2002

Western Michigan University Graduate Catalog
2002-2004

Western Michigan University

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2002–2004 Academic Calendar

Fall Semester, 2002
September 2, Monday
Labor Day Recess
September 3, Tuesday
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
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April 19–23
Final Exam week
April 24, Saturday
Commencement

Summer I, 2004
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Classes Begin
May 14, Friday
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May 31, Monday
Memorial Day Recess
May 28, Friday
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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: April 1
Summer I Graduation (June)
$50.00 Application Deadline: June 1
Summer II Graduation (August)
$50.00 Application Deadline: August 1

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

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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
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/admi/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/iss). Application forms and submission of additional, supplemental materials are scheduled well in advance of the application deadlines, and some require the results of entrance examinations that necessitate more time between the receipt of all supplemental materials, including the Statement of Finances form and documentation of proficiency in English.

1. 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.
2. 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.
3. 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.

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.

   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.

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/iss). Application forms and submission of additional, supplemental materials are scheduled well in advance of the application deadlines, and some require the results of entrance examinations that necessitate more time between the receipt of all supplemental materials, including the Statement of Finances form and documentation of 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 550 (213 CBT) is required for restricted 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.
- 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) for each, as well as copies of diplomas, certificates, or degrees earned, translated into English; proof of English language proficiency (see academic standards required for admission). 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 application 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 examinations which are scheduled in advance deadlines for these awards pass. Also, some interviews or other means of correspondence receipt of the application and the admission WMU faculty holding explicitly temporary or academic units where they are not employed. term appointments may apply for admission to Western Michigan University. WMU faculty members holding 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. 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 verification of the degree: transcript, diploma, teaching certificate, or letter from the registrar of the undergraduate institution. Applications will not be processed without the accompanying credential.

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.

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 tenure 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 an under-enrolled 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. 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 verification of the degree: transcript, diploma, teaching certificate, or letter from the registrar of the undergraduate institution. Applications will not be processed without the accompanying credential.

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 an under-enrolled 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. 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 verification of the degree: transcript, diploma, teaching certificate, or letter from the registrar of the undergraduate institution. Applications will not be processed without the accompanying credential.

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 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.

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 an under-enrolled 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. 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 verification of the degree: transcript, diploma, teaching certificate, or letter from the registrar of the undergraduate institution. Applications will not be processed without the accompanying credential.

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 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.

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 in the last two years of undergraduate work, if applying with a bachelor’s degree and graduate work, and 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 program's graduate advisor or the department office.
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 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.

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. 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 program's graduate advisor or the department office.
6. Acceptance by the academic unit offering the doctoral program and endorsement of the acceptance by the graduate dean.

Additional, doctoral students will be reviewed for eligibility to continue in the program at two other stages—Applicacy and Candidacy—following their initial admission to a doctoral
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. 

Applicancy

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 must 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 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 semester or session 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 course work 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 graduate 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 Administration 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 enables 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 home 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.

RESIDENT CLASSIFICATION

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 nonresident student and reapplies for admission will continue to be classified as a nonresident 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 residency on the admissions application and the admissions office questions the status, the student will be classified as a nonresident student. The fact that the student claims 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 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 severance of out-of-state ties.
- Student employed in Michigan in a full-time, permanent job, provided that the student'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 spouse's employment is the primary purpose for the student's presence in Michigan.
- Student's parent employed in Michigan in a full-time, permanent job, provided that the parent'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 spouse's employment is the primary purpose for the student's presence in Michigan.
- Student's parent employed in Michigan in a full-time, permanent job, provided that the parent's employment is the primary purpose for the student's presence in Michigan.
- Student's parent employed in Michigan in a full-time, permanent job, provided that the parent's employment is the primary purpose for the student's presence 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.
- Residence in Michigan.
- Presence of relative in Michigan (other than parent) 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 a 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 for filing the Application for Resident Classification for University Admission 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 reassessment 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 tuition 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: $269.00
- 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.

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.

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

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

*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
A student 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.
REGISTRATION, RECORDS, ACADEMIC REGULATIONS

REGISTRATION

Registration is conducted by telephone (616-333-1500) and over the web (www.wmich.edu/registrars) 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 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 heads and advisors, and all the University regulations that affect the registration process. Registration by students signifies an agreement to comply with University regulations whenever approved by the University.

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. Graduate courses numbered 500 through 599 are open to both graduate students 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, without 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 five day drop period 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 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 classes, she must obtain the approval of the instructor of record for each course to be dropped. If the student wishes to withdraw from all classes, she 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 to graduate study will not have grades and credit hours
Academic Standards

All graduate students, PFG 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, 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. (summer I and summer II sessions together are equivalent to one full fifteen-week semester). Dismissed students must apply for readmission through the normal admission process. The student will send a Readmission Application to the Admissions Office which, in turn, will forward the student's Readmission Application to the program or academic unit admission body for decision on readmission.

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.

Identification Card

Each student on campus is required to have an identification card, which includes photo, name, and student signature. Dates, times, and locations of card production are determined and announced by the Department of Public Safety. Each new student is eligible for an identification card free of charge, although if the card is not obtained during the first semester of attendance after admission, a $20.00 fee will be charged for its production in any subsequent semester. A $20.00 fee is also charged for replacing a lost or damaged card. The card is valid throughout the student's entire enrollment at Western Michigan University. Lending the card to another or failure to present it when requested by University officials is a violation of University regulations and subjects the holder to disciplinary action. Students are personally liable for all obligations incurred by the use of their identification cards.

Name Change

Students may maintain academic records under the name used at the time of admission. However, students with active admission status desiring to make a name change may go to the Registrar's Office to request the change. Legal proof may be required and the student will be required to sign a notarized affidavit swearing to the fact the name change is not requested for any fraudulent purpose.

Transcript

A student's permanent academic record or transcript is a document listing, at minimum, all courses taken and credit hours and grades earned in the courses. All students desiring a transcript of their academic records at Western Michigan University should write, fax, or visit the Office of the Registrar, giving dates of attendance and, if a graduate, the date of graduation. Students under which the student may have been enrolled and a student identification number should be provided. An official or unofficial transcript sent via regular mail is $3.00 for an official transcript and their enclosed by an official transcript sent via regular mail is $10.00. The transcript will be released only upon written authorization of the student and only after payment is made.
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 or above. All credit by examination is subject to the following regulations:

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 granted "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 entry made on their transcripts.
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 academic unit offering the particular course.
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 examinations 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 "Quality 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 transfer 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 thesis or 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 should be 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 who have completed all course work for a particular 500- or 600-level course in that academic unit offering the particular 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 (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.

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

Master's 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: 1) to provide the range of expertise necessary to advise a student in the conduct of their thesis, 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, in 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.

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 the same committee, which shall hear the appeal and render a decision. In case the committee cannot reach a unanimous decision 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, in 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) 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 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.

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 the same committee, which shall hear the appeal and render a decision. In case the committee cannot reach a unanimous decision 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 project. The Review Committee handling such a case is limited to procedural actions, such as reconstituting the specialist project committee if the case merits it.
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 continuance. 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 Dissertation, it is converted from the original document into a Portable Document 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 dissertation, may not include any 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 Seiberth 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
- Spring Semester Graduation (April): $30.00 Application Deadline: December 1
- Summer I Session Graduation (June): $30.00 Application Deadline: February 1
- Summer II Session Graduation** (August): $30.00 Application Deadline: April 1

- $50.00 Application Deadline: November 15*
- $50.00 Application Deadline: March 15*
- $50.00 Application Deadline: May 15*
- $50.00 Application Deadline: July 15*

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

**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 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) coincides 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, 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 598 (Readings).

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 four 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 5. Research Subject Protection: Students toward meeting the program requirements 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 period of enrollment to the seminar in which the student graduates. If the student will graduate in summer I or summer II, the student must be enrolled in that session. Exception: The 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 approved by the student’s thesis committee and only with the signed committee approval forms certifying departmental approval of the manuscript and, if required, 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.

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 GRADE 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. A second master’s 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 may, 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 student files an application for graduation with a master’s degree, initiating the graduation audit which determines the student’s eligibility for graduation.

4. A student who achieves a master’s degree en route to the doctoral degree must complete the minimum number of semester hours of graduate course work beyond the master’s degree specified by the doctoral program in which the student is enrolled and must meet the additional competencies that distinguish the doctoral degree from the master’s degree.

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. A second master’s 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 may, 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 student files an application for graduation with a master’s degree, initiating the graduation audit which determines the student’s eligibility for graduation.

Specialist Degree

In addition to the minimum University requirements for graduation listed below, each specialist degree program requires students to complete specific courses, examinations, research, and registration. For complete information about the requirements for each specialist 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 sixty hours of accepted graduate credit in an approved program of study. Hours in addition to those required by a specific program are required by a specific program; consult the program advisor for complete information.

2. Residency Requirement: A residency requirement is established for each specialist program and approved by the University’s curriculum review process and must be met prior to graduation. Unless otherwise approved by the graduate dean, students must take an individual academic unit, the general residency requirement for specialist students is one academic semester of full-time study on campus and enrolled in two sessions in consecutive years and the
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 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 provided:
• The credit is earned at an institution accredited for graduate study and is of "B" grade (3.0) or better. Moreover, the student's overall graduate 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 is identified on that transcript as graduate credit.
• The student's program advisor verifies that the transfer credits contribute to the student's program of study and includes 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" (C) only and will not be calculated into the honor points earned and the grade point average at Western Michigan University.

5. Time Limit: A student admitted to the specialist program with a master's degree is required to complete the specialist program within five years; a student admitted without a master's degree is required to complete the specialist program within six years. A work must be completed satisfactorily by the day of graduation. Students whose degrees 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 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 graduation.

6. Research Subject Protection: 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. For more information, call the Office of the Vice President for Research, 387-6286.

7. Enrollment in Specialist Project (720): A student who intends to register for the Specialist Project (720) for the first time is required to file a completed Permission to Enroll 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.

8. Continuous Enrollment in 720: The course 720, Specialist Project, may be registered for in increments of one to six hours. Following a student's first enrollment in 720, the student must have continuous enrollment in 720 until all project requirements are completed satisfactorily and approved by the appropriate bodies. A student unable to complete the project within the first six hours of registration will be required to continue to enrol in 720; however, only six hours of 720 will count toward meeting the program requirements for the specialist degree. Students not enrolled in summer I and summer II sessions in the subsequent fall semester are required to complete the research tools during the summer I and summer II sessions. Following a student's first enrollment in 720, the student is informed about the requirements for in the course and must continue to enrol in 720; however, only six hours of 720 will count toward meeting the program requirements for the specialist degree. Students not enrolled in summer I and summer II sessions in the subsequent fall semester are required to complete the research tools during the summer I and summer II sessions. Following a student's first enrollment in 720, 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.

9. Submission of Specialist Project (720) 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 from The University of Western Michigan 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 Writing Committee and only with the signed committee 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.

If the student wishes 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. See The Graduate Studies section of this catalog, under GRAD 720, for additional information regarding the Specialist Project.

Doctoral Degree
In addition to the minimum University requirements for graduation listed below, each doctoral degree program requires students to complete specific courses, examinations, research, and/or experiences. For more complete information about the requirements for each doctoral program, consult 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, is required for admission to 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 more information. The thirty hours, excluding the dissertation, may not include any credit earned at another institution. Credit earned at another institution that counts toward the thirty hours and dissertation earned at WMU will not be counted toward graduation.

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 may consult with their advisor regarding the residency requirement for the specific program of interest.

4. Comprehensive Examinations: Passing the required comprehensive examination(s) that cover the principal subject matter areas included in the student's program of study is required for all work taken for the doctoral degree at Western Michigan University. Credit toward the doctoral 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.

5. Grade Point Average: A degree program grade point average of at least 3.0 is required for all work taken for the doctoral degree at Western Michigan University. Credit toward the doctoral 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.

6. Transfer Credit: Often doctoral students attend Western Michigan University after earning a master's or other graduate degree elsewhere, and their subsequent course work is then usually elected at Western Michigan University. However, graduate credit earned at another institution prior to admission to the doctoral program is eligible for transfer provided:
• The credit is earned at an institution accredited for graduate study and is
...
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"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.

- 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 on that transcript as graduate credit.
- 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.
- 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 in courses 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. A graduate degree earned elsewhere that comprises part of the student's doctoral program of study at Western Michigan University will be posted on the student's transcript, but the degree's courses, grades, and honor points will not be transferred nor posted on the transcript.

7. Time Limit: After admission, all requirements for the degree must be completed within seven years preceding the date on which the 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 beyond the seven 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 seven years before the projected date of graduation.

8. Research Subject Protection: 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 complying with the regulations for the protection of such subjects or for the use of such materials. There are no exceptions to this requirement. For more information, call the Office of the Vice President for Research, 387-8298.

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 in a student's program of study will be 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 or more hours. 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
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 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 fellowship 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 must 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 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 Graduate College. 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. Inquiries should be sent to the chairperson of the department.

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. Inquiries should be sent to the chairperson of the department.

Thurgood Marshall Professional Tuition Grant

Thurgood Marshall Professional Tuition Grants are available for U.S. students from historically underrepresented groups with regular admission to 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 three credits per session. Although 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
additional 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 a summary of the nominee's academic standing, a 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 aging process. 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 graduate 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 services (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 secondary to the educational goal. Although all, or nearly all, of an Assistant's service to the department should also be part of the learning experience in the discipline, the primary thrust is in doing part of the work of the department.

4. More than one fractional appointment may be held simultaneously. However, in no case shall one person hold more than the equivalent of one full appointment.

Types of Appointments

1. Assistantships

   a. Assistantships are awarded to graduate students in exchange for a professional service. Graduate assistants are appointed for a specific program, and while the service aspect is emphasized in the definition in order to make a distinction, Graduate Assistants, first and foremost, are students and valued members of the community of scholars. They are chosen for their scholarship and manifest interest in the discipline as well as for their ability to perform the needed service.

   b. The service of a Graduate Teaching Assistant (T.A.) consists of activities directly related to teaching, while the service of a Graduate Research Assistant (R.A.) consists of research activity under the supervision of a faculty member, and the service of a Graduate Non-Teaching Assistant (N.T.A.) includes all other professional work in the unit accepted as appropriate and germane to the student's educational goal.

2. Associateships

   Associateships are assistantships awarded to outstanding students in doctoral programs. Service may involve teaching, research, or other appropriate activity.

3. Fellowship Fellowships

   Fellowship Fellowships are awarded to students who have distinguished themselves by outstanding academic achievement or special abilities. Fellowships are provided by the University or by another donor with the approval of the University. The fellowship grant (stipend) is a gift 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 has its own range of appropriate possibilities subject to administrative review. Whatever kind of service is expected, however, a full assistantship in any department consists of twenty hours of service per week or its equivalent. Equivalency is calculated on the basis of the value assigned by a department to the performance of each particular service.

No service is required of students holding Fellowships; the fellowship grant (stipend) is a gift to help the Fellow achieve an educational goal, rather than a payment for services.

Stipends and Salaries

1. The amount of a fellowship grant (stipend) is set by the provost in the concurrence of the Provost and Vice President for Academic Affairs.

2. 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.

3. Fractional awards are made for fractional appointments.

4. 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. The continuance of the appointment depends in part on satisfactory progress in the program and satisfactory performance of assigned duties. The letter shall also 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 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 semester (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 example can choose to pay the difference.
between the two enrollment fees, enabling them to have full access to the health center services and/or have unlimited recreation center privileges.

Evidence of Status
1. 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.
2. Validation may be authorized during the spring and summer sessions for graduate appointees in the academic year appointments even if the appointee is no longer receiving a stipend or salary.

Benefits
1. Tuition fees: Graduate appointees may, at the discretion of the University, be granted partial or full tuition remission. Any such remission is contingent upon the appointment letter and on the appointment form. Tuition remission is awarded only during the semester(s) a graduate appointment is held. 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 the same privileges and responsibilities as faculty members in the use of the library facilities. These are specified in the faculty handbook (Western Michigan University Policy Handbook).
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 at the service desk.
5. Campus Bookstore: Graduate appointees will be accorded discount privileges on purchases at the Western Michigan University bookstore in the same manner and degree as faculty and staff members. Discount will be given for current semester only by showing the ID and validation sticker at the service desk.
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 contribution towards the cost of coverage. [Followed they complete the necessary enrollment form and file it and the appropriate premium with The Graduate College along with the prescribed enrollment verification form. Enrollment materials and information are available at the Sindecuse Health Center and The Graduate College.]

FINANCIAL AID AND SCHOLARSHIPS

Western's Student Financial Aid Office administers a variety of student financial aid programs designed to assist graduate students who are in need of additional financial support. Four types of financial aid programs are available for graduate students: scholarships, employment opportunities, loans, and tuition remission. The federal and state governments, colleges and universities, private associations, companies, and private citizens are sources of financial assistance.

Application information is available at the Sindecuse Health Center and The Graduate College.

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 and 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 parental 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, from 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 may apply for need-based financial aid 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 parental 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 criteria, or the award process, or 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." Entrance counseling is required for first time loan borrowers at Western.

Awards process
The FAFSA gathers information regarding the student's income, assets and other related information to determine the expected family contribution (EFC). The amount of need-based financial aid is determined by subtracting the EFC from the cost of attendance (see "Cost of Attendance" below). The amount of aid not based on need is determined by subtracting eligible need-based financial aid programs and other resources received from the 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 residence status (full-time, part-time), enrollment fees, federal aid, and a student's financial aid budget. Financial aid is awarded based on a student's financial need as determined by the FAFSA.

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 (full-time, part-time), enrollment fees, federal aid, and a student's financial aid budget. Financial aid is awarded based on a student's financial need as determined by the FAFSA.

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 each semester based upon the program eligibility requirements, and minimum enrollment requirements verified at the time of disbursement. Any excess funds remaining 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 academic 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
2. Maximum total semesters attempted, 3
3. Maximum total hours attempted, and 4
4. Minimum cumulative grade point average.

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

If you are a financial aid recipient and you withdraw from some of your courses during the drop/add period (or indicate you never attended some 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, assistantships, and loan payments (and refunds of financial aid) must be returned to Western Michigan University.

If you are a Federal financial aid recipient, and you drop classes after the beginning of the semester, the law requires that the amount of Federal aid earned by that point is determined by a specific formula. The excess Federal aid that you have earned, the excess Federal aid must be returned. The amount of Federal aid you have earned is determined on a pro-rata basis. If you drop 30 percent 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.

**Federal College Work Study** provides employment opportunities for undergraduate and graduate students. Students work from ten to twenty hours a week while attending school and may earn up to a specified amount per academic year. Western’s Student Employment Referral Services 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 who are Michigan residents. Students work from 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 dependent upon cost of attendance, EFC, grade level, and other resources received. The total debt outstanding as a graduate student for the subsidized loan includes loans received for undergraduate study. Interest and principal payments are deferred as long as a student is enrolled at least half-time. Borrowers pay a 3% origination fee 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 undergraduate study. Interest accrues while the student is enrolled in school, and the student has the option of paying the interest payments or interest payments are added to the loan amount. Loan payments are deferred as long as a student is enrolled at least half-time. Borrowers pay a 3% 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 require students 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.

**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 eligibility 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.

**Diether H. Haenicke Institute for International and Area Studies Exchange Scholarships** are available through the Haenicke 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 E. Hill, for information and application forms.

**On- and Off-campus Student Employment Opportunities** exist. The Office of Career and Student Employment Services posts federal, state, and alternative 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.broncobbjobs.wmich.edu online.

**Community Work Study** positions, both for graduate and undergraduate students are posted in our office. Western Michigan University is also participating in the Federal Community Service Work Study Program giving students a chance to work-study funding in an off-campus, not-for-profit organization. Most of these opportunities are directly connected to a student’s field of study.

Individual appointments are encouraged for students with special employment questions, confidential resolution of problems, and assistance in completion of employment materials. Please call (616) 387-2475.

**Payment Plans** are available through either Academic Management Services or Tuition Management Systems. The companies work with the University's Customer Accounts Services Office. The plans allow students to pay 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 1-800-475-0120 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 by 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.
STUDENT RIGHTS AND RESPONSIBILITIES

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.
6. Students are free to participate in the governance of the University through membership in appropriately designated University and college committees.

ACADEMIC RIGHTS
1. Academic performance will be evaluated solely on academic criteria.
2. Students have protection against prejudiced or capricious academic evaluation.
3. Students are free to take reasonable 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
The following policies and procedures shall apply to all matters of 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. This includes, but is not limited to, the services of commercial term paper companies.

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 altering information while fabrication is a matter of inventing or counterfeiting information for use in any academic exercise or University record.

Forger is defined as the act to imitate or counterfeit information.

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.
3. Falsification of University records includes altering or forging any University document and/or record, including identification material issued or used by the University.

Multiple Submission
Definition
Multiple submission is the submission of substantial portions of the same work (including oral reports) for credit more than once without authorization from instructors of all classes for which the student submits the work.

Clarification
Examples of multiple submission include submitting the same paper for credit in more than one course without all faculty members' permission; making revisions in a credit paper or report (including oral presentations) and submitting it again as if it were new work.

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.

Instructors should provide clarification about the nature of plagiarism.

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., 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.

Faculty members are responsible for identifying any specific style or requirement for the course. Examples include, but are not limited to American Psychological Association (APA) style and Modern Languages Association (MLA) style.

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 exercise; collaborating 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 questions or substantive information about the 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 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 intentional creation 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 Another: The representation of another person's ideas or writing as one's own, in such ways as stealing others' results or methods, copying or presenting the writing or ideas of others without acknowledging the 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., taking credit for 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.
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 subtracting the names of other authors without permission.
6. Deliberate Violation of Requirements: Failure to adhere to or receive approval required 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 standards of 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, including 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 write a "disciplinary hold" preventing the student from dropping, adding, or registering in classes.

2. If the student admits the charge: If the student admits responsibility, the OSJA will contact the instructor and arrange an appointment. 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 the charge, the OSJA will consult with the instructor to ascertain the instructor's preference as to the hearing type. The hearing may be held 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. The choice of hearing type is the instructor's. The OSJA will assist the instructor in setting up the hearing and will notify the student of its time, date, and location.

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 grades to be imposed by the instructor or by the OSJA.

6. If 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 charge 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 admits 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 must assign incomplete grade and then submit a grade change to the registrar once the case is complete.

9. Instructor unavailable to assign grade: Circumstances may arise which may prevent an instructor from assigning a grade in a timely manner. In such instances, the academic unit chair/director will make reasonable efforts to contact and ask the instructor to supply a grade. If these efforts are unsuccessful, the instructor's academic 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 and notified to hear the charge. Each 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 dealing with 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 Committee 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 policies and procedures.

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, or when a student wants to appeal a decision to dismiss the student from an academic program for reasons other than charges of violations of academic 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.

1. 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: If the student is not satisfied that the instructor re-evaluates the student's work in the course. The chair/director of the academic unit chair/director's committee. 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, within 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. Grades were 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 arbitrarily or unequally applied.
   
   d. The instructor failed to assign or remove an Incomplete or to initiate a grade change as agreed upon with the student.

   The AIC review (see above), a 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.

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   2. Written appeal and conference with the academic unit: If the student is not satisfied that the instructor re-evaluates the student's work in the course. The chair/director of the academic unit chair/director's committee. 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, within 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. Grades were 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 arbitrarily or unequally applied.

      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 will have 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.

      Notice of appeal and other complaints based on charges of discrimination or sexual harassment should be taken to the affirmative action or other office, 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 methods 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 to the chairperson of the academic unit chair/director to the Office of the University Ombudsman. When the Ombudsman receives the appeal, the Ombudsman will reconvene 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 appeals committee is drawn will be made up of five faculty members from the academic unit and two students 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 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:

      a. If there is no one outside the institution to whom the student may appeal further a negative decision, a Review Committee shall be established consisting of the Dean of the Graduate College, the Chairperson of the appropriate academic department, and the chairperson of the academic 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 the student declared independent. No one outside the student shall have access to, nor will the institution disclose any information from, student educational records without the written consent of the student, 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 addresses, telephone numbers, date and place of birth, curriculum and major field of study, dates of attendance, degrees and awards received, the most recent previous educational agency on record, and the Office of Admissions and Orientation). At its discretion, the institution may provide Directory Information in accordance with the provisions of the Act to include: student name, address, telephone number, date and place of birth, curriculum and major field of study, dates of attendance, degrees and awards received, residence status, and the Office of Admissions and Orientation).

At its discretion, the institution may provide Directory Information in accordance with the provisions of the Act to include: student name, address, telephone number, date and place of birth, curriculum and major field of study, dates of attendance, degrees and awards received, residence status, and the Office of Admissions and Orientation. The law provides students with the right to inspect the educational records, to challenge the accuracy of the records, to request the amendment of the records, and to submit explanatory statements for inclusion in the educational records. The institution will notify the student in writing of the right to a formal hearing by the Registrar if, within ten days after receiving such request, will inform students of the date, place, and the time of the hearing. Students may present evidence relevant to 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 factual issues over which the hearing officer will adjudicate such challenges will be that 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 appeal the decisions by submitting a written statement to the appropriate records, and released whenever the records in question are disclosed.

Revisions and clarifications 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 independent of one another. Other state authorities to determine residency for purposes such as income and property tax liability, driving and voting. These policies may vary from one school to another.

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, Michigan, (or 316) 836-3587 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 semesters (10 calendar days for the spring and summer sessions).

## The deadline dates are the same for all students (undergraduate and graduate).

1. Since normally a student enrolling at Western Michigan University for the primary or sole purpose of attending the University rather than to establish a domicile in Michigan, one who enrolls in the University in Michigan does not lose resident status if the parent(s) of the student is Michigan domiciled.

2. "Domicile" is defined as the place where an individual’s true, fixed and permanent home and principal establishment is and to which the individual returns whenever he/she is absent from the University. A student shall not be considered domiciled in Michigan unless the student is in continuous physical presence in this state for one year (12 consecutive months) immediately preceding the first day of classes for the fall and winter sessions.

3. Dependent Student: For tuition classification purposes, a student is presumed to be dependent if the student’s natural parents and/or legal guardian if the student is 24 years of age or younger and (a) has been involved primarily in income-producing activities, or (b) has not been entirely financially self-supporting through employment.

a. Dependent Student — Parent(s) in Michigan

The domicile of a dependent student is presumed to be the same as that of the student’s natural parents. A dependent student whose parent(s) are, according to University Residency Policy, domiciled in Michigan is presumed to be eligible for resident classification for University purposes as long as the student has not taken steps to establish a domicile outside of Michigan or any action inconsistent with maintaining a domicile in Michigan.

A dependent student with one parent domiciled in Michigan regardless of whether that parent is his/her custodial parent, is presumed to be eligible for resident classification for tuition-paying purposes if one parent is, according to University Residency Policy, domiciled in Michigan.

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

A dependent student who is living in Michigan and who is, according to University Residency Policy, permanently domiciled in Michigan does not lose resident status if the parents leave Michigan provided: (1) the student has completed at least one year of high school prior to the parents’ departure; (2) the student remains in Michigan, enrolled as a full-time student in high school or an
institution of higher education; and (3) that the student has not taken steps to establish a domicile outside Michigan or another state 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 documentation of 12 consecutive 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 non-resident will follow that of his/her spouse if the spouse qualifies as a resident student for tuition-paying purposes.

6. Immigrants and Aliens: Only persons who are permanently residing permanently in the United States may be eligible for resident classification at Western Michigan University. These individuals, like U.S. citizens, may claim a permanent domicile in the United States, if they 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. Asylees, refugees, “Refugee” designation.

Based upon current law, these non-immigrant visa classifications are the only ones that permit the visa holder to reside in a domicile in the United States. As changes occur in applicable law, this list shall be updated.

7. Migrant Worker (Seasonal/Agricultural Employment): If an independent student, or the parent of a dependent student, has been employed as a migrant worker in Michigan for a minimum of two (2) months each for 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. Migrant Worker (Seasonal/Agricultural Employment): Information: Students who provide false or misleading information or who intentionally omit relevant information on their application 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 calender 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 Vice President for Business and Finance stating the reasons therefor. Please note that any additional documents that may provide evidence of domicile not submitted with the initial application must be included with the appeal.
b. Additionally, the student must request in writing that all documents submitted with the initial application for residency be forwarded to the Vice President for Business and Finance so the entire file may be reviewed in the appeal process.
c. Failure to comply within the required 20 days shall constitute a waiver of all claims to reclassification or rebates for the applicable semester/session.

“The student will receive a written decision on the Appeal when the review is complete. The decision on the residency appeal shall be the final recourse within the University.

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 verification of U.S. citizenship or visa status

• All applicants who are dependents (refer to Stipulation 3 of our policy) must provide copies of the front and signature pages of their parent’s most recent year’s federal and state income tax returns and accompanying W2s.

• All applicants whose claim to eligibility for resident classification is based on permanent, full-time employment for themselves, a parent or spouse must provide a letter from the employer, written on companyheaded (including phone number), stating the position, status and dates of employment. A copy of the most recent pay stub showing Michigan taxes being withheld must also be included.

• All applicants whose claim to eligibility for resident classification is based on their spouse’s status as a resident, must provide a copy of their marriage certificate with the application.

• All applicants are also responsible for providing any other documentation necessary to support their claim to residency eligibility that may be requested by the Office of the Assistant Vice President for Business.

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 assert a sexual opportunity and to oppose discrimination because of race, color, sex, sexual orientation, age, religion, national origin, handicap, height, weight, or marital status. Therefore, no matter 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 or any actual or potential 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 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, 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 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 such acts are reported and confirmed, prompt, disciplinary action will be taken, up to and including discharge. However, to enable 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 Employee Relations, 1275 Seiber 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 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 Antidiscrimination 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). The grievance must be filed with the Affirmative Action Department on an official University Grievance Form and be signed by the student(s) involved. The grievance must be timely, state all facts relevant to the protested events, indicate when the incident(s) occurred, and specify the discriminatory acts and policies, rules, or regulations involved.

The Office will serve as an intermediary for written grievances and is to receive copies of all grievance correspondence. Any student(s) filing a written grievance may choose to have a representative present at any step in the Grievance Procedure, provided the Office is satisfied the grievant’s right to be represented will be protected.

The Grievance Procedure

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, who will be the Department Head or any other person designated by the appropriate Vice President to respond to the grievance. The Step 1 representative must provide a written answer within fourteen (14) calendar days after receiving the formal grievance.

Step 2: Appeal to the Vice President 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 designated representative will then arrange a meeting with the grievant, his/her 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 President 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 grievant 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 means that students must 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 is to be purposeful, open, just, disciplined, caring, and celebrative. The Student Code and the Office of Student Judicial Affairs are tangible examples that illustrate compliance with 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 processes. 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 substantial 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 education of our university community. The student judicial system is not only concerned with the individual student’s welfare, but also the welfare of the University community as a whole. 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 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 Ellsworth 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 (minimum 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 Ellsworth 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 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 study, leisure, and/or socializing. Most halls have mail and message services, formal lounges, all-purpose rooms for meetings or studying, extensive fitness/exercise rooms, aerobics, saunas, television viewing areas, refrigerator rental, paint-your-room program, free VCR use, and academic computer terminals. All rooms are provided with beds, desks, study chairs, dressers and closets.

Any student enrolled at WMU for at least one credit hour may live in a hall. Newly admitted students are automatically sent information (fall-during the month of February; winter-in November; spring and/or summer-in March) detailing the residence hall offerings available for the semester or session they expect to be enrolled.

Many distinct hall environments are available and students are encouraged to indicate their preferred hall and roommate(s). Students will often prefer a specific hall because of location or assignment pattern (coed). These preferences are honored as space is available. A few halls are reserved exclusively for upper-class and honor students. Other halls attract students interested in health and wellness, extended quiet hours, or international culture. Depending on the hall, men and women may be separated by suite or floor. Two separate halls are also reserved exclusively for each sex. In locations where coed assignments exist, separate bath and toilet facilities are provided. While most assignments are two students per room, single room assignments are available and some three- or four-person room assignments are made in the larger rooms. The WMU housing staff are key players in coordinating the delivery of academic support services and programs to students living in residence halls. They are dedicated to supporting students in their academic and personal success.

Both undergraduate and graduate students are welcome in the halls. During the fall and winter semesters graduate and older students find Davis Hall of special interest. Students must be at least twenty-one or junior status to live in Davis Hall. French Hall and Zimmerman Hall are reserved for sophomores or students aged 21 and over. No hall is reserved exclusively for graduate students.

There are room-only halls available to those who do not wish to participate in the WMU Dining Service options. At least one residence hall is open throughout the entire year, including periods of University closure. All other residence halls close between semesters.
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 recess periods.

