Western Michigan University Graduate Catalog 1998-2000

Western Michigan University

Follow this and additional works at: https://scholarworks.wmich.edu/course_catalogs

Part of the Higher Education Commons

WMU ScholarWorks Citation

This Catalog is brought to you for free and open access by the Western Michigan University at ScholarWorks at WMU. It has been accepted for inclusion in Western Michigan University Course Catalogs (1904-present) by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.
### 1998-2000 Academic Calendar

#### Fall Semester, 1998
- August 31, Monday: Advising Day; Classes Begin at 4:00 p.m.
- September 7, Monday: Labor Day Recess
- November 13, Friday: Approved Theses, Projects, and Dissertations due in The Graduate College for December Graduation
- November 13, Friday: Final Day to Drop Classes
- November 14, Saturday: Commencement

#### Winter Semester, 1999
- January 4, Monday: Advising Day; Classes Begin at 4:00 p.m.
- February 1, Monday: Applications due for June Graduation
- March 1, Monday: Applications due for Fellowships and Associateships
- March 8, Monday: Classes Resume
- March 26, Friday: Approved Theses, Projects, and Dissertations due in The Graduate College for April Graduation
- April 1, Thursday: Applications due for August Graduation
- April 19-23: Final Examination Week
- April 24, Saturday: Commencement

#### Spring Session, 1999
- May 3, Monday: Classes Begin
- May 28, Friday: Approved Theses, Projects, and Dissertations due in The Graduate College for June Graduation
- May 31, Monday: Memorial Day Recess
- June 23, Wednesday: Session Ends at Noon
- June 26, Saturday: Commencement

#### Summer Session, 1999
- June 23, Wednesday: Advising Day; Classes Begin at 4:00 p.m.
- September 6, Monday: Labor Day Recess
- November 12, Friday: Approved Theses, Projects, and Dissertations due in The Graduate College for December Graduation
- November 24, Wednesday: Thanksgiving Recess Begins at Noon
- November 29, Monday: Classes Resume
- December 1, Wednesday: Applications due for April Graduation
- December 6-10: Final Examination Week
- December 11, Saturday: Commencement

#### Fall Semester, 1999
- August 30, Monday: Advising Day; Classes Begin at 4:00 p.m.
- September 6, Monday: Labor Day Recess
- November 13, Friday: Approved Theses, Projects, and Dissertations due in The Graduate College for December Graduation
- November 13, Friday: Final Day to Drop Classes
- November 14, Saturday: Commencement

#### Winter Semester 2000
- January 3, Monday: Advising Day; Classes Begin at 4:00 p.m.
- February 1, Tuesday: Applications due for June Graduation
- February 15, Tuesday: Applications due for Fellowships and Associateships
- February 28, Monday: Semester Recess
- March 6, Monday: Classes Resume
- March 24, Friday: Approved Theses, Projects, and Dissertations due in The Graduate College for April Graduation
- March 31, Friday: Applications due for August Graduation
- April 17-21: Final Exam week
- April 22, Saturday: Commencement

#### Spring Session, 2000
- May 1, Monday: Classes Begin
- May 26, Friday: Approved Theses, Projects, and Dissertations due in The Graduate College for June Graduation
- May 29, Monday: Memorial Day Recess
- June 21, Wednesday: Session Ends at Noon
- June 24, Saturday: Commencement

#### Summer Session, 2000
- June 21, Wednesday: Classes Begin at Noon
- July 4, Tuesday: Independence Day Recess
- July 5, Wednesday: Classes Begin
- July 25, Thursday: Applications due for August Graduation
- August 11, Friday: Session Ends—NO COMMENCEMENT

#### Winter Semester 2000
- January 4, Monday: Advising Day; Classes Begin at 4:00 p.m.
- February 1, Tuesday: Applications due for Fellowships and Associateships
- February 28, Monday: Semester Recess
- March 6, Monday: Classes Resume
- March 24, Friday: Approved Theses, Projects, and Dissertations due in The Graduate College for April Graduation
- March 31, Friday: Applications due for August Graduation
- April 17-21: Final Exam week
- April 22, Saturday: Commencement

#### Summer Session, 2000
- June 21, Wednesday: Classes Begin at Noon
- July 4, Tuesday: Independence Day Recess
- July 5, Wednesday: Classes Begin
- July 25, Thursday: Applications due for August Graduation
- August 11, Friday: Session Ends—NO COMMENCEMENT
Western Michigan University

1998 • 2000
The Graduate College
Kalamazoo, Michigan
49008-3899
Telephone: 616/387-3570
Fax: 616/387-3546

Western Michigan University is located in Kalamazoo, midway between Chicago and Detroit. The University’s enrollment for fall 1997 was 26,132, with 5,915 graduate students. The population of Kalamazoo is 81,000 and of Kalamazoo County is 227,000.

The provisions of this catalog, any other catalog, policy, rules, codes, guidelines, or information issued by the University (collectively “requirements”) shall not be considered to be a contractual or otherwise binding obligation of the University. The University reserves the right to change, delete, or add to requirements at any time without prior notice. Such changes may include, but not be limited to, modification or discontinuance of programs, as well as modification or discontinuance of specific courses. In the event such action is taken, students affected will be advised by their units of the options available to them to complete their degrees. The University will assist students in finding alternate ways to complete programs or course work which are as compatible as possible with that which was altered or discontinued. The University further reserves all rights regarding the dismissal, suspension, withdrawal, denials of requests or applications, and impositions of holds on records of students, at all times.

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

Changes in administration and instruction may be made subsequent to the date of publication.

Academic calendars are subject to change without notice.

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

5  •  Mission of the University

6  •  Section I
   Admission, Registration, Records, Academic Regulations, and Graduation
   Admission Procedures
   6  •  Degree Program Applicant, U.S. Citizen
   6  •  Degree Program Applicant, Non-U.S. Citizen
   7  •  WMU Faculty Applicant
   7  •  Nondegree Applicant, Graduate Certificate Program
   7  •  Nondegree Applicant, Permission to Take Graduate Classes (PTG)
   7  •  Admission Requirements
   7  •  Master's Program Applicant
   7  •  Specialist Program Applicant
   7  •  Doctoral Program Applicant
   8  •  Nondegree Applicant, Graduate Certificate Program
   8  •  Admission Types, Degree Status
   8  •  Regular Admission
   8  •  Admission with Reservation
   8  •  Probationary Admission
   8  •  Dual Enrollment Admission
   8  •  Admission Types, Nondegree Status
   8  •  Permission to Take Graduate Classes (PTG)
   8  •  Senior Citizen–SCOPE Program
   8  •  Michigan Intercollegiate Graduate Studies (MIGS)
   8  •  Active Admission Status
   8  •  Registration
   9  •  Residency
   9  •  Registration Fees
   9  •  Course Numbers
   9  •  Student Load
   9  •  Change of Load (Drop/Add)
   9  •  Research Subject Protection
   10  •  Registration in Master's Thesis, Specialist Project, Doctoral Dissertation
   10  •  Continuous Enrollment
   10  •  Records
   10  •  Transcript
   10  •  Graduate Student Permanent Program of Study
   10  •  Identification Card
   10  •  Name Change
   10  •  Academic Regulations
   10  •  Grading System
   10  •  Grade Change
   10  •  Honor Points
   10  •  Grade Point Average
   10  •  Academic Standards
   11  •  Repeated Course
   11  •  Transfer Credit
   11  •  Graduate Credit by Examination
   11  •  Undergraduate Credit in a Graduate Program
   11  •  Thesis Committee Composition and Role
   12  •  Project Committee Composition and Role
   12  •  Dissertation Committee Composition and Role

