first, a mutual agreement between the master's student and the prospective committee members, second, a formal appointment by the chairperson of the department (or the chairperson's designee); and third, notification of and approval by the office of the dean of the Graduate College regarding this appointment.

Each unit offering a master's degree in which the thesis is either required or optional may approve and disseminate additional guidelines concerning master's thesis committees, including the qualifications for committee membership, the procedures used to select and appoint committee members, and the specific functions and responsibilities that the members of these committees have. Additionally, each unit is encouraged to disseminate an updated list of faculty who qualify to serve on master's thesis committees and their respective areas of expertise.

Transcript
A copy of a student's permanent academic record at a particular institution. The transcript, at minimum, lists all courses taken and credit hours and grades earned.

Transfer credit
Credit that is earned by a student at an accredited institution and accepted toward a graduate degree at Western Michigan University. Credit awarded by the program advisor and if the earned grade is in the course is "B" or better. The credit, moreover, must be earned within a six year period prior to graduation from Western Michigan University. No grades nor honor points earned at another institution transfer to WMU and hence do not affect the WMU grade point average.

Transfer credit evaluation form
An official form which indicates approval of a request to transfer credit and which states the number and type of transfer credit awarded. Credit is not transferred nor applied to a program of study unless the transfer credit evaluation form is completed and approved by the program advisor and the credit evaluator in the Registrar's Office.

Tuition
The amount of money which must be paid for courses based on the number of credits for which the student registers.

Umbrella course
See Multiple topic course above.

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 as students will apply for admission and take degrees through the subdivision rather than through the central unit as a whole.
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GRADUATE PROGRAMS, DEGREES, AND CONCENTRATIONS

Accountancy M.S.A.
Anthropology M.A.
Applied Economics M.A., Ph.D.
Applied Mathematics M.S.
Art M.A., M.F.A.
Audiology Au.D.
Biological Sciences M.S., Ph.D.
Biostatistics M.S.
Business Administration M.B.A.
Accountancy
Computer Information Systems
Economics
Finance
General Business
International Business
Management
Marketing
Paper and Imaging Science
Pre-Business/Pre-Career Coop
Career and Technical Education M.A.
Chemistry M.S., Ph.D.
Communication M.A.
- Interpersonal Communication
- Organizational Communication
- Telecommunications
Comparative Religion M.S.
Computational Mathematics M.S.
Computer Engineering M.S.E.
Computer Science M.S., Ph.D.
Construction Management M.S.
Counseling Psychology M.A., Ph.D.
Counselor Education M.A.
- Community Counseling
- Rehabilitation Counseling
- School Counseling
Counselor Education and Supervision
Student Affiars in Higher Education
Counselor Education Ph.D.
- Counseling and Leadership
- Counselor Education and Supervision
- Student Affairs in Higher Education
Creative Writing M.F.A.
Development Administration M.D.A.
Peace Corps Option
Earth Science M.S.
Earth Science (Teaching)
Education and Professional Development M.A.
- Early Childhood Education
- Elementary School Teaching and Learning Reading
- Teaching in the Middle School
Educational Leadership
- Central Office Administrator
- Chief School Business Official
- Curriculum and Instructional Leadership
- General Leadership
- School Principal
Educational Leadership Ed.D.
Educational Leadership Ed.D.
- Career and Technical Education
- Central Office Administrator
- General Educational Leadership
Superintendent
Educational Leadership Ph.D.
- Educational Technology
- Electrical Engineering
- Electrical and Computer Engineering
- Engineering Management
- English
- Emphasis on Professional Writing
- Emphasis on Teaching
- English
- Creative Writing
- Literature, Language, Pedagogy
- Evaluation, Measurement, and Research
Family and Consumer Sciences M.A.
Geography M.A.
Geology M.A.
Geology M.S.
Hydrogeology M.A.
History M.A.
Public History M.A.
History Ph.D.
Human Resources Development M.A.
Industrial Engineering M.S.E.
Interdisciplinary Health Studies Ph.D.
Manufacturing Engineering M.S.
Marriage and Family Therapy M.A.
Materials Science and Engineering M.S.
Mathematics M.A.
Mathematics M.S.
Collegiate Mathematics Education
Mathematics Education M.A.
Mechanical Engineering M.S.E.
Medieval Studies M.A.
Music M.M.
Molecular Biotechnology M.S.
M. Preparation for Community Counseling
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