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 during Fall and Spring semesters, 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, Faunce 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 apartments 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, Western Michigan University, Kalamazoo, MI 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 roommates 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 services. 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 (for 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" key on the university'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 Elsworth Hall.

Office of International Student Services (OISS)
Ms. Lorette Jackson, Director
A411 Elsworth Hall
Western Michigan University
Kalamazoo MI 49008-5176
Telephone: (269) 387-5899; FAX (269) 387-5899
http://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 sponsors
• 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
B0021 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5182
Telephone: (269) 387-4800; FAX (269) 387-5899
http://www.wmich.edu/oia/celcis

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 (UDE) offers the institutional TOEFL at the conclusion of each term. CELCIS issues the Certificate of Eligibility for a visa (Form I-20, I-20B, or I-20C) 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 Klair, Director
B200 Elsworth Hall
Western Michigan University
Kalamazoo MI 49008-5245
Telephone: (269) 387-5890; 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 advanced 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 Identity Card (ISIC), Youth Hostel Pass, insurance procedures, and current information about conditions in countries of destination. OSA maintains an extensive resource 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 Elsworth Hall
Western Michigan University
Kalamazoo MI 49008-5177
(269) 387-3606; FAX (269) 387-3602
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...
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 College of Arts and Sciences
- Interdisciplinary course offerings in collaboration with the College of Arts and Sciences
- 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 schools 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 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 appointed 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.

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 any 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 Kalamazoo) or by telephoning 387-4693 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.

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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 Tuesday 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, bluegrass, 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 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, obstetrics, pediatrics, and sports medicine. In addition, Health Center physicians and physician assistants can refer students to other medical specialists in the Kalamazoo area.

Upon acceptance to the University, each student will receive a Health History Questionnaire. Completing and returning this questionnaire is important and a permanent part of a student’s medical record and a reference when medical treatment is required.

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 computerized 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.

Recognition of 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: 387-2326, Fax: 387-0630; World Wide Web: http://www.ocw.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 appointed 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.

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- Limited support, in collaboration with the College of Arts and Sciences
- Interdisciplinary course offerings in collaboration with the College of Arts and Sciences
- 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 schools and in-service teachers, citizen organizations, and other parties.

THE DIVISION OF MINORITY AFFAIRS,
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Adequate housing environment for all 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/.

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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, obstetrics, pediatrics, and sports medicine. In addition, Health Center physicians and physician assistants can refer students to other medical specialists in the Kalamazoo area.

Upon acceptance to the University, each student will receive a Health History Questionnaire. Completing and returning this questionnaire is important and a permanent part of a student’s medical record and a reference when medical treatment is required.
Any student younger than 18 years of age must also complete and return a Medical Treatment Authorization form signed by a parent or guardian. This form will be included in the admissions packet.

All information and Health Center records are strictly confidential and not part of any other University record. Student signature is required for release.

**Appointment Information**

Sindecuse Health Center is open for appointments with the clinician of your choice and for visits to the Urgent Care Clinic for acute illness or injury during the following hours:

- **Appointments**: Monday – Wednesday and Friday, 8:15 to 3:30 p.m.; Saturday, 9:00 to 11:30 a.m. (except summer session and during break weeks).

- **Urgent Care Clinic**: Monday – Friday, 8:00 a.m. to 5:00 p.m.; Saturday, 9:00 to 11:30 a.m. (except summer session and during break weeks).

**Student Health Fee**

All Western Michigan University students enrolled for seven or more credit hours per semester (four or more per session) are assessed a Student Health Fee as part of the enrollment fee. This entitles students to use all Health Center services (including those offered in the Sports Medicine Clinic).

Students enrolled for fewer than seven credit hours per semester (or fewer than four per session), non-enrolled students, and spouses of WMU students may pay the Student Health Fee on their first professional visit of the semester/session and receive the same benefits or opt to pay visitor rates. Eligibility for use of the Health Center extends from the first day of the applicable semester/session for which the fee has been paid to the first day of classes of the next semester/session. Students remain eligible to be seen at the Health Center one semester or two sessions after graduation. Fee schedules are available at the Sindecuse Health Center.

**Important Phone Numbers**

- **Appointments**: 387-3290
- **Information**: 387-3287
- **Insurance Information**: 387-3266
- **Pharmacy**: 387-3301
- **Health Promotion/Health Info**: 387-3263
- **Sports Medicine Clinic**: 387-3248
- **HIV Antibody Testing**: 387-4-HIV

**SPEECH, LANGUAGE, AND HEARING SERVICES**

The Van Riper Language, Speech, and Hearing Clinic is a service program provided by the School of Pathology and Audiology for persons with communication disorders. It is located in the University Medical and Health Sciences Center, 1000 Oakland Drive. Students may take advantage of diagnostic and therapeutic services by contacting the Clinic for an appointment. Telephone: 387-8047.

**STUDENT ACTIVITIES AND LEADERSHIP PROGRAMS**

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 detailed 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 (primarily for 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 student 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 campus and community service projects. 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, friendship/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, 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. It is operated 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 or 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 aptitudes; (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 opportunities guide, 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
Department of Counselor Education and Counseling Psychology, School of Social Work, and Department of Psychology are available. Included in the training experience are case consultations, supervision of treatment plans, didactic presentations and professional growth opportunities. The American Psychological Association has accredited the Center’s predoctoral internship program in professional psychology.

**National Standardized Testing**

conducted by the University Counseling and Testing Center. The following tests are regularly offered: ACT, LSAT, SAT, (subject exam), Matriculation, IAU/CPUC, CLEP, TOEFL, and academic skills exams are offered as needed. Standardized testing information is available at the Center; call 387-1872.

**Test Scanning Services (optic scanning)** for classroom exams and research data analysis is provided to the University community and greater Kalamazoo area. Information about scanning services is available; call 387-3910.

The Counseling and Testing Center is committed to the need for confidentiality in client/counselor communications. Therefore, confidentiality of client information is maintained in a manner consistent with professional standards of ethical practice and conduct and legislative requirements in the state of Michigan. Copies of the Counseling and Testing Center Policy on Confidentiality may be obtained at the Center’s reception desk.

Appointments may be requested by telephone (387-1850) or by stopping at the Counseling and Testing Center (2513 Faunce Student Services Building) reception desk between 8 a.m. and 5 p.m., Monday through Friday. Students unable to utilize the Center’s services during regular hours may make requests for same-day appointments. Website: <http://www.uctc.wmich.edu>

The Center attempts to serve as many students as possible within staffing limitations.

**UNIVERSITY LIBRARIES**

Waldo Library, the main library at Western Michigan University, was built in 1958, expanded in 1967, and then extensively renovated and expanded in 1991. The Library is named after Dwight B. Waldo, the University’s first president. In addition to Waldo Library, the Libraries includes four branch libraries. The Library Education Library, in Sangren Hall, has over 676,000 items and receives more than 600 periodical titles. The Music and Dance Library, in the Dalton Center, houses over 42,900 books, musical scores, and periodicals, as well as over 19,400 audio and video recordings. The Archives and Regional History Collections Library, in East Hall on the East Campus, collects unique materials about the history of Southwest Michigan and the official records of the University. The Visual Resources Library, located in Sangren Hall, houses a collection of over 98,000 slides, most of which relate to the fine arts.

Each of these libraries supports teaching and research in disciplines related to the materials collected. Thus Waldo Library has resources and services supporting the University’s undergraduates and graduate programs in the arts, fine arts, business, health and human services, social sciences, science, and engineering. University Libraries as a whole hold more than 3,920,000 volumes, of which more than 1,778,000 are unique titles. The Libraries own more than 841,000 microform titles and have over 6,900 electronic and print subscriptions. For the 1998-99 fiscal year the Libraries circulated 266,000 items, provided 16,981 items to other libraries, 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 current and past resources 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 subject databases. The Libraries’ web page (http://www.wmich.edu/library) 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 for the students to 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 facility 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 whirl pool and saunas, a 45’ climbing wall, indoor jogging track, basketball courts, soccer field, softball, ice hockey, flag football, tennis, racquetball, in-line hockey, and much more. Intramurals provide opportunities for individuals to participate in athletic experiences that will help them to develop team building and leadership skills. These experiences permit participants to set goals, relate to others, participate in physical activity, and enrich their lives. Opportunities for leadership are available for students who wish to officiate contests.

**Fitness Programs**

Fitness classes are available for individuals interested in improving their health and physical development through safe and effective exercise programs. A variety of instructor-led classes are offered, including water exercise, high/low aerobics, step aerobics, stretch and tone classes, kickboxing, jumprope classes, and yoga. PhysiStylers is a fitness-testing program designed exclusively for WMU students. The program offers fitness assessments and individual exercise program development for students who wish to develop and maintain healthy levels of physical fitness. The testing package includes anthropometric, the screening, blood pressure analysis, body composition, and physical assessments for flexibility, muscular strength and endurance, and cardiovascular endurance. A consultation is available to obtain personal exercise recommendations and guidelines based on current levels of physical fitness and personal goals.

**Fitness Weight Room**

Located in the SRC, the 8,000 square foot fitness/weight room includes state-of-the-art equipment, variable resistance weight machines and free weights, computerized exercise bicycles, stair climbers, rows, and elliptical machines. Student Exercise Specialists are available to instruct on proper use of the equipment and to provide exercise training guidelines to meet personal goals.

**Climbing Wall**

The WMU Climbing Wall is designed to challenge and teach participants about the unique sport of indoor climbing. The wall is a top-rope system where climbers are harnessed in for safety. SRC members can come feel the excitement of scaling a 45-foot wall. Participants can also complete a climbing clinic to learn proper harnessing and belaying techniques.

**Special Events**

The SRC conducts one or two special events each semester. These events may coincide with other University events or reflect a seasonal holiday theme. Games, activities, and contests are offered. The celebrative atmosphere designed to provide interaction and tradition among the participants.

Other for more information on services and specific days and times of programs, pick up a SRC brochure or call 387-4REC. Current information may also be found on the web at <http://www.src.wmich.edu>.

**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.

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.).
2. One research methods course is required: ANTH 530 (3 hrs.).
3. Fifteen hours of elective 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 604 (3 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 and at least 12 credits in anthropology, including 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, prehistoric technology). 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 hrs 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 topic 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, stress, 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 general. 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 equivalent. **Prerequisite:** ANTH 240.

**ANTH 521 Nationalism, 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, Hobsbawm, 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 inequalities. The course emphasizes inequalities within the contemporary United States, but situates those dynamics within an analysis of global processes and conditions. Particular emphasis is placed on analyzing ways that everyday practices, neoliberal social policies, economic restructuring, resistance efforts, and institutional practices play in producing, challenging, and maintaining structural violence. Feminist, post-structuralist, Marxist, cultural studies, and hegemony studies approaches are covered. Both ethnographic case studies and theoretical analysis are explored to inform collaborative required applied community-based anthropological research on power, race, and class relations within the Kalamazoo region.

**ANTH 525 Spirits 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 areas, 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. May 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 paleontological 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 Palaeolithic and the origin of modern humans; and 3) the Upper Palaeolithic 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 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 method(s) of investigation, determining appropriate product or results, and securing the cooperation of a faculty member to supervise the work must come from the student. Application forms may be picked up in the College of Arts and Sciences Advising Office and must be approved by the Dean of the College. Approval is contingent on the merit of the proposal. Repeatable to a maximum of 16 hours. Prerequisite: Approval of the student's graduate advisor and the instructor.

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 combination 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 in the department of Anthropology, Economics, Geography, History, Political Science, or Sociology, if the credit is approved by the chairperson of the department prior to registering for the seminar. May be repeated for credit. Prerequisite: Approval of the student's graduate advisor and the instructor.

A-S 605 Graduate Foreign Studies Seminar
1-6 hrs.
Seminars in the Humanities conducted outside the U.S. Students who complete such a seminar may receive credit in the department of Asian and Middle Eastern Languages, Communication, Comparative Religion, English, Foreign Languages and Literatures, Philosophy, and the departments of the College of Fine Arts, if the credit is approved by the chairperson of the department prior to registering for the seminar. May be repeated for credit. Prerequisite: Approval of the student's graduate advisor and the instructor.

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. Prerequisite: 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. Prerequisite: 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 thesis 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 university 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 course work 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 509, CHEM 552, CHEM 609, 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 (8 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 of 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, 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 should obtain admission materials from the Office of International Student Services and from the graduate advisor, Department of Biological Sciences. Conditions stated under 1 or 2 below must be met for regular admission to the Biological Sciences Ph.D. program.

1. For persons possessing a bachelor's degree from an accredited college or university:
   a. Grade point average of 3.0 or higher.
   b. Scores on the verbal, analytical, quantitative, and biology sections of the Graduate Record Examination.
   c. College courses as follows:
      i. Appropriate courses in the biological sciences as determined by the Graduate Advisor.
      ii. Organic chemistry
      iii. Two courses in physics with laboratory
   iv. Two mathematics courses, including calculus.
   d. Three letters of recommendation.
   e. Availability of a potential dissertation advisor in an area of planned specialization.

2. For persons possessing a master's degree in one of the biological sciences from an accredited university:
   a. Grade point average of 3.25 or higher in graduate level courses.
   b. Scores on the verbal, analytical, quantitative, and biology sections of the Graduate Record Examination.
   c. Three letters of recommendation.
   d. Availability of a potential dissertation advisor in an area of planned specialization.
   e. Cognate course work as given in 1c-iw above.

Note: Some course deficiencies in admission requirements must be removed before advancement to candidacy.

Applicancy
Applicancy requirements are those of The Graduate College.

Committee Structure: By the end of the first year, or before taking the first independent research hours (BIOS 735), a Dissertation Committee should be constituted. The Dissertation Committee will be composed of at least four members, including the major professor, two or more members of the Department of Biological Sciences, and one or more outside examiners.

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 course work, 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
The study of modes of action and effects of psychoactive drugs, such as alcohol, marijuana, cocaine, amphetamines, heroin, methadone, LSD, PCP, and nicotine. A survey 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 504 Microbial Genetics**
3 hrs. Fall (alternate 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 Microbial Ecology**
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, or 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. Student will gain extensive hands-on experience with restriction mapping, ligations, bacterial transformations, eukaryotic gene-replacements, gel electrophoresis, non-isotopic hybridizations, as well as application of the polymerase chain reaction (PCR). Experimental design, use of appropriate controls and handling of acquired data will be stressed. Prerequisites: BIOS 250 Genetics, 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 organs with aging. 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 biochemical and biophysical mechanisms of the immune response and the chemical nature of antibodies, antigens, and their interaction. Emphasis will be placed on in vitro and in vivo humoral and hypersensitivity reactions. Prerequisite: BIOS 312; Biochemistry is recommended.

**BIOS 542 Entomology**
4 hrs.
This course is a general study of insects, their identification, 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 underlying mechanisms in different animal models. Lecture and discussion will be integrated and supplemented by demonstrations. Topics covered will include: membrane biophysics, synaptic physiology, transduction and signaling in the visual, auditory, chemical and somatosensory systems, reflexes, simple behavior and plasticity. Prerequisites: 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 toxics 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 toxics 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 preparation 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 vivo and in vitro. Prerequisite: BIOS 250.

BIOS 597 Topics in Biological Sciences
2-6 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 a total 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 biology, 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 conversation 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 mechanisms 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 623 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 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.
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 Doctor 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 will be 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 made 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

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 505, 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 II with Laboratory.
5. CHEM 601, Graduate Seminar.
6. Three 600-level courses from three different divisions (Analytical, Biochemistry, Inorganic, Organic, and Physical), including one course in the division of the Master's Thesis.
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 must 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 co-op/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.)
- Special research projects or co-op/internships (18 hrs.)
ed. 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.

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, will 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
7. To be considered a candidate for the degree and to ensure a timely completion of the program, a full-time student should have completed the following by the end of the third year:
   a. Any deficiencies identified by the entrance examinations.
   b. At least five (5) of the seven (7) required chemistry courses with a minimum course grade point average of 3.0.
   c. Twelve (12) cumulative examination questions.
   d. The proposal defense.
8. The program is designed to allow the flexibility of tailoring the curriculum to the needs of the student. Thus, the research tools required by professional tools that facilitate successful academic, government, or industrial careers. Where necessary, satisfaction of the research tools requirement, including approval of appropriate coursework, shall be determined by the dissertation committee. The committee can be petitioned regarding significant experience or expertise in these areas. These recommendations generally implies the use of a research tool in the context of current or prior employment or internships. The research tools component shall be met when a student satisfactorily accomplishes two of the following tasks:
   a. Demonstrates competence in computer programming and use receiving a grade of "B" or better in an approved elective computer science course, or by sufficient previous course work, or by applying programming to research problems. Such application could be through design and use of a program subroutine to analyze data acquired from a scientific instrument, computer modeling and simulation, design and analysis of algorithms or database management.
   b. Achieves a working knowledge of statistics by receiving a grade of "B" or better in an approved elective statistics course or by sufficient previous course work, or by applying statistical analysis to a scientific research problem.
   c. Shows proficiency in the design or manufacture of electronic circuits and devices by constructing an instrument used in a research project or by receiving a grade of "B" or better in an appropriate course.
   d. Demonstrates competence in a laboratory experiment to carry out procedures for organizing a chemical instrumentation used as part of an upper-level course in chemistry.
9. The Ph.D. candidate must complete and successfully defend a dissertation on a research topic approved by the dissertation committee.

Financial Assistance
The Department of Chemistry offers opportunities for financial support of graduate students through several departmental, University, and grant-funded fellowships and teaching or research assistantships. Information and applications are available from the Department of Chemistry.

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.
This course, along with CHEM 570 and CHEM 575, provides a capstone chemistry experience for undergraduates. Representative topics, such as pesticides and drugs, industrial chemistry, 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 relevant to the "real world" of industry. Laboratory experience in modern instrumental techniques will be emphasized. Prerequisite: CHEM 509 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 elementary electronics, electrochemistry, spectroscopy, and other instrumental techniques. 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 spectroscopic and chromatographic measurements. Laboratory provides practical experience in application of principles discussed in lecture. Not available to Chemistry majors. Prerequisite: CHEM 377.

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 377.

CHEM 540 Biogeochemistry 3 hrs.
An advanced survey of major current research topics in biogeochemistry. Examines chemical interactions among oceans, 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 377, 379, 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 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 560. Prerequisites: BIOS 350, and chemistry through biochemistry, or permission of instructor.

CHEM 570 Advanced Organic Chemistry and Spectroscopy 3 hrs.
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 gain 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. Prerequisite: Twenty-four hours of chemistry, which includes CHEM 436, and approval of the department chairperson 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 of Science 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 Organic and Inorganic 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 emphasis is placed 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, conductometric 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 content will be arranged in such a manner as to point out 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 of 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. It will introduce the factors that affect the physical and chemical properties of water and how these factors may be measured. Prerequisites: CHEM 431 and CHEM 636.

CHEM 638 Surfaces in the Environment 3 hrs.
This course will examine the physical and analytical chemistry of environmentally important interfaces. Topics will include: equilibrium, heterogeneous catalysis, and surface photochemistry in the atmosphere; surface phenomena in liquid-gas exchange; and soil binding of pollutants. Prerequisites: CHEM 123, CHEM 430, 432, or equivalent. (MATH 230 recommended.)

CHEM 650 Proteins and Nucleic Acids 3 hrs.
Physical techniques for studying proteins and nucleic acids. Molecular evolution; selection and binding interactions of proteins and nucleic acids. Prerequisites: 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 interactions 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
Main Office: Third Floor, Sprau Tower
Telephone: 387-3130
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URL: http://www.wmich.edu/communication

JoNina Abron
Heather Addison
Julie Apker
Sandra Borden
Sue Ellen Christian
Jennifer Butler Ellis
Leigh Ford
Wendy Ford
Richard Gershon
James Gilchrist
Julie Hearne
Richard Junger
Keith Hearit
Jocelyn Steinke

Master of Arts in Communication

Advisor and Director, Graduate Program:
Dr. Leigh Ford,
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 9 hours

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>COM 601</td>
<td>Introduction to Graduate Study</td>
<td>3</td>
</tr>
<tr>
<td>COM 602</td>
<td>Communication Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>COM 674</td>
<td>Theories of Interpersonal Communication</td>
<td>3</td>
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</table>

Elective Courses 12 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>COM 600</td>
<td>Listening</td>
<td>3</td>
</tr>
<tr>
<td>COM 604</td>
<td>Seminar in Communication Ethics</td>
<td>3</td>
</tr>
<tr>
<td>COM 670</td>
<td>Seminar in Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>COM 671</td>
<td>Cognition and Emotion</td>
<td>3</td>
</tr>
<tr>
<td>COM 673</td>
<td>Conflict Management</td>
<td>3</td>
</tr>
<tr>
<td>COM 681</td>
<td>Group Communication Processes</td>
<td>3</td>
</tr>
</tbody>
</table>

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 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 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 in corporate affairs, 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

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>COM 601</td>
<td>Introduction to Graduate Study in Communication</td>
<td>3</td>
</tr>
<tr>
<td>COM 602</td>
<td>Communication Research</td>
<td>3</td>
</tr>
<tr>
<td>COM 682</td>
<td>Organizational Communication</td>
<td>3</td>
</tr>
<tr>
<td>COM 604</td>
<td>Seminar in Communication*</td>
<td>3</td>
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**Elective Courses**......12 hours

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>COM 681</td>
<td>Group Communication Processes</td>
<td>3 hrs</td>
</tr>
<tr>
<td>COM 663</td>
<td>Power and Leadership in Organizational Communication</td>
<td>3</td>
</tr>
<tr>
<td>COM 685</td>
<td>Special Topics in Organizational Communication*</td>
<td>3</td>
</tr>
</tbody>
</table>

**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 C—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, anywhere. As a result of academic study, 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, organizational, or telecommunications, and up to 6 hours of graduate credit from another department.

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

<table>
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<tbody>
<tr>
<td>COM 601</td>
<td>Introduction to Graduate Study in Communication</td>
<td>3</td>
</tr>
<tr>
<td>COM 602</td>
<td>Communication Research</td>
<td>3</td>
</tr>
<tr>
<td>COM 641</td>
<td>Theories of Telecommunications Uses and Effects</td>
<td>3</td>
</tr>
<tr>
<td>COM 643</td>
<td>Telecommunications and Organizational Planning</td>
<td>3</td>
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</table>

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

<table>
<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>COM 507</td>
<td>Freedom of Expression</td>
<td>3</td>
</tr>
<tr>
<td>COM 541</td>
<td>Telecommunications Law and Policy</td>
<td>3</td>
</tr>
<tr>
<td>COM 551</td>
<td>Methods of Media Analysis</td>
<td>3</td>
</tr>
<tr>
<td>COM 554</td>
<td>Communication Technology</td>
<td>3</td>
</tr>
<tr>
<td>COM 564</td>
<td>Telecommunications Networks</td>
<td>3</td>
</tr>
<tr>
<td>COM 604</td>
<td>Seminar in Communication*</td>
<td>3</td>
</tr>
<tr>
<td>COM 640</td>
<td>Seminar in Telecommunications*</td>
<td>3</td>
</tr>
<tr>
<td>COM 644</td>
<td>News Media and the Organization</td>
<td>3</td>
</tr>
<tr>
<td>COM 647</td>
<td>Communication and Organizational Video</td>
<td>3</td>
</tr>
<tr>
<td>COM 685</td>
<td>Special Topics in Organizational Communication*</td>
<td>3</td>
</tr>
</tbody>
</table>

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

An approved statistics course* 3

**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 Upperclass 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 (auteurist, 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: COMM 104, 170, 200, or consent of the department.

COM 564 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. The 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.
This course examines the theoretical foundations and research methodologies of organizational communication. Students will apply communication and research methods to analyzing a functioning organization. The focus is on a system analysis in diagnosing communication problems and developing plans for change.

COM 681 Group Communication Processes 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 682 Organizational Communication 3 hrs.
This course examines the theoretical foundations and research methodologies of organizational communication. Students will apply communication and research methods to analyzing a functioning organization. The focus is on a system analysis in diagnosing communication problems and developing plans for change.
COMPARATIVE RELIGION

Dr. Brian C. Wilson, Chair
Main Office: 223 Moore Hall
Telephone: 387-4391
FAX: 387-4914

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

Master of Arts in Comparative Religion

Advisor:
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 core 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; Feminity 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 attends especially 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
2 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 typical 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 developmental 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 the actual practices such as annual celebrations, rites of passage). While learning the content of individual traditions and exploring the comparative questions between them, students will focus on the issues of teaching about religion generally and the problems 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, and test construction (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
Main Office: 5307 Friedmann Hall
Telephone: 387-5535
FAX: 387-3999
Donald L. Alexander
Eskander Alvi
Sisay Aestfa
Randall W. Eberts
Bassam E. Harik
Matthew L. Higgins
Emily P. Hoffman
Kevin M. Hollenbeck
Susan N. Houseman
Wei-Chiao Huang
William S. Kern
Jean Kimmel
Donald J. Meyer
Debasui Mukherjee
Jon R. Neill
Christopher J. O’Leary
Michael J. Ryan
Samuel Pavel
Susan Pozo
Werner Sicheli
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.

603 Advanced Price Theory, ECON 607 Uncertainty and Information, ECON 619 Introduction to Econometrics, ECON 622 Economic Statistics, and ECON 662 National Income Analysis.

Doctor of Philosophy in Applied Economics
Advisor: William Kern, Room 5301, Friedmann Hall

The Doctor of Philosophy in Applied Economics is designed to meet the needs of future high-level practicing economists, primarily in non-academic settings. Recent studies have found that non-academic employers of Ph.D.-level economists are concerned about the training that exists for their graduates. In an early 1990's report commissioned by the American Economic Association, Dr. Anne O. Krueger reported that the proportion of new economics doctorates taking their first job in academia has significantly declined and that universities are not adequately serving the non-academic portion of the market. She wrote that "... our major concern focuses on the extent to which graduate education in economics may have become too removed from real economic problems ... and that the focus on developing skills required for applied research should be stronger..." The Ph.D. program offered by the WMU Economics Department is designed to address this need.

The Applied Economics Ph.D. program retains a core curriculum as is required by traditional Ph.D. programs in economics, but requires that students participate in a series of applied economics workshops and complete a one-year internship in a non-academic organization. Doctoral students intern with organizations such as city, county, or state government agencies, consulting or research firms and institutes, financial institutions, businesses, and hospitals. This internship is conducted under the aegis of an employee of the organization as well as a Department of Economics faculty member. The purpose of this internship is to give students the incentive and opportunity to apply their knowledge of economic theory and empirical methods to actual problems faced by organizations. The internship is also intended to provide the subject of the student's dissertation and therefore send the Department's graduates into the job market with a somewhat different orientation than that of graduates from traditional economics Ph.D. programs.

The Applied Economics Ph.D. program is designed to be completed within four years by a student entering with good undergraduate economics and quantitative methods (mathematics and statistics) training or a Master of Arts in Economics.

Admission Requirements
Admission to the Ph.D. program in Applied Economics requires:
1. GRE scores (verbal, quantitative, analytical).
2. Satisfactory completion of high-level undergraduate or M.A.-level microeconomic and macroeconomic theory courses.
3. Satisfactory completion of undergraduate calculus and statistics courses.
4. A personal statement discussing your career plans.
5. Three letters of reference from persons in a position to assess your qualifications for doctoral-level study and likelihood of successful completion of the Ph.D. degree.
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 Econometric Statistics
- ECON 655 Microeconomic Theory I
- ECON 656 Microeconomic Theory II
- ECON 675 Macroeconomic Theory I
- ECON 676 Macroeconomic Theory II
- ECON 670 Advanced Econometrics I
- ECON 671 Advanced Econometrics II

At or near the beginning of the fall semester of the second year, students are administered a qualifying examination in economic theory. Upon passing this examination, the student is considered a candidate for the Ph.D. degree.

Each student is required to specialize in econometrics and in two of the following fields: Economic Development, Human Resource Economics, Business/Industrial Organization, Monetary Economics, and International Economics. (Not all of the five fields will be offered in any particular year.) To specialize in a field, students take a sequence of two courses. Students are required to pass a field qualifying examination in econometrics and in each specializtion they select.

Third and fourth year candidates devote their time to their workshops, internship, and dissertation. Doctoral candidates are required to participate in six workshops designed to deepen their understanding of theoretical and empirical economics by giving them the opportunity to discuss the research being conducted by the Department’s faculty, economists from other institutions, and graduate students. An Applied Economics Workshop (ECON 599) is offered each semester and during the Spring session. In the third year, candidates intern (ECON 712) at a non-academic organization. The internship provides students an opportunity to put what they have learned into practice and to gain practical experience. Each internship is tailored to the individual student. However, the internship is normally within commuting distance of the University.

Interns are typically unpaid and are expected to work approximately twenty hours per week on the internship project. Advisors and students are matched on the basis of mutual interest in the internship project. The dissertation is the culminating experience for each student. It is expected that the dissertation will be an outgrowth of a student’s internship project. The dissertation should be so designed as to take no more than one additional year (year four) after the internship year. A satisfactory oral defense of the dissertation completes all the requirements of the Ph.D. degree.

Financial Assistance
A number of doctoral assistantships are awarded each year. Recipients are selected by a Department committee on a competitive basis. Financial assistance is limited to four years. Graduate minority financial assistance is available to eligible students.

Economics Courses
Open to Undergraduate and Graduate Students

Undergraduates with junior or senior standing and 12 or more credit hours of Economics or the consent of the Department Chairperson may enroll in 500-level courses.


An examination of a selected area of concern not intensively covered in other courses. The focus of the course will be substantive as well as analytical. Topics may include such areas as poverty, the war industry, farm problems, misallocation of resources, welfare programs, unemployment, and others. May be repeated for credit with a different topic. Prerequisites: ECON 201 and 202, plus 6 additional credit hours of economics or consent of instructor.

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.

ECON 505 History of Economic Thought 3 hrs.

This course surveys the origins and developments of economic analysis from the Ancient Greeks to the present. Prerequisites: ECON 201, 202.

ECON 507 Monetary Theory and Policy 3 hrs.

This course concentrates on the main elements of monetary theory and policy having to do with such problems as promoting economic growth, maintaining full employment and price stability, influencing the flow of capital into the various economic sectors with different possible social goals in mind, and stabilizing international trade and financial relationships. Prerequisites: ECON 201, 202, 320 or 406, plus three additional credit hours of intermediate or advanced mathematics.

ECON 515 Economics of Human Resources 3 hrs.

The course will examine the development and utilization of manpower in the United States, including such topics as labor force components, contributors to productivity such as education, training, health and mobility, and issues of manpower policy. Prerequisites: ECON 201 and 202.

ECON 525 State and Local Government Finance 3 hrs.

Practices, effects, and issues in state and local expenditure, taxation, and borrowing, with particular attention to property and sales taxation, to the financing of education and highways, and to intergovernmental fiscal relations. Prerequisites: ECON 201 and 202.

ECON 588 Economic Development 3 hrs.

An analysis of the economic factors such as population, resources, innovation, and capital formation which affect economic growth. Selected underdeveloped areas will be studied to understand the cultural pattern and economic reasons for lack of development and the steps necessary to promote economic progress. Prerequisites: ECON 201 and 202.

ECON 591, ECON 592 Guest Economist Seminar 1 hr.

Seminar series on a topic of current interest featuring invited visiting economists. Topics will vary and courses may be repeated. Prerequisites: ECON 201 and 202.

ECON 598 Readings in Economics 1–3 hrs.

An independent program of study for qualified students to be arranged in consultation with the instructor. Prerequisites: 12 credit hours of Economics and the consent of instructor and Department Chairperson.

Open to Graduate Students Only

ECON 600 Applied Economics for Management 3 hrs.

The course examines the relationship 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, input-output 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 understand and 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.

An advanced study in the logic of the pure theory of production; joint production and joint costs, and introduction to the multiperiodic production theory. Advanced theory of consumer behavior; aggregation problems in product supply, factor demand and consumer demand analysis; review of selected empirical studies on consumer demand analysis; consumer surplus; problems involving optimization over time and under conditions of uncertainty; role of savings in consumer demand theory (utility maximization over time). Prerequisite: MATH 122 or equivalent.

ECON 604 Introduction to Mathematical Economics 3 hrs.

This course is intended to introduce graduate 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 also be introduced to selected topics from consumer theory and the theory of the firm. Prerequisites: MATH 122, MATH 125 or equivalents.
ECON 607 Uncertainty and Information
3 hrs. Analysis of individual decision making and market equilibria under conditions where economic agents are unsure about their own situations and/or the opportunities offered them by market dealings. Topics covered include expected utility, decisions to produce and acquire information, information and contract design, and the effect of information in situations of strategic economic interaction. Prerequisite: ECON 504 or ECON 603.