12  •  Graduation Procedures
12  •  Degree Program
13  •  Nondegree Graduate Certificate Program
13  •  Graduation Requirements
13  •  Master's Degree
13  •  Second Master's Degree
13  •  Specialist Degree
14  •  Doctoral Degree
15  •  Nondegree Graduate Certificate Program

16  •  Section II
   Student Financial Assistance, Academic Rights and Responsibilities, and Student Services
16  •  Student Financial Assistance
16  •  Fellowships, Assistantships, Associateships
17  •  Policies Governing Graduate Appointment
17  •  Graduate Student Research and Travel Fund
17  •  Thurgood Marshall Professional Tuition Grant
17  •  Historically Underrepresented Groups Program
18  •  Financial Aid and Scholarships
18  •  Applying for Financial Aid
18  •  Awarding Process
18  •  Payment Process
18  •  Maintenance Requirements
18  •  Withdrawal from Courses: Impact on Financial Aid
18  •  Types of Financial Aid
19  •  Office of International Affairs
19  •  Exchange Scholarships
19  •  Student Employment Referral Service
19  •  Student Academic Rights and Responsibilities
19  •  Academic Evaluation
20  •  Academic Honesty
20  •  Conduct in Research
21  •  Academic Policy and Status
21  •  Academic Conduct Violation: Consequences and Appeals
21  •  Academic Grade Appeals Procedure
21  •  General Academic Appeals Procedure
22  •  Thesis/Project/Dissertation Appeals Procedure
22  •  Student Conduct
22  •  The Family Educational Rights and Privacy Act
23  •  Discrimination: Complaints and Grievance Procedure
23  •  Sexual Harassment and Sexism
24  •  Student Services
24  •  Academic Skills Center
24  •  Career Services
24  •  Children's Place Day Care Center
24  •  Disabled Student Resources and Services
24  •  Faith and Spiritual Development
25  •  Office of International Affairs
25  •  Office of International Student Services
25  •  Career English Language Center for International Students (CELCIS)

26  •  Office of Study Abroad
26  •  Division of Minority Affairs
26  •  Off-Campus Life
26  •  Publications
27  •  Sincdeuce Health Center
27  •  Speech, Language, and Hearing Services
27  •  Student Directory
27  •  Student Employment Referral Service
27  •  Student Life
27  •  Student Volunteer Services
28  •  University Computing Services
28  •  University Counseling and Testing Center
29  •  University Libraries
29  •  University Ombudsmen
30  •  Vehicle Registration
30  •  Veterans' Assistance
30  •  Women's Resources and Services

31  •  Section III
   Description of Graduate Programs and Courses
31  •  College of Arts and Sciences
31  •  Anthropology
32  •  Master of Arts in Anthropology
32  •  Anthropology Courses
33  •  Arts and Sciences
33  •  Arts and Sciences Courses
33  •  Asian and Middle Eastern Languages
33  •  Chinese Courses
33  •  Japanese Courses
33  •  Biological Sciences
33  •  Master of Science in Biological Sciences
33  •  Certificate Program in Electron Microscopy
34  •  Doctor of Philosophy in Biological Sciences
35  •  Biological Sciences Courses
36  •  Black Americana Studies
36  •  Black Americana Studies Courses
36  •  Chemistry
36  •  Master of Arts in Chemistry
37  •  Doctor of Philosophy in Chemistry
38  •  Chemistry Courses
39  •  Communication
39  •  Master of Arts in Communication
40  •  Communication Courses
42  •  Comparative Religion
42  •  Master of Arts in Comparative Religion
42  •  Doctor of Philosophy in Comparative Religion
42  •  Comparative Religion Courses
43  •  Computer Science
43  •  Master of Science in Computer Science
43  •  Doctor of Philosophy in Computer Science
44  •  Computer Science Courses
CONTENTS 3

77 • Psychology
77 • Master of Arts in Psychology
78 • Specialist in Education in School Psychology
79 • Doctor of Philosophy in Psychology
79 • Psychology Courses

83 • Public Affairs and Administration
83 • Master of Public Administration
84 • Certificate Program in Health Administration
84 • Certificate Program in Nonprofit Leadership and Administration
84 • Doctor of Public Administration
85 • Public Affairs and Administration Courses

88 • Science Studies
88 • Master of Arts in Science Education
88 • Doctor of Philosophy in Science Education
89 • Science Studies Courses

90 • Sociology
90 • Master of Arts in Sociology
90 • Doctor of Philosophy in Sociology
91 • Sociology Courses

93 • Women's Studies
93 • Women's Studies Courses

94 • Haworth College of Business
94 • Master of Business Administration
95 • Master of Science in Business
95 • Accountancy
95 • Master of Science in Accountancy
96 • Accountancy Courses

97 • Business
97 • Business Courses

97 • Business Information Systems
97 • Business Information Systems Courses

98 • Finance and Commercial Law
98 • Finance and Commercial Law Courses
98 • Finance Area
98 • Law Area
99 • General Area

99 • Management
99 • Management Courses

100 • Marketing
100 • Marketing Courses

102 • College of Education
102 Counselor Education and Counseling Psychology
102 • Master of Arts in Counseling Psychology
102 • Master of Arts in Counselor Education
103 • Community Counseling
103 • School Counseling: Elementary or Secondary or Career Development Specialist
103 • Student Affairs in Higher Education: Administration of College Student Affairs or Counseling in Higher Education
103 • Rehabilitation Counseling
103 • Doctor of Philosophy in Counseling Psychology
103 • Doctor of Philosophy in Counselor Education
104 • Counseling and Leadership
104 • Counselor Education and Supervision
104 • Student Affairs in Higher Education
104 • Counselor Education and Counseling Psychology Courses

107 • Education and Professional Development
107 • Master of Arts in Education and Professional Development
107 • - Early Childhood Education
107 • - Elementary School Teaching and Learning
107 • - Human Resources Administration
108 • - Reading
108 • - Socio-Cultural Foundations and Educational Thought
108 • - Teaching in the Middle School
108 • Certificate Program in Educational Technology
109 • Education and Professional Development Courses