ECON 609 Seminar in Economics
3 hrs. Offers the graduate an opportunity to investigate contemporary problems in economic theory and analysis. Prerequisite: Four hours of advanced economic theory or consent of instructor. Topics will 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 studies 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 course 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 area 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 the use of computer programs for econometric models, and the nature of difficulties which arise in applying 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/Business 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/Business 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: Models of money and inflation, the economics of money, and the effects of monetary and fiscal policies on economic activity. 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, and Ph.D. candidate graduate students. Prerequisites: ECON 666, ECON 670, ECON 676. Topics will vary and course may be repeated.
ENGLISH

Dr. Arnold Johnston, Chair
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Nancy Emers
Stephanie Gauper
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Jaimy Gordon
Georgina Hill
Robert Hinkel
Paul Johnston
W. Arnold Johnston
Elise B. Jorgens
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 Vocke
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 in 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 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.

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 other fields in 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 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, or 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 on a special 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 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.

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 Fiction 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 English Literature, 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 — 16 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 at least three courses from one area.
   a. American literature before 1865
      • American literature 1665–1820
      • British literature before 1800
   b. Restoration and 18th-century British literature
      • Restoration and 18th-century British literature (through Milton)
   c. 19th-century British literature
      • Restoration and 18th-century British literature
      • Nineteenth-century British literature
   d. Modern British literature
      • Modern British literature
      • Contemporary literature
   e. 20th-century British literature
      • British literature to 1800
      • American literature before 1865
   f. 21st-century British literature
      • 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 by an early writer, a group, or by other groups which have been marginalized or have not been studied in the academy to date.

4. Teaching component — 8 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 on support area — 6-9 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 special examination 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 also be required.

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, Thackeray, 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, 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 620 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 emphasis. 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, stemming from 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 680 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 690 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 and in a written paper or report 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 books 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 literature, language, 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.

Environmental Institute
Dr. Thomas Bailey, Director of Environmental Studies Program
Main Office: 3930 Wood Hall
Telephone: 387-2716
John Cooley
David Glasser
Johnson Haas
David Hargreave
Lynne Heasley
Sarah Hill
Virginia Jones SSJ
Carla Kotreisky

Environmental Studies Course (ENVS)
Open to Upperclass and Graduate Students
ENVS 500 Advanced Environmental Topics
3 hrs.
An intensive, focused study of a current environmental issue. The role of interdisciplinary research in addressing such issues will be explored through examples drawn both from the different disciplinary backgrounds of the students and especially from the current research of the faculty instructor. Course may be repeated under different topics. Topics will be announced in the Schedule of Course Offerings. Prerequisite: Required conceptual foundations courses or approval of a program advisor.
FOREIGN LANGUAGES AND LITERATURES  
Dr. John Benson, Chair  
410 Sprau Tower  
Telephone: 387-3001  
FAX: 387-3103  
http://www.wmich.edu/languages  

John Benson  
Gary E. Bigelow  
Peter Blick  
Vincent Desroches  
Jorge Febles  
Robert Felkel  
Diether H. Hsienicke  
Carolyn Harris  
Antonio Isea  
Rand H. Johnson  
Peter W. Krawutschke  
David Kutzko  
Irma López  
Molly Lynde-Riachcia  
Michael Milar  
Patricia Morilla  
Holly Nikon  
Dasha Nisula  
Joseph Reish  
Paola Pastrana-Pérez  
Mariola Perez 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, 325 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, 325 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.  
Topics 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 may be treated in this area include: The Novelle—Survey of the development with representative selections.  

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
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 Office of Orientation and Admissions or to the department's graduate advisor. Assistantships may be available for qualified applicants.

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**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** 1-3 hrs.

Directed individual study of a specific topic in Russian language, literature, or culture area. Department approval required for admission. Repeatable for credit. **Prerequisite:** Permission of Department and instructor.

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**SPANISH**

**Master of Arts in Spanish**

Advisor: Mercedes Tasende, 511 Sprau Tower EMAIL: Mercedes.tasende@wmich.edu Telephone: 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 professions in Spanish or 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 and Spanish linguistics and methodology. 
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.

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**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** 3 hrs.

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 500-level or above.

**SPAN 526 Survey of Spanish Literature to the 18th Century** 3 hrs.

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** 3 hrs.

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** 3 hrs.

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** 3 hrs.

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** 1-3 hrs.

Directed, individual study of a specific topic in 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** 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:** 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 Spanish-American Novel—The new Spanish-American novel along with the cultural and social background.

**SPAN 630 Topics in Spanish Literature** 3 hrs.

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.
varies according to topic and may be repeated with permission of advisor. Representative topics include General Survey of 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 890 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
Roland Fraser
Chansheng He
David Lemberg
 Eldor C. Quandt
Joseph P. Stoltman
Gregory Veек
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.

2. Successful completion (~75% 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

Prerequisites 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.
Reviews 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 303 or GEOG 305 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. A 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 politics.

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 of 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 process including the zoning board, and the planning department in the community. Prerequisite: GEOG 356 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 geographic 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 realities 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 students 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 form 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 586 (1.) or GEOG 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 Southeast 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: Appropriate introductory course at either the undergraduate or graduate level.

GEOGRAPHIC METHODOLOGY AND RESEARCH
Open to Upperclass and Graduate Students
GEOG 566 Remote Sensing of the Environment
3 hrs.
The student will acquire proficiencies 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. Prerequisites: GEOG 567 or equivalent.

GEOG 567 Geodesy 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 Quantitative Methodology
3 hrs.
Introduction to the application of quantitative 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, medium production, photo-reproduction and computer-assisted mapping. It is recommended that GEOG 567 be taken before 580. Prerequisite: GEOG 375 or equivalent.

GEOG 661 Geographic Research
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 graduate advisor.

GEOG 665 Seminar in Geography
1–3 hrs.
Designed for highly qualified majors and graduate students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Permission of departmental advisor and instructor.

Open to Graduate Students Only
GEOG 666 Geographic Research
4 hrs.
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 customizing GIS 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.
The 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 topic 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 higher 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
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Daniel Cassidy
Ronald B. Chase
G. Michael Grammer
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Michelle Kominz
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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 Earth Science (Teaching)

The Master of Science in Earth Science (Teaching) is designed to provide students with a foundation in the fields of astronomy, geology, meteorology, and oceanography. Graduates of the program are employed in teaching in secondary schools and junior colleges.

Admission Requirements
Undergraduate major in geology. Consideration of other preparation will be handled on an individual basis.

Program Requirements
1. Thirty semester hours (excluding deficiencies) of graduate credit in Geosciences and related areas (in other sciences and mathematics), with at least twenty-one hours in Geosciences. Up to nine hours in related areas may be chosen with the consent of the graduate advisor.
2. Areas of specialization in the Geosciences Department include Sedimentary Geology-Paleontology, Structural Geology, Petrology-Mineralogy, Environmental and Surficial Geology, Hydrogeology, Geophysics, and Stable Isotope Geochemistry.
3. All students are expected to attend Departmental seminars and are required to give one presentation in residence. Students may enroll for credit in GEOS 660 for seminar presentations.
4. A copy of the Graduate Record Examination score must be supplied to the department before the end of the first semester in residence.
5. Satisfactory completion of GEOS 700, Master's Thesis (6 hrs.), 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.

Doctor of Philosophy in Geology

Advisor:
Alan E. Kehew,
Room 1183, Rood Hall

The Doctor of Philosophy in Geology with emphasis in hydrogeology is a research degree designed for persons intending to take leadership roles in teaching and research and in applied areas of hydrogeology. Applicants will be expected to meet the entrance requirements of The Graduate College and to demonstrate that they have an interest in, and aptitude for, conducting high quality research.

As soon as possible after matriculation, students will be assigned a graduate advisor. After admission to candidacy the student will be assigned an individual doctoral research committee consisting of three faculty sponsors. The composition of the committee will be based on the student's expressed interests. In special cases a third faculty member from another institution or research facility may also be appointed to the doctoral research committee. These members of the Graduate Faculty will facilitate and guide the student's development within the academic and research programs of the Department and University.

Admission 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 geophysics 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 results of the Verbal, Analytical, Quantitative, and Geology, or major area if other than geology, portions of the Graduate Record Examination.

Program Requirements
1. Complete at least sixty (60) hours of course and dissertation credits beyond the master's degree. Programs will be developed by the student in consultation with the student's doctoral committee.
2. Two research skills from the following:
   a. Reading proficiency in one foreign language other than English selected in consultation with the graduate advisor; and/or
   b. Research skill in mathematics, statistics, or computer science. For specific details concerning approved research skills, students will consult with the graduate advisor.
3. Satisfactory completion of 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 admission, and with the advice of the departmental doctoral committee 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

Course: GEOS 512 Hydrogeology
Credit Hours: 3
Prerequisites: All prerequisite courses in Geology are junior status or above and/or research problems in Earth sciences.

Sample Program for a Student Entering with a Master's Degree in Geology

GEOS 510 Independent Research
GEOS 712 Professional Field Experience
GEOS 735 Graduate Dissertation
GEOS 730 Doctoral Dissertation

Sample Program for a Student Entering with a Master's Degree in Geology

GEOS 520 Applied Hydrogeology
GEOS 523 Hazardous Waste Operation and Emergency Response
GEOS 524 Remediation Design and Implementation
GEOS 525 Surface Geophysics
GEOS 526 Principles and Practices of Aquifer Testing
GEOS 527 Principles of Well Drilling and Installation
GEOS 528 Principles Practices of Groundwater Sampling Monitoring

Sample Program for a Student Entering with a Geoscience Bachelor's Degree

GEOS 600 Hydrogeochemistry
GEOS 605 Groundwater Modeling
GEOS 608 Advanced Hydrogeology
GEOS 615 Contaminant Hydrogeology
GEOS 617 Stable Isotope Geochemistry
GEOS 666 Advanced Hydrogeology Seminar

Research and Professional Field Experience

GEOS 710 Independent Research
GEOS 712 Professional Field Experience
GEOS 735 Graduate Dissertation
GEOS 730 Doctoral Dissertation

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: Chemical Techniques in Water Remediation
Credit Hours: 2
Prerequisites: GEOS 525 Techniques in Water Remediation

GEOS 515 Applied Hydrogeology
GEOS 523 Hazardous Waste Operation and Emergency Response
GEOS 524 Remediation Design and Implementation
GEOS 525 Surface Geophysics
GEOS 526 Principles and Practices of Aquifer Testing
GEOS 527 Principles of Well Drilling and Installation
GEOS 528 Principles Practices of Groundwater Sampling Monitoring

GEOS 600 Hydrogeochemistry
GEOS 605 Groundwater Modeling
GEOS 608 Advanced Hydrogeology
GEOS 615 Contaminant Hydrogeology
GEOS 617 Stable Isotope Geochemistry
GEOS 666 Advanced Hydrogeology Seminar

Research and Professional Field Experience

GRAD 710 Independent Research
GRAD 730 Doctoral Dissertation
GRAD 735 Graduate Research

Elective courses

GEOS 506 Introduction to Soils
GEOS 516 Geochemistry and Global Change
GEOS 536 Glacial Geology
GEOS 555 Introduction to Geochemistry
GEOS 561 Reflection Seismology
GEOS 562 Gravity and Magnetic Exploration
GEOS 563 Electrical Methods
GEOS 564 Environmental Field
GEOS 610 Geochemistry
GEOS 611 Mineral Analysis
GEOS 613 Wetlands Hydrology

Other courses approved by the student's graduate committee.

Research experiences required in this program

GEOS 710 Independent Research
GEOS 730 Doctoral Dissertation
GEOS 735 Graduate Research

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.

Geosciences Courses (GEOS)

Open to Upperclass and Graduate Students

Prerequisites applicable to all 500-level courses in Geology are junior status or above and 12 or more credit hours of course work in geology, including the specific prerequisite for each course, or consent of instructor.

GEOS 502 Problems in Geology and Earth Science
1-3 hrs.
Individual problems involving topical reading and/or research problems in earth sciences. May be repeated for credit. Prerequisite: GEOS 300, 311, 440, or consent of instructor.

GEOS 503 Environmental Consulting Practice
2 hrs.
An introduction to the principles and practices that are peculiar to environmental consulting. Emphasis is placed on the legal, business, and practical considerations needed to conduct a consulting practice. This course is not to be counted toward the 60 credits beyond the master's in the Ph.D. program. Prerequisite: Graduate standing in Geology or Earth Science.

GEOS 506 Introduction to Soils
3 hrs.
Properties of natural and engineered soils. Interactions between soils and plants, microorganisms, water, atmosphere, and contaminants. Soil uses, remediation, and conservation. Prerequisites: GEOS 301, MATH 122 and corequisite MATH 123. CHEM 100/111.

GEOS 512 Hydrogeology
3 hrs.
The study of surface water and groundwater with special emphasis on groundwater movement and relation to the geologic environment. Prerequisites: GEOS 301 or GEOS 335; MATH 122. MATH 123 to be taken concurrently.

GEOS 514 Isotope Hydrology
3 hrs.
Principles of isotope fractionation. Experimental techniques in isotope mass spectrometry. Carbon, oxygen, and hydrogen isotopes and systematics in the hydrologic cycle. Application of stable isotope techniques to study ground water — surface water interaction. Use of nitrogen isotope measurements in understanding ground water nitrogen cycling and fate of nitrate load. Introduction to developments in the application of chlorine isotopes in hydrology. The course will include a seminar style approach requiring summarizing of recent research papers. Prerequisite: Instructor's consent.

GEOS 515 Applied Hydrogeology
3 hrs.
Application of hydrogeologic theory to water supply networks. Topics include: well installation, well testing, aquifer testing, and distribution systems. Prerequisite: 12 hours of geology, earth science, or consent of instructor.

GEOS 516 Geochemistry and Global Change
3 hrs.
Application of the concepts of nuclear physics to include absolute and relative dating, practical considerations needed to conduct a consulting practice. This course is not to be counted toward the 60 credits beyond the master's in the Ph.D. program. Prerequisite: Graduate standing in Geology or Earth Science.

GEOS 525 Techniques in Water Remediation
Credit Hours: 2
Prerequisites: GEOS 525 Techniques in Water Remediation

GEOS 536 Glacial Geology
GEOS 555 Introduction to Geochemistry
GEOS 561 Reflection Seismology
GEOS 562 Gravity and Magnetic Exploration
GEOS 563 Electrical Methods
GEOS 564 Environmental Field
GEOS 610 Geochemistry
GEOS 611 Mineral Analysis
GEOS 613 Wetlands Hydrology

Other courses approved by the student's graduate committee.

Research experiences required in this program

GEOS 710 Independent Research
GEOS 730 Doctoral Dissertation
GEOS 735 Graduate Research

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.
Origin, 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-hole slug 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, core barrel drilling, monitoring well design, sample collection and description, cuttings, slit 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. Prerequisites: 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 the design and operation of hazardous waste remediation systems involving water pollution, air pollution, soil 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 cosmochronology, 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.
Gravity and magnetic methods applied to tectonic, mineral, archaeological, and crustal studies. Theoretical background, instrumentation, surveying techniques, data reduction, processing, computer modeling, and interpretation will be discussed. Two lectures and three hours of laboratory, problem solving, and field exercises. Prerequisites: GEOS 560 and MATH 123.

GEOS 563 Electrical Methods
3 hrs.
Resistivity sounding and profiling, induced polarization, spontaneous potential, electromagnetic methods using natural and artificial fields and ground penetrating radar. Two lectures and three-hour laboratory with field studies 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, geo-radar, 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.
Geochemical origin and characteristics of surface water and groundwater; equilibrium thermodynamics, the carbonate system, 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 609 Hydrology Studies
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. Prerequisite: GEOS 440 or permission.

GEOS 611 Mineral Analysis
3 hrs.
X-ray diffraction and fluoresence 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 policies.

GEOS 615 Contaminant Hydrology
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 basinal 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 basinal carbonate 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.

HISTORY 69

HISTORY
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Ronald Davis
Juanita De Barros
Howard Dooley
E. Rozanne Elder
Nora Faires
Ralph Gordon
Marion Gray
Ross Gregory
Bruce Haight
Barbara Havira
Catherine Julien
Mitch Kachun
Paul Maier
John Norman
R. Patrick Norris
Carolyn Podruchny
James Pimenta
Dale Porter
Adam Sabra
Peter Schmitt
Larry Simon
Judith Stone
Kristen Szybik
Luis Toledo Pereyra
Walter Warren
Victor Xiong
Takashi Yoshida

Director of Graduate Studies
The Director of Graduate Studies is the central application, admissions, and advising source in the department. Upon arrival, all students must meet with the Director to register for classes, to be advised regarding a major professor, and to plan an overall course of study. Upon completion of 15 hours of course work, all M.A. students must meet with the Director to complete their permanent plan of study to file with The Graduate College.

Annual Review of All Master's and Doctoral Students
The Graduate Studies Committee (GSC) reviews all student files once a year. The review process, conducted by the GSC and the major professor, has two aims: 1) to advise students regarding the construction and development of their program of study, and 2) to address problems of incompletes, failing grades or difficulties completing course work or theses. The GSC can shift students from one master's option to another, will warn students that they are in jeopardy of being dismissed, and can set conditions for students to meet to avoid dismissal, or can dismiss students from the program.

Waiver of a Requirement
Any waiver from a requirement must be requested in writing to the Graduate Studies Committee for its decision. Requests must be supported in writing by the student's major professor.
Master of Arts in History

Advisor: Larry Simon, Room 4313, Friedmann Hall

The Master of Arts in History serves both as a 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.

THESIS 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 Handbook 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 8 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 written 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, 675–688) 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, ethnography, ethnology, 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 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.

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, ethnohistory, archaeology, material culture, museum studies, historic preservation, gender studies and documentary editing. Students are provided with opportunities to teach in the undergraduate program and to continue 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 Kercher Center for Social Research, the Diether Haenicke Center for International Study, 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 examination committee to continue doctoral studies.

2. Graduate Record Examination (GRE) general aptitude test scores; applicants with a master’s degree from another than history may be asked also 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 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 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

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 75 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 688. 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 program 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 53S 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 585 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 currently 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.
HIST 605 Readings in Early United States History
3 hrs.
Intensive study of historiography, interpretations, major works, serials, and databases in United States history from approximately 1750 to the present. May be repeated under different instructor.

HIST 608 Readings in Recent United States History
3 hrs.
Intensive study of historiography, interpretations, major works, serials, and databases in United States history from the late twentieth century to the present. May be repeated under different instructor.

HIST 612 Readings in Medieval History
3 hrs.
Intensive study of historiography, major works, serials, and databases in medieval history. May be repeated under different instructor.

HIST 616 Readings in Modern European History
3 hrs.
Intensive study of historiography, major works, serials, and databases in European history from approximately 1750 to the present. May be repeated under different instructor.

HIST 618 Readings in Global and Contemporary History
3 hrs.
Intensive study of historiography, interpretations, major works, serials, and databases dealing with issues in modern world history, such as colonialism, nationalism, international conflict and cooperation, economic integration, etc. Topics may be listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 620 Bibliographical Research
1–3 hrs.
Research in the literature of specialized topics and issues as they pertain to thesis or dissertation preparation, and preparation of a bibliographical essay. Topics may be listed in Schedule of Course Offerings.

HIST 625 Problems in Cultural Resource Management
1–3 hrs.
History and practice of various facets of administration, conservation, development, and interpretation of cultural and historical sites, agencies and institutions. Topics may be listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 635 Research Techniques in Medieval History
3 hrs.
Introduction to the sources and methods used in the study of medieval Europe. Interpretation of written sources including narratives, chronicles, charters, early government records, etc., with emphasis on authentication, dating and localizing these materials. Survey of techniques for interpreting artifacts and material culture such as archaeology, numismatics, and epigraphy.

HIST 636 Documentary Latin Paleography, 1100–1500
3 hrs.
Introduction to medieval Latin paleography and diplomatics, focusing on the Latin, scripts, abbreviations, and form of documents from historical archives of the High and Late Middle Ages, i.e., 1100–1500. Taught as a practicum offering students maximum practice in the transcription and reading of materials reproduced from various Spanish and Italian ecclesiastical and notarial archives, and from the royal Aragonese and papal chancelleries. Course is repeatable.

HIST 640 Museums Practicum
3–6 hrs.
Supervised field assignment with focus on a research project dealing with a specific aspect of museum or site administration such as registration, collections development, conservation, interpretation, etc. Registration requires approval of the Department Chair. May be repeated to a maximum of six hours.

HIST 642 Oral History
3 hrs.
Techniques and methodology of orally transmitted historical data. Considers oral history in various cultural settings under both literate and nonliterate conditions.

HIST 644 Material Culture and the Built Environment
3 hrs.
Social and cultural studies of artifacts, the design and furnishing of domestic space, and the social construction of the built environment in selected historical periods. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 646 Historical Archaeology
3 hrs.
Development of approaches and perspectives that link documentary sources and material culture. Considers archaeology's artifactual focus and its application in areas such as ethnohistory, art history, the history of technology, and submerged cultural resources. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 650 Special Projects
1–3 hrs.
Participation in departmental research and interpretive projects. Topics may be listed in Schedule of Course Offerings. Registration requires approval of the Department Chair. May be repeated to a maximum of six hours. Prerequisite: HIST 600, HIST 601, and possession of or admission to candidacy for a graduate degree.

HIST 670 Seminar in History
3 hrs.
Selected issues and problems in historical studies. Topics announced in Schedule of Course Offerings. May be repeated under different topic.

HIST 671 Seminar in Theory and Philosophy of History
3 hrs.
Advanced research. Topics may be announced in Schedule of Course Offerings. May be repeated under different topics.

HIST 672 Seminar in Local History Methodology
3 hrs.
Research design and execution organized around interdisciplinary methodology. Presentations and research supervision by faculty with interest in exhaustive, small-scale historical reconstruction in a variety of time periods and geographical settings such as American, medieval, African and non-Western traditional, etc. Topics may be listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 675 Seminar in Early United States History
3 hrs.
Advanced research. Topics may be listed in Schedule of Course Offerings. May be repeated. Prerequisites: HIST 605 or consent of instructor.

HIST 678 Seminar in Recent United States History
3 hrs.
Advanced research. Topics may be listed in Schedule of Course Offerings. May be repeated. Prerequisites: HIST 608 or consent of instructor.

HIST 682 Seminar in Medieval History
3 hrs.
Advanced research. Topics may be listed in Schedule of Course Offerings. May be repeated. Prerequisites: HIST 612 or 635 or consent of instructor.

HIST 686 Seminar in Modern European History
3 hrs.
Advanced research. Topics may be listed in Schedule of Course Offerings. May be repeated. Prerequisite: HIST 616 or consent of instructor.

HIST 688 Seminar in Global and Contemporary History
3 hrs.
Advanced research. Topics may be listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 689 Seminar in Public History
3 hrs.
Advanced research. Topics may be listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 690 Seminar in Global and Contemporary History
3 hrs.
Introduction to students to full range of teaching and other professional activities of historians as well as how to prepare for the job market: syllabi preparation and writing, class presentations, evaluation methods, grant applications techniques, publishing, conference presentations and vita preparation. Instructor mentors students in independent teaching assignments. Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

HIST 700 Master's Thesis
6 hrs.

HIST 710 Independent Research
2–6 hrs.

HIST 712 Professional Field Experience
2–12 hrs.

HIST 730 Doctoral Dissertation
12–18 hrs.

HIST 735 Graduate Research
2–10 hrs.
MATHEMATICS

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Christian Hirsch
John Martino
Jeffrey Strom
Dwayne Channell
Dr. Jay Wood, Chair
Kate Kline
Michael Kinyon
Paul Eenigenburg
Arthur White
Allen Schwenk
Steven Ziebarth
Qiji Zhu
Laura Van Zoest
Ping Zhang
Qi Zhu
Steven Ziebarth

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, the Doctor of Philosophy in Mathematics, the Doctor of Philosophy in Mathematics with 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. Interested individuals desiring further information about such opportunities, or about the graduate program as a whole, should contact the Mathematics Graduate Office (Room 3319, Everett Tower), or the Mathematics Office (Room 3319, Everett Tower).

Master of Arts in Mathematics Education
Advisor: See Mathematics Office, Room 3319, Everett Tower

This program deepens and extends secondary school mathematics teachers' understanding of mathematics and its learning and teaching, through a focus on both theory and practice, this program enables teachers to strengthen their classroom effectiveness, to assume leadership roles in curriculum and instruction, and, if so desired, continue with doctoral study in mathematics education.

Admission Requirements
In addition to the general admission requirements of The Graduate College, admission to this curriculum requires a bachelor's degree with at least a secondary teaching minor in mathematics, equivalent to that offered at Western, and fifteen hours of undergraduate work in professional education or its equivalent.

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
   - STAT 601 Applied Statistical Methods
   - STAT 602 Mathematical Modeling
   - MATH 607 Numerical Analysis II
   - MATH 608 Linear Programming
   - MATH 610 Linear Programming for Engineers
   - MATH 637 Numerical Linear Algebra
   - MATH 690 Seminar in Applied Mathematics (1 hr.)
   - STAT 562 Statistical Theory
   - STAT 662 Applied Regression Analysis
   - STAT 562 Statistical Theory
   - STAT 664 Design of Experiments I
   - STAT 665 Applied Multivariate Analysis
   - STAT 666 Design of Experiments

With the approval of the advisor, a student may substitute approved electives listed below for any of the specified courses which were previously taken as an undergraduate.

2. Complete at least six semester hours of approved electives which are different from the above courses.

Mathematics

MA 527 Probability Theory
MA 530 Applied Matrix Algebra
MA 540 Advanced Calculus
MA 570 Complex Analysis
MA 574 Ordinary Differential Equations
MA 578 Partial Differential Equations
MA 579 Numerical Linear Algebra
MA 580 Number Theory
MA 581 Introduction to Topology
MA 582 Advanced Calculus II
MA 583 Linear Algebra
MA 584 Real Analysis

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships and Fellowships. Interested individuals desiring further information about such opportunities, or about the graduate program as a whole, should contact the Mathematics Graduate Office (Room 3319, Everett Tower), or the 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 MATH 125, 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 608 Linear Programming
   - CS 110, 111, 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.

2. Complete at least six semester hours of approved electives which are different from the above courses.
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 multivariate 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 562), and CS 111, 112, (201 or 306), (alternately CS 331 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 565 Optimization
   - 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

2. Complete 6 semester hours consisting of two of the following three 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
   - *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 the basic requirements of the program are as follows.

1. Complete at least 65 hours of course work, including the following:
   - Introduction to Topology (MATH 522), Linear Algebra (MATH 530), and Advanced Calculus I & II (MATH 570 and 571)
   - A two-semester graduate sequence in Algebra (MATH 630-631)
   - A two-semester graduate sequence in another approved area of mathematics in which a comprehensive examination is offered
   - A semester course in Complex Analysis (MATH 676)
   - Five additional courses, including at least one in Applied Mathematics and at least two in Probability or Statistics (usually STAT 562 and 662)
   - Fifteen graduate hours in mathematics education

2. Pass three comprehensive examinations in
   - Algebra
   - Mathematics Education
   - One other approved area in Mathematics

3. Demonstrate competency in two research tools, which may be satisfied by demonstrating competence in computer usage, usually through 3 hours of MATH 688, and in educational research methods, usually through EDLD 640 and 648.

4. Teach an undergraduate course in mathematics at the 200-level or above.

5. Complete and successfully defend a dissertation. This requires 15 hours of MATH 730.

Procedures
1. Upon admission every student will be assigned an advisor. The advisor and student will, within the student's first calendar year, develop a tentative program for completing the Ph.D. This plan must be approved by the committee supervising the Ph.D. program in Mathematics (or College Mathematics Education for students in that program). Any changes in the student's program must be approved by the supervising committee.

   1. A student planning to do a dissertation in any other area of mathematics may, with approval of the advisor and the Mathematics Graduate Committee, replace either the Algebra or Topology examination with one in the student's specialty.

   2. The courses MATH 611, 612, 615, 616, 617, and 619 may not be included in the required 60 hours.

   3. These courses may be repeated for credit.

   4. During each year of graduate study, students must register for MATH 730.

   5. The student must maintain a grade point average of at least 3.0.

   6. Each student is required to perform a teaching assistantship or equivalent for a minimum of 20 hours per week during the academic year.

   7. Each student must pass two comprehensive examinations in each of the specified areas.

   8. Each student must do a dissertation in the student’s area of interest.

   9. Each student must fulfill all other requirements of the Ph.D. program in Mathematics (or College Mathematics Education).

   10. Each student must fulfill all other requirements of the University of Michigan.

   11. Each student must fulfill all other requirements of the Graduate College of the University of Michigan.
2. A student must take the comprehensive examinations as soon as possible. After completing a course sequence leading to a comprehensive examination, a student must take the corresponding comprehensive examination the next time it is offered. Each exam will be offered twice a year, in demand requires. If a student fails a comprehensive examination, the student must retake the examination the next time it is offered. A student who fails a comprehensive examination twice will be dismissed from the program at the end of the semester when the exam was taken.

A full-time student must take all the comprehensive examinations by the beginning of the student’s fourth year and must pass the examinations by the end of the fourth year. Part-time students must follow a similar schedule adapted to the number of classes they can take each year.

3. A full-time student will start taking reading courses from potential dissertation advisors as soon as the student has passed the comprehensive exam.

As soon as a student passes the comprehensive examination the next time it is offered. A student who fails a comprehensive examination twice will be dismissed from the program at the end of the semester when the exam was taken.

4. After completing a dissertation and all other requirements for the Ph.D., a student will present an open public defense of the proposed dissertation research and answer questions on the proposal. The dissertation committee will consist of the dissertation advisor, a second reader, at least one other faculty member, and a member from outside the department. This committee must be approved by the committee supervising the Ph.D. program. A student will not be allowed to take MATH 730 hours beyond the bachelor’s degree. Most students work half-time as research or teaching assistants and spend at least two years on campus. Assistantship experience is a significant part of the Ph.D. program. In addition to assistantships in mathematics education, other opportunities are available in mathematics and on faculty research grants and projects. Students are expected to satisfy several program requirements.

5. After completing a dissertation and all other requirements for the Ph.D., a student may be allowed to take MATH 730 hours in research and teaching, including general research and teaching, or professional experience. A student who fails a comprehensive examination twice will be dismissed from the program at the end of the semester when the exam was taken.

By the time a student has passed the comprehensive examinations in consultation with the advisor, the dissertation advisor becomes the student’s advisor.

1. Complete the following course work:
   - At least thirty approved graduate credit hours in mathematics and statistics, including general topology (MATH 522), linear algebra MATH 530, analysis (MATH 570 or 615), abstract algebra (MATH 651, 652, and 653), and algebra (MATH 658), and two advanced 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 learning
   - Research and design in mathematics education

3. Acquire competence in two research tools. This may be satisfied by demonstrating competence in computer usage, usually through 3 credit hours of MATH 688, and in educational research methods, usually through completion of EDDL 645 and in one of STAT 662, PSY 634, or EDDL 645.

4. Complete an internship (MATH 712) involving the teaching of an undergraduate course in mathematics or mathematics education at the 200-level or above.

5. Complete and successfully defend a dissertation in mathematics education requiring 15 credit hours of MATH 730.

Doctor of Philosophy in Mathematics Education
Advisors: See Mathematics Office, Room 3319, Everett Tower

The Doctor of Philosophy in Mathematics Education requires a minimum of 90 credit hours beyond the bachelor’s degree. Most students work half-time as research or teaching assistants and spend at least two years on campus. Assistantship experience is a significant part of the Ph.D. program. In addition to assistantships in mathematics education, other opportunities are available in mathematics and on faculty research grants and projects. Students are expected to satisfy several program requirements.

1. Complete the following course work:
   - At least thirty approved graduate credit hours in mathematics and statistics, including general topology (MATH 522), linear algebra MATH 530, analysis (MATH 570 or 615), abstract algebra (MATH 651, 652, and 653), and algebra (MATH 658), and two advanced 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 learning
   - Research and design in mathematics education

3. Acquire competence in two research tools. This may be satisfied by demonstrating competence in computer usage, usually through 3 credit hours of MATH 688, and in educational research methods, usually through completion of EDDL 645 and in one of STAT 662, PSY 634, or EDDL 645.

4. Complete an internship (MATH 712) involving the teaching of an undergraduate course in mathematics or mathematics education at the 200-level or above.

5. Complete and successfully defend a dissertation in mathematics education requiring 15 credit hours of MATH 730.

Procedures
1. Upon admission a student will, within the first year of enrollment, work with a two-member advisory committee to design a program for completing the Ph.D. At this time, any course requirements already satisfied through prior master’s level work will be determined by the advisory committee. After a tentative program has been designed, one of the advisory committee members will be assigned to serve as the student’s advisor for program matters leading up to the formulation of a dissertation proposal. Programs may be reviewed for revision and continuation throughout the program.

2. A program will include comprehensive examinations in consultation with the program advisor. The examinations in mathematics education will each be three-hour written examinations. The examination in research design may be a take-home examination written over a period of one week followed within two weeks of submission by a one-hour oral defense conducted with the dissertation advisor. Graduate faculty in mathematics education will give an open public presentation of the dissertation. Depending upon the nature of the proposed research, the student may be required to conduct a pilot study.

3. As soon as a student has passed the comprehensive examinations in consultation with the program advisor, the student will present an open public defense of the dissertation and answer questions on the proposal. The dissertation committee will consist of the dissertation advisor, a second reader, at least one other faculty member, and a member from outside the department. This committee must be approved by the committee supervising the Ph.D. program. The dissertation committee shall consist of the dissertation advisor, a second reader, at least one other faculty member, and a member from outside the department. This committee must be approved by the doctoral committee of the student’s department. At a time mutually convenient to the student and the dissertation committee, the student will give an open public presentation of the proposed dissertation research and answer questions on the proposal. The dissertation committee will consist of the dissertation advisor, a second reader, at least one other faculty member, and a member from outside the department. This committee must be approved by the doctoral committee of the student’s department. At a time mutually convenient to the student and the dissertation committee, the student will give an open public presentation of the proposed dissertation research and answer questions on the proposal.
Mathematics Courses (MATH)

Open to Upperclass 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.

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 undergraduates who have completed MATH 252 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 probability; 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. Prerequisites: MATH 571.

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. Prerequisites: MATH 590 and permission of instructor.

MATH 599 Independent Study in Mathematics

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 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 instructor.

MATH 606 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.

MATH 611 through 619 are primarily for 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 algebra, 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 plausibility of 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
experiments. Statistical thinking will be stressed. **Prerequisite:** Consent of advisor.

**MATH 615 Intermediate Analysis** 3 hrs.
This course will include the following topics: limits, continuity, differentiation, integration, applications. It will stress concepts rather than techniques. **Prerequisite:** Consent of advisor.

**MATH 616 Survey of Algebra** 3 hrs.
This course will discuss groups, rings, integral domains and fields, including such topics as homomorphisms and isomorphisms, subalgebras and ideals, with examples involving permutation groups, transformation groups, polynomial rings and finite fields. **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, Ellenberg-Mac Lane Spaces, killing homotopy, and obstruction theory. **Prerequisites:** MATH 621 and MATH 624.

**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 646 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.

**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.

**MATH 653 Studies in Teaching Secondary 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 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 research issues, 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
1–6 hrs.
May be repeated for credit.

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

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.
May be repeated for credit.

MATH 736 Language Study
1–10 hrs.
May be repeated for credit.

MATH 740 Teaching Seminar
1–6 hrs.
May be repeated for credit.

MATH 749 Independent Reading
1–6 hrs.
May be repeated for credit.

MATH 751 Seminar in Algebra
1–6 hrs.
May be repeated for credit.

MATH 752 Seminar in Number Theory
1–6 hrs.
May be repeated for credit.

MATH 753 Seminar in Analysis
1–6 hrs.
May be repeated for credit.

MATH 754 Seminar in Combinatorics
1–6 hrs.
May be repeated for credit.

MATH 755 Seminar in Probability
1–6 hrs.
May be repeated for credit.

MATH 756 Seminar in Topology
1–6 hrs.
May be repeated for credit.

MATH 757 Seminar in Geometry
1–6 hrs.
May be repeated for credit.

MATH 758 Seminar in Logic
1–6 hrs.
May be repeated for credit.

MATH 759 Seminar in Relativity
1–6 hrs.
May be repeated for credit.

MATH 760 Seminar in Applied Mathematics
1–6 hrs.
May be repeated for credit.

MATH 761 Seminar in Numerical Analysis
1–6 hrs.
May be repeated for credit.

MATH 762 Seminar in Differential Equations
1–6 hrs.
May be repeated for credit.

MATH 763 Seminar in Differential Geometry
1–6 hrs.
May be repeated for credit.

MATH 764 Seminar in Algebraic Geometry
1–6 hrs.
May be repeated for credit.

MATH 765 Seminar in Commutative Algebra
1–6 hrs.
May be repeated for credit.

MATH 766 Seminar in Representation Theory
1–6 hrs.
May be repeated for credit.

MATH 767 Seminar in Logic
1–6 hrs.
May be repeated for credit.

MATH 768 Seminar in Combinatorics
1–6 hrs.
May be repeated for credit.

MATH 769 Seminar in Analysis
1–6 hrs.
May be repeated for credit.

MATH 770 Seminar in Applied Mathematics
1–6 hrs.
May be repeated for credit.

MATH 771 Seminar in Numerical Analysis
1–6 hrs.
May be repeated for credit.

MATH 772 Seminar in Differential Equations
1–6 hrs.
May be repeated for credit.

MATH 773 Seminar in Differential Geometry
1–6 hrs.
May be repeated for credit.

MATH 774 Seminar in Algebraic Geometry
1–6 hrs.
May be repeated for credit.

MATH 775 Seminar in Commutative Algebra
1–6 hrs.
May be repeated for credit.

MATH 776 Seminar in Representation Theory
1–6 hrs.
May be repeated for credit.

MATH 777 Seminar in Logic
1–6 hrs.
May be repeated for credit.

MATH 778 Seminar in Combinatorics
1–6 hrs.
May be repeated for credit.

MATH 779 Seminar in Analysis
1–6 hrs.
May be repeated for credit.

MATH 780 Seminar in Applied Mathematics
1–6 hrs.
May be repeated for credit.

MATH 781 Seminar in Numerical Analysis
1–6 hrs.
May be repeated for credit.

MATH 782 Seminar in Differential Equations
1–6 hrs.
May be repeated for credit.

MATH 783 Seminar in Differential Geometry
1–6 hrs.
May be repeated for credit.

MATH 784 Seminar in Algebraic Geometry
1–6 hrs.
May be repeated for credit.

MATH 785 Seminar in Commutative Algebra
1–6 hrs.
May be repeated for credit.

MATH 786 Seminar in Representation Theory
1–6 hrs.
May be repeated for credit.

MATH 787 Seminar in Logic
1–6 hrs.
May be repeated for credit.

MATH 788 Seminar in Combinatorics
1–6 hrs.
May be repeated for credit.

MATH 789 Seminar in Analysis
1–6 hrs.
May be repeated for credit.

MATH 790 Seminar in Applied Mathematics
1–6 hrs.
May be repeated for credit.

MATH 791 Seminar in Numerical Analysis
1–6 hrs.
May be repeated for credit.

MATH 792 Seminar in Differential Equations
1–6 hrs.
May be repeated for credit.

MATH 793 Seminar in Differential Geometry
1–6 hrs.
May be repeated for credit.

MATH 794 Seminar in Algebraic Geometry
1–6 hrs.
May be repeated for credit.

MATH 795 Seminar in Commutative Algebra
1–6 hrs.
May be repeated for credit.

MATH 796 Seminar in Representation Theory
1–6 hrs.
May be repeated for credit.

MATH 797 Seminar in Logic
1–6 hrs.
May be repeated for credit.

MATH 798 Seminar in Combinatorics
1–6 hrs.
May be repeated for credit.

MATH 799 Seminar in Analysis
1–6 hrs.
May be repeated for credit.

MATH 800 Seminar in Applied Mathematics
1–6 hrs.
May be repeated for credit.

MATH 801 Seminar in Numerical Analysis
1–6 hrs.
May be repeated for credit.

MATH 802 Seminar in Differential Equations
1–6 hrs.
May be repeated for credit.

MATH 803 Seminar in Differential Geometry
1–6 hrs.
May be repeated for credit.

MATH 804 Seminar in Algebraic Geometry
1–6 hrs.
May be repeated for credit.

MATH 805 Seminar in Commutative Algebra
1–6 hrs.
May be repeated for credit.

MATH 806 Seminar in Representation Theory
1–6 hrs.
May be repeated for credit.

MATH 807 Seminar in Logic
1–6 hrs.
May be repeated for credit.

MATH 808 Seminar in Combinatorics
1–6 hrs.
May be repeated for credit.

MEDIEVAL INSTITUTE
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David Kutzko
Molly Lynde-Recchia
James Palmiressa
Pablo Pastrana-Perez
Adam Sabra
Eve Salisbury
Jana Schulman
Thomas Seiler
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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Stephen Jefferson, Adjunct
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"),
2. a minimum of 36 credit hours (including 6 hours of the Thesis, MDVL 700),
3. a course in the history of modern philosophy,
4. a course in symbolic logic,
5. a minimum of 24 credit hours of 500- or 600-level courses in the Department of Philosophy,
6. Demonstrated reading proficiency in French, German, Italian, or Spanish.
7. 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.
PHIL 512 Aesthetics
3 hrs.
An investigation of the many philosophical issues which arise from our 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 520 Philosophical Applications of Symbolic Logic
3 hrs.
This course is designed to explicate graduate students to the theories of symbolic logic, tense logic, relational logic, relevance logic, and counterfactuals. Additional, the course will address salient issues in the symbolic 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
3 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 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 of philosophical reflection and biological science are included in an examination of the relation and purpose of the health sciences. Topics to be included: the role of the health sciences, 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 and/or biological sciences. Prerequisite: PHIL 300 or PHIL 301 will be required. May be repeated for credit, with advisor's approval, when topics vary.

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 vary from year to year.

PHIL 610 Seminar in the History of Philosophy
2-4 hrs.
A closed 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 relation 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 philosophy of modal logic, tense logic, free logic, deontic logic, epistemic logic, paraconsistent 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 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
Dr. Paul Pancella, Chair
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Paul Pancella
Lisa Paulius
Robert Poel
Alvin Rosenthal
David Schuster
Robert Shamu
John Tanis
Aletta Ziemsman-Thomas

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—astroonomy, 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 recommended 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
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
- 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 (e.g., the acquisition, 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) or 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 a student should become a doctoral candidate.

After successful completion of the Qualifying Examination, the student will, upon consultation 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, three 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 Undergraduate 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 598 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 student-faculty advisor team 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, resonance 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,
and scattering. **Prerequisite:** PHYS 623 or consent of instructor.

**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. **Prerequisites:** PHYS 622 and 624 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**

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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 3355, 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 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; or 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; either PSCI 662, Political Philosophy I or PSCI 663, Political Philosophy II; or PSCI 664, The Nature of Political Inquiry and Analysis; PSCI 664, Teaching Political Science; or 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; or 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; either PSCI 662, Political Philosophy I or PSCI 663, Political Philosophy II; or PSCI 664, The Nature of Political Inquiry and Analysis; PSCI 664, Teaching Political Science; or PSCI 696, Research and Professional Skills.
3. PSCI 700, Master's Thesis (6 hours).
4. Pass written and oral field examinations on the student's political science program.

**Master of Development Administration**

**MDA Director:**
Lawrence Ziring,
Room 3355, 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 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 administration 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 two years. The basic requirements are as follows:

1. Prerequisites (non-credit), only for those candidates without the requested academic or practical background: PSCI 330, Introduction to Public Administration; and ECON 201 or 202, Principles of Economics, or other courses as determined by the MDA Director.

2. Required Core Courses: Six courses (18 hours): PSCI 532, Administration in Developing Countries; PSCI 633, Political Environment of Public Administration; PSCI 636, Seminar: Development Administration; PSCI 638, Seminar: Implementing Development Policy; PADM 627, Human Resources Administration; and PADM 639, Organization Theory and Behavior.

3. Tools or Skills. Three courses (9 hours): PADM 612, Principles of Public Budgeting, and two other courses: PSCI 644, Seminar: Comparative Strategies of Development; PADM 603, Research Methods; PADM 615, State and Local Government Finance; PADM 607, Data Analysis for Administrators.

4. International and Comparative Studies. One course (3 hours): PSCI 553, United Nations; PSCI 555, International Law; PSCI 645, National Political Systems and International Politics; PSCI 647, Comparative Constitutionalism; or PSCI 650, Third World Problems.

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 is approved 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 693, Power and Leadership in Organizational Communication; or ELDL 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 Service 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 588/688 Economic Development; or ECON 600, Applied Economics for Management.

6. Approved Elective (3 hours). With the approval of the MDA Director choose one course from the above.


Doctor of Philosophy in Political Science

Director of Graduate Studies: John A. Clark, Room 3356, Friedemann Hall

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 three research 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
Reference Forms) and submit a brief essay concerning their academic and professional objectives. All application materials for admission should be submitted by the following dates: July 1 for Fall Semester, November 1 for Winter Semester, March 1 for Spring Session, and May 1 for Summer Session.

Program Requirements

Students should meet with the Director of Graduate Studies before registering for classes their first semester.

The doctorate requires a minimum of 90 credit hours of work beyond the baccalaureate. After successfully completing 30 hours in the program and passing the preliminary exam, students will be eligible for a Master of Arts degree. The basic requirements 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 662, Political Philosophy I; PSCI 663, Political Philosophy II; B.) Scope and Methods: PSCI 664, The Nature of Political Inquiry and Analysis; PSCI 661, 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 663) 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, subfield faculty, and the 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, and 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 power by public officials charged with regulating significant aspects of the social and economic life of the nation. Special attention is paid to governmental regulations 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 531 Administration in Local and Regional Governments 3 hrs.
The administrative organization, structure, procedures, and functions of local units of government are analyzed.

PSCI 532 Administration in Developing Countries 3 hrs.
This course compares public administration systems in a development context. It analyzes the role of the administrator in developing countries, notably the administrator’s varied responsibilities as a career public official, and as an agent of change. The character of the development administrator as both a generalist and specialist is explored.

PSCI 534 Administrative Theory 3 hrs.
A study of descriptive theories of organizational and administrative behavior relevant to government administrative agencies. Theories of complex organization, decisional theories, and systems theories will be analyzed.

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. 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 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; 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.
states. The relationship between private functions in the U.S. and in the American countries. Selected substantive issues will be selected to suit the needs of individual students. Prerequisite: Approval of department chairperson and instructor.

Open to Graduate Students Only

PSCI 600 Seminar in American Politics
3 hrs.
Research and study in selected topics in American politics. May be repeated for credit when topics vary.

PSCI 601 Foundations of American Politics I: Institutions and Policy
3 hrs.
A systematic examination of the constitutional foundations of American government, the primary institutions of government at the national level—Congress, the presidency, the courts, and the bureaucracy—and the policy making processes from an institutional perspective.

PSCI 602 Foundations of American Politics II: Representation and Participation
3 hrs.
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.

PSCI 603 Seminar in American Political Behavior
3 hrs.
The course will review current literature in the area of political behavior and psychology. Special attention will be paid to controversies in voting behavior and the meaning and significance of vital concepts such as partisanship, ideologically, issue voting, belief systems, political sophistication, affective reactions to politics, and the dynamics of citizen participation.

PSCI 604 American National Politics and Public Policy
3 hrs.
The 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.

PSCI 605 Comparative Public Policy
3 hrs.
The course focuses on the development of policy over time and across state and national boundaries. It deals with how and why policies emerge in particular forms in different countries. Selected substantive issues will be examined comparatively in greater detail.

PSCI 606 Political Economy
3 hrs.
An examination of two models, the free market mechanism and national industrial policy, that explains how the political-economic system functions in the U.S. and in the American states. 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.

PSCI 607 Resources, Environment and Technology
3 hrs.
This seminar 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 choices as they create for policy makers at all levels.

PSCI 630 Seminar: Public Administration
3 hrs.
Study of selected topics in public administration. May be repeated for credit when topics vary.

PSCI 631 The Foundations of Public Administration
3 hrs.
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 legal significance of accountability in the public service.

PSCI 632 Public Budgeting in Developing Countries
3 hrs.
Consideration of the theoretical and practical aspects of governmental budgeting and financial management in developing countries. Emphasis is placed on developing planning, management of international aid for development projects, budgeting for state-owned enterprises, and basic tools for budget analysis.

PSCI 633 The Political Environment of Public Administration
3 hrs.
The course examines the interaction between the administrative agency and the social, economic, and political forces which constitute its external environment. Emphasizes the sources of bureaucratic power, the nature of administrative and political elites, and the strategies which agencies pursue in seeking to survive and expand their programs. Explores the impact of the political system on administrative decision-making and agency responsiveness.

PSCI 634 Seminar: Development Administration
3 hrs.
The seminar is devoted to research related to administration in developing areas. Topics may range from general subjects dealing with various aspects of bureaucratic power in one or more countries to narrow problems at the level of a ministry or sub-ministry. The research experience and final papers will be shared with the other students in the seminar.

PSCI 635 Organization Development
3 hrs.
Organization Development (OD) is a planned, organization-wide attempt directed from the top to increase organizational effectiveness by encouraging certain behavior. Building on behavioral and humanistic theories of organizations, OD is concerned with human relations in the work group. The strategy is to make the organization work more effectively through having individuals become aware of what motivates others and through reduced tensions in the workplace.

PSCI 636 Seminar: Implementing Development Policy
3 hrs.
As a capstone to the MDA program, this research seminar calls upon the student to examine the problems encountered in the implementation of a particular development policy. Attention will be given to socio-economic, political and cultural impediments, and the strategies that are judged appropriate in circumstances where resistance to change is significant. Permission of the MDA Director required to enroll.

PSCI 637 Peace Corps Field Paper
6 hrs.
As a capstone to the MDA program for students taking the Peace Corps Option, this course calls upon the student to analyze a particular development policy, program or project that has been underway for at least a significant period of time in a developing country. A typical field paper might address the country context, the program plan, expected impacts, organization, arrangement, monitoring and evaluation systems, experiences with implementation, the evolving strategy, program results, and lessons to be learned. This course is restricted to students taking the MDA Peace Corps Option.

PSCI 640 Seminar in Comparative Politics
3 hrs.
Research and study in selected topics in comparative politics. Topics will usually be thematic but may also encompass a regional or country study. In all cases significant issues in the study of the field will be stressed. May be repeated for credit when topics vary. Prerequisite: PSCI 641.

PSCI 641 Comparative Politics I: Theories of Comparative Politics
3 hrs.
An overview course for master's and Ph.D. students on the major theoretical and methodological approaches to the study of comparative politics and political development. Major topics may include major regime types, state-society relations, political economy, political development and change (including revolutions and reform), the state of the field, and other key topics in the literature.

PSCI 642 Comparative Politics II: Institutional and Contextual Issues
3 hrs.
A study of the state and its institutions and the various issues at the subnational and international level that impinge on the power of the state. Issues may include nationalism, regionalism, and social movements, international political economy, international regimes and organizations, resource availability and usage, and international security.

PSCI 643 Relations Between Subnational, National, and International Systems
3 hrs.
The course explores interdependencies between subnational, national, and international systems. Special consideration is given to the influences and demands of the international system on national and subnational actors and to the strategies that are developed and less developed areas of the world.

PSCI 644 Seminar: Comparative Strategies of Development
3 hrs.
The course focuses on the developing areas and uses an interdisciplinary approach. The strategies of development are examined in selected countries or typically on a cross-national basis.
This course examines the constitutional foundations of representative political systems and evaluates the impact of basic constitutional provisions on contemporary governance practices.

PSCI 647 Comparative Constitutionalism 3 hrs.
Constitutions are fundamental charters of government which define the extent and manner in which sovereign power is exercised. This course examines the constitutional provisions 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 link between rural development, agriculture, food security, health, population pressures, and resource availability are analyzed. The challenges of designing and/or 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 669 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 690 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 690 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.
PSYCHOLOGY

Dr. R. Wayne Fuqua, Chair
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Richard W. Malott
Jack L. Michael
Amy E. Naugle
Alan D. Poling
C. Richard Spates
Lester W. Wright, Jr.

Graduate Training Committee Chairperson:
Lisa E. Baker,
3700 Wood Hall
Linda Rowen, Program Secretary
3700 Wood Hall

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 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 “Humane Care and Use of Animals Policy and Procedures,” published by the Western Michigan University; and “Guide for the Care and Use of Laboratory Animals,” published by the National Research Council. The Department expects students to be familiar with the content of these documents and to abide by the principles contained therein as they apply to academic endeavors, professional service, and research activities conducted in partial fulfillment of degree requirements as well as professional service and scholarly or research activities which are not directly awarded academic credit but are completed as part of program requirements of the Department of Psychology at Western Michigan University.

The members of the department faculty conduct an annual review of student progress and recommend to The Graduate College advancement from program applicant to candidacy for a degree within each program. This evaluation includes a review of academic performance, professional responsibility, and adherence to the accepted ethical and professional guidelines of the discipline and the profession as published by the American Psychological Association. Failure to meet these standards and the ethical principles of the American Psychological Association and the State of Michigan or failure to abide by “A Student Guide to Academic Dishonesty” and “University Policy on Sexual Harassment and Sexism” published by Western Michigan University may lead to disciplinary action and/or dismissal from the program. Disciplinary reviews, including due process hearing for the student, are conducted by the Department’s Graduate Training Committee, and a summary of the findings and a recommendation for action are sent to the Dean of The Graduate College.

The Department of Psychology offers financial assistance through Department assistantships and program fellowships. Additional information concerning financial aid 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.

If 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, 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

Adviser:
Jim Carr,
Behavior Analysis Program Chair
3700 Wood Hall

This program prepares students for doctoral study or for work in applied settings. The Behavior Analysis program requires thirty-six credit hours, including:

1. Principles of Learning and Motivation (3 hrs.)
2. Theoretical Issues in Behavior Analysis (3 hrs.)
3. Professional Issues (1 hr.)
4. Behavioral Approaches to Individual and Systems Management (3 hrs.)
5. Cognates (0–3 hrs.)
6. Research Methods (6 hrs.)
7. Master’s Thesis or Master’s Project (6 hrs.)
8. Behavioral Analysis: Theory and Application (9–12 hrs.)
9. Professional Experience (0–9 hrs.)

BEHAVIORAL ANALYSIS, SPECIALIZATION TRACK: DEVELOPMENTAL DISABILITIES

The thirty-six hours of the general behavior analysis curriculum must include the following:

1. PSY 570 Introduction to Mental Retardation (3 hrs.)
2. PSY 599 Practicum (3 hrs.)
3. PSY 651 Systems Analysis (3 hrs.)
4. PSY 665 Behavioral Approaches to Treatment (3 hrs.)
5. PSY 668 Analysis and Treatment of Developmental Disabilities (3 hrs.)
6. PSY 697 Behavior Analysis Master’s Project or PSY 700 Master’s Thesis (6 hrs.)

Note: The project or the thesis and the practicum must be in areas deemed by the student’s M.A. Committee to be relevant to developmental disabilities.

Limited license advisory note:
Behavior-analysis students wishing to qualify for a Limited License to Practice as a psychologist in the State of Michigan are advised that the General Rules of the Board of Psychology of Michigan’s Department of Licensing and Regulation lists the following requirements for a Rule 7 limited license at the M.A. Level:

1. one course in assessment
2. one course in treatment
3. a 500-hour practicum under supervision of a licensed psychologist
4. 2,000 hours of supervised, post-M.A. experience.

Behavior-analysis students may need to take two or more extra courses to meet these additional requirements. Students interested in qualifying for a limited license are encouraged to consult the appropriate licensing law and the Board of Psychology for further details.

INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY

Adviser:
Alyce Dickinson,
Industrial/Organizational Psychology Program Chair
3700 Wood Hall

The master’s program in Industrial/Organizational Psychology 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/Organization Psychology Core (9 hrs.)
2. Behavior Principles (3 hrs.)
3. Behavior Systems Analysis (3 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, while 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: Ed Ruth 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 course work 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 Admissions 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 (6 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.)

EXPERIMENTAL ANALYSIS OF BEHAVIOR (84 hrs.)

Advisor: Jim Carr, 3700 Wood Hall

1. Core Courses (28 hrs.)
2. Theoretical Issues in Behavior Analysis (6 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 (98 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 (98 hrs.)

Advisor: Richard Sputas, 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 apprentice research 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 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 the 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 tests, 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 Department advisor.

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 with the instructor to discuss and troubleshoot the projects. Prerequisite: Permission of instructor.

PSY 560 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 speciality. In addition to coverage of contemporary professional activity engaged in by specialists in this field, like practice and research, it addresses career development issues such as selecting graduate schools, training models used by universities and private schools, internship training, licensure, and the types of degrees granted. It is a suitable course 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, Jappnese, Chinese, Arabic, and African cultures. This course is specifically not a course in American ethnicity. It will instead explore a variety of world cultures in search of an understanding of how human behavior is interpreted according to cultural tenets that are unique to a region's history and evolution. The course will also examine the importance, especially in contemporary Western Society, of professional psychologists working with more than casual familiarity with predominant indigenous psychologies. The plight of persons undergoing increasingly forced and voluntary migration to today's world will provide a context for exploring the need for such understanding. The course will prepare the student to read and interpret the psychological literature from several cultures, to conduct library research addressing the influence of culture on the interpretation of human behavior, and to appreciate the importance of cultural considerations in the wide variety of psychological specialties. Prerequisites: Psychology major for undergraduates; instructor's permission for graduate students.

PSY 595 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. Prerequisite: Permission of instructor.

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 50 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 compare and contrast the psychoanalytical and psychometric considerations with behavioral assessment concerns, examine the latest version of the diagnostic and statistical manual of the DSM and behavioral assessment, and interpret 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. Populations most suitably treated by the various systems will also be considered. 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 while maintaining a theoretical preference.
This course examines conditioning and 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 and 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, along 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 is attempting 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 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. **Prerequisite:** Graduate student in psychology or permission of the instructor.

**PSY 634 Correlation and Regression Analysis** 3 hrs.

An advanced course covering simple correlation methods, inferential methods for one or more correlations (including meta-analysis), interpretation 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, part and partial correlation, analysis of variance of regression for simple and complex models, model comparison procedures, methods for handling data (including polynomial regression and logistic regression models) and regression diagnostics. **Prerequisite:** PSY 634 or some other course covering the analysis of variance.

**PSY 636 Experimental Design and Analysis** 3 hrs.

Advanced methods for designing, analyzing, and interpreting complex between-subjects and repeated-measures experiments. Topics include power analysis for planning experiments, and inferential analysis methods including ANOVA, multiple comparison procedures, simple and multiple regression, interaction contrasts tests, simultaneous confidence intervals, nonparametric methods, monotone alternative tests, and analysis of covariance. For students interested in these topics, advanced statistical methods recently developed 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 pre-test-post-test 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 process 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 preselection andplacement 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 to examine human behavior in organizations 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 work place. 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 work place. 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. Prerequisite: PSY 648.

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 issues, and practical constraints on operation of such systems. Techniques of system analysis and synthesis are covered as well as consultation methods employed to implement or facilitate operation of new schools 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 school 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 knowledge 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 anxious 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 specific disorder will be classified. The course is conducted in seminar fashion and student participation is expected and encouraged. Prerequisites: 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 is 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 668 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. The 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 basic 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. The 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 Educational 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 699.

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.

PSY 699 Clinical Practicum in Psychology I 3 hrs. This is the entry-level practicum for students in the Clinical Psychology program. Students enrolled in this course will gain a range of therapy and assessment experiences in the Psychology Clinic under the supervision of licensed Clinical faculty. Written permission must be obtained from the Department Clinical Committee. Prerequisites: PSY 664 and PSY 688.

PSY 699 Clinical Practicum in Psychology II 3 hrs. Experience in a broad range of professional functions included in the practice of psychology under the supervision of a licensed psychologist. The experience includes, but is not limited to, psychotherapy, diagnostic testing and consultation. The experience involves not less than 500 clock hours (15 weeks) in an organized health care setting. Written permission must be obtained from the Department Clinical Committee. Prerequisites: PSY 651 and PSY 698.

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

PSY 700 Master's Thesis 6 hrs.

PSY 710 Independent Research 2-6 hrs.

PSY 712 Professional Field Experience 2-12 hrs.

PSY 720 Specialist Project 6 hrs.

PSY 725 Doctoral Research Seminar 2-6 hrs.

PSY 730 Doctoral Dissertation 1-15 hrs.

PSY 732 Doctoral Clinical Internship 1-4 hrs.

PSY 735 Graduate Research 2-10 hrs.
The Core Program includes course work in the theoretical foundation of public management, critical areas of administrative responsibility, and research methods. Students select one course from the listed option(s) in each of the following core areas.

Foundations (3 hours): PADM 600 Foundations of Public Administration
Political Environment (3 hours): PADM 602 The Political Environment of Public Administration
Political Economy (3 hours): PADM 604 Political Economy or ECON 601 Basic Economic Analysis.
Statistics and Quantitative Methods (3 hours): PADM 607 Data Analysis for Administrators.
Organization Behavior and Change (3 hours): PADM 608 Organization Theory and Behavior; MGMT 655 Organization Theory; MGMT 650 Managing Change; PSCI 534 Administration Theory; or SOC 673 Formal Organization.

Area of Concentration (21 hours)
Each Area of Concentration includes requirements in budgeting and financial management, human resources, law, project paper, and 9-12 hours of electives. Options for the Area of Concentration in Health Care Administration, human resources administration, law, nonprofit leadership and administration, and public management. In the event that a student's professional experience is not adequately addressed by one of the five areas of concentration, he or she may, with her advisor's assistance and approval, design his or her concentration to include a wide array of courses that are offered by the School of Public Affairs and Administration or by other departments in the University.

Professional Field Experience/Internship (3 hours)
For 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 student's 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 688 Health Law Administration; FCL 689 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 Analyses.

AREA V: MANAGEMENT ISSUES IN THE DELIVERY OF HEALTH CARE SERVICES: PADM 655 The Administration of Health Services; PADM 658 Advanced 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.

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 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.


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 586) and the Area II course (PADM 644) are two of the remaining three-hour 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 degree requirements in the MPA core course. 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, or PADM 644 Human Resources for Nonprofit Organizations.

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.

NONPROFIT LEADERSHIP AND ADMINISTRATION CONCENTRATION

The 21 credit hour Nonprofit Leadership and Administration (NALA) 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, beginning with those who graduate in the fall of 2001.

AREA I, LEGAL DIMENSIONS: FCL 681 Legal and Ethical Issues for Nonprofit Organization.


AREA III, HUMAN RESOURCES: PADM 644 Human Resources for Nonprofit Organizations.

AREA IV, ELLING OFIVES: 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; CCM 685 Public Relations for Managers; EDDL 611 Evaluation for Nonprofit Organizations; MGMT 626 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.


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, and V, and three courses 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; GEOG 556 Studies in Urban and Regional Planning; GEOG 557 Environmental Impact Assessment; GEOG 569 International Geographic Systems; GEOG 669 Advanced GIS Seminar; PSCI 643 Relations Between Subnational, National, and International Systems. Other courses by permission of MPA Advisor.


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.coleylaw.edu/online) 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 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 management or delivery of health care services.

Program Requirements

Each student will satisfactorily complete a program consisting of six three-credit hour courses (18 hours). Students select one course from each of Areas I, II, III, 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 Seminar: Current Issues in Health Services Management and Delivery
MXTG 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 Moral and Philosophical Foundations of Hegemonic 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 MFA 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 Relationships, Finance, and Administrative Skills. Within the Core, the student is required to take four courses (10 hrs); 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.)
PADM 643 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 585 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 in 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 667 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 at least 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 volunteerism, 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 in 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 area under the guidance of a faculty member. Planning and analysis for investigation is the joint responsibility of the candidate and supervising faculty. Approval is contingent upon the merits of the proposal. Consent of 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.

PADM 599 Data Analysis for Administrators
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 setting.

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 on 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 and presentation of applied research questions; design and utilization of various research methods and techniques; the essential distinctions between qualitative and quantitative methodology; data 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 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 performance, cost center 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 public administrators in managing American local government under conditions of substantial physical, economic, social, and political change. Students will review current societal and cultural trends affecting local communities and then
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 technical methods of 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 organization, 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 practical 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 leadership, human behaviors, and human resources systems in public organizations. The course addresses leadership and human behaviors within systems and organizations 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 and issue trends, as well as 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 nature, size and scope of government has heightened interest in evaluating the impact of governmental activities. This course will focus on how to measure the effectiveness of agency 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 the candidate is 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.