113 • Educational Leadership
113 • Master of Arts in Educational Leadership
114 • - General Educational Leadership
114 • - Elementary/Secondary Principals
114 • - Central Office Administrator
114 • - Chief School Business Official
114 • - Educational Evaluation, Measurement, and Research Design
114 • Specialist in Education in Educational Leadership
115 • Doctor of Education in Educational Leadership
115 • - General Educational Leadership
115 • - Central Office Administrator
115 • - Superintendent
115 • Doctor of Philosophy in Educational Leadership
115 • - Educational Evaluation, Measurement, and Research Design
115 • Educational Leadership Courses

117 • Family and Consumer Sciences
117 • Master of Arts in Career and Technical Education
117 • Master of Arts in Family and Consumer Sciences
117 • Career and Technical Education Courses
118 • Family and Consumer Sciences Courses

119 • Health, Physical Education, and Recreation
119 • Master of Arts in Physical Education
119 • Health, Physical Education, and Recreation Courses

121 • Special Education
121 • Master of Arts in Special Education
121 • - Master Teacher Option
121 • - Clinical Teacher Option
121 • - Special Education Technology Option
121 • - Special Education Administration Option
121 • Master of Arts in Teaching Children Who are Visually Impaired/Orientation and Mobility
121 • Doctor of Education in Special Education
122 • Special Education Courses

125 • College of Engineering and Applied Sciences
125 • Construction Engineering, Materials Engineering, and Industrial Design
125 • Master of Science in Construction Management
126 • Master of Science in Materials Science and Engineering
126 • Construction Engineering, Materials Engineering, and Industrial Design Courses
127 • Electrical and Computer Engineering
127 • Master of Science in Engineering (Computer)
127 • Master of Science in Engineering (Electrical)
128 • Electrical and Computer Engineering Courses
128 • Industrial and Manufacturing Engineering
128 • Master of Science in Engineering (Industrial)
129 • Master of Science in Engineering Management
129 • Master of Science in Manufacturing Engineering
129 • Master of Science in Operations Research
130 • Doctor of Philosophy in Industrial Engineering
130 • Industrial and Manufacturing Engineering Courses
132 • Mechanical and Aeronautical Engineering
132 • Master of Science in Engineering (Mechanical)
132 • Doctor of Philosophy in Mechanical Engineering
133 • Mechanical and Aeronautical Engineering Courses
135 • Paper and Printing Science and Engineering
135 • Master of Science in Paper and Imaging Science and Engineering
135 • Doctor of Philosophy in Paper and Imaging Science and Engineering
136 • Paper and Printing Science and Engineering Courses
138 • College of Fine Arts
138 • Art
138 • Master of Arts in Art
139 • Master of Fine Arts in Art
139 • Art Courses
140 • Dance
140 • Dance Courses
140 • Music
141 • Master of Music
141 • Master of Arts in the Teaching of Music
142 • Music Courses
144 • Theatre
144 • Theatre Courses
145 • College of Health and Human Services
145 • Blind Rehabilitation
145 • Master of Arts in Orientation and Mobility
146 • Master of Arts in Rehabilitation Teaching
146 • Master of Arts in Rehabilitation Counseling/Teaching
146 • Master of Arts in Teaching Children Who are Visually Impaired/Orientation and Mobility
146 • Blind Rehabilitation Courses
147 • Community Health Services
147 • Alcohol and Drug Abuse
147 • Certificate Program in Alcohol and Drug Abuse
148 • Alcohol and Drug Abuse Courses
149 • Community Health Services Courses
149 • Gerontology
149 • Certificate Program in Gerontology
149 • Gerontology Courses
149 • Health and Human Services Courses
150 • Holistic Health Care
150 • Certificate Program in Holistic Health Care
150 • Holistic Health Care Courses
151 • Occupational Therapy
151 • Master of Science in Occupational Therapy
153 • Certificate Program in Hippotherapy
153 • Occupational Therapy Courses
154 • Hippotherapy Courses
154 • Physician Assistant
154 • Master of Science in Medicine
154 • Physician Assistant Courses
156 • Social Work
157 • Master of Social Work
157 • Social Work Courses
160 • Speech Pathology and Audiology
160 • Master of Arts in Speech Pathology and Audiology
160 • Speech Pathology and Audiology Courses
163 • The Graduate College
163 • Graduate Studies Courses
165 • Division of Continuing Education
165 • Academic Programs and Courses
166 • Section IV
Glossary of Terms
171 • Section V
The Graduate Faculty
181 • Section VI
University Officials
181 • Board of Trustees
181 • Administrative Officers
182 • Section VII
Index
Western Michigan University has identified five major goals to guide its development during the decade of the 1990s:

1. Offer instructional programs of academic excellence reflecting the high quality of the faculty and students, the depth and breadth of the curriculum and co-curriculum emphasizing personal growth and development, the enhanced facilities and learning resources, and the continuing assessment of learning and the learning process.

2. Increase the graduate enrollment, expand external support for research, facilitate scholarship and creative activity, and reward professional accomplishments of faculty, staff, and students.

3. Assist regional and state economic development through on- and off-campus instruction, applied research centers, and technical assistance to business, industry, government, and the schools.

4. Meet the needs of the citizenry by providing leadership and sponsorship of and participation in cultural events and civic activities.

5. Increase the diversity of the student body, faculty, and staff and enhance the multicultural nature of the University community.

Founded in 1903 as a normal school for preparing elementary and secondary school teachers and designated in 1957 as the state's fourth public university, Western Michigan University has earned recognition by the Michigan Legislature as a graduate-intensive university and by the Carnegie Foundation for the Advancement of Teaching as a Doctoral I University. The University shares with other higher education institutions the mission to discover, disseminate, extend, and preserve knowledge and culture. In fulfilling this responsibility, University instructional programs strive to increase students' capacity for intellectual growth and achievement, instill a commitment to learning and service to society, and meet the needs of an increasingly diverse student population. The University's research mission requires the faculty and students to create new knowledge and to address social needs and concerns. The University serves the region as a major information and technology resource and plays a critical role in cultural, social, and economic development and enrichment. The University strives for excellence in its endeavors and continually evaluates its efforts to assure that objective.

Western Michigan University offers a full array of undergraduate programs in the fine arts, humanities, social and natural sciences, and the professions; master's programs through each of its department and schools; and doctoral programs in selected fields. The colleges share the University's traditional commitment to the preparation of teachers. Education programs provide students the opportunity to gain academic knowledge and develop the ability to apply that knowledge based on considered ethical choices, and seek to produce graduates who will think critically, communicate effectively, and participate meaningfully in a rapidly changing world. The general education program emphasizes a diverse cultural and ethnic heritage and the importance of a global perspective. Academic major programs require students to master a field of inquiry, discipline, or profession sufficient to an understanding of its methods, subject matter, and future in service to society.