PADM 684 Management of Public Financial Resources 3 hrs. 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's legislation under consideration, to assess the probable effect of proposed legislation upon their organization, 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 690 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 social sciences data, enter it 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 methods to conduct 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, the psychological and time management demands of the dissertation, 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 Graduate 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
Advisors: 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. 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,

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, 690) and material from the appropriate science area selected by the student and his/her dissertation advisor. 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 comprehensiveness, 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.
This course will complement SCI 615 in teaching science, new 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 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.

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 no 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 issues as well as the relevance of the history and philosophy of those concerns. The course will address two themes or "commonplaces" of education in a science education context—the social milieu and the curriculum.

SCI 616 Science Education: Models of Learning and Teaching 3 hrs.

This course will complement SCI 615 in addressing the remaining themes or "commonplaces" of education in a science education context, namely learning and teaching. The major models of learning and approaches to teaching which are compatible with those models will be examined, including their relevance to classroom practice.


OPTION II: APPLIED MASTER’S

This applied option of the Master of Arts in Sociology is a 40-42 hour professional degree program designed to prepare students for non-academic careers in governmental agencies, businesses, non-profit organizations, and/or professional positions. This applied option is possible, but may be required to make up deficiencies as a condition of admission.

Admission Requirements

The admission requirements for this program are the same as for Option I above.

Program Requirements

1. Complete the 40-42 credit hours:
   - Twelve hours in disciplinary core courses
   - Twelve hours of research methods and statistics
   - An additional nine hours of coursework beyond the core
   - Maintain a grade point average of 3.0 or better in all course work
   - Complete a minimum of six hours of cognate courses from outside the Department of Sociology
   - Demonstrate competence in two research methods courses
   - Complete 15 credit hours of SOC 730, 682, 687, or 688

2. Complete a six-hour minimum of course work in disciplinary core courses, selected from a foreign language, English, research methods, and statistics.

3. Complete a minimum of six hours of course work in disciplinary core courses, selected from a foreign language, English, research methods, and statistics.

4. Complete a minimum of six hours of course work in disciplinary core courses, selected from a foreign language, English, research methods, and statistics.

5. Complete 12 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 government 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 illness, societal roles, race relations, group dynamics, deviant behavior, comparative institutions, and numerous other topics. Graduate students frequently participate in these studies.

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 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.

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.
2. Complete a minimum of six hours of research methods courses selected from SOC 525, 690, 681, 682, 687, or 688.
3. Complete five 300-level courses in the Department of Sociology.
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 government 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 illness, societal roles, race relations, group dynamics, deviant behavior, comparative institutions, and numerous other topics. Graduate students frequently participate in these studies.

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 the permission of instructor. Prerequisites must include SOC 200 or its equivalent in another related social science discipline and two 300- or 400-level courses (i.e. one of each; or two of one). Exemptions for these may be granted in rare cases with the written approval of the director of the Undergraduate Studies Program.

SOC 500 Computer Applications in Social Research

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 individual assignments 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

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 care delivery system, the nature of help-seeking for mental illness, and community care and public policy for mental illness. Prerequisite: SOC 320.

SOC 520 Studies in Social Psychology: Variable Topics

A course designed to meet the needs of graduate students with particular interests in the field of social psychology. Prerequisite: SOC 320.

SOC 521 Social Psychology of Emotions

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 defining situationally appropriate emotional feeling and expression, the management and study of emotions, and 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

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 group conflict, and classic 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

A course designed to meet the needs of graduate students with particular interests in the field of social psychology. Prerequisite: SOC 320 or graduate standing.

Sociology Manual

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 biological, social, and psychological aspects of late maturity and old age. 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, explains 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. Current theory and research on violence will be reviewed and various prevention and control policies will be discussed. 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 563 Gender and Justice 3 hrs. This course provided 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. Prerequisites: 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 598 Directed Individual Study 4 hrs. A program of independent study (reading or research) to provide the unusually qualified sociology student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the department. The topic for plan comprising the subject matter, text(s), and sources must be approved by the instructor. Approval is contingent upon the merit of the proposal. Maximum of four hours may be applied toward master's degree. Enrollment beyond the first semester may be either for the same topic or for a new topic. Prerequisite: Consent of instructor and the department chairperson.

Open to Graduate Students Only

SOC 600 Proseminar in Sociology 3 hrs. There are three major goals for this course. First, it will expose new graduate students to the full range of departmental faculty, their research, and their teaching interests. Second, it will assess the current state of the discipline, focusing on substantive, methodological, and/or theoretical issues. Third, it will begin the professional socialization of the student with respect to departmental policies, procedures, and requirements. Prerequisite: SOC 602 Classical Sociological Theory 3 hrs. An intensive and critical study of major sociological theories developed in the 19th and early 20th centuries. The course will examine the logical structure of classical theories, patterns of influence among theorists, and the central issues raised in their work. Theories will be examined with respect to both historical context and their influence on contemporary sociology.

SOC 603 Contemporary Theory: Culture, Social Action, and Society 3 hrs. An intensive and critical study of contemporary sociological theories. The course will focus on the problem of how the society that human beings make—and live through their social action—is structured by historically created cultural systems. Both modernist and post-modernist critiques of culture will be examined. Prerequisite: SOC 602.

SOC 604 Contemporary Theory: Agency, Interaction, and Structure 3 hrs. An intensive study of contemporary sociological and social psychological theories that address and critique the classical dualism between individual and social structure. The course will focus on theories of human interaction, and will attempt to show connections between micro and macro theories and/or level of analysis. Both foundational theories of interaction and integrative theories of agency and structure will be examined. Prerequisite: SOC 602.

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, ethnmethodology, 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 and interpretation of data using SPSS also will be covered. Prerequisite: SOC 606.

SOC 617 Ethnologies 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 disfavor 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...
consequences for the research process. Students will have experience with the analysis of textual or documentary information, the design and administration of focus groups, and the construction of a sample survey. 

Prerequisite: SOC 606.

SOC 621 Logic and Analysis of Social Research II 3 hrs. 
This course offers an in-depth coverage of descriptive 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.

SOC 624 College Teaching Practicum in Sociology 3 hrs. 
A practicum in the teaching of sociology in college. Students will attend assigned lectures and seminars, prepare a syllabus for a course in sociology, and deliver at least two supervised lectures to a sociology class. 

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 discussion. 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 635 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 bureaucracy. 

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.

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, trend analysis, 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 656 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.

SOC 660 Theoretical Issues in Criminology 3 hrs. 
This course provides a basic overview of 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 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.

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 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.

SOC 666 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 belief 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
adjustment through individual and community action. Prerequisite: SOC 200 or equivalent.

SOC 675 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 relationship between theory and research, 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 688 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.

STATISTICS 105

STATISTICS
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The Department of Statistics offers graduate programs leading to the Master of Science in Biostatistics, the Master of Science in Statistics, and the Doctor of Philosophy in Statistics.

Financial Assistance
The Department of Statistics 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 Statistics Department Office, 3306 Everett Tower.

Dr. Joshua Naranjo, Graduate Committee Chair, 5507 Everett Tower, 387-4548. E-mail: naranjo@stat.wmich.edu

Master of Science in Biostatistics

Advisor:
Dr. Michael Stoline
See Statistics Department Office, Room 3304, Everett Tower

The objective of this program, which leads to a Master of Science in Biostatistics, is to prepare students for professional careers in biostatistics, primarily in pharmaceutical-related industries and in medical or health-related research facilities. This program is administered through the Department of Statistics, with the assistance of faculty in the Department of Biological Sciences. The program requirements contain an equivalent of thirty-one credit hours of graduate work, including a five credit hour internship experience.

Admission Requirements
For admission to this program a student should have completed successfully an undergraduate program with a major in mathematics or statistics and a minor in biological sciences, or a major in biological sciences and a minor in mathematics or statistics, or the equivalent. Most specifically, the undergraduate program should have included the following courses (numbers refer to WMU courses that would be acceptable):

1. Biological Sciences:
   - Courses in at least three of the following four areas—ecology (BIOS 301), genetics (BIOS 250); physiology (BIOS 350 or BIOS 319); microbiology (BIOS 312); or sufficient undergraduate course work so that three 500-level biological sciences courses can be taken in the graduate program.

2. Mathematics and Computer Science:
   - Multivariate calculus (MATH 272); differential equations (MATH 274); elementary linear algebra (MATH 230); probability (STAT 362 or 560); introduction to FORTRAN programming (CS 306).

3. Chemistry:
   - Organic chemistry (CHEM 360 or 365), biochemistry (CHEM 365).

4. Physics:
   - General physics (PHYS 113 and 115).
1. Biological Sciences Component (6 credit hours): Two approved 500-level biological sciences courses. These courses are chosen to fit a student's individual interest.
2. Elective Component (3 credit hours): An approved 500-600 level course from Statistics or Biological Sciences.
3. Internship Component (5 credit hours): A professional field experience internship with a health-related industry. Normally this is taken as STAT 712.
4. Final Examination: Before beginning the internship, each program student must successfully pass a written comprehensive examination covering the material of STAT 562, 660, 662 and 664.
5. 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. Joseph McKean
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 in high schools.

Admission Requirements
For admission to the program, 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 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
This option requires at least thirty-two hours of approved courses from the following groups:
1. STAT 561, 562, 660, 662, 664
2. STAT 563, 565, 566
3. STAT 661, 663, 665, 666, 667
4. STAT 668, 681, 691, 692, 693
5. Three approved electives

3. STAT 712, or an approved elective.
4. Pass the Department Graduate Exams in Statistics which cover material in STAT 562, 660, 662, and 664.

Doctor of Philosophy in Statistics

Advisor: Dr. Joseph McKean
Room 5506 Everett Tower

The Doctor of Philosophy in Statistics is designed to prepare candidates for careers in teaching and research in universities, in industry, or in government. It is expected that students, through courses and other experiences, will develop facility in theoretical statistics and an understanding of the application of statistics.

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 training with satisfactory grades as determined by the Doctoral 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 the advising of students in the statistics doctoral program.

Upon entrance to the doctoral program in Statistics, the student is assigned an advisor by the Statistics Doctoral Committee for planning the student's program until he/she reaches the status of candidate. During the first semester the student attains the status of candidate, with the approval of these committees a Dissertation Committee for the candidate. In each of the above situations final appointment is subject to the approval of the Chairperson of the Department and The Graduate College.

The Doctoral Committee shall have a plan of study written by the Statistics Doctoral Committee and approved by the Departmental Doctoral Committee. The selection of preliminary exams shall be included.

Program Requirements
1. As soon as possible, 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.
2. Course and dissertation work, at least 75 credit hours, including:
   a. STAT 562, 660, 662, 664, 680.
   b. The doctoral preliminary examination sequences STAT 661, 663, 665, and 666.
   c. Seven electives from the following:
   d. At least two of the seven electives must be from the following advanced statistics courses:
      STAT 668, 681, 682, 683, 684, and 685.
   e. Four credit hours of seminar work, STAT 990.
   f. Research and dissertation, fifteen credit hours.
3. A student must pass preliminary examinations in Multivariate/Linear Models (STAT 661, 663), in Statistical Inference (STAT 665, 666) and in a third area to be chosen, with the approval of the Statistics Doctoral Committee, from Advanced Statistics or a cognate area depending on the career interests of the student. Two failures on the same examination will result in dismissal from the program.

A student is expected to take preliminary exams at the first opportunity after the necessary course work is completed. Normally the exams in statistics will be given at most once a year, and students should be aware that failure to take or pass an exam could cause a delay in their progress and possibly of being dropped from the program.

A student must also pass a Dissertation Proposal Defense, which is an oral presentation of a thesis proposal to the Statistics Committee. This would take place at the end of the first year after passing all three prelims.
4. Research Tools: In accordance with the requirements of The Graduate College, each student is required to attain competence in two approved research tools. Normally for students in Statistics these will consist of demonstrated 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 Doctoral 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 a form of written reports and/or published papers. The Doctoral Committee shall determine the acceptability of the cross-disciplinary research experience.

Administration
This program will be administered by the Doctoral Committee. The Doctoral Committee will be responsible for the scheduling, preparation, and grading of all preliminary examinations in statistics and for arranging a Thesis Proposal Defense.
Statistics Courses (STAT)

Open to Upperclass 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 life 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. Prerequisite: 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: MATH 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 survey data are discussed and actual survey data are analyzed. Prerequisite: 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.
This is 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. Prerequisite: 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.

Open to Graduate Students Only

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 622.

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 interval, 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 T-squared; Wishart distribution; appropriate 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, non linear, 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-Kolmogrov systems; transient and limiting 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. Prerequisites: STAT 660, 662.

STAT 669 Studies in Probability and Statistics 3 hrs. 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 (Autoregressive Integrated Moving Average) Box-Jenkins time series models is presented. Identification of correct time series models, estimation of model parameters, and diagnostic checks of identified models will be covered. The uses of these models for forecasting future trends and assessing interventions will be examined. Extensive data analysis using SAS, MINITAB, and BIOMED statistical packages are included. Topics include: autocorrelation function, partial autocorrelation functions, Yule-Walker equations, differencing, stationarity, autocorrelation models, moving average models, seasonality, invariability, 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 \( \hat{\beta}_L \)-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, and some finite 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 695 Seminar in Probability and Statistics 1-3 hrs. May be repeated for credit.

STAT 698 Reading and Research 1-6 hrs. 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
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Women's Studies Courses (WMS)

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 500 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

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 49008-5075; or (c) telephoning the Admissions' Voice Enhanced Request Line, 1-800-400-4966.

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 49008-5075. 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 49008-5075) 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 sessions 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 550 or higher with a grade point average for the last two years of 2.50 or higher on an accredited, undergraduate university program.
   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 interview—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.

2. Applicants, who are U.S.A. residents (international students) may be required to demonstrate English language proficiency with a TOEFL score of not less than 550. Each applicant will 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 requirement is considered met if the applicant achieves a score of 3.50 or higher on the essay portion of the GMAT. The quantitative analysis skill requirement is considered met if the student (a) has an undergraduate business degree (BBA) from a university or college with an AACSB accredited business program or (b) has satisfactorily completed a college level undergraduate mathematics course in precalculus or calculus. If the basic skills requirements have not been completed at the time of admission, the student may receive admission with reservation, with the provision that all unmet basic skill requirements will be satisfied by the end of the first twelve months of active graduate program enrollment.

3. Applicants for the MBA CO-OP option must submit an essay with their application as outlined in the admission application documents available from 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 MBA plus the required internships, while non-CO-OP MBA students may have less than the full five components. The MBA program includes five components: Prerequisites/Basic Core, Business Context, Functional Core, Concentration Electives, and Integrative Business Solutions.

1. Prerequisites/Basic Core (12 hours)

To provide students with the background of the common body of knowledge in business and administration, study in the areas of Accountancy, Economics, Finance, and Law is required. These requirements are automatically fulfilled if the applicant completed an undergraduate business degree.

   a. ACTY 611 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 Interpersonal 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. OR 614 Business Process Management (3 hrs.)
   e. 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

   b. Students in the CO-OP program, BUS 697 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 bulletin for specific course and internship sequencing. Students must consult a faculty advisor to obtain elective and departmental internship sequences.

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 desired area; and (c) not have experience in a business career program. Only one substitution is permitted. These substitutions must be approved at the 500-level. Students must consult with an MBA advisor in their area of anticipated concentration in the desired area of MBA concentration.

Western Michigan University
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 opportunities, and (3) integrating 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.

ACCOUNTANCY

Dr. Jack Ruhl, Chair
Main Office: 3190 Schneider Hall
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Hans J. Dykxhoorn
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Sheldon A. Langsam
William C. Morris
Gale E. Newell
David Rozelle
Jack M. Ruhl
Kathleen E. Sinning
Ola M. Smith
Roger Y. W. Tang

Master of Science in Accountancy

Advisors:
Jerry G. Kreuze,
Room 3182, Schneider Hall
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 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 and public accounting. A graduate from the program is responsible for determining if additional criteria need to be met for a specific exam or state.

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 3.0 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
requirement is considered met if the applicant achieves a score of 4.0 or higher on the essay portion of the GMAT. The quantitative analysis skill requirement is considered met if the student (a) has an undergraduate business degree (BBA) from a university or college with an AACSB accredited business program or (b) has satisfactorily completed a college level undergraduate mathematics course (pre-calculus or calculus).

If the basic skills requirements have not been completed at the time of admission, the student may receive conditional admission with the provision that all unmet basic skill requirements will be satisfied by the end of the first twelve months of active graduate program enrollment.

Prerequisites to Graduate Study
The required preparation is an undergraduate degree in accounting, or its equivalent, and a 3.0 grade point average in accounting and business courses. Basic Skills: Quantitative Analysis, Computer Literacy, Written Communications. Basic Core: Corporate Finance, Legal, Regulatory, and Political Aspects of Business, Basic Economic Analysis. Accounting Course Prerequisites:


Program Requirements
A minimum of 30 semester hours of graduate work is required. A minimum of 15 hours of accounting must be selected from the following courses, of which at least 12 hours must be at the 600-level:

ACTY 511 Advanced Accounting
ACTY 513 Advanced Accounting Information Systems
ACTY 514 Governmental and Nonprofit Accounting
ACTY 522 Cost Accounting—Concepts and Practice
ACTY 524 Advanced Tax Accounting
ACTY 610 Financial Accounting and Reporting
ACTY 617 Attestation and Assurance Services
ACTY 621 International Accounting
ACTY 622 Seminar in Management Accounting
ACTY 624 Business Tax Planning
ACTY 642 Special Topics in Accountancy

Each individual program must include at least twenty-one hours of 600- or 700-level courses and must have prior approval of a department advisor. In addition to the major requirements, the student must elect a minimum of nine hours of non-accounting courses. The overall 150-hour program must include at least 99 hours outside the Department of Accountancy.

To summarize the requirements:
1. Minimum of 30 hours of graduate course work.
2. Minimum of 15 hours of graduate course work in accounting, of which at least 12 must be at the 600-level.
3. Minimum of 9 hours of non-accounting graduate courses.
4. Minimum of 21 hours at the 600-level or above.
5. Minimum of 36 semester hours of accounting in graduate and undergraduate course work.

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 system in studies 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)

Open to Underclass and Graduate Students

ACTY 511 Advanced Accounting 3 hrs.

The study of entities and special transactions not covered in Financial Accounting I and II. Particular emphasis is given to partnership equity accounting, government accounting, business combinations, reporting by parent-subsidiary consolidated entities (including foreign subsidiaries), and accounting for foreign currency transactions. Prerequisite: ACTY 311.

ACTY 513 Advanced Accounting Systems 3 hrs.

This course examines the types of accounting systems used by business enterprises. It includes in-depth examinations of database accounting systems, including the analysis of database design and implementation, and the creation of applications. Prerequisite: ACTY 313.

ACTY 514 Governmental and Nonprofit Accounting 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 516 Auditing 3 hrs.

A study of auditing of business and non-business organizations. Topics include audit risk, audit procedures during the planning and performance phase of an audit, internal controls, ethical issues, and the legal environment, statistical audit tools, types of audit reports, auditing standards, and the relationship of internal auditing to financial statement auditing. Prerequisites: ACTY 311 and ACTY 313.

ACTY 522 Cost Accounting—Theory and Practice 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 an enterprise, 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 524.

ACTY 589 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 graduate business courses requires admission to the MBA or MSBA program or the consent of the Director of Graduate Business Programs.

ACTY 601 Accountancy 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 MSBA 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 cost behavior, cost allocation, service costing, activity-based costing, cost transfer pricing, and activity costing principles. 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

Dr. Earl E. Halvas, Chair
Main Office: 3310 Schneider Hall
Telephone: 387-5410
FAX: 387-5710
Robert Allen
Kuriakose Athappilly
Joel P. Bowman
Kuan Chin Chen
Earl E. Halvas
Bernard Han
Elizabeth A. Hoger
Parin Katerattanakul
Muhammad Razi
Pamela S. Rooney
Alan I. Rea
Nancy M. Schullery
Andrew S. Targowski
Mike Tann

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 550 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.

BUSINESS INFORMATION SYSTEMS

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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.

using Data Base Management Systems effectively. **Prerequisite:** BIS 260, 261, and 360.

BIS 643 Report Writing for Management Decisions
3 hrs.
The focus of Report Writing for Management Decisions is on planning, researching, writing, revising, and presenting effective written and oral management-based reports. The course will emphasize management report writing in the context of organizational decision making.

BIS 662 Managing the System Development Project
3 hrs.
Course focuses on project management while reviewing and reinforcing student’s understanding of system development methodology. Major emphasis of course will be managing those projects which involved SDLC methodology. **Prerequisite:** BIS 260, 261, and 360.

BIS 664 Expert Systems in Business
3 hrs.
Objectives of course are to familiarize students with ES/KBS and how this information technology can be applied to solve common business problems. Designed to show how such systems can assist managers in setting and achieving organizational objectives effectively and efficiently. **Prerequisite:** BIS 260 and 360.

BIS 666 Managing Data Communications
3 hrs.
This course provides students with a managerial perspective of data communication and computer networks. The intent of this course is to provide students with the necessary skills to accurately evaluate recommendations about data communication needs and manage the data communication activities of a business organization. **Prerequisite:** BIS 360.

BIS 674 Information Systems Planning
3 hrs.
Course applies principles of managerial planning to information systems. Covers strategic, tactical, and operational planning of IS, with special emphasis on linkage between strategic plans of organization as whole and those of IS. **Prerequisite:** BIS 260, 261, and 360.

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

Dr. Ed Edwards, Chair
Main Office: 3290 Schneider Hall
Telephone: 387-5720
FAX: 387-9389

Finance Area

Robert Balk
David Burnie
James DeMello
A. Ed Edwards
Theodore Fuger
A. D. Issa
Christopher M. Korth
C. R. Krishna-Swamy
Inayat Mangla
Ali Metwalli
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 restructing 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, commercial and investment banking practices, 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 investment of corporate securities as term-long 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 664 International Business Law 3 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 the role of 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.

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 the role of 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 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 organization, 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 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.

MGMT 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 ESOPs. 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 and sustaining 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 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 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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Andrew A. Brogowicz
Linda M. Druke
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Jay D. Lindquist
Mushtaq Luqmani
Edward J. Mayo
Stephen J. Newell
Betty Parker
Richard E. Plank
Zehra A. Quraeshi
Robert Reck
Robert Schultz
Ann Veeck

Marketing Courses (MKTG)
Open to Graduate Students Only. Enrollment in HCOB graduate business courses requires admission to the MBA or MA 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. Prerequisite: MKTG 613.

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 service 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.

Prerequisite: MKTG 613.

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
Main Office: 3102 Sangren Hall
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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 Counseling 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:

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 Andreadis, Gary Bischof, Robert O. Brinkerhoff, Stephen
COUNSELOR EDUCATION AND COUNSELING PSYCHOLOGY 119


Department Office, Room 3102, Sangren Hall.

The four program options leading to a Master of Arts in Counselor Education are designed to prepare individuals for entry level positions in counseling, rehabilitation, and student affairs practice in a variety of educational and non-educational settings. The four options are:

1. Community Counseling* with specialties in gerontology, substance abuse, holistic health, and marriage and family therapy.
2. School Counseling: Elementary or Secondary or Career Development Specialist*
3. Student Affairs in Higher Education: Administration of College Student Affairs or Counseling in Higher Education*
4. Rehabilitation Counseling* is offered as part of the Rehabilitation Counseling/Teaching program (RCT) which is jointly administered by the Department of Counseling Psychology and the Department of Blind Rehabilitation.

* Leads to Michigan license as a counselor.
** Leads to endorsement as a counselor on a current, valid Michigan teaching certificate.

All master's options above (except Rehabilitation Counseling) are accredited by the Council for the Accreditation of Counseling and Related Educational Programs.

Admission Requirements

Admission to one of the four options above is based on grade point average, educational background, and student counseling 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 indicating, among other things, the program option desired. Interviews, letters of recommendation, test scores, and other materials may be required.

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. 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.

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

All program options require a minimum of forty-eight semester hours of course work. The program of study for each of the options includes seven, three-semester-hour, core courses. Curriculum guides 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 applications required for designated courses. A student's performance and progress will be evaluated throughout the program.

Admission to the Master of Arts in Human Resources Development is based upon grade point average, educational background, professional work experience, and other factors. Prior to admission, applicants are required to complete and return a questionnaire prepared by the department.

Admission Requirements

Admission to the Master of Arts in 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 office.

The Human Resources program provides great flexibility in designing a course of study to meet the interest and needs of the student. In addition to the core courses, students must, with the approval of advisor, select courses for an option in human resources development. The options are human resource management, counseling, and organizational psychology, which emphasize human resource management, organizational communication and development, instructional design and technology, and public administration and leadership.

1. CECP Core (9 hrs.)
   - CECP 601 Research Methods (3 hrs.)
   - CECP 606 Human Resources Development (3 hrs.)
   - CECP 611 Fundamentals of Needs Analysis (3 hrs.)
   - CECP 642 Training and Impact (3 hrs.)
   - CECP 643 Project Management in Human Resources Development (3 hrs.)
   - CECP 710 Independent Research (3 hrs.)

2. Program Concentration (15 hrs.)
   - CECP 640 Principles of Human Resources Development (3 hrs.)
   - CECP 641 Fundamentals of Needs Analysis (3 hrs.)
   - CECP 642 Training and Impact (3 hrs.)
   - CECP 643 Project Management in Human Resources Development (3 hrs.)
   - CECP 710 Independent Research (3 hrs.)

3. Electives (12 hrs.)
   - Students, in consultation with advisor, will pursue one of the following HRD specialty options from which a minimum of 12 hours of course work is selected:
     - Human Performance Technology and Management
Master of Arts in Marriage and Family Therapy

Advisors:
Gary Bischof, Karen Blaisure, Alan J. Hovestadt, Joseph R. Morris.
Department Office, Room 3102, Sangren Hall.

The Master of Arts in Marriage and Family Therapy provides students with academic, theoretical, 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 Membership in the American Association for Marriage and Family Therapy. 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 upon a review of the application materials, the admissions committee will invite selected applicants to campus for interviews. Application deadlines are 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 coursework, including substantive study of family processes, various family forms, individual and family life cycle issues, as well as significant training in clinical assessment and treatment. Specific Marriage and Family Therapy program content areas include: theoretical foundations, assessment and treatment of couples and families, human development and family studies, ethics and professional issues, research methods, and supervised clinical practice.

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, Community 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.

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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 coursework 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 department 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.

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, Community and Leadership, and Student Affairs in Higher Education.

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The program generally 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/Leadership (9 hrs.)
   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 (9 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
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. Biological basis of behavior (3 hrs.)
   d. Multicultural Counseling and Psychotherapy (3 hrs.)
   e. Vocational Development Theory (3 hrs.)
   f. Psychocounseling/Consultation (3 hrs.)
   g. Field Experiences/Internships (3 hrs.)

2. **Scientific Inquiry Core (39 hrs.)**
   a. Research Design and Data Analysis (6 hrs.)
   b. Qualitative Research (3 hrs.)
   c. Elective in Research Design, Data Analysis, or Data/Program Development (3 hrs.)
   d. Evaluation (3 hrs.)
   e. Communication Skills Research Tool Competency (3 hrs.)
   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 abuse agencies, family counseling services, and other human services agencies which educational services for their clientele. Graduates should be prepared to assume some students entering this doctoral option may develop their rehabilitation clinics, outpatient and after-care services, public and private school systems and other human services agencies which provide guidance, psychological, and educational services for their clientele. In consultation with a doctoral advisor, some students entering this doctoral option may develop or enhance significant skills, attitudes, and competencies as they progress through doctoral course work designed to ensure that the student develops: 1) an advanced understanding of human behavior; 2) considerable 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 supporting services in the community; 4) research skills; and 5) administrative, leadership and supervisory competencies related to planning, funding, organizing, 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. They choose 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 services in public relations; 4) 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 of 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

The student affairs in higher education option has been developed to prepare individuals to administer college and university student personnel programs. Students completing the graduate program should be prepared to administer programs related to organization, psychological, and educational services for their clientele. Graduates should be prepared to assume some students entering this doctoral option may develop or enhance significant skills, attitudes, and competencies as they progress through doctoral course work designed to ensure that the student develops: 1) an advanced understanding of human behavior; 2) considerable 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 supporting services in the community; 4) research skills; and 5) administrative, leadership and supervisory competencies related to planning, funding, organizing, 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. They choose 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 services in public relations; 4) 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.

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COUNSELOR EDUCATION AND COUNSELING PSYCHOLOGY Courses (CECP)

Open to Upperclass and Graduate Students

CECP 520 Foundations of Rehabilitation Counseling 3 hrs.

This course surveys the role of the rehabilitation counselor in establishing eligibility, planning services, the tracking system, counseling, case management, workforce preparation, work adjustment, supported employment, transition, client assistance programs, job analysis, job development, postemployment, and advocacy.

CECP 580 Principles of Counseling and Guidance 3 hrs.

The content of this introductory course focuses on concepts underlying school guidance programs and related service delivery systems. Counseling, psychological services, and other human service agencies which provide guidance, psychological, and educational services for their clientele. In consultation with a doctoral advisor, some students entering this doctoral option may develop or enhance significant skills, attitudes, and competencies as they progress through doctoral course work designed to ensure that the student develops: 1) an advanced understanding of human behavior; 2) considerable 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 supporting services in the community; 4) research skills; and 5) administrative, leadership and supervisory competencies related to planning, funding, organizing, 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. They choose 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 services in public relations; 4) 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.

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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, rationale, 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 analyze 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 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 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 case 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. Priority 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 organized around the selected principles in program evaluation drawn from various organizational settings. The history, role and function of counselors and counseling psychologists will be emphasized. Evolving directions in the field of counselor education/counseling psychology will be considered.

CECP 629 Organization and Principles of Elementary School Guidance

3 hrs.
A thorough investigation of philosophical concepts and principles underlying 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.

CECP 630 Organization and Principles of Secondary School Guidance

3 hrs.
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 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. 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 in the course is 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, in-service 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 impact on 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 approaches to assure and assess the quality of the intervention.
behavior is presented. Several academic screening and diagnostic instruments are examined. Particular emphasis is given to accuracy of administration, scoring and interpretation via oral or written reports. Curriculum-based measurement procedures designed to link assessment to intervention more effectively are also examined. 

**Prerequisites:** CECP 603 and 650.  

**CECP 656 Seminar in School Psychology** 3 hrs.  
This course examines current professional practices in school psychology. Specific issues include the history of the profession, role and function of school psychologist, research methodology applied in the field, and issues surrounding professional conduct, ethics, and the legal regulation of school psychology. More advanced issues address psychological assessment, legal regulation of school psychology, consultation and intervention, organizational development in schools, and multiculturalism.  

**CECP 661 Foundations of Systemic Family Therapy** 3 hrs.  
An in-depth focus on the theoretical foundations of family therapy. Emphasis is placed on systems theory and recent theoretical developments. Nomenclature and concepts particular to therapy are stressed. Course content also includes an overview of the historical development, major models, and diversity issues related to family therapy.  

**CECP 662 Couple Interaction and Therapy** 3 hrs.  
Application of a systemic perspective to the assessment and treatment of couples who are seeking therapy. Models of family therapy are examined and applied to problems common to couples. Attention is given to gender, race, culture, and couple forms. **Prerequisite:** CECP 661.  

**CECP 663 Family Interaction and Therapy** 3 hrs.  
Application of a systemic perspective to the assessment and treatment of families who are seeking therapy. Models of family therapy are examined and applied to a variety of families and common problems. Multicultural and gender perspectives on family life are integrated in course content. **Prerequisite:** CECP 661.  

**CECP 664 Advanced Family Therapy** 3 hrs.  
This is an advanced didactic and experiential course in marital and family therapy. Goals include the assimilation, integration, and application of the major approaches to the field. Further emphasis is placed on the development of the student's therapeutic expertise in MFT intervention techniques and strategies. Class activities include use of exemplary cases, video tapes, role playing, and possible instructor participation in counseling as a consulting therapist. **Prerequisites:** CECP 661 and either CECP 662 or 663, or permission of instructor.  

**CECP 665 Sex Therapy** 3 hrs.  
The subject of human sexuality is examined from a variety of social, physiological, and cultural viewpoints. Various forms of sexual dysfunction are studied and examined for understanding of both physiological and psychological components in the dysfunction. Finally, there is in-depth study of current approaches to therapy as well as attention to other issues such as co-joint treatment of couples, response to sexual dysfunction in both partners, and sexual dysfunction and its relationship to marital discord. **Prerequisites:** CECP 661 and 662, or permission of instructor.  

**CECP 667 Practicum in Couple and Family Therapy** 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 client management. Students begin practicum in a university laboratory setting, followed by community-based placements. This course is cross-listed with FC 687. **Prerequisite:** Permission of instructor.  