Western Michigan University has distinctive strengths in its graduate and professional programs based on strong foundations in liberal and general education. The University has attracted and retains an outstanding faculty, and several of its departments have achieved national and international recognition. Faculty and program quality together provide a basis for responding positively to the challenges and opportunities of the future.

The University's commitment to the discovery and dissemination of new knowledge and insight facilitates and rewards faculty and student research, scholarship, and creative activity. The University extends its resources to the community through fine arts programming, on-site delivery of educational programs, student service and internship assistance, health-related clinical services, technology transfer, technical support, and applied research programs. The University deliberately seeks student, staff, and faculty populations characterized by a diversity that reflects society at large and meets student needs through cultural, academic, and financial support and enrichment programs designed to promote student persistence, independence, and success.

The University provides students a balanced educational experience, including co-curricular activities that contribute to personal growth and help to develop leadership skills. Student organizations, campus residence hall life, artistic events, multicultural programs, intercollegiate athletics, and intramural activities together with formal academic endeavor constitute the University environment. Western Michigan University fosters and develops ethical behavior among administrators, faculty, staff, and students. Faculty and student governance structures rest upon the principles of academic freedom and professional ethics consistent with the responsibilities of an academic community.

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, Graduate Division, Western Michigan University, Kalamazoo, Michigan 49008-5120. Off by EMAIL (ask-wmu@wmich.edu) or completing the admission application available on the Western Michigan University web page (http://www.wmich.edu/admi/gradapp/).

Degree Program Applicant, U.S. Citizen

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

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

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

Degree Program Applicant, Non-U.S. Citizen

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

1. Request an International Student Application Form from the Office of International Student Services. NOTE: Since most graduate programs require materials in addition to the International Student Application Form, and since not all departments' additional materials are included with the International Student Application Form, applicants are advised to contact the relevant department office or program advisor for such materials.

• Statement of Finances: Non-U.S. citizens who do not have an Alien Registration Card or an I-551 Immigrant Visa must submit a Statement of Finances form and provide proof that they have sufficient financial resources to cover the educational and living expenses incurred by a typical non-resident graduate student.

• Documentation of English Proficiency: When the first or primary language of an applicant with a foreign educational background is not English, the applicant is required to demonstrate proficiency in English. Proficiency may be established by submitting scores from the Test of English as a Foreign Language (TOEFL) or the Michigan English Language Assessment Battery (MELAB) or the International English Language Testing System (IELTS). Modules A, B, and C. A score of 500 on the TOEFL is required for restricted admission (i.e., part-time remedial English instruction and part-time academic study during the first semester in residence) or 550 for unrestricted admission. A score of 75 on the MELAB is required for restricted admission and 85 for unrestricted admission. A score of 6.5 on the IELTS is required for restricted admission and 7.0 for unrestricted admission. Furthermore, if an applicant holds an International Baccalaureate (IB), a grade of 5 in English at the Higher Level is considered equivalent to a 550 TOEFL score and required for unrestricted admission. If an applicant holds a General Certificate of Education Advanced Level Pass in English (from one of the five British-based examining boards only), a grade of A, B, or C is considered equivalent to a 550 TOEFL score and required for unrestricted admission. Some programs may require higher proficiency levels.

• Materials to be submitted to the Office of International Student Services: The International Student Application Form; a $25 non-refundable application fee, payable to Western Michigan University; the Statement of Finances form; complete official transcripts of secondary and undergraduate studies listing course titles and grades (marks) received for each, as well as copies of diplomas, certificates, or degrees earned, translated into English; scores or grades earned on TOEFL, MELAB,
ADMISSION REQUIREMENTS

Not all programs admit students for all semesters or sessions. Applicants are advised, therefore, to read the program’s admission requirements section in this catalog or consult the relevant program office or advisor to learn the application deadline date and other germane information for a specific program. It is advisable, moreover, to apply well before the application deadline, because admission to some programs may close early as openings are filled or because a program’s complement of available assistantships and fellowships may be assigned as the earlier application deadlines for these awards pass. Also, some programs require the results of entrance examinations which are scheduled in advance of the application deadlines, and some require interviews or other means of correspondence that necessitate a good bit of time between the receipt of the application and the admission decision.

WMU Faculty Applicant

All Western Michigan University faculty and staff are eligible to apply for admission to a doctoral program listed below, at the University. WMU faculty members holding tenure track appointments and all University staff eligible to apply for admission to doctoral programs, but only in the academic units where they are not employed. WMU faculty 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 a Graduate Certificate Program Admission Application to the Office of Admissions and Orientation, Graduate Division, 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 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 as a graduate student, may enroll in certain classes with Permission to Take Graduate Classes (PTG) status. 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.

To secure admission with this status, applicants should submit an Application for Permission to Take Graduate Classes (PTG) Status to the Office of Admissions and Orientation, Graduate Division, along with a non-refundable application fee of $25. Applicants who do not receive a degree from WMU must send proof of their undergraduate degree when submitting the application. The following credentials (photocopies are permissible) are acceptable as verification of the degree: transcript, diploma, teaching certificate, or letter from the registrar of the undergraduate institution. 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 an essay describing the applicant’s academic interests and professional goals; to present scores on a specific GRE Subject Test; to schedule a personal interview with departmental faculty; to present evidence of having completed specific courses with specific grades or of having specific kinds of work or life experiences; or to hold certain endorsements or certificates (such as a teaching certificate). For 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.
4. Evidence of having met any additional admission requirements stipulated by the individual degree program.
5. Acceptance by the academic unit offering the master’s program and endorsement of the acceptance by the graduate dean.

Specialist Program Applicant

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

1. Bachelor’s degree from an accredited institution, indicated on an official transcript.
2. Two official transcripts from each institution attended since high school.
3. An overall grade point average of at least 3.0 in the last two years of undergraduate work, if applying with a bachelor’s degree and no graduate work, and an overall grade point average of at least 2.5 for all graduate work undertaken beyond the bachelor’s degree.
4. Scores on the GRE General Test.
5. Evidence of having met any additional admission requirements stipulated by the individual specialist degree program.
6. Acceptance by the academic unit offering the specialist program and endorsement of the acceptance by the graduate dean.

Doctoral Program Applicant

In addition to the minimum requirements for admission to a doctoral program listed below, many of the University’s twenty-three doctoral programs will ask applicants to submit supplemental materials such as letters of recommendation or an autobiography or an essay describing the applicant’s academic interests and professional goals; to present scores on a specific GRE Subject Test; to schedule a personal interview with departmental faculty; to present evidence of having completed specific courses with specific grades or of having specific kinds of work or life experiences; or to hold certain degrees or endorsements or certificates (such as a teaching certificate). For 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 at least twenty hours of graduate work, an overall grade point average of at least 3.25 for all graduate work undertaken beyond the bachelor’s degree. The student who has a bachelor’s degree and less than twenty hours of completed graduate work needs at least an overall grade point average of 3.0 in undergraduate work and at least a 3.25 for all completed graduate work.
4. Scores on the GRE General Test.
5. Evidence of having met any additional admission requirements stipulated by the individual doctoral degree program.
6. Acceptance by the academic unit offering the doctoral program and endorsement of the acceptance by the graduate dean.