**CECP 673 Advanced College Student Development Theory** 3 hrs.  
This course continues the examination of student development theories and their application to student affairs practice. The course will increase the complexity of understanding about the development of college students. Traditional theories and new theories will be critically reviewed for their inclusion of diverse populations and their applicability to the range and diversity of current and future student populations. **Prerequisite:** CECP 663 or equivalent.  

**CECP 674 Psychological Development Theory** 3 hrs.  
The course examines psychological development from a number of perspectives including psychodynamic object-relationships and social learning. The course is designed for counselors and counseling psychologists who wish to view their work in a developmental framework. Implications of developmental theory for counseling and psychotherapy are emphasized.  

**CECP 675 Counseling Theories and Practices** 3 hrs.  
This is an advanced course in counseling theory and practice. The course is concerned with theoretical aspects of the counseling relationship as well as the general practices of counseling. **Prerequisites** for the class include one formal exposure to counseling theory, supervised laboratory work, and experience in the field of counseling. The course is not designed to include practitioner experiences, but it is helpful if the participant is concurrently seeing clients on a paid or volunteer basis. **Prerequisite:** CECP 611, 612, and 621 or equivalents.  

**CECP 680 Proseminar in Counseling Psychology** 3 hrs.  
This seminar will address historical and current issues affecting counseling psychology. Specific areas studied include professional identity: American Psychological Association, in particular Division 17 and other divisions related to the science and practice of counseling psychology; research and publishing; professional conduct and consumer issues; diverse populations; counseling psychology-related organizations; training issues; and the future of counseling psychology.  

**CECP 681 Professional Seminar in Counseling, Leadership, and Student Affairs** 3 hrs.  
This seminar explores current professional issues such as professional identity, career options, professional organizations, and professional practice literature for doctoral students in Counseling Leadership and
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 696 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.

CECP 712 Professional Field Experience
2-12 hrs.
CECP 725 Doctoral Research Seminar
2-6 hrs.
CECP 730 Doctoral Dissertation
12 hrs.
CECP 732 Doctoral Clinical Internship
1-4 hrs.
CECP 735 Graduate Research
2-10 hrs.

EDUCATIONAL LEADERSHIP
For information on Educational Leadership courses and on the Master of Arts in Educational Leadership, the Specialist in Education in Educational Leadership, and the Doctor of Education in Educational Leadership, see the Department of Teaching, Learning, and Leadership:
Dr. Van E. Cooley, Chair
Main Office: 2112 Sangren Hall
Telephone: 387-3465
FAX: 387-2862
The Department of Educational Studies offers five master's 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 prior to 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 Coordinator; Technology Coordinator or Special Education Technology Coordinator. 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 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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>EDT 541</td>
<td>Telecommunications for Teaching and Learning (3 hrs.)</td>
</tr>
<tr>
<td>EDT 542</td>
<td>Teaching with Technology: Design and Development for Learning (3 hrs.)</td>
</tr>
<tr>
<td>EDT 644</td>
<td>Advanced Information Technologies for Instructional Technology (3 hrs.)</td>
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<tr>
<td>EDT 645</td>
<td>Technical/Operational Issues of Educational Technology (3 hrs.)</td>
</tr>
<tr>
<td>EDT 648</td>
<td>Designing Staff Development in Educational Technology (3 hrs.)</td>
</tr>
<tr>
<td>EDT 649</td>
<td>Planning and Implementing of District Level Educational Technology (3 hrs.)</td>
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**Option B: Special Education Technology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>SPED 537</td>
<td>Technology in Special Education (3 hrs.)</td>
</tr>
<tr>
<td>SPED 601</td>
<td>Acquisition and Critical Analysis of Information in Special Education (3 hrs.)</td>
</tr>
<tr>
<td>SPED 603</td>
<td>Dissemination of Special Education Information (3 hrs.)</td>
</tr>
<tr>
<td>SPED 680</td>
<td>Instructional Software in Special Education (3 hrs.)</td>
</tr>
<tr>
<td>SPED 681</td>
<td>Assistive Technology in Special Education (3 hrs.)</td>
</tr>
<tr>
<td>SPED 682</td>
<td>Current Research in Special Education Technology (3 hrs.)</td>
</tr>
<tr>
<td>SPED 712</td>
<td>Professional Field Experience in Special Education Technology (3 hrs.)</td>
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</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>One 500- 600-level course (3 hrs.)</td>
<td></td>
</tr>
<tr>
<td>One 600-level course (3 hrs.)</td>
<td></td>
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<tr>
<td>One 800-level course (3 hrs.)</td>
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III. Educational Research (3 hrs.)
EMR 640 Introduction to Research (3 hrs.)
*or course equivalent to EMR 640

IV. Cumulating Learning Activity (3 or 6 hrs.)
Select one of the two courses below.

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>EDT 710</td>
<td>Independent Research: Capstone Research Project (3 hrs.)</td>
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<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>EDT 700</td>
<td>Master's Thesis (6 hrs.)</td>
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</tbody>
</table>

The culminating learning activity allows students to demonstrate their comprehensive knowledge of educational technology in either a research study or in the development of a curriculum or instructional technology product. Students seeking advanced degrees beyond the master's level are encouraged to complete a master's thesis. Other students will elect the capstone course with an advisor-approved technology research, application, or curriculum development project that includes a minimum of 120 hours of effort.

Master of Arts in Evaluation, Measurement, and Research

**Advisors:**
Brooks Applegate, JianPing Shen, Tianyou Wang, Lilianne Rodriguez-Campes Room 3506, Sangren Hall

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.

**Admission Procedures**
Students seeking admission to this degree program should request a Master's Degree Program Application packet from the Department of Educational Studies. Applicants must follow all instructions on the Graduate Self-Managed Application form and send all supplemental materials to the Department of Educational Studies.

**Program Requirements**
This thirty-six credit hour master's program requires the satisfactory completion of EMR 640 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 650 Survey Research, EMR 659 Contemporary Trends in Research, and EMR 670 Capstone Portfolio Project. In addition, 9 credit hours are chosen from courses outside the EMR program such as sociology, psychology, or other area approved by the advisor.

Master of Arts in Socio-Cultural Foundations And Educational Thought

**Advisors:**
Paul Farber, Gunilla Holm, G. Thomas Ray, Gerald Pillsbury, Elena Litvakskaya Room 3606, Sangren Hall

**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. Program Concentration (15 hrs.).

Select three courses in socio-cultural foundations from the following:

ES 635 Social and Philosophical Foundations (3 hrs.)
ES 629 Culture and Schooling (3 hrs.)
ES 620 History of Education in the United States (3 hrs.)
ES 631 Comparative Education (3 hrs.)
ES 673 Class, Ethnicity, and Gender in Education (3 hrs.)
ES 675 Multicultural Education (3 hrs.)

Select at least one course in curriculum studies from the following:

ED 620 School Curriculum (3 hrs.)
ED 622 Middle School Curriculum (3 hrs.)
ED 628 Curriculum Theory (3 hrs.)

Select one additional course in curriculum development, teaching methods, literacy, or content area methods (3 hrs.).

Electives (9 hrs.): Select at least three additional graduate level courses, normally from outside the department, which support a particular scholarly interest.

4. Capstone Research Project or Master's Thesis (3-6 hrs.)

ED 679 Capstone Research Project (3 hrs.)
or
E 700 Master's Thesis (6 hrs.)

Master of Arts in Special Education

Advisors: George Haus, Donna Iacobe, Paula Kohler, Howard Poole, Annette Skellenger, Sarah Summy, Elizabeth Whitten, Teresa Whitt-Walton

Room 3506, Sangren Hall

The Master of Arts in Special Education is based on an 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 nine 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 must 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 and statement of teaching philosophy/endorsement(s), 3) current resume, 4) written statement of experience and professional goals, and 5) two reference forms. Completed application are reviewed on a rolling basis. Applications 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 endorsements that can be earned through this option are Emotionally Impaired, Learning Disabled, Mentally Impaired, or 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

CLINICAL TEACHER OPTION

This option is available to certified teachers seeking a master's degree and an initial endorsement in one of the following areas of special education: Emotionally Impaired, Learning Disabled, Mentally Impaired, or Visually Impaired.

Prerequisites

1. Michigan Teaching Certificate or equivalent
2. 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. Endorsement in at least one area of Special Education
3. Admission by Department of Educational Studies

SPECIAL EDUCATION ADMINISTRATION OPTION

This option, designed for certified and experienced special education teachers, provides courses 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
4. Certification by the Michigan Department of Education
5. Experience in specialized education or administration

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 must request a Master's Degree Program Application packet from the Department of Educational Studies.

Program Requirements

This program requires the satisfactory completion of BLRH 586 (2 hrs.), BLRH 584 (3 hrs.), BLRH 584 (3 hrs.), BLRH 597 (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 631 (4 hrs.), SPED 632 (4 hrs.), SPED 634 (3), SPED 646 (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.
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.), BLRH 602 (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 that 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 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 an educational 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 successful completion of EDT 540 will start the program with EDT 541 or EDT 542. Students who demonstrate prior mastery of the knowledge and skills in EDT 541 and EDT 542 will have five additional course choices available.

Descriptions of all courses required in the Certificate Program in Educational Technology may be found below under the heading Educational Technology Courses.

Doctor of Education in Special Education
Advisors: George Haus, Dona Iacbone, 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/university faculty member of an education program and as an administrator of educational programs for learners with disabilities. Applicants are expected to satisfy all requirements for admission to doctoral programs specified by The Graduate College. Prospective students must also have acquired a minimum of two years of successful professional experience in serving persons with disabilities. Admission to the program is contingent upon a satisfactory score on the Graduate Record Examination and the successful completion of a personal interview with a committee comprised of graduate faculty of the Department of Educational Studies. Application materials are available from the Office of Admissions and Orientation and from the Department of Educational Studies.

Upon acceptance to the department, a Program Advisor will be designated to work with the student in developing the student's overall program. In addition to the prescribed course work, the student will complete an internship in 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.

All students in the program will be required to complete successfully a scholarly dissertation. Following the guidelines established by The Graduate College, the student will select a dissertation advisor and a dissertation committee who will guide the student in the development of a dissertation. Following the completion of the dissertation, the student will be required to complete successfully an oral defense of the dissertation as per Graduate College policy.

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 should request a Doctoral Degree Program Application packet from the Department of Educational Studies. Applicants must follow all instructions on the Graduate Self-Managed Application form and send all supplemental materials to the Department of Educational Studies.

Program Requirements
The following requirements and courses will lead to a Doctor of Philosophy in Educational, Measurement, and Research (99 hours minimum):

EMR 640 Introduction to Research; EMR 641 Measurement Techniques in Education; EMR 642 Program Evaluation; EMR 643 Personnel Evaluation; EMR 645 Elementary Statistics; EMR 646 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. Emphasis 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 interpretation 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 the growth and methods of schooling in the United States. Particular attention is given to cultural dissonance among students, teacher, and text, and to culturally grounded educational patterns 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 communality 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.

ES 631 Comparative Education 3 hrs.
Implications of historical background for present problems in education with emphasis on the revision of previously held conventional thinking about schooling in America, and the alternative solutions of present educational problems.

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 sociocultural determinants around the world will be examined. Selected problems and patterns of American education will also be highlighted from a comparative perspective. 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 concerning student diversity and defines desirable educational aims and practices as related to the perceived needs, interests, and potential 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 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 consideration of the organizational dynamics of institutionalized educational practices, and explores how cultural assumptions influence educational content and methods. 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 myriad 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 origins 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 educational programs for students in pre-kindergarten through college. Such applications include methods of using computers, video and audiovisual technologies 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 and instructional techniques to operate successfully a computer and other technology devices (CD-ROM, laserdisc player, etc.). Operation includes running programs, accessing information, computer manipulation, 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 terminologies. Students will be aware of 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 telecommunications 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 instructional 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 high 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 the student and units of instruction. Students follow a systematic instructional development procedure from task analysis to evaluation, involving teamwork of graduate students 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, video, 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 impact these technologies have 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 issues including hardware, 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 Inquiries, 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 Educational 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. **Prerequisites:** 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 research 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 as a whole, its observations, and inferences, 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 these, 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 evaluation 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 and techniques for meeting educationally important data. **Prerequisites:** EMR 640, 641, and 655.

**EMR 652 Evaluation Practicum 3 hrs.**
Practical application of advanced principles of program evaluation under the guidance of a qualified instructor. The class meets weekly as a seminar to discuss evaluation progress and issues. **Prerequisite:** 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 variables. **Prerequisite:** EMR 640.

**EMR 656 Qualitative Research Practicum 3 hrs.**
This 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, and application of computer programs for data 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 class. At the heart of EMR 650 is the practicum experience: Each student will carry out a small-scale research project. If we combine EMR 650 and EMR 656, the goal of the sequence is to guide 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, 645, 648.

**EMR 659 Contemporary Trends in Research 3 hrs.**
This course is intended to develop awareness of current issues 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 meetings, identify issues in need of further research and development, and prepare proposals for addressing those 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.**
This seminar is 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 designs, MANOVA, 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.
A continuation 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. 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 Hotelling's $T^2$, MANOVA, MANCOVA, logistic and non-linear regression, principal component analysis, canonical correlation, discriminate function analysis, factor analysis, cluster analysis. All topics will be taught from an applied perspective which will include statistical computing using a PC environment and interpretation of statistical output.
Prerequisites: EMR 640, 645, 655, and 665.

EMR 677 Ethnography of Schooling
3 hrs.
This course is an in-depth exploration of the use of ethnography in the study of teaching and schooling. Participant observation, in-depth interviewing, and document analysis are the main data gathering techniques studied. Students will design and execute a small-scale ethnographic study focused on an aspect of schooling. The course will be taught as a seminar where methodological issues, such as reliability and validity, will be discussed and applied in the work of students. Ethnographic research on educational issues, with an emphasis on teaching, will be read concurrently.

EMR 679 Capstone Portfolio Project
3 hrs.
This course is intended to be the opportunity for master's degree students in the Evaluation, Measurement, and Research program to demonstrate mastery of evaluation, measurement, and research methodology at the master's level. In addition to evidence of mastery of each master's level course, the student will develop for presentation a project where evaluation, measurement, and research methods are used. The project is supervised by one faculty member and is then presented to a three-faculty member panel for final grading. Portfolios must be submitted for grading three months prior to an anticipated graduation date. Graded on a Credit/No Credit basis. Prerequisite: Completion of all M.A. in EMR course work.

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

EMR 710 Independent Research
3-6 hrs.

SPED 1000 Doctoral Dissertation (SPED)
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 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 8 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 533 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 533.

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 acceptable to 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, hyperactivity, distractibility, and impulsivity. Prerequisite: Consent of department.
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. Prerequisites: 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. Graded on a Credit/No Credit basis. 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 individuals with 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 the 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. Prerequisites: 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 3 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 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. Prerequisites: 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 emotional 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, and computational 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. Students will apply the course content to current issues and trends in the field of special education. 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 present information. 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 Preschool and Early Childhood Education** 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 younger 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. **Prerequisite:** Consent of department.

**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 multi-cultural factors which directly or indirectly influence the growth and development of these individuals will be considered. Attention will be given to methods of identification 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 education services at the state, intermediate, and local levels. **Prerequisite:** 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 and 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. **Prerequisites:** SPED 603 and consent of department.

**SPED 661 Transdisciplinary Teaching** 3 hrs.
This course is designed to provide students with the information needed for effective collaboration and interactive teaching in school and agency settings. Emphasis is placed on transdisciplinary teaching 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 in rural and urban communities. Students will demonstrate collaboration and teaching skills through urban and rural field experiences. **Prerequisites:** SPED 661 and consent of department.

**SPED 665 Professional Field Experience in Collaboration** 3 hrs.
This course provides students with hands-on, field experience 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** 6 hrs.
This final field experience is open only for special education graduate students who have completed all of their special education endorsement requirements. It will consist of full-time intern teaching in an appropriate educational setting serving students with disabilities. Students will participate in all phases of the school program to which they are assigned. This course is graded on a credit/no credit basis. **Prerequisite:** Consent of department.

**SPED 675 Internship in College Teaching** 3 hrs.
This course is designed specifically for students officially admitted to the doctoral program in special education. The student will be expected to evidence ability to plan and execute instructional tasks, develop and apply appropriate evaluative techniques, and interpret students' performance. **Prerequisite:** SPED 603 and consent of department.

**SPED 680 Instructional Software in Special Education** 3 hrs.
This course will examine strategies for evaluating, 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 Technology** 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.

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**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.
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 565 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 and assistance 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 fully employed. 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 Teaching for Independent Living 4 hrs. Provides a practical background and a basic understanding of skills and problems of the homebound and visually impaired.

FCS 652 Family Life Education 3 hrs. Current issues, trends, and methods in teaching family life education. Program development and philosophy including: needs assessment, design, development, promotion, justification, evaluation and funding sources. Emphasis placed on proposal writing and partnerships with community agencies, court systems, schools, and health care facilities.

FCS 655 Adult-Child Relationships 3 hrs. Theories and strategies for promoting children’s developmental needs and building strong adult-child relationships in therapeutic, school, or home settings.

FCS 656 Family Law, Ethics, and Professional Issues 3 hrs. Areas of study include the therapist’s and family life educator’s legal responsibilities and liabilities, fundamentals of family and consumer law across the lifecycle, professional ethics for marriage and family therapists and family life educators, professional socialization, current issues in professional practice, and the role of the professional organizations, licensure and certification, legislation, independent practice, and interprofessional cooperation.

FCS 660 Studies in Family Relationships 3 hrs. The course will focus on family dynamics (i.e., family processes; communication skills; conflict management, stress, and family crises) and interpersonal relationship skills with specific attention given to translating this knowledge and these skills into family life education programming.

FCS 666 Studies in Family and Consumer Sciences 2–6 hrs. Investigation of certain areas in family and consumer sciences selected to meet individual needs of the students. May be taken more than once if subject matter is different. Maximum credit is six hours.

FCS 667 Practicum in Couple and Family Therapy 1–4 hrs. Pracitcum 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 CECP 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.

FCS 700 Master’s Thesis 6 hrs. Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

FCS 710 Independent Research 2–6 hrs.
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 content 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. Prerequisites: 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 themes. 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 education 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 390.

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 responsibilities of the classroom 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 practical 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; 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 672 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 the following: 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, 580, 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 statistical method; quantitative data collection, and scientific report writing are emphasized. Prerequisite: Permission of instructor.

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 696 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, 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

Dr. Van E. Cooley, Chair
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Gary Wengerske
Paul Wilson
Allison Young

The Department of Teaching, Learning, and Leadership offers the Master of Arts in Education and Professional Development (with concentrations). The requirements for each of these programs can be found below, followed by the program descriptions.

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, researchers, and learners. They should be passionate learners who embrace diversity, actively inquire and reflect upon their own practice, nurture the development of new intellectual, researchers, and learners. 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); 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) 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, 36-38 hrs.

Advisors:
Ariel Anderson, Josephine Barry Davis, Savanne Davis, Barbara Harris, Regina Falls 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/FCS575 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 Informal 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 credits from the extensive list of options including, but not limited to, the following:

ED 610 Montessori Education (3 hrs.)
ED 616 Piaget and Young Children (3 hrs.)
ED 652 Oracy and Literacy (3 hrs.)
ED 670 School Climate and Disciplined Schools (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 of 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.)

Required, 9 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 the following five areas:

Area 1. Reading Strategies

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.)
   ES 633 Human Nature and Diversity (3 hrs.)
   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.)
   ED 617 Reading in the Content Area (3 hrs.)
   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:
   ES 603 Social and Cultural Foundations (3 hrs.)
   ED 604 Psychological Foundations of Education (3 hrs.)
   ES 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 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.)

School Business Official, and Curricular 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 606, Systems Thinking. The eighteen hours of concentration include EDLD 664, Curriculum Development; EDLD 665, 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 606, 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 Principalship; 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; 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 662, Computer Applications in Administration; EDLD 664, Curriculum Development; EDLD 663, 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; 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 Community Relations; EDLD 673, Supervision; EDLD 679, Professional Field Experience (6 credit hours); and EDLD 720, Certification 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 already acquired. Contact the Teacher Certification Officer at Western Michigan University to be sure you meet the State of Michigan requirements for Certification by 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, Joseph Kratovics, 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 an application for 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 acceptability by the entire faculty at a meeting scheduled to consider student admissions. Meetings are scheduled in November 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 program and 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 609, Theories of Leadership; EMR 640, Introduction to Research; EMR 645, Research Design; EDLD 673, Supervision; EDLD 639, Dissertation Seminar; EDLD 712, Professional Field Experience (9 credit hours); and EDLD 730, Doctoral Dissertations (15 credit hours). In addition to these courses, students will choose elective courses, with doctoral advisory committee approval, addressing leadership, human resources development, and/or educational evaluation, measurement, and research design (18 credit hours); addressing career, professional, or research interests (15 hours).

CENTRAL OFFICE ADMINISTRATOR

This central office administrator concentration within the Doctor of Educational Leadership (90 hours minimum) is designed for persons who wish to develop leadership skills and serve in administrative positions in the State of Michigan school systems. Contact the Teacher Certification Officer at Western Michigan University for complete information on compliance for State of Michigan certification as a central office administrator to be sure that you meet the other requirements.

Required Courses
EDLD 602, Educational Leadership; EDLD 609, Theories of Leadership; EMR 640, Introduction to Research; EMR 645, Elementary Statistics; EMR 655, Research Design; EDLD 662, Secondary Administrator; EDLD 661, School Law; EDLD 662, School Business Management; EDLD 664, Curriculum Development; EDLD 662, School Finance; EDLD 674, Supervision; EDLD 674, School Community Relations; EDLD 680, The Superintendent; EDLD 672, Professional Field Experience (6 credit hours); and EDLD 730, Doctoral Dissertation (15 credit hours). In addition, 21 credit hours of elective courses are selected, with advisor approval, from related courses. A minimum of 6 credit hours will be selected from courses outside the Department of Educational Leadership.

SUPERINTENDENT

This concentration within the Doctoral of Educational Leadership (90 hours minimum) leads to certification as a superintendent. This degree is designed for persons who wish to be certified as a superintendent in the State of Michigan school systems. Contact the Teacher Certification Officer at Western Michigan University for complete information on compliance for State of Michigan certification as a superintendent to be sure that you meet the other requirements.

Required Courses
EDLD 602, Educational Leadership; EDLD 609, Theories of Leadership; EMR 640, Introduction to Research; EMR 645, Elementary Statistics; EMR 655, Research Design; EDLD 662, Secondary Administrator; EDLD 661, School Law; EDLD 662, School Business Management; EDLD 664, Curriculum Development; EDLD 672, School Finance; EDLD 673, Supervision; EDLD 674, School Community Relations; EDLD 680, The Superintendent; EDLD 672, Professional Field Experience (9 credit hours); and EDLD 730, Doctoral Dissertation (15 credit hours). In addition, three courses will be selected, with advisory committee approval, from among EDLD 663, Personnel Administration; EDLD 661, School Law; EDLD 662, School Business Management; EDLD 664, Curriculum Development; EDLD 672, School Finance; EDLD 673, Supervision; EDLD 674, School Community Relations; EDLD 680, The Superintendent; EDLD 672, Professional Field Experience (9 credit hours); and EDLD 730, Doctoral Dissertation (15 credit hours). In addition, 21 credit hours of elective courses are selected, with advisor approval, from related courses. A minimum of 6 credit hours will be selected from courses outside the Department of Educational Leadership.

CAREER AND TECHNICAL EDUCATION

The Career and Technical Education concentration is designed to enhance skills in...
5. Addressing Career, Professional, and enhance technical content proficiencies discipline.

Area #3: Instruction

1. Addressing Strengths Needed (12 hrs.)

6. Professional Field Experience (9 hrs.)

7. Dissertation Seminar (3 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, state-of-the-art 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 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 critique 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, measurement 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.

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.

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.

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.

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.

ED 612 Strategic Learning Through Texts for Elementary Teachers
3 hrs.
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.

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 and 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.
Present a variety of techniques for teachers to use in working together with parents. Teachers will study child-rearing factors which parents must know to know. 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 the 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 preparation to teach. 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.

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.

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.

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
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 client 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 corequisite will provide graduate students practice in setting up prescriptive instructional objectives, selecting materials in terms of needs, 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 through adult 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 infuse 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 the 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 early literacy processes, helping teachers create an environment in which learners interrelate oral language learning, learning to read, and learning to write. The relationship of early writing to early reading, and the role of 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 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 concentrations 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
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 moofs. 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 ED 892 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 fiscal 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 educational change and renewal, the 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, 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 667 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 practices 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 685 School Facilities Planning 3 hrs.
This course will provide a study in evaluation, design, and planning of the present and future faculties 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 Engineering Management, in Manufacturing Engineering, and in Operations Research through the Department of Industrial and Manufacturing Engineering; a Master of Science in Materials Science and Engineering and in Construction Management through the Department of Construction 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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Mark Kerstetter, Director of Undergraduate Programs
Dionysis Koutantis
Dalia Motzkin
Donald Nelson
Thomas F. Pietkowki, Graduate Program Director
Ben Pinkowski
Wuwei Shen
Robert Trenary
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 work 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, 591, 599, 628, 636, 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...
2. Submission of transcripts of prior Science in Computer Science to complete all
1. All of the general admission criteria typically wellqualified for teaching and
degree requirements within three years. programs to take somewhat longer.

Financial Assistance Students accepted into the master's 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 at the departmental website. Information about 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. Information about student loans and other federal, state, and University need-based financial aid programs is available from the Office of Student Financial Aid and Scholarships.

Doctor of Philosophy in Computer Science

The doctoral program in computer science is designed to develop computer scientists with research expertise in computer science. Specific areas of emphasis 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 students to acquire experience in closely related fields such as computer engineering and mathematics.

Students completing the program are typically well qualified for teaching and research positions with colleges and universities as well as with national and international industries and laboratories.

The doctoral program is designed to allow a full-time student entering with a Master of Science in Computer Science to complete all degree requirements within three years. However, it is not uncommon for doctoral programs to take somewhat longer.

Admission Requirements

A successful applicant to the doctoral 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.
   a. Applicant should have earned or expect to earn a master's degree in computer science. An applicant with a master's degree in electrical or computer engineering, mathematics or a related field with at least a 3.5 GPA (on a 4.0 scale) in a master's-level computer science courses will also be considered.
   b. An outstanding student who has not completed a master's degree but who

has met all other entrance requirements may be considered 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 referees will indicate the formats and procedures available from the department.

5. Submission of a resume that includes a description of academic background and 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

A plan of study allows for 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 coursework and 12 to 24 hrs 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: CS 580, 581, 625, 626, 631, 632, 655, 680, 681, and 730.
   a. In addition, each doctoral student during the student's first year in the program will work 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 credit hours each, 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 at 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 an 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 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, CS 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. The student will have the opportunity to repeat a portion of the qualifying examination once, but may not change the selected areas. The department will 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. A doctoral dissertation, 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 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 who are members of 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 attend the dissertation defense. 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. In addition, advanced Ph.D. students may apply for one of a limited number of doctoral associateships. 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 applying for financial assistance can be obtained from the department and at 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. Information about student loans and other federal, state, and University need-based financial aid programs is available from the
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). Prerequisites: CS 502 or equivalent experience.

CS 518 Introduction to Computer Modeling and Simulation
3 hrs.
An overview of modeling in the context of computer systems. Computer simulation is used to solve practical problems. Topics include event-driven simulation, simulation languages, the analysis of simulation output, and general considerations of simulation. Prerequisites: CS 331 and MATH 145 or equivalent.

CS 532 Introduction to Evolutionary Computation
3 hrs.
An introduction to optimization algorithms which are inspired by evolutionary processes. The course focuses on the mathematical foundations of evolutionary computation and practical case studies of good and bad interface design. During the course, students will design and test one or more interfaces. Prerequisite: CS 304 or permission of instructor for undergraduates. No prerequisite for graduate students in Computer Science.

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-computer interaction issues, including interaction design and interface evaluation. The course introduces students to the 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 undergraduates. No prerequisite for graduate students in Computer Science.

CS 543 Principles of Database Management Systems
3 hrs.
The fundamentals of database design and efficient data access are covered, including an overview of data bases, the three data models—relational, hierarchical, and network—and database design and evaluation. The design theory of relational and hierarchical models will be emphasized. Query languages, query optimization, security, integrity, and concurrency control will 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, deadlock, scheduling, shared resources, resource allocation, and deadlock prevention and management are discussed. Applications to real systems are investigated to motivate the ideas presented. Students build or run simulations and modify the internal states 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 communications. Prerequisites: CS 224 and CS 331.

CS 580 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 with application to coding techniques are covered. The Chomsky hierarchy of languages, including recursive and recursively enumerable sets and their acceptors, is also covered. Students are assigned theoretical as well as computational 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. Prerequisites: CS 405 or CS 580.

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 search techniques, knowledge representation, predicate calculus, and pattern recognition. It introduces AI application areas such as game playing, expert systems, 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 students 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 Science
1–3 hrs.
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 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 seminar project involving the use and implementation of parallel programming paradigms on current machines. Prerequisite: CS 526.

CS 626 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 uses of data structures in a variety of application areas are covered. Introduces complex data structures. Prerequisite: CS 531.

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 treatments. 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 files and hybrid structures are also studied. Distributed data bases, data base machines, and current query languages will be covered. Prerequisites: CS 531 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.

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, abstract models (e.g., VDM), set theoretic systems (e.g., Z), predicate logic systems (e.g., Larch), and specification based on programming languages such as Alphard, CLU, and Ada. Also discussed will be formal specillilization for testing and design. Students will be expected to complete the specification of requirements and design of a project using one of the methods presented. Prerequisites: CS 531 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 self-checking (V and V) approaches. Five approaches will be presented: technical reviews, testing, proofs of correctness, simulation and prototyping, and requirements tracing. 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 351 or CS 531, 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 automata models. Prerequisite: CS 580.

CS 681 Compiling Theory and Practice 3 hrs.
A study of theoretical and applied strategies for designing compilers and translation of 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 specifications, Petri nets, process algebra, system models, and automata. Prerequisite: CS 555, or permission of instructor.

CS 691 Seminar in Computer Science 1-3 hrs.
Graduate level competency in one of the following areas: computer architecture (ECE 357 or CS 525) 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 697 Seminar in Computer Science I 1-3 hrs.
This seminar will provide a project in computer science. 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 the student’s major’s program. Prerequisites: Graduate level competency in computer science and the subject areas of the project. Approval of the instructor and the department required.
CONSTRUCTION ENGINEERING, 
MATERIALS SCIENCE, AND 
INDUSTRIAL DESIGN

Dr. James Nelson, Chair
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David Middleton
Jawaharar Nesum
James Nelson
Roman J. Rabiej

The Department of Construction Engineering, Materials Science, 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

Advisor: 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.

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, Quantitative 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 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. The Thesis Option also serves students pursing industry jobs, because engineers with a master's degree are often expected to conduct applied research.

Admission 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 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

Advisor: 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 can 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 coursework 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 graduates. 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 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.

Construction Engineering, Materials Engineering, and Industrial Design Courses

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 methods of balance, so be presented. Issues related to insurance and bonding in the construction industry will be highlighted. Advanced topics such as alternate dispute resolution will also be covered. Prerequisites: 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 include cash flow forecasting, site planning, site administration, risk analysis, contract documents, and contracts administration. Advanced planning tools such as Gantt charts, PERT 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 (3–3) 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 computer and design of materials issues related to information management in construction, knowledge-based systems, artificial intelligence, and object-oriented modeling methods. Advanced topics 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 systems. 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. 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 (CISCSC) will be used to demonstrate the importance of monitoring and controlling both cost and performance 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, sharing 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 seminar 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 overview of the course. The course is repeatable. Prerequisite: Departmental approval.
CMD 651 Corrosion Science and Engineering (3-0) 3 hrs.
Corrosion and environmental degradation of metals, alloys, ceramics and polymers.
Causes, theoretical background, methods of protection and design for prevention. 
Prerequisites: MATH 374, PHYS 207, ME 250 and consent of instructor.

CMD 653 Advanced Physical Metallurgy (3-0) 3 hrs.
Review of dislocation theory. Interactions of dislocations with point defects, other dislocations and surfaces. Electronic structure and physical properties. Advanced metallographic techniques. Prerequisites: MATH 374, PHYS 207, ME 250, and consent of instructor.

CMD 657 Analysis of Metal Forming 3 hrs.
Tresca and von-Mises criteria. Analyses of metallographic techniques. Prerequisite:

CMD 658 Structure of Polymers and Composites (3-0) 3 hrs.