Additionally, doctoral students will be reviewed for eligibility to continue in the program at two other stages—Applicability and Candidacy—following the approval of 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.
ADMISSION, REGISTRATION, RECORDS, ACADEMIC REGULATIONS, AND GRADUATION

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 work 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 semester 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. An overall point-hour ratio of at least 3.25 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.

Candacy

A candidate for a doctoral degree, prior to the session or semester in which the dissertation is defended, is required to have earned or completed satisfactorily the following and to have received approval by the academic program unit to continue study toward a doctoral degree:
1. An overall grade point average of at least 3.25 or better.
2. Appointment of a doctoral dissertation committee and approval of the dissertation proposal by the committee.
3. All courses (excluding dissertation credit) toward the degree that the student needs.
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

1. 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 in their field of study. If the student has met the admission requirements of the program the student plans to pursue. Acceptance to a degree or a graduate 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.

2. Admission with Reservation is granted to the student who has 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.

3. Probationary Admission is granted to the student with a bachelor's degree and a somewhat less than satisfactory academic record who wishes to pursue 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 regular program of study more than nine semester hours of credit earned as a probationary student.

4. Dual Enrollment Admission is granted to the senior at Western Michigan University who has an acceptable academic record, who has applied to a master's program, and who has no more than fifteen credits to complete for a bachelor's degree. The student may elect graduate courses, in addition to those required at the undergraduate level to complete the bachelor's degree. Such dual enrollment is permitted for one calendar year only. Graduate credit thus earned may not be used to meet undergraduate requirements. A student must request dual enrollment status on the application for regular admission to a degree program by the published deadline dates.

ADMISSION TYPES, NONDEGREE STATUS

1. Permission to Take Graduate Classes (PTG) is granted to a student with a bachelor's degree who wishes to enroll in certain courses, but does not plan to pursue a program leading to a graduate degree, or is not admitted 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.

2. The Senior Citizen–SCOPE Program offers persons sixty-two years of age or older the opportunity to register for one regular university class each semester/session tuition free. Participants will be assessed all enrollment fees and 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. Individuals qualifying should submit a Permission to Take Classes (PTG) status. The Schedule of Classes should be consulted for further registration information.

3. The Michigan Intercollegiate Graduate Studies (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. Western Michigan University participates in this program. 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. 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.

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 date 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.

REGISTRATION

Registration, which is conducted by telephone at Western Michigan University, is conducted
Registration Fees

The 1997-98 tuition fee schedule for graduate students electing courses on-campus was $141.75 per credit hour for Michigan residents and $344.30 per credit hour for nonresidents. The tuition fee for graduate students electing courses off-campus through the Division of Continuing Education was $161.75 per credit hour.

The following are other 1997-98 registration fees applicable for graduate study on campus. Student fees are subject to change by the Western Michigan University Board of Trustees at any time.

- Enrollment Fee, $120.00 (less than seven hours of registration) or $219.00 (seven or more hours of registration) for on-campus enrollment. Courses offered by the Division of Continuing Education and by CELCIS are not assessed the enrollment fee, and academic courses with activities that may require more than one type of liability insurance fee. This fee will be charged one time per year, fall semester through summer session. Students registered in classes that require more than one type of liability insurance will be charged one time each for:
  - International Student Fee, $25.00 each semester charged to international students
  - Student Activity Fee, $12.00 each semester/$6.00 each session charged to all students
  - Liability Insurance Fee. Students enrolled in courses requiring participation off-campus for field experiences, practicums, and internships will be charged a liability insurance fee. This fee will be charged one time per year, fall semester through summer session. Students registered in classes that require more than one type of liability insurance will be charged one time each for:
    - Late Registration Fee. A late registration fee of $100.00 will be assessed each student who fails to register before the third day of the semester or session.
    - Late Add Fee. Late adds are granted for extenuating circumstances only as determined by the Registrar's Office. Should a late add be granted, a charge of $50.00 will be assessed for each class added.

Graduate appointees (i.e., those holding assistantships, associateships, or fellowships) are entitled to a charge privilege for tuition and other 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 the time of 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.

Student Load

The normal full-time load for a graduate student during the fall and winter semesters is 9-12 credits of course work. During the spring and summer sessions, the normal full-time load is 5-8 credits. The required load for a student with a full Graduate Assistantship or Associateship is normally 6 hours per semester or three hours per the five-week drop/add period. This same twenty-four hour grace period also applies to any class that meets for the first time beyond the five-day drop/add period.

Students may make drops, adds, or changes to their schedules during registration hours via telephone. See the Schedule of Classes for complete information.

Courses dropped during the five-day drop/add period will be recorded as a withdraw (W) on the student's transcript. Courses dropped after this period must be processed in the Registrar's Office and the dropped courses will be recorded as a withdraw (W) on the student's transcript. Students may not drop a course without academic penalty after the first Friday past mid-semester, unless an Appeals Committee rule's written application justifies such a withdrawal.

A student who withdraws from the University or who reduces a credit hour load during the official drop/add period will be granted a complete refund. There is no refund for dropped classes after the official drop/add period; although a complete withdrawal from all courses results in a partial refund up through the first Friday past mid-semester. See the Schedule of Classes for complete information.

Change of Load (Drop/Add)

All changes in registration or an intent to withdraw completely from all courses must be accomplished in accordance with the procedures published in the Schedule of Classes. The official registration drop/add period extends five business days into a semester or session. In addition, a twenty-four hour grace period will be provided students who drop or add a class that meets for the first time on the final day of the drop/add period. This same twenty-four hour grace period also applies to any class that meets for the first time beyond the five-day drop/add period.

Students may make drops, adds, or changes to their schedules during registration hours via telephone. See the Schedule of Classes for complete information.

Courses dropped during the five-day drop/add period will be recorded as a withdraw (W) on the student's transcript. Courses dropped after this period must be processed in the Registrar's Office and the dropped courses will be recorded as a withdraw (W) on the student's transcript. Students may not drop a course without academic penalty after the first Friday past mid-semester, unless an Appeals Committee rule's written application justifies such a withdrawal.

A student who withdraws from the University or who reduces a credit hour load during the official drop/add period will be granted a complete refund. There is no refund for dropped classes after the official drop/add period; although a complete withdrawal from all courses results in a partial refund up through the first Friday past mid-semester. See the Schedule of Classes for complete information.