CMD 695 Advanced Topics in Materials Science 3 hrs.
A specialized course dealing with some particular advanced area of materials science not included in other course offerings. May be repeated for credit with a different topic up to 6 credits. Prerequisite: Consent of advisor.

CMD 696 Advanced Topics in Construction Management 1–3 hrs.
New or special topics on advanced developments in different aspects of construction will be provided. Specific topics and prerequisites are identified by the instructor and will vary from semester to semester. The course is repeatable. Prerequisite: Departmental approval.

CMD 697 Problems in Materials Science and Engineering 1–6 hrs.
Special problems based on the 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 election of the course.

Open to Graduate Students Only—Please refer to the Graduate College section for course description

CMD 700 Master's Thesis 6 hrs.

CMD 710 Independent Research 2–6 hrs.

ELECTRICAL AND COMPUTER ENGINEERING

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Dean Johnson
Joseph Kelemen
Daniel Litynski
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.

Master of Science in Engineering (Electrical)
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. Hosein Mousavinezhad, 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, 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 which will prepare them for research and education 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, at least 12 hours of which should be ECE courses.
   e. Ph.D. Qualifying Examination, to be taken within the first year after admission.

2. Comprehensive Examination administered by the doctoral dissertation committee, to be taken before a student becomes a doctoral candidate.
3. The general graduation requirements of The Graduate College
4. Presentation/publication requirements as specified by the doctoral dissertation committee.
5. Three (3) recommendation letters from faculty familiar with the student's work.

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

ECE 520 Power Electronics and Motors (3–0)
Basic, transformer isolated and resonant circuit converter topologies. Steady-state analysis, large-signal, small-signal modeling and analysis, state-space and discrete-time models. Magnetic, control techniques and power conditioning of converters. PWM control using space vector theory. Theory and applications of vector (torque control) 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
Introduction to optimization algorithms which operate using the principles of Darwinian evolution. Both underlying theory and application to genetic algorithms, evolutionary programs, and evolution strategies. This course is cross-listed with CS 532. Prerequisite: CS 331.

ECE 551 Application Specific Integrated Circuit Design (4–0)
Design, analysis and implementation of application-specific circuits (ASIC). Emphasis will be placed on programmable design including field programmable gate arrays (FPGA) and programmable logics devices (PLD). Custom-ASIC 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.
This 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 field programmable 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, transmission lines 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 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 ME 530. 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 multiaxis 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 parametric 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.
This course introduces 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. Mohr, Speckle and Speckle-shielding interferometry. Holographic interferometry. Photo-electricity 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.

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 material 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 material to a peer group of students and faculty. Prerequisite: ECE 591.

ECE 695 Topics in Electrical and Computer Engineering (3–0) 3 hrs.
Special topics in advanced area of Electrical Engineering or Computer Engineering not included in other courses. May be repeated for credit with a different topic for up to 6 hours maximum. Prerequisite: Consent of instructor.

ECE 697 Problems in Electrical and Computer Engineering 1–6 hrs.
Special problems based on individual need or interest under the direction of a member of the graduate faculty.

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

ECE 700 Master's Thesis 6 hrs.

ECE 710 Independent Research 2–6 hrs.

ECE 725 Doctoral Research Seminar 2–6 hrs.

ECE 730 Doctoral Dissertation 15 hrs.
INDUSTRIAL AND MANUFACTURING ENGINEERING

Dr. Michael B. Atkins, Chair
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Leonard R. Lamberson
David M. Lyth
Larry A. Malik
Colleen L. Phillips
Sam N. Ramrattan
Jorge Rodriguez
Frederick R. Atkins
James VanDePolder
Bob E. White
Robert M. Wygant

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)

Advisor: Abdolazim Houshyar, Room 20700, 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 to the graduate level professional practice in industrial engineering;
2. To prepare students for positions in both 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 at least a 2.5 grade point average in the areas of engineering, technology, mathematics, computer science, or the physical sciences. For other majors, see item 2.
2. Submit GRE (Graduate Record Examination) scores for the General Test.
3. Undergraduate courses should have been completed in calculus, statistics, computer programming, work methods analysis, quality control, and other courses as required. Where an applicant's background is deficient, foundation courses will be required.
4. Program requirements should have been completed in senior engineering courses.

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. 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.
   c. 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:
   a. Eighteen (18) hours, six (6) courses, of core requirements: IME 516 Design of Experiments and Regression Analysis; IME 606 Capital Budgeting and Cost Analysis; IME 611 Deterministic Methods in Operations Research; IME 630 Advanced Simulation Modeling and Analysis; IME 642 Ergonomics and Occupational Biomechanics.
   b. Six (6) hours of IME 700, Master's Thesis.
   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.
   d. An overall 3.0 grade point average.

THESIS OPTION

Program Requirements

1. An approved integrated program with a minimum of 30 hours of graduate work, distributed as follows:
   b. Six (6) hours of IME 700, Master's Thesis.
   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.
   d. An overall 3.0 grade point average.

1. To increase the breadth of understanding of the student's responsibilities to a technically educated individual 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 professional 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 eight 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 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.
   c. An overall 3.0 grade point average.

Master of Science in Manufacturing Engineering

Advisor: Paul V. Engelmann, 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.

1. Core courses (15 hours):
   - IME261 Engineering Statistics
   - IME262 Probability for Engineers (or STAT 565, Design of Experiments for Quality Improvement)

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 2016, 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 362 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.

Program Requirements
1. 18 hours of core courses
2. 9 hours of approved electives
3. 3 hrs. of project (IME 697)

THESIS OPTION—30 hrs.

Program Requirements
1. 18 hours of core courses
2. 6 hours of approved electives
3. 6 hrs. of thesis (IME 700)

Approved Electives for both options
- Business and Finance
  - ECON 603 Advanced Price Theory
  - ECON 619 Introduction to Econometrics
  - IME 606 Capital Budgeting and Cost Analysis
  - IME 612 Production/Operations Management
- International and Manufacturing Economics
  - IME 508 Advanced Quality Management
  - IME 604 Facilities Planning and Design
  - IME 606 Reliability Engineering
  - IME 612 Production/Operations Management
  - ECON 607 Uncertainty and Information
  - MGMT 650 Managing Change

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 I
- STAT 662 Applied Linear Models
- STAT 664 Design of Experiments I
- STAT 680 SAS 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 retake the exam in the next semester. A second failure results in dismissal from the program. Candidacy will be approved or delayed 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. Twelve (12) hours of electives from the engineering management concentration area.
   c. Nine (9) hours from one of the area of specialization course groups.
   d. Eighteen (18) 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, research assistantships, teaching assistantships, and special graduate 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 degrees in engineering management or industrial engineering. Prerequisites: 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 124 and IME 254.
IME 503 Manufacturing Materials Fundamentals (3–3) 3 hrs.
The course is focused upon the study of identification, properties, processing, applications, and testing techniques of industrial materials. Topics discussed include: metals, plastics, 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 OMD 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 between service and manufacturing 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; and work space 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 through 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 part families, 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 fixturing.

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 for credit with a different topic. Prerequisite: Consent of instructor.

IME 658 CAM Applications (3–0) 3 hrs.
Custom design of post-processors. Creation of CNC programs through graphical-based systems. Strategies and techniques, including Computer-Aided Processing Planning (CAPP), to migrate data from CAD to CAM systems. Computer hardware and software requirements for integrated manufacturing. Prerequisite: IME 507.

IME 681 Process Monitoring and Control (3–0) 3 hrs.
The study of process improvement techniques which will ultimately lead to quality products. Process improvement includes the reduction of variability in process during the manufacturing stage resulting in improved product quality. A team problem solving approach utilizing data acquisition systems and statistical methods are emphasized. Practical industrial applications of process monitoring and control are reviewed. Prerequisite: An introductory course in statistics.
MECHANICAL AND AERONAUTICAL ENGINEERING

Dr. Parviz Merati, Chair
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William W. Liu
Parviz Merati
Koorosh Naghshineh
Iskender Sahin
Rameshwar P. Sharma
Denis J. VandenBrink
Molly W. Williams

Master of Science in Engineering (Mechanical)

Advisors:
Jerry Hamelink
Room 2065, Kohrman Hall

Graduates with the Master of Science in Engineering (Mechanical) look forward to career opportunities at higher levels of responsibility. The areas of opportunities include, but are not limited to, mechanical systems, thermal and fluid systems, noise and vibrations, and finite element analysis. Opportunities for mechanical engineers continue to develop with the rapid expansion of the knowledge base.

Class sequencing and scheduling (in the evening hours) are arranged so that a working engineer can complete the program in three years while maintaining full-time employment.

Admission Requirements

1. Bachelor of Science in Engineering from an ABET/EAC accredited program.
2. Grade point average of 3.0 (A=4.0) or better in the last two years of undergraduate work.

Applicants with degrees in other engineering fields or related disciplines may be considered for admission after they have satisfactorily completed the necessary undergraduate prerequisite courses prescribed by the department's graduate advisor.

Probationary admission is granted to a student with a baccalaureate degree in engineering plus six (6) hours of mathematics-oriented courses. A student admitted on non-degree probationary status may establish eligibility for regular admission by completing the specified prerequisite courses, and grading grades of "B" or better in each course in the first nine hours of graduate work.

A student with a baccalaureate degree who wishes to enroll in graduate courses but does not plan to pursue a program leading to a master's degree, or is not eligible for regular admission may enroll in courses for which prerequisite requirements are satisfied with Permission to Take Graduate Classes (PTG) status. If the student later decides to apply for regular admission, no more than nine hours of work taken under PTG status will be considered part of a degree program.

Program Options and Requirements

Students may choose the Thesis Option or the Non-Thesis Option as described below. A specific program of study for each student is determined in conjunction with and subject to approval of the student's advisor.

THEESIS OPTION

This option of the Master of Science in Engineering (Mechanical) consists of thirty hours, of which six must be taken as thesis.

Program Requirements:

1. A minimum of thirty (30) semester hours of credit, including eighteen (18) hours of approved courses in the area of mechanical engineering, six (6) hours of electives, and six (6) hours of ME 700 Master's Thesis.
2. A minimum of six (6) hours must be mathematics oriented. The mathematics-oriented courses may include mechanical engineering courses (e.g., ME 560, 561, 562, 637, and 661) or electives selected from any engineering department in the College of Engineering and Applied Sciences, or in mathematics, computer science, and the physical sciences. Students who choose to take a class outside the ME approved list of graduate courses must obtain the approval of the ME graduate advisor prior to registering for such classes.
3. Satisfactory completion of six (6) hours of ME 700, Master's Thesis under the guidance of the thesis advisor and committee.

NON-THESIS OPTION

This option of the Master of Science in Engineering (Mechanical) consists of thirty-six (36) hours, of which up to six may be taken as project.

Program Requirements:

1. A minimum of thirty-six (36) semester hours of credit, including thirty (30) hours of approved courses in the area of mechanical engineering plus six (6) hours of electives.
2. A minimum of six (6) hours must be mathematics oriented. The mathematics-oriented courses may include mechanical engineering courses (e.g., ME 560, 561, 562, 637, and 661) or electives selected from any engineering department in the College of Engineering and Applied Sciences, or in mathematics, computer science, and the physical sciences. Students who choose to take a class outside the ME approved list of graduate courses must obtain the approval of the ME graduate advisor prior to registering for such classes.
3. Up to six (6) hours of project (ME 697) may be taken as part of the thirty (30) hours of approved courses in the area of mechanical engineering for research conducted under the supervision of a department faculty member.

Doctor of Philosophy in Mechanical Engineering

Advisors:
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.

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's qualifications. 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, levels 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 mechanics; materials; control systems; and dynamics and vibrations. Prior to taking the qualifying examination, the student must identify a graduate advisor and obtain approval from the advisor to proceed with the examination. Intensive and successful use of the required area of competency in the research work must be approved by the dissertation committee.

A minimum of 45 graduate credit hours beyond the Master of Science degree is required, including a minimum of 30 credit hours of course work and 15 credit hours of dissertation (ME 730). At least 18 of the 30 non-dissertation credit hours 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.

Open to Upperclass and Graduate Students
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 planning methods, conformal mapping, and singular distributions for flows around two- and three-dimensional bodies. Familiarity with VMS and some FORTRAN experience are 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/fire 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. Prerequisites: 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.  
Basics of experimental techniques and modeling used in industry to study inelastic deformations, fatigue, and fracture of engineering materials and structures. Prerequisite: ME 365 or consent of instructor.

ME 571 Gas Dynamics (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 and non-linear characteristics. Prerequisites: ME 431, 432.

ME 572 Advanced Thermodynamics (3–0)  
3 hrs.  
Conditions of equilibrium, process and thermodynamic engine, 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 253.

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-NUT method, 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 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 astrodynamics 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 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. Prerequisites: 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 modeling 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 I–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 232 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 Tustin 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 speckle pattern interferometry. Optics and 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 Parabolized 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 652 Mechanics of Composite Materials (3–0)** 3 hrs.

**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; a 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. Fracture mechanics, fatigue, 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 657 Viscoelastic Behavior of Solids (3–0)** 3 hrs.

**ME 658 Similarities in Structural Dynamics (3–0)** 3 hrs.

**ME 659 Multidisciplinary Design (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 non-linear 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 simulation. **Prerequisite:** 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 equation; modal analysis; attenuation; acoustics of pipes, ducts, cavities, wave guides and resonators; environmental, architectural, underwater and astronautic applications. **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. **Prerequisite:** ME 589 or consent of instructor.

**ME 671 Advanced Heat Transfer I—Conduction Heat Transfer (3–0)** 3 hrs.
Fundamental aspects 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—Convective 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)** 3 hrs.
A specialized course dealing with some particular advanced area of Mechanical Engineering not included in other course offerings. May be repeated for credit up to six credits. **Prerequisite:** Consent of instructor.

**ME 697 Problems in Mechanical Engineering (1–6)** 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. May be repeated up to maximum of six hours.

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

**ME 700 Master's Thesis** 6 hrs.

**ME 710 Independent Research** 2–6 hrs.

**ME 730 Doctoral Dissertation** 15 hrs.
PAPER AND PRINTING
SCIENCE AND ENGINEERING

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Alexandra Pekarovicova
David K. Peterson
Dewei Qi
Abhay Sharma
Adjunct Faculty
Masood Akhtar
Do Ik Lee
Jay Unwin

Master of Science in Paper and Imaging Science and Engineering
Advisor: John Cameron, Room 2690, McCracken Hall

The Master of Science in Paper and Imaging Science and Engineering is designed to provide theoretical, laboratory, and pilot plant experiences which are basic to the development of professional competence in paper, printing science and engineering. The department has leadership in the areas of pulping and bleaching, recycling and deinking, papermaking, coating, and printing, and it is internationally recognized in the fields of paper coating and coating technologies. Its laboratories and equipment are the most complete of any similar academic institution featuring a semicommercial-sized thermomechanical pulper, complete recycled fiber pilot plant, papermachine, coater, and printing presses.

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 (30) 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.
3. A minimum of three (3) semester hours of course work outside the Department of Paper and Printing Science and Engineering.
4. 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. Some formal course work, much of it possibly accepted from course work completed to achieve a master's degree, is required to prepare for and support an original research problem chosen by the student in consultation with the Dissertation Advisory Committee. However, the degree is awarded for the attainment of knowledge of the paper and imaging science and engineering disciplines and for original research, the degree is not awarded for accumulation of course credits. Thus, the key component of the program is the Dissertation Advisory Committee's careful and continuous monitoring of the student to develop necessary skills and knowledge to support advanced research.

Admission Requirements
Application materials may be obtained from the Office of Admission and Orientation, Graduate Admissions or from the Department of Paper and Printing Science and Engineering. International students should contact the Office of International Student Services for the appropriate materials and information.

All applicants must meet the general admissions requirements for the Ph.D. specified by the Graduate College. In addition, the applicant must have completed a master's degree in a discipline relevant to paper and imaging science with a minimum 3.5 grade point average. The Graduate Record Examination, General Test, is required of all applicants, as are at least three letters of recommendation and a letter describing the applicant's research interest. International students must also submit the TOEFL scores.

Admission determinations will be made by the department's Doctoral Studies Committee and will take into consideration the student's previous academic training and record of achievement, the GRE score, the recommendations provided in letters from three referees, and the information about the proposed area of study described in the letter of interest.

Program Requirements
Following a student's admission to the program, the department's Graduate Advisor will be the student's temporary advisor until the Dissertation Advisory Committee is formed, typically within one year of the student's commencement of the program. With the assistance of the Graduate Advisor, the student will select a Chair of the Dissertation Advisory Committee and, in consultation with the Chair, the student will form an entire Dissertation Advisory Committee, comprising at least three members. After the Chair of the Dissertation Advisory Committee is chosen, primary responsibility for the student will be transferred from the Graduate Advisor to the Chair. The Graduate Advisor, however, will continue to monitor the student's progress and assist the Chair of the Dissertation Advisory Committee to ensure prompt compliance with all University and program requirements.

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 tools and after completing PAPR 620 and 650, the student may be able to satisfy all the requirements and competencies with fewer than thirty hours. Upon formal petition by the Chair of the Dissertation Advisory Committee and the Graduate Advisor and with the Chair's submission of a program of study that indicates the student's satisfaction of all requirements and competencies, the Dean of The Graduate College may waive that requirement. Such waivers must be sought and approved on a case by case basis.

In addition to the requirements of The Graduate College, the following requirements for the Doctor of Philosophy in Paper and Imaging Science and Engineering must be fulfilled.
1. Since applicants must have a master's degree, it is expected that applicants will have completed at least twenty-four hours of foundation course work at the graduate level, exclusive of seminars and research. At the discretion of the Doctoral Studies Committee, applicants may receive credit toward the doctoral course requirements for up to twenty-four hours of course work germane to paper science and engineering at the time of admission to the program. Such graduate level foundation course work may include, as examples, paper physics (PAPR 660), papermaking (PAPR 650), pulping and bleaching (PAPR 698), recycling (PAPR 655), environmental engineering (PAPR 693), digital printing (PAPR 621), and ink technology (PAPR 630).

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.
Paper and Printing Science and Engineering Courses (PAPR)

Open to Upperclass 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 characteristics, and the printing process and resulting print quality. Main techniques of printability evaluation 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.
Intermediate forces are considered in detail to build a sound background for consideration of surface and colloidal behavior of matter. 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: liquid boundaries, 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, picking and runnability are the major areas of concentration. Printing problems and quality 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, electrophotography, 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 involved. 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 680 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. The paper manufacturing phase is 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.

Master of Fine Arts in Performing Arts Administration

This professional degree program leading to a Master of Fine Arts in Performing Arts Administration 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.)
Students must complete 36 hours prior to graduation. Arts 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.
5. Four hours in ART 625, Graduate Seminar.
6. Required reviews: At the end of each student's first and second semester, a formal review by The Graduate Program Committee will: (a) determine continuation of the degree program; (b) a final review for one semester; (c) drop the student from further degree status in the program; (d) drop the student from the M.F.A. degree status and offer the option to pursue M.A. degree status. The 45th hour review will be performed by the student's Graduate Committee who are responsible for supervision of the remainder of the student's program of study, including the final exhibition presentation.
7. Minimum of one year residence on campus required.
8. 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 Fine Arts is granted.

Art Courses (ART)

Open to Upperclass and Graduate Students

ART 510 Drawing Workshop
1–6 hrs.
Continuation of ART 310. Repeatable for credit. 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. Prerequisites: 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. 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. Prerequisites: Art History major, minor or 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 331.

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 338.

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. Prerequisites: ART 342.

ART 543 Ceramics Workshop
1–6 hrs.
Continuation of ART 343. Repeatable for credit. Prerequisite: ART 343.

ART 544 Hand Papemaking
1–6 hrs.
Continuation of ART 344 and ART 345. 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 480 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 167
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 in consultation with the instructor. Repeatable for credit. Prerequisites: 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 Artists' Market; Technology and Computers in Art; Funding Artists and Art Programs; Artists and Society: The Audience and Formation 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.

ART 548 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 549 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.

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 Courses

Dr. Richard O'Hearn, Director
Main Office: 2144 Dalton Center
Telephone: 387-4667
FAX: 387-1113

Richard Adams
John Campos
David Lobreg Code
Curtis Curtis-Smith
Igor Fedotov
Delores Gauthier
Daniel Jacobson
Stephen 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 Moonert
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 Steels
Scott W. Thornburg
Linda Trotter
Bruce Uchinura
Karen Wicklund
Brian Wilson
Steve M. Wollfinbarger
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. The 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
recommendation for degree candidacy will be approved if the student has demonstrated a sufficient level of scholarship and musicianship.

Preliminary Examinations are administered prior to entry to the graduate music program. Areas of examination include performance, music history/literature, music theory, music therapy, functional piano, and conducting (including aural skills). The areas in which the student will be tested are determined by the choice of area of concentration.

Program Requirements
The graduate student advisor in the School of Music works 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, realize the full value and depth of the University’s graduate offerings. 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 limitation that may apply to the student’s completion of degree requirements. The program of study in each of the five areas of concentration is as follows:

**PERFORMANCE (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. Sight-reading may be requested. Vocal majors must demonstrate piano skills and a proficiency in French, German, and Italian diction. Deficiency course work will not apply toward the degree.

Concentration Requirements
1. Required courses: MUS 610, Introduction to Research in Music (3); MUS 600, Applied Conducting (3); MUS 600, 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.

**COMPOSITION (Minimum of 30 hrs.)**

Admission Requirements/Procedures
Preliminary examinations in theory, history/literature, and performance. An interview and placement interview-auditions in piano, composition, electronic composition, musical acoustics, and counterpart. Before the student will be admitted to this area of concentration, the composition faculty must review and approve the student’s prior compositional work.

Concentration Requirements
1. Required courses: MUS 610, Introduction to Research in Music (3); Music Composition 662 (6); MUS 700, Master’s Thesis in Composition (6), including oral exam.
2. Cognate music studies: applied music, 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.
4. Proficiency in keyboard must be demonstrated, but course work may not apply to degree.

**CONDUCTING (Minimum of 30 hrs.)**

Admission Requirements/Procedures
1. Bachelor’s degree in music or its equivalent, including sixty (60) semester hours of acceptable work in music.
2. Two years of conducting experience in public school or equivalent experience recommended.
3. A videotape (VHS) demonstrating the applicant’s conducting skills must be received on or before February 15. Applicants who pass this initial screening will be invited for a conducting audition in the spring.
4. A live audition will be administered on the Western Michigan University campus by three full-time members of the conducting faculty, with a fellow being outside the applicant’s conducting area. Applicants will a) conduct an appropriate University ensemble on a work or on works to be selected with the appropriate conducting faculty member; b) demonstrate aural perception and score reading skills; and c) demonstrate, if a choral applicant, keyboard competency, singing proficiency, and dictation proficiency (English, French, Italian, and German). Applicants will be informed of their audition results within ten (10) days of their audition date. The graduate coordinator of graduate studies in music will accept the student to the conducting program prior to their first semester of enrollment.
5. The preliminary examinations in music theory, history, and literature must be completed prior to the applicant’s first semester of enrollment. Applicants must achieve a minimum score of 70% in each area of the examinations. Remediation may be prescribed as a result of deficiencies in any of the audition/preliminary examination areas. Courses prescribed to remedy deficiencies will not count toward degree requirements.

**CONCENTRATION (Minimum of 30 hrs.)**

Admission Requirements/Procedures
This undergraduate credit, however, will not count toward the degree.

**MUSIC EDUCATION**

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 640, Philosophy of Music Education (2); MUS 650, Seminar in Music Education (2); Cognate music studies: composition, music education, history/literature, theory, and music therapy, may complete the required 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."

**MUSIC THERAPY**

Admission Requirements/Procedures
A Bachelor of Music degree or its equivalent (60 hours of music courses) and a major in music therapy are required for admission. Students who have a Bachelor of Music degree, but do not have a major in music therapy, may complete the required six-month internship, for Board Certification while the graduate program is in progress. This undergraduate credit, however, will not apply to the graduate degree. Equivalency requirements may be obtained from the Director of Music Therapy in the School of Music.

Upon entrance to the program, the student will take Preliminary Examinations in theory, history/literature, music therapy, and functional piano. Information derived from these examinations plus that derived from the audition, transcripts, and initial interviews will be used to determine the program of study.

Concentration Requirements
1. Required courses: MUS 610, Introduction to Research in Music (3); MUS 680, Seminar in Music Therapy (2); MUS 681, Research in Musical Behavior (2); MUS 679, Composers (2); and MUS 700, Master’s Thesis (6)* or MUS 712, Professional Field Experience (2)*.

*MUSIC 169
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 history/literature. The 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 made 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 works 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 (2); MUS 650, Seminar in Music Education (2); Elective in Music Education (2); Cumulating option (choose a or b or c) 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 for the purpose of dealing with materials and techniques common to all performers. May be repeated for credit.

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 quintets, 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, accompanied 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 membership by preparation of an ensemble for public performance. Prerequisite: Audition required.

MUS 518 Improvisation
2 hrs. A course in the fundamentals of instrumental improvisation. The student will be made in such areas as improvisation in the early music tradition, improvisation on given melodic, harmonic, and/or rhythmic materials, 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 not 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 partially qualify it for publication. Prerequisite: CS 105 or 502 or consent of instructor.

MUS 555 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 notations, 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
2 hrs. A study and application of the art of arranging for the jazz ensemble, studio orchestra and show orchestra. The course will undertake a detailed study of scoring for winds, brass, strings, voices and percussion in relation to traditional and contemporary trends within the medium. 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 basic chord and scale construction and recognition, harmonic function, chord-scale relationships, and basic blues and popular song forms. All students will be required to develop aural and performance skills relative to those theory skills. 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, Prerequisite: 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,
MUS 565 Seminar in Music Theory 2 hrs.
Research projects in music theory. Research methods and an analytic discipline are stressed. Study will be focused in an area of the student's need or interest. 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: Permission 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 chief 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 Orchestral Literature 2 hrs.
A survey of opera from 1600 to the present. Prerequisite: MUS 570.

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, anthem, cantata, oratorio) from the Renaissance through the Romantic period. Prerequisite: MUS 270.

MUS 582 Wind Music Literature 2 hrs.
A survey of windband ensembles and literature from the Renaissance period through the twentieth century. Prerequisite: MUS 558 or department's consent.

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 the 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 the 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. Prerequisite: MUS 270.

MUS 588 Music Cultures of the World 3 hrs.
This 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, anthropology, folklore, cultural studies, 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 predominately a technique course, areas with special emphasis 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. The approach, 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 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. Microwave 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 or 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 632 or equivalent.

MUS 664 Form in Music
2 hrs.
A survey of the musical forms, large and small, used from the Baroque period to the present day. Analysis of both structure and texture of representative works of the various periods and styles.

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.

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 material 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.

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 presentations, 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 562 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 alongside 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.
BLINDNESS AND LOW VISION STUDIES

Dr. Paul Ponchillia, Chair
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David Guth
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Paul Ponchillia
Susan Ponchillia
Annette Skellenger
Marvin Weessies
Helen Lee
Annette Skellenger

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. 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 Wiebold, Room 3411, Sangren Hall

This program** (RCT) is jointly administered by the Department of Blindness and Low Vision Studies and the Department of Counseling, Education, and Counseling Psychology. The seventy-seven hour Rehabilitation Counseling/Teaching degree program prepares a dually competent practitioner who is able to provide both rehabilitation counseling and 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 acquired or 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/recreation.

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 combine 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.

*Leads to national certification
**Leads to Michigan license as a counselor and national certification

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 aspects 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 Braille and Tactual Communication Systems 2 hrs.

This course is designed to teach the Braille literary code as it applies to Rehabilitation Teaching. Braille 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.


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.

BLRH 599 Gerontology 2 hrs.
This course offers an overview of the demographic, economic, health, social and psychological circumstances of the aging population in the United States and the related service systems.

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 695 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: 387-3800
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Thomas Holmes
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Janet Pisaneschi
C. Dennis Simpson
Molly Vass
Eo Weits
Donna Weinreich

The School of Community Health Services encompasses educational programs targeted at the significant unmet health and human service needs of our society, at developing health and human service professions and disciplines, and at emerging health and human service specialty 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

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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, CEP 631, or SWRK 663—Seminar in Substance Abuse I (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 667 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.

Certificate Program in Alcohol and Drug Abuse

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 with 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 seminars, 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 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.
ADA 598 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/abusedependence 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 services 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)
Open to Upperclass and Graduate Students
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
Dr. Donna M. Weinreich, Director
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Certificate Program in Gerontology
Advisor:
Dr. Donna M. Weinreich, Director,
B303 Ellsworth 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.

Gerontology Courses (GRN)
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 intersection 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

Community Health Services
Open to Upperclass and Graduate Students
GRN 670 Approaches to Aging
3 hrs.
This course is a graduate-level introduction to the issues facing older persons, their providers and caretakers. Professional inter- and multi-disciplinary, 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 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 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
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**Certificate Program in Holistic Health Care**

Advisors:
Dr. Thomas Holmes, Director
B313 Ellsworth Hall
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 current professional role or equip themselves for new opportunities in the 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.)
- **HOL 712** Professional Field Experience (3 hrs.)

or equivalent credit from a related graduate degree program with approval of the Holistic Health Faculty Advisor. Cognates in Holistic Health (6 hrs.)

**Holistic Health Care Courses (HOL)**

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 holistic care 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 beliefs 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 Counseling 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, along with research studies that outline holistic ways to delay, prevent, or positively treat common chronic diseases will be presented along with policies and programs 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...
Admission to the graduate certificate program Credit/No Credit basis.

HOL 598 Readings in Holistic Health
This course is offered as individualized, independent study and reading under 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 advisor.

Open to Graduate Students Only

HOL 650 Seminar in Holistic Methods I 3 hrs.
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 the students to engage in experiential activities focused on the integration of holistic models and modalities into a healthcare setting or practice 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.

HOL 651 Seminar in Holistic Methods II 3 hrs.
An opportunity for further exposure to additional holistic methods utilizing the same format and evaluation system as HOL 650. Prerequisite: HOL 531.

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

HOL 712 Professional Field Experience 2-12 hrs.
The purpose of this course is to 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 disconnection in mind, emotions, and body. Prerequisites: HOL 531, 650, 651.

Interdisciplinary Health Studies

Doctor of Philosophy in Interdisciplinary Health Studies
Advisors: 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, strong 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 3.5/4.0.
3. Completion of 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 delivered through: distance education, on-campus intensive weekend sessions held three times per semester, or on-campus three-week long 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:
   a. Interdisciplinary core (15 hours)
   b. Research and statistics module (12 hours)
   c. Group interdisciplinary research practicum (6 hours)
   d. Pedagogy module (9 hours)
   e. Disciplinary cognate (9 hours)
4. Successfully complete the Comprehensive Examination. This is performance-based and includes the submission of a competitive research grant proposal, submission of a research paper for publication, the development of a 3-credit course using innovative pedagogy, and a critical analysis of a HHS program or policy.
5. Successfully complete and orally defend a dissertation on a research topic approved by the dissertation committee.

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 assistantships 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 3 hrs.
Provides a systematic approach to understanding the origin, evolution, and utilization of health and human services in the United States, including comparisons with the provision of services in other countries. Concepts and perspectives concerning the influence of economics and politics on current service provision are also explored. The course examines the institutional and individual providers, alternative delivery models, the dynamics of health and human service markets, and the impact of changing service environment on service organizations and delivery strategies. Topics such as managed care including Medicaid Managed Care, community health care, and the development of services responsive to the needs of special populations, multicultural societies, and underserved communities will be discussed. Prerequisite: Admission to the Ph.D. in Interdisciplinary Health Studies or permission of director.

IHS 626 Qualitative Research Concepts in HHS 3 hrs.
Provides students with the ability to design, conduct, and analyze research findings using various qualitative research methods. These methods include comparative, historical, case study, content analysis and other types of observation and interview strategies for data
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 IHS 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 IHS 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 true 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 draft 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/family 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.

IHS 713 Practicum in Teaching in the Discipline 3 hrs.
Students will apply the theory and techniques learned in the pedagogical module and develop instructional skills through participation in a supervised teaching practicum. The student will teach an entire semester-length, three-credit course. This mentored teaching experience will provide the student with a wide range of instructional experiences, including course preparation, instruction, and assessment of students. The student must use innovative instructional techniques. Prerequisite: Admission to the Ph.D. in Interdisciplinary Health Studies or permission of director.