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. Students conducting research of such materials 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. Students conducting research involving 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. Students conducting research involving 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. Students conducting research involving 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. Students conducting research involving 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.
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 meet with the Dissertation Assistant in The Graduate College before registering for the class so that the student is informed about the regulations pertaining to the preparation and submission of the manuscript. Registration deadlines apply.

Continuous Enrollment

Following a student's first enrollment in the Master's Thesis (700), Specialist Project (720), or Dissertation (730), the student will enroll in that same course in each subsequent semester and session continuously until all thesis or project or dissertation requirements are completed satisfactorily and approved by all appropriate bodies. Registration deadlines apply.

RECORDS

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 or visit the Office of the Registrar, giving dates of attendance and, if a graduate, the date of graduation. All names under which the student may have been enrolled and a social security number should be provided. All copies are $3.00 each. The transcript will be released only upon written authorization of the student and only after payment is made.

Graduate Student Permanent Program of Study

A Graduate Student Permanent Program of Study is a document composed by a graduate student's program advisor which lists all course and other requirements necessary for completion of the degree program to which the student was admitted. The Graduate Student Permanent Program of Study is approved by the student's program advisor and by the graduate dean, filed in the Records Office, and used to audit the student's eligibility for the degree.

Identification Card

Each student on campus is required to have an identification card, which includes photo, name, and student signature. Dates, times, and location of card issuance 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 $10.00 fee will be charged for its production in any subsequent semester. A $10.00 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 others or identifying 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 an official 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.

ACADEMIC REGULATIONS

Grading System

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

<table>
<thead>
<tr>
<th>Grade Definition</th>
<th>Honor Points Per Credit Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outstanding</td>
<td>4.0</td>
</tr>
<tr>
<td>Exceptional</td>
<td>3.5</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>C</td>
<td>2.5</td>
</tr>
<tr>
<td>D</td>
<td>2.0</td>
</tr>
<tr>
<td>F</td>
<td>1.5</td>
</tr>
<tr>
<td>X</td>
<td>1.0</td>
</tr>
<tr>
<td>CR or NC</td>
<td>0.0</td>
</tr>
<tr>
<td>Credit</td>
<td>0.0</td>
</tr>
<tr>
<td>No Credit</td>
<td>0.0</td>
</tr>
<tr>
<td>Audit</td>
<td>0.0</td>
</tr>
</tbody>
</table>

X — (Failure) Unofficial Withdrawal: The symbol "X" is used to indicate that a student has never attended class or has discontinued attendance and does not qualify for the grade of "I." The "X" will be computed into the student's grade point average.

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

Official Withdrawal: A grade of "W" is given in a course when a student officially withdraws from that course or from the University before the mid-point of the semester or session.

CR or NC—Credit or No Credit: The Credit/No Credit grading system is used in all 700-level courses, as well as some departmental courses approved by the University. The student's permanent transcript will indicate "CR" when the grade received is an A, B, or "INC" when incomplete; and "NC" when the grade received is a C, D, D+, E, or X. AUD—Audit: The symbol "AUD" is used to indicate that a student has enrolled in a course as an auditor, has attended at least three-fourths of the class or laboratory sessions, and has been present 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 initiate contact with the faculty member involved within ninety days of the end of the semester for which the grade was assigned. Failure to act within the ninety day time period will disqualify the student from further consideration of the matter. For more information, see Academic Grade Appeals Procedure described later in this catalog.

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, as shown in the preceding table. For example, a grade of "B" in a four-hour course gives 4 X 3, or 12 honor points.

Honor points are not generated in Credit/No Credit courses, such as in all 700-level courses.

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

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.

Academic Standards

All graduate students, PTG and degree candidates, must earn an overall grade point average of at least 3.0 (specialist and doctoral students must earn an overall grade point average of at least 3.25) to satisfy University requirements. 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 overall grade point average is 3.0 (3.25) or above, the student is in regular standing and is on good academic standing. A student who has received a grade point average fall below 3.0 (3.25) for the semester, the student's standing will be revised.

2. Warning: Whenever the grade point average for any enrollment period is less than 3.0 (3.25), but the overall grade point average is 3.0 (3.25) or above, the student will be warned.

3. Probation: If a student's overall grade point average falls below 3.0 (3.25), the student will be placed on probation for one semester.

4. Continued on Probation: If the overall grade point average increases .01 or better during the semester of Probation, although still below 3.0 (3.25) overall, 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 overall grade point average to 0.1 or better at the end of an enrollment period of Probation, or whose overall grade point average fails to reach 3.0 (3.25) at the end of an enrollment period of Probation, will be dismissed from the University. Exceptions may be granted only by the academic unit 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 (spring and summer 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.

**Repeated Course**

Any course is which a student may have been enrolled more than once is considered a repeated course. With the program advisor's and graduate dean's approval, the grade and credit earned in the repeated course only may count toward curricular or degree requirements at the time of graduation. A grade of "C" (final examination may be used to obtain credit for a particular 500- or 600-level course in that academic unit. All equivalency examinations will be administered and graded by no fewer than two faculty members from the academic unit offering the particular course. All credit by examination shall be graded "Credit" or "No Credit". "Credit" will be posted on the transcript as "Credit earned by examination" without letter grade or honor points. Students who do not achieve a sufficient score to receive "Credit" will have no entry made on their transcripts.

**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 hours. 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 degree:** 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 credits 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. A graduate student, the program or academic unit offering the particular course.
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.
5. **Second master's degree:** 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 degree:** 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 degree:** A student enrolled in a doctoral program must complete a minimum of thirty semester hours, excluding the dissertation, after admission to the doctoral program. The thirty hours, excluding the 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 student's program advisor and included in the student's Graduate Student Permanent Program of Study.

**Graduate Credit by Examination**

Each academic unit offering a graduate program may, with the approval of its dean, establish a procedure for granting credit by examination for any course numbered 500 through 699. 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 graded "Credit" or "No Credit". "Credit" will be posted on the transcript as "Credit earned by examination" without letter grade or honor points. Students who do not achieve a sufficient score to receive "Credit" will have no 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 examination for credit.
6. Credit by examination earned at another university may transfer in accordance with the current policies of The Graduate College governing the transfer of credit.
7. Examination credit shall be assessed by the academic unit. It is expected that students will pay the examination fee in advance of taking the examination.

**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 and are not computed into the graduate grade point average. Undergraduate tuition is charged for these courses.

**Thesis Committee Composition and Role**

A master's thesis committee shall be appointed for each student preparing 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 a master's thesis topic; b) review and approve a proposal for the master's thesis; c) provide continuing assistance and advice to ensure progress on the thesis; d) evaluate the final document; and e) in those departments requiring an oral defense, evaluate the oral defense of the thesis.