IHS 730 Doctoral Dissertation 1-12 hrs.
The research practicum will provide students with an introduction to interdisciplinary research and to working collaboratively in teams under the guidance and supervision of a faculty member. Students will begin this longitudinal interdisciplinary group research practicum during the second semester of the program and complete it by the spring semester of the following year. The research will form the basis for the paper that must be submitted for publication as a requirement of the comprehensive examination. The paper will be due at the end of the spring session of the second year of the program. 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
3 hrs.
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
3 hrs.
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 with each semester offering. Prerequisite: Consent of instructor.

HHS 535 Pharmacology for Health Professionals
3 hrs.
This course focuses on basic principles in pharmacology and pharmacotherapy. 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 studies. The specific areas are announced with each semester. 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 team 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.
The Department of Occupational Therapy offers two graduate programs which lead to the Master of Science: The graduate occupational therapy—and the graduate baccalaureate degree in an area other than occupational therapy—and the graduate program for certified therapists (advanced level). The Department also offers a Graduate Certificate Program in Hypothesis.

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—i.e., those with a baccalaureate degree in an area other than occupational therapy—and the graduate program for certified therapists (advanced level). The Department also offers a Graduate Certificate Program in Hypothesis.

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.
2. A cumulative grade point average of 3.0 or better in the most recent 60 hours of undergraduate and graduate academic course work.
3. Evidence of the following criteria:
   a. Human Growth and Development through the Life Span (OT 225)
   b. A course in, or demonstration of, basic computer literacy skills (CS 105 or BIS 102)
   c. A course in introduction to occupational therapy (OT 202)
   d. A course in social/behavioral sciences
   e. English composition (Proficiency 1 of General Education requirements)
   f. Six to eight credit hours of biological sciences, including human anatomy and physiology (BIOS 191, or BIOS 211 and 240)
4. A course in social/behavioral sciences
5. English composition (Proficiency 1 of General Education requirements)
6. 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.

1. Cumulative grade point average
2. Documentation of knowledge and experience as demonstrated by answers to narrative essays on the application form in the following areas:
   a. Course work
   b. Statement of leadership roles
   c. Statement of professional and personal characteristics
3. 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 620 Community Model 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 666 Graduate Seminar 3 hours

OCCUPATIONAL THERAPY 183
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 to continue 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 three 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 686 Graduate Seminar (3 hours)
OT 700 Master's Thesis (6 hours)
OT 710 Independent Research (6 hours)

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 and unique environment 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 Underclass and Graduate Students
OT 530 Sensory Integration and the Child 3 hrs.
Study of the theoretical principles and their application to evaluation and treatment of the child with sensory integrative 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.
Examine 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 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, neurophysiology, 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 Neurodevelopmental Treatment for Pediatrics 3 hrs.
Foundations of neurophysiology and motor development in neurodevelopmental treatment. Application of neurodevelopmental theory, treatment principles and techniques to occupational therapy. Special attention will be given to the occupational therapy program.
management problems of children with neuromotor disorders. Prerequisite: 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. Prerequisite: 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. Prerequisite: OT 660.

OT 666 Graduate Seminar
3 hrs.
This course examines topics relevant to new developments in environmental adaptations, treatment techniques, and innovations in the delivery of occupational therapy services. Prerequisites: All required undergraduate course work except Fieldwork II (OT 453 may be taken concurrently).

OT 667 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. Prerequisite: 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. Prerequisite: 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 lunging, backing, horse training and maintenance, mounting and dismounting, emergency procedures, and patient evaluation and treatment planning. Prerequisites: HT 602, HT 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, HT 604.

HT 670 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.
Master of Science in Medicine in Physician Assistant

Advisor: 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 education curriculum, accredited by the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA), allowing graduates to sit for the national certification examinations, 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 at least 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 (CASA). Applications must be complete 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 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 95 semester hours taken in prescribed sequence over a continuous 24-month time period. The first year 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: James VanRhee
Main Office: A310 Ellsworth Hall
Telephone: 387-5311
FAX: 387-5319

Clinical trials are used to evaluate and test new pharmaceutical 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 extensive in recent years, requiring greater groups of qualified research personnel to administer the trials. These people are employed by pharmaceutical/medical device companies, contract research organizations, or by the physician office 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 educational opportunities 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. All courses will be available on-campus and through distance education.

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 pharmacology. 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 eye, 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 understanding of the pathophysiologic complexity and 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 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 understanding of the pathophysiologic 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 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 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 605 Neuropsychiatry and Endocrine 8 hrs.

This 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 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 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 Gastrointestinal and Hematology 6 hrs.

This course provides a foundation for the understanding, diagnosis, and treatment of diseases of the gastrointestinal and hematological 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 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 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 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 implementation, and for counseling and educating patients. Learning methods include lecture format, skills performance, clinical problem solving, narrative case study, group problem solving, patient evaluation. Students will continue 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 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: Admission to the Physician Assistant program or departmental permission.

MDSC 612 The Diagnostic Process II 2 hrs.

This is the second in a series of three courses presented sequentially through the pre-clinical year of training. This course provides opportunities for the systematic evaluation of patient problems through history and physical examination, problem exploration, critical thinking and creative problem solving, lectures, demonstrations, group problem solving, practicum sessions, student examination, and patient evaluation. Students will continue 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 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 develop the 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 course introduces 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, management, 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.
Successful completion of prior semester PA course work or departmental permission.

MDSC 633 Primary Care Medicine II 5 hrs.
This is the third 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 form 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, 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: Admission to the Physician Assistant Program 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 requisite 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 transference/counter transference. Theories of personalty 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 requisite 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 transference/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 requisite 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 transference/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 655 Professional Issues for Physician Assistants I 1 hr.
This is the first in a series of two courses designed to examine the role of the Physician Assistant and the place of the PA profession in society. It also examines the legal aspects of P.A. practice including licensing, malpractice, supervision, delegation, and prescribing. Finally, it addresses the ethical and practice standards which society expects of a medical professional. Prerequisite: Admission to the Physician Assistant program or departmental permission.

MDSC 656 Professional Issues for Physician Assistants II 1 hr.
This is the second in a series of two courses designed to examine the role of the Physician Assistant and the place of the PA profession in society. It also examines the legal aspects of P.A. practice including licensing, malpractice, supervision, delegation, and prescribing. Finally, it addresses the ethical and practice standards which society expects of a medical professional. Prerequisite: Successful completion of Professional Issues for Physician Assistants I.

MDSC 661 Pharmacotherapeutics I 2 hrs.
This is the first of a sequence 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 a sequence 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 a sequence 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 an understanding of anatomical concepts as they pertain to clinical problem solving and physical diagnosis. A laboratory component involving the study of cadaver projections 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 cadaver 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 cadaver 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 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 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, 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 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, 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 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 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 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 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 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 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 687 Professional Field Experience – Internal Medicine**
8 hrs.
This course will place the student in a structured internal 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 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 690 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 680 in a practical clinical manner. This is the culminating 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 regulations, 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

Dr. Earlie Washington, Director
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Donald Cooney
James Henry
Peter Judd
Tracey Mathey
Frederick MacDonald
Gary Mathews
Robin McKinney
John Nielsen
Linda Reeser
Kenneth Reid
Soshana Shonfeld-Ringel
Karen VanDeusen
Betsy Voshel
Earlie Washington
Ineke Way
Susan Weniger
Robert Werthkin

Master of Social Work

Director of Admissions and Student Services
Nancy McFadden
Room 402, Moore Hall
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 opportunity for participation in social work-related graduate certificate programs. Included are Alcohol and Drug Abuse, 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 the Graduate Self-Managed Application and one for the School of Social Work. Both applications can be obtained either from the Office of Admissions or the Graduate 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 experiences, 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 all 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 course 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. 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 credits:
   - Required Foundation Courses in Social Work (21 hours)
   - Required Concentration Courses in Social Work (15 hours)
   - Elective Courses in Social Work or in other University departments (6 to 9 hours)

2. Field Education: Students are required to complete two years of field education. The student's first-year field assignment is a Placement Concentration, 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 fall and winter semesters. Full-time students begin field education the first semester, taking field education courses concurrently.

   Extended-study students begin field education in the second fall semester of the program, taking field education 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, 422 hours; and advanced-standing, 500 hours.

3. Proficiency exams are available in SWRK 610, 630, 631, 633, and 640. Students have the option of receiving full credit for those courses in which proficiency exams are passed.

4. Students admitted to the M.S.W. Advanced Standing Program must complete a minimum of 39 credit hours of required graduate courses.

5. 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.

6. Transfer credit requests are processed after admission by the Director of Admissions and Student Services.

7. Students may take up to 9 hours of PTG (Permission to Take Graduate Classes) credit before admission is offered. An additional 3 PTG hours of credit (up to a maximum total of 12 PTG hours) may be transferred into the student's program after 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.


This course provides students with a conceptual and theoretical framework for understanding human behavior as 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 631 Human Behavior and the Social Environment 3 hrs.

This course provides students with a conceptual and theoretical framework for understanding human behavior as 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.


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 methods of inquiry in practice. Basic statistical methods are also covered. Prerequisite: Consent of instructor.

Social Work Practice
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 control 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 667 Field Education and Social Work Practice I
3 hrs.
This is the first of two field practice courses that entails 200 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 service 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 668 Field Education and Social Work Practice II
3 hrs.
This is the second of two field practice courses that entails 228 hours in a human service agency. Students further integrate and apply social work knowledge, skills, and values in their field practicums, 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 642 Evaluation of Social Work Practice
3 hrs.
This course focuses on the knowledge and skill to understand and carry out research on social work practice. The components of the course consist of program evaluation, designs appropriate for the evaluation of clinical practice, and studies of empirical research that address the features and effectiveness of interventions in relation to the conditions that are targeted for amelioration. The course is designed to help practitioners make informed judgments about the utility of different treatment modalities, and their impact for service delivery design. Prerequisite: SWRK 640.

SWRK 666 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 646 may replace SWRK 642 and one ethical and one social work practice course in 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 531 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 stresses 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. Special 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 foci of the course. Concepts from communication theory 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 individual, families, 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 636 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. Special attention is paid to interventions which promote optimal psychosocial functioning and development. 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 636, 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 experiential 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 work practice. 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 work practice. Prerequisites: SWRK 636, 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 686 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, 669.

**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 676 Program Planning** 3 hrs. The course addresses the models, stages, and tasks of program planning in the human services and social work practice. Students will learn how to work with a team in planning a service program. The course focuses on the tasks that are essential in carrying out a program 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 689 Advanced Seminar in Planning and Administration** 3 hrs. The course addresses the recruitment, selection, development, supervision, and evaluation of professional 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&Acourses 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 design, develop, and exercise practice skills for working in community practice social welfare organizations and special programs. Students 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 on 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 Underclass 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
endevors. 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 interventional 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 664 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.

**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.

The specific contributions of a school social worker as a helping person to the pupils, the school staff, and the homes by various interventional means are explored. **Prerequisite:** Consent of instructor.
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. Recommendations 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 plus 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 decide on his/her own to seek the master’s degree without qualifying for ASHA clinical certification; students interested in such an arrangement must consult with their departmental 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. 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.

Doctor of Audiology
This program becomes effective Fall 2003

Advisors: Harold L. Bate, Room 203, Speech and Hearing Center Gary D. Lawson, 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 of the American Speech-Language-Hearing Association (ASHA). Students who complete the program will meet the standards for certification of clinical competence in audiology 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 assignments to off-campus 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 on the human communication processes (at least nine semester credit hours including one course in the 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 15 semester credit hours (or equivalent) in courses that provide information on basic human communication processes (at least one course in cognitive psychology or cognitive science, one course in speech and language development, and one course in the science of speech and hearing); and
   c. At least 12 semester credit hours (or equivalent) of coursework in audiology and speech and language disorders.

   Note: The coursework noted above is typically included in one of the courses specified by the department.

   a. Three letters of recommendation from individuals able to comment on the applicant’s achievements and potential; and
   b. The applicant’s responses to a departmental questionnaire-application.

Applicability 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 written responses to a departmental questionnaire-application. Admission is based on the 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 applicability status is typically determined before students begin graduate study at Western Michigan University, applicants are encouraged to review the department’s practicum requirements before starting. Every winter semester the audiology faculty will review all doctoral students in audiology for satisfactory progress toward completion. Any student not meeting satisfactory progress may be dropped from the program with the approval of the department's Academic and Clinical Education Committee. The faculty reserve the right to withdraw students who are not meeting satisfactory progress to the department's Academic and Clinical Education Committee.

Candidacy Requirements
For applicants with a bachelor’s degree from an accredited college or university.

1. An overall grade point average of 3.25 or better.

   a. Appointment of a scholarly project committee and formal approval by the committee of the scholarly project proposal.

   b. All research tool requirements.

   c. All requirements other than three or fewer courses, professional field experience, and independent research.

   d. A cumulative examination (Examination for the ASHA Certificate of Clinical Competence in Audiology) with a passing score.

   e. 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...
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: SPPA 261, 353, 354, 358.

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 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, electrophysiological 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.

Prerequisite: Department approval.

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, with a particular 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, physiological and psychological 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.

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.

A study of 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 medico-legal 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 electroneuro- and myography, 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, and auditory skills development.  
**Prerequisite:** Department approval.

**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.
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
3 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 representation list of approximately 20 works on which to be evaluated in a two-hour oral examination, conducted by a committee of at least two faculty members. May be repeated up to a total of six hours. Graded on a Credit/No Credit basis. Prerequisite: Doctoral Candidacy.

GRAD 712 Professional Field Experience
2-12 hrs.
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
completed all appropriate course work and any other requirements that should precede the field experience. Permission to elect 712 can be requested only when the student's graduate advisor or committee deems that the project is integral to the student's program of study and approves a prospectus outlining goals, rationale, activities, and methods of evaluation of the proposed field experience. 712 should not supplant required or expected courses in the graduate program.

If a graduate program has a required internship or field experience, approved by the university curricular review process, a maximum of 12 hours of 712 may be applied to the graduate degree. In other programs, which allow an internship or field experience but do not require one, no more than six hours of 712 may be applied to the degree.

Graded on a Credit/No Credit basis.

GRAD 713 Practicum in Teaching in the Discipline 3 hrs.

A practicum in teaching in the discipline will be based on collaborative teaching with an experienced faculty member in a broad-based undergraduate course. There will be opportunity for both guided praxis and reflection on praxis. Graded on a Credit/No Credit basis.

GRAD 720 Specialist Project 6 hrs.

The Specialist Project is designed for the units offering the specialist degree. Candidates for the specialist degree may elect to write a project in their field of specialization under the supervision of a project committee. Prior to the first registration in 720, Specialist Project, 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 of the manuscript and to the requirements for research involving regulated subjects and hazardous materials.

Specialist projects 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 project.

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.PDF.html>.

A specialist project is six credit hours. It may be registered for in increments of one to six hours. Following a student's first enrollment in 720, the student must have continuous enrollment in 720 until all project requirements are completed satisfactorily and approved by the appropriate bodies. A student unable to complete the project within the first six hours of registration will be required to continue to enroll in 720; however, only six hours of 720 will count toward meeting the program requirements for the specialist 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 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 a 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 project. 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 regulated 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. This publication is available for purchase in Western's Campus Bookstore, or for free downloading at <http://www.wmich.edu/grad/guidelines.PDF.html>.

A doctoral dissertation varies in credit from a minimum of 12 credit hours to a maximum of 24 credit hours. The hours required in a program of study are determined by the student's department. The course 730, Doctoral Dissertation, may be registered for in increments of one or more hours. 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-stipulated hours will be required to continue to enroll in 730; however, only the program-stipulated 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.

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 a 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.

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 department committee 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 GRADUATE COLLEGE 199
EXTENDED UNIVERSITY PROGRAMS

Dr. Alan Walker
Vice Provost of Academic Affairs for Extended University Programs

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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 student’s 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 Ellsworth 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 Conferences and Seminars 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 Elsworth 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
  - 6105 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 entire 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 or 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 named 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 nondegree 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 licensure, 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 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 of the course work for their master's or doctoral level program and who have only the thesis or dissertation to complete are required by Western Michigan University to enroll for a minimum of one-hour in thesis or dissertation credits. An enrollment of one-hour for thesis or dissertation will satisfy WMU's continuous enrollment requirement.

However, students must be 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, even 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, student (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 will be 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.

Closed class
A term used during the registration process to indicate that a course has reached its maximum enrollment limit and is therefore "closed" to further registrations.

Cognate
A course, or courses, related in some way to the major area of study for the master's, specialist, or doctoral degree. Cognates may be, and often are, courses outside the department of the degree program.

Concentration
A concentration (or option or emphasis) is a thematically coherent block of courses that are more similar to one another than to others in the degree program. A concentration has a title and constitutes a significant percentage (e.g., 10%) of courses in the degree program. Concentrations (or options or emphases) may be recorded on the student transcript.

Continuing education 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.
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 the 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 credit as that earned in a 500-level class, 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 by total credit hours
Credit earned in a 500-level or 600-level course by attendance in an undergraduate course in a related area.

Credit/No Credit
A method used to evaluate performance in courses which is separate from the letter grade system. "Credit" is earned for grades of "B" or better; grades of "C" or below earn "No Credit." Credit/No Credit courses are not computed into the student's overall grade point average.

Credit hour
A unit of academic credit. One credit hour usually represents one hour of class time per week. See also semester hour and quarter hour below.

Credit load
See Class or credit hour load above.

Deadline
The date by which certain forms or information or payment must be received by an office or unit.

Degree student
A student formally admitted to a master's, specialist, or doctoral degree program and pursuing a planned program of study to earn that degree. See also Program of study below.

Dissertation committee
For each doctoral student a doctoral dissertation committee shall be appointed to review the dissertation proposal, procedures, and results; to make suggestions relative to these concerns to the student; and to decide whether to approve the dissertation and the oral defense as fulfilling these requirements for the doctoral degree. All members of this committee must approve the dissertation and its oral defense, and the dissertation must be in a form acceptable to the unit and to The Graduate College before the student may be awarded the doctoral degree.

Each doctoral dissertation committee shall consist of at least three members. The student's major dissertation advisor shall serve as chairperson of the committee. At least one member shall be from outside the student's department (this person may be from a related cognate discipline, from outside the student's college, or from outside WMU) who shall serve as a bona fide, fully participating member of the committee. The committee shall be approved and recommended by the unit, approved by the office of the appropriate academic dean, and approved and appointed by the graduate dean. Each member of the committee must be either a member or an associate member of the faculty.

Each unit offering a doctoral program shall approve and publish its policies concerning doctoral dissertation committees, including the qualifications for membership on doctoral dissertation committees, the procedures used to select who should serve on these committees, and the specific functions and responsibilities that members of these committees have. The chairperson of each student's doctoral dissertation committee shall indicate in writing the specific responsibilities that individual members of that committee have.

Drop
An official procedure for withdrawing from individual classes without removing registration from all classes. The deadline for the last day to drop a course without academic penalty (grade of "W" is on the transcript) is noted each semester or session in the Schedule of Course Offerings. Students who do not follow the official procedure when dropping a class will earn the grade of "X" for that course, and "W" grade carries no honor points and affects the grade point average in the same manner as an "E" or failing grade. See also Late drop below.

Dual enrollment
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.

Dual enrollment admission 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.

Dissertation
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.

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 conducted in schools. Practicum: 1) a course of instruction aimed at closely relating the study of theory and practical experience, both usually carried on simultaneously; 2) an academic exercise consisting of study and practical work; and 3) supervised experience in counseling or a similar activity. Through such procedures as role-playing, recorded interviews, abstraction analysis, and supervisory evaluation with interviewing techniques. Work experience, co-op, or internship: a sponsored learning experience in an occupational area for persons preparing for full-time employment, conducted in connection with a course of study in which the students spend a part of their time on an actual job in a school, business, or industry.

Full-time student
See Class or credit hour load above.

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.

Grade point
The numerical value given to letter grades. A is equivalent to 4 points; A- to 3.5 points; B to 3 points; B- to 2.5 points; C to 2 points; C- to 1.5 points; and D to 1.0 point. An "E" or X is equivalent to zero points.

Grade point average (GPA)
A scholastic average computed by dividing total honor points by total credit hours attempted. See also Honor points below.

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...
Scholars Award. These awards acknowledge growth in the University’s scholarship and creative activity. They are intended to encourage and reward excellence in academic work. The Graduate Research and Creative Scholars Award recognizes those students whose research or creative activity has exceptional merit to be designated as University Graduate Research and Creative Scholars.

Graduate Research and Creative Scholars Award
The Graduate Studies Council of the Faculty of Western Michigan University establishes a 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 reviews, develops, and recommends policy regarding graduate education at Western Michigan University. It reviews services and needs of 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 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 is 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 of Western Michigan University establishes a 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 Permanent Program of Study
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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 unfilled monetary obligation other than 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 below.

Human Subjects Institutional Review Board of Western Michigan University (HSIRB)
All research involving contact with human research subjects 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 this Board. 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 be converted to an "X" if not removed within one calendar year, or sooner if stipulated by the instructor.

The instructor assigning the grade of "I" will complete and submit a Report of Incomplete Work form 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 complete the course 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.

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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 by 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" in this catalog.

As a condition of academic standing: A student will be placed on probation if the student's overall grade point average falls below 3.0. See also Academic standing above.

Program of study (Graduate Student Permanent 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 Permanent Program is used to conduct the graduate audit, and therefore must be filed well in advance of the student's graduation. Students are expected to acquire the ability to read and think critically and to use methods of inquiry and expression that assist in one's research. Doctoral students are expected to acquire the ability to use research tools, at minimum. Normally, the research tools are selected (and shared) 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.

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 the 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 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 specialist degree in which the project is either required or optional within the department may approve and disseminate additional guidelines concerning specialist project committees. The committee members may include those affiliated with the appropriate faculty 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 specially designated course (598, 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.

Recombinant DNA Biosafety Committee (RDBC) All research that involves recombinant DNA must be reviewed and approved by the Recombinant DNA Biosafety Committee prior to initiation. For more information, telephone the Research Compliance Officer in the Office of the Vice President for Research, 387-8203.

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 for credit (e.g., 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 initial 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 research tools, at minimum. Normally, the research tools are selected (and shared) 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 legislation 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 with 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 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 the 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 germane to all thesis committees, 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 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.

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 at another accredited institution and accepted toward a Western Michigan University degree, if approved by the program advisor and if the earned grade 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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Dr. James W. Schmotter, Haworth College of Business
Dr. Alan Walker, Vice Provost of Academic Affairs for Extended University Programs
Dr. William R. Wiener, The Graduate College
206 THE FACULTY

Bertman, Steven B., 1994, Associate Professor of Chemistry
B.S., Union; Ph.D., Yale

Beylour, Leonard J., 1970, Professor of Biological Sciences
B.A., M.A., Ph.D., California (Berkeley)

Beynen, Himanshu, 1997, Associate Professor of African Studies and of History
B.Sc., Cuttington (Liberia); M.A., Syracuse; Ph.D., West Virginia State

Biber, Kasim, 1998, Assistant Professor of Mechanical and Aeronautical Engineering
B.S., Istanbul Technical; M.S.; Ph.D., Wichita State

Bigelow, Gary E., 1978, Associate Professor of Spanish
B.A., Franklin and Marshall; M.A., Ph.D., Pittsburgh

Biles, James, 2001, Assistant Professor of Geography
B.A., Ohio; M.A., Ph.D., Michigan State

Biscoe, Gary H., 1989, Assistant Professor of Counselor Education and Counseling Psychology
B.A. Bethany (West Virginia); M.S.; Virginia

Blesare, Karen R., 1992, Associate Professor of Family and Consumer Sciences
B.S., Lebanon; M.S., Pennsylvania State; Ph.D., Virginia Technological

Blickle, Peter, 1996, Associate Professor of German
B.A., Western Michigan; A.M.; Ph.D., Michigan State

Boothroyd, Gregory W., 1970, Professor, Counseling and Testing Center
B.A., M.L.S., Michigan State; Ph.D., Michigan

Borden, Sandra L., 1996, Assistant Professor of Communication
B.J., Columbia; M.A.; Ohio; Ph.D., Indiana

Borsh, Robert L., 1991, Assistant Professor of History and of Women's Studies
B.A., Skidmore; M.Ed.; Maryland (College Park)

Bozo, James L., 1965, Professor of Educational Studies
B.Ed., Duquesne; M.Ed., Pittsburgh; Ed.D., Columbia

Boston, Diane, 2000, Assistant Professor University Librarian
B.A., Central Michigan; M.L.S.; Western Michigan

Bowman, Joel, 1975, Professor of Business Information Systems
B.A., M.A., Ph.D., Illinois

Brandao, Jose A., 1997, Associate Professor of History
B.A., Toronto; M.A., Ph.D., York

Breu, Marlene R., 1996, Associate Professor of Family and Consumer Sciences
B.S., James Madison; M.S.; Purdue; Ph.D., Minnesota

Briscoe, Linda A., 1996, Assistant Professor of Teaching, Learning, and Leadership
B.S., Wisconsin (Madison); M.S., Illinois State; Ph.D., Michigan State

Brinkerhoff, Robert O., 1978, Professor of Counselor Education and Counseling Psychology
B.A., M.A., Ed.D., Virginia

Brinkley, Ellen, 1987, Professor of English
B.A. Morris Harvey; M.A., Western Michigan; Ph.D., Michigan State

Brogrowicz, Andrew A., 1979, Professor and Chair, Department of Marketing
B.B.A., M.B.A., Wayne State; Ph.D., Michigan State

Brotherton, Barbara Iff, 1995, Associate Professor of Art
B.A., California (Santa Cruz); M.A., California (Davis); Ph.D., Washington

Brown, Charlene, 1984, Assistant Professor of Speech Pathology and Audiology
B.A., M.A., M.C.J., South Carolina; M.A., Ph.D., SUNY-Albany

Burnie, David A., 1987, Associate Dean, Haworth College of Business and Professor of Finance and Commercial Law
B.A., Guelph; M.B.A., Windsor; Ph.D., Syracuse; CMA, CFA

Burns, Clement, 1994, Associate Professor of Physics
B.A., Princeton (Associate Professor of Physics); Ph.D., California (San Diego)

Burns, James W., 1968, Professor of Teaching, Learning, and Leadership
B.S., Central Connecticut; M.Ed., Ed.D., Pennsylvania State

Burton, K’Anna, 2000, Adjunct Assistant Professor of Community Health Services
B.A., M.A.; Michigan State

Busboom, Sherrill, 1996, Academic Career Specialist, Physician Assistant
B.S., Eastern Illinois; B.S., Ioa; M.S., Western Michigan

Bush, Jonathan E., 2001, Assistant Professor of English
B.A. Bowling Green State; M.A., Northwestern University; Ph.D., Purdue

Butler Ellis, Jennifer, 2001, Instructor of Communication
B.A., M.A.; Michigan State

Butt, Steven E., 1997, Associate Professor of Industrial and Manufacturing Engineering
B.A., Eatham; M.S., Ph.D., Pennsylvania State

Buttfield, James M., 1988, Professor of Political Science
B.A., Indiana; M.A.; Ph.D., Notre Dame

Byrd, Christine A., 1996, Associate Professor of Biological Sciences
B.S., Avila; Ph.D., Arizona

Cameron, John H., 1996, Associate Professor of Paper and Printing Science and Engineering
B.S., M.S.; Ph.D., Michigan State

Campus, John, 1987, Director, Western Sound Studios, Music
B.M., Berklee College of Music

Carey, Thomas A., 1974, Professor and Chair, Department of Music
B.A., Notre Dame; M.B.A.; Ed., Western Michigan

Carignelle-MacDonald, Susan, 1984, Professor of Sociology and of Women's Studies
B.A., M.A.; Michigan State

Carlson, Andrew R., 1990, Adjunct Associate Professor of History
B.A., M.A., Western Michigan; Ph.D., Michigan State

Carlson, Susan K., 1974, Associate Professor of Speech Pathology and Audiology
B.S., Northern Illinois; M.A.; Michigan State

Carlson, Susan M., 1993, Associate Professor of Sociology
B.A., Central Florida; M.S.; Ph.D., Florida State

Carr, James E., 1999, Associate Professor of Psychology
B.A., North Florida; M.S.; Ph.D., Florida State

Carr, Joetta L., 1999, Associate Professor, Counseling and Testing Center
B.A., Miami; M.A., Ph.D.; Florida State

Carver, Cynthia, 2002, Assistant Professor of Teaching, Learning, and Leadership
B.A., St. Olaf; M.S.; Minnesota; Ph.D., Michigan State

Caskay, Kathryn, 2002, Adjunct Assistant Professor of Community Health Services
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Accountancy | M.A.
Antropology | M.A.
Applied Economics | M.A., Ph.D.
Applied Mathematics | M.S.
Art | M.A., M.F.A.
Audiology | M.S., Ph.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
Chemistry | M.S., Ph.D.
Communication | M.A.
- Interpersonal Communication
- Organizational Communication
- Telecommunications
Comparative Religion | M.A.
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 | M.A.
- 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
Earth Science | Earth Science (Teaching)
Education and Professional Development | M.A.
- Early Childhood Education
- Elementary School Teaching and Learning Reading
Teaching in the Middle School | M.A.
Educational Leadership | Central Office Administrator
- Chief School Business Official
- Curriculum and Instructional Leadership
- General Leadership
- School Principal
Educational Leadership | Ed.S.
Education Leadership | Ed.D.
Career and Technical Education | M.A.
Central Office Administrator | General Educational Leadership
Superintendent | Educational Leadership | Ed.D.
Educational Leadership | M.A.
Electrical Engineering | M.S.
Electrical and Computer Engineering | Ph.D.
Engineering Management | M.S.
English | M.A.
- Emphasis on Professional Writing
- Emphasis on Teaching
English | Ph.D.
- Creative Writing
- Literature, Language, Pedagogy
Evaluation, Measurement, and Research | M.A., Ph.D.
Family and Consumer Sciences | M.A.
Geography | M.A.
Geology | M.S.
Geology | Ph.D.
Hydrogeology | History | M.A.
Public History | M.A.
Human Resources Development | Industrial Engineering | M.S.E.
Interdisciplinary Health Studies | Manufacturing Engineering | M.S.
Marriage and Family Therapy | Materials Science and Engineering | M.S.
Mathematics | M.A.
Mathematics | Ph.D.
Collegiate Mathematics Education | Mathematics Education | M.A.
Mechanical Engineering | M.S.E.
Medieval Studies | M.A.
Music | M.A.
Molecular Biotechnology | M.S.
Music Therapy | M.S.
Performance | M.S.
Occupational Therapy | M.A.
Operations Research | M.A.
Orientation & Mobility | Gerontology
- Low Vision
Teaching Children | M.A.
Paper and Imaging Science | and Engineering | M.S., Ph.D.
Performing Arts Administration | M.A.
Philosophy | M.A.
Physical Education | Athletic Training
- Exercise Science
- Pedagogy
- Special Physical Education
- Sport Management
- Sports Studies
Physician Assistant | M.S.M.
Physics | M.A., Ph.D.
Political Science | M.A., Ph.D.
Psychology | M.A.
- Behavior Analysis
- Industrial/Organizational Psychology
Psychology | Ph.D.
- Applied Behavior Analysis
- Clinical Psychology
- Experimental Analysis of Behavior
- School Psychology
Public Administration | M.S.
Health Care Administration | J.D/M.P.A. Joint Program
Human Resources Administration | Law
Interdisciplinary Health Studies | M.A.
Public Leadership and Administration | M.A.
Public Management | M.S.
Public Administration | M.A.
Rehabilitation Teaching | Gerontology
- Low Vision
School Psychology | M.A.
Science Education | Ph.D.
Social Work | M.S.W.
Interpersonal Practice | Policy, Planning, and Administration
Socio-Cultural Found. & Ed. Thought | M.A.
Sociology | M.A.
- Applied Sociology Option
- Disciplinary Option
Sociology | Ph.D.
Criminology | Medical Sociology

DUAL MASTER'S PROGRAMS

Counselor Education/Rehabilitation
- Teaching
- Child, Visually Impaired
- Orientation and Mobility

GRADUATE CERTIFICATE PROGRAMS

Alcohol and Drug Abuse
Clinical Trials Administration
Educational Technology
Gerontology
Health Care Administration
Hipotherapy
Holistic Health Care
Nonprofit Leadership and Administration

Spanish | M.A.
Special Education | M.A.
Clinical Teacher | M.A.
Master Teacher | M.A.
Special Education Administration | M.A.
Special Education Technology | Ed.D.
Special Education | M.A.
Speech Pathology and Audiology | M.A.
Speech-Language Pathology | Audiology
Statistics | M.S., Ph.D.
Teaching Children Who Are Visually Impaired | M.A.
Teaching of Geography | M.A.
Teaching of Music | M.A.