In addition to the previously described responsibilities that are generic to all thesis committee members, the chairperson of the committee assumes the following additional responsibilities: a) in those department where this responsibility is not discharged through other mechanisms, advise the student regarding selection of thesis committee members; b) review and approve the student's progress on the thesis; c) call thesis committee meetings; d) evaluate the readiness of the thesis proposal and of the thesis for approval 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 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.

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

In the event a student wishes to appeal a negative decision by the student's master's thesis committee, the student shall first take the appeal to this same committee, which shall hear the appeal and render a decision. In case the committee cannot reach a unanimous agreement and the student wishes to appeal further a negative decision, a Review Committee shall be established consisting of the dean of the Graduate College, the appropriate academic dean, and the chairperson or director of the unit. The Review Committee handling such a case is limited to procedural actions, such as reconstituting the master's thesis committee if the case merits it.

**Project Committee Composition and Role**

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

The specialist project committee is charged with the supervision and evaluation of the specialist project, a task that includes but is not limited to the following responsibilities: a) advise the student on selection and/or development of a specialist project topic; b) review and approve the 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 bodies, the chairperson shall ensure that the student's chosen discipline.

A 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 may institute additional guidelines concerning specialist project 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 specialist project committees and their respective areas of expertise.

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

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

**Dissertation Committee Composition and Role**

For each doctoral student a 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 its 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 graduate 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 the 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.

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

**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. 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) for a graduation audit. The application form may be obtained from the Registrar's Office on the second floor of the Student Administration Building.

The application for graduation must be filed no later than five months before the anticipated graduation date. Fall Semester, December Graduation: Apply by August 1; Winter Semester, April Graduation: Apply by December 1; Spring Session, June Graduation: Apply by February 1; Summer Session, August Graduation (no Commencement Ceremony): Apply by April 1. 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, 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
GRADUATION REQUIREMENTS

Graduates of specific degree programs offered by Western Michigan University are expected to meet the same academic standards and requirements. These academic standards and requirements vary, however, by discipline, by degree level, by program concentration, and often by conditions related to a student’s admission (for example, the completion of specified course or experiential prerequisites). For more specific information about the graduation requirements for each department and program, read the program requirements section of the relevant department’s listing in this catalog or contact the department’s program 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-third 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: An overall 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 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:
   • The credit is earned at an institution accredited for graduate study and is of graduate level
   • A master’s level Graduate Student Permanent Program of Study.
   • The graduate dean approves the transcript of the other university, and is on file at the other institution.
   • 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 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.
   • A student’s overall grade point average for all graduate work taken at the other institution must also be “B” (3.0) or better.
   • A student’s overall grade point average for all graduate work taken at the other institution must also be “B” (3.0) or better.
   • A student’s overall grade point average for all graduate work taken at the other institution must also be “B” (3.0) or better.

4. Time Limit: All work accepted for the degree program must be completed within six years preceding the date on which the master’s degree is conferred. All work must be completed satisfactorily by the day of graduation.

5. Research Subject Protection: Students conducting research that involves human or animal subjects, biohazards, genetic materials, or nuclear materials/radiation must have the 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, contact the Office of the Vice President for Research, 387-8296.

6. Enrollment in Master’s Thesis (700): A student who intends to register for the Master’s Thesis (700) for the first time is required to meet with the Dissertation Assistant in The Graduate College and file a completed submission of Step 1 form the day before registering for the class so 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.

7. Continuous Enrollment in 700: The course 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 enroll for a minimum of one hour of credit in 700 in each semester/session continuously 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.

8. Submission of Master’s Thesis (700) Manuscript: The manuscript for the master’s thesis must be submitted to The Graduate College for approval of style and format by the deadline specified in the graduate audit letter. The manuscript must be submitted, conform to the style and format requirements explained in the University’s Guidelines for the Preparation of Theses, Projects, and Dissertations, available at Western’s Campus Bookstore. Also, the manuscript may be submitted for review only after it has been approved by the student’s thesis committee and signed by the student and the graduate dean. If the manuscript is submitted compliant with the guidelines, certification of the University’s approval of the manuscript will be granted only for the master’s degree.

9. Graduation: Courses numbered 600 or above are included in the student’s overall grade point average. The student’s official degree is granted at the time of graduation.

Second Master’s Degree

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

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/or experiences. For more 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 sixty may be required by a specific program; consult the program advisor for complete information.
   • A specialist level Graduate Student Permanent Program of Study may include a maximum of four hours of credit in 598 (Readings).
2. Residency Requirement: A residency requirement is established by each specialist program and approved by the University’s curriculum review process. The student must complete at least thirty 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 thirty-six semester hours of approved graduate credit. Graduate credit earned at another university is eligible for transfer to a Western Michigan University specialist program provided it meets Western Michigan University’s guidelines and requirements for research involving regulated subjects and hazardous materials.

3. Grade Point Average: An overall grade point average of at least 3.25 is required for work taken for the specialist degree at Western Michigan University.

- Credit toward the specialist 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.

4. Transfer Credit: A student with a master’s degree from another university who completes the remaining credits for a specialist degree at Western Michigan University may transfer up to thirty-six semester hours of approved graduate credit. A student without a master’s degree who completes a specialist degree at Western Michigan University may transfer up to twelve semester hours of approved graduate credit. Graduate credit earned at another university is eligible for transfer to a Western Michigan University specialist program provided it meets Western Michigan University’s guidelines and requirements for research involving regulated subjects and hazardous materials.

- 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 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 or is transferred 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 graduate student’s Graduate Student Permanent Program of Study.

- The graduate dean approves the inclusion of the transferred credits in the student’s Graduate Student Permanent Program of Study.

- Honor points and grades earned at another university do not transfer to Western Michigan University. Transfer credit will be recorded on the Western Michigan University transcript as “Credit” (CR) only and will not be calculated into the honor points earned and the grade point average at Western Michigan University.

5. 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. All work must be completed satisfactorily by the day of graduation.

6. Research Subject Protection: Students conducting research that involves human or animal subjects, biohazards, genistic materials, or nuclear materials/radiation must have prior approval of the research proposal by the appropriate University board(s), 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, 387-8298.

7. Enrollement in Specialist Project (720): A student who intends to register for the Specialist Project (720) for the first time is required to meet with the Dissertation Assistant in Graduate College and file a completed Permission to Enroll form before registering for the class so 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. Continuous Enrollment in 720. The course 720, Specialist Project, is six credit hours and may be registered for in increments of one to six hours. Following a student’s first enrollment in 720, the student will enroll for a minimum of one hour of credit in 720 in each semester/session continuously 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.

8. Submission of Specialist Project (720) Manuscript: The specialist project manuscript must be submitted to The Graduate College for approval of style and format by the deadline specified in the guidelines for the Preparation of Theses, Projects, and Dissertations, available at Western’s Campus Bookstore. Also, the manuscript may be submitted for review only after it has been approved by the specialist project committee and only with the signed committee approval forms certifying departmental approval of the manuscript and of the student’s successful defense of it. If the student wishes to have the specialist project published by University Microfilms, Inc., a certified check or money order for $45.00 (payable to UMI) 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 other experiences. For more complete information about the requirements for each doctoral program, refer to 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: After admission to the doctoral program, completion of a minimum of twenty-four hours including the dissertation, at Western Michigan University in an approved program of study. Hours in addition to thirty may well be required by approval of the specific program; consult the program advisor for complete information. The thirty hours, excluding the dissertation, may not include any credit earned at another institution. Credit earned at another institution in addition to the thirty hours and dissertation earned at WMU after admission to the doctoral program, however, may be approved by the doctoral program advisor and included in the student’s program of study. Each student’s program will be planned by a committee selected in consultation between the student and the graduate advisor of the program in which the student wishes to study. The exact distribution of courses, seminars, and research will depend upon the program and may vary from one student to another. Each program, however, will contain a significant amount of research, and each student will be required to complete a dissertation.

- A doctoral level Graduate Student Permanent Program of Study may include a maximum of four hours of credit in 598 (Readings).

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

3. Residency Requirement: A residency requirement is established by each doctoral program and approved by the University’s curriculum review process and must be met prior to approval of candidacy. Unless otherwise approved by the University for an individual academic unit, the general residency requirement for doctoral students is one academic year (two consecutive semesters) of full-time study on campus. Consult the program advisor for complete information.

4. Comprehensive Examinations: Passing the required comprehensive examination(s) that cover the principal subject matter areas included in the student’s program of study.

5. Grade Point Average: An overall grade point average of at least 3.25 is required for 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 coursework is then usually elected at Western Michigan University. However, graduate credit earned at another university after admission to the doctoral program is eligible for transfer 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 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 credit is earned at an institution accredited for graduate study and is 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.

- 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 credit is earned at an institution accredited for graduate study and is 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.

- 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.
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 his 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.

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 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, 387-8298.

9. Enrollment in Doctoral Dissertation (730): A student who registers for the Doctoral Dissertation (730) for the first time is required to meet with the Dissertation Assistant in The Graduate College and file a completed Permission to Elect form before registering for the class so 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: Doctoral Dissertation (730) may be registered for in increments of one or more hours. Following a student's first enrollment in 730, the student will enroll for a minimum of one hour of credit in 730 in each semester/session continuously 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.

11. Submission of Doctoral Dissertation (730) Manuscript: The doctoral dissertation must be submitted to The Graduate College for approval of style and format by the deadline specified in the graduation audit letter. 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 at Western's Campus Bookstore. Also, the manuscript may be submitted for review only after it has been approved by the student's dissertation committee and only with the signed committee approval forms certifying departmental approval of the manuscript and of the student's successful defense of it.

12. Publication of the Dissertation Manuscript: All doctoral dissertations will be published (microfilmed) by 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 $55.00 (payable to UMI) must accompany the manuscript when it is submitted to The Graduate College.

Nondegree Graduate Certificate Program

To signify that a student has satisfactorily completed an approved curriculum in a Graduate Certificate Program, a certificate of completion is awarded. Regular admission to the program by the relevant academic unit is required. The student must complete the requirements of the Graduate Certificate Program with a "B" (3.0) or better grade point average, with no course grade lower than a "C," within a six-year period after admission to the certificate program. In addition to these minimum, University requirements, each certificate program requires students to complete specific courses, examinations, research, and/or experiences. For more information about the completion requirements for each certificate program, read the program requirements section of the relevant program's listing in this catalog or contact the program's advisor or the department office.
Section II

Student Financial Assistance, Academic Rights and Responsibilities, and Student Services

STUDENT FINANCIAL ASSISTANCE

Fellowships, Assistantships, Associateships

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. The following appointments are available; the stipend amounts are those in effect during the 1997-98 academic year.

1. Graduate College Fellowships

Western Michigan University provides fellowships to outstanding students 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 service from the student, but encourages participation in the professional activities of the department. Enrollment in at least nine hours per semester is required. For nonresidents of Michigan, the fellowship will pay the out-of-state portion of the full tuition. Application deadline: February 15.

2. Doctoral Associateships

Fellowships, Assistantships, Associateships, and Student Services

3. Dissertation Fellowships

Dissertation Fellowships are awarded 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. For nonresidents of Michigan, the appointment will pay the out-of-state portion of the full tuition. Although applications may be submitted at any time, priority will be given to those who apply by February 15. Application deadline: February 15.

4. Thurgood Marshall Assistantships

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. The following appointments are available; the stipend amounts are those in effect during the 1997-98 academic year.

1. Graduate College Fellowships of $7,940 for two semesters are available to students admitted to the following doctoral degree programs: Applied Economics, Biological Sciences, Chemistry, Comparative Religion, Computer Science, Counseling Psychology, Counselor Education, Educational Leadership, English, Geology, History, Industrial Engineering, Mathematics, Mathematics Education, Mechanical Engineering, Paper and Imaging Science and Engineering, Physics, Political Science, Psychology, Science Education, Special Education, Sociology, and Statistics. 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 is required. For nonresidents of Michigan, the fellowship will pay the out-of-state portion of the full tuition. Application deadline: February 15.

2. Doctoral Associateships of $3,780 for two semesters are offered to students admitted to the following doctoral degree programs: Applied Economics, Biological Sciences, Chemistry, Comparative Religion, Computer Science, Counseling Psychology, Counselor Education, Educational Leadership, English, Geology, History, Industrial Engineering, Mathematics, Mathematics Education, Mechanical Engineering, Paper and Imaging Science and Engineering, Physics, Political Science, Psychology, Science Education, Special Education, Sociology, and Statistics. 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 is required. For nonresidents of Michigan, the fellowship will pay the out-of-state portion of the full tuition. Application deadline: February 15.

3. Dissertation Fellowships of $3,780 for two semesters 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 is required. For nonresidents of Michigan, the fellowship will pay the out-of-state portion of the full tuition. Application deadline: February 15.

4. Thurgood Marshall Assistantships of $10,545 for the academic year plus the spring and summer 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. For nonresidents of Michigan, the appointment will pay the out-of-state portion of the full tuition. Although applications may be submitted at any time, priority will be given to those who apply by February 15. Application deadline: February 15.

5. Martin Luther King/Cesar Chavez/Rosa Parks Future Faculty Fellowships

Fellowships, Assistantships, Associateships, and Student Services

6. Teaching and Research Assistantships

Teaching and Research Assistantships at a minimum of $7,940 for two semesters of full-time appointment are available in many departments of the University. Inquiries should be sent to The Graduate College.

7. Service Assistantships

Service Assistantships up to $7,940 are available in many administrative units of the University and may be applied for by sending a resume and cover letter to the Office of Student Employment or by contacting the department directly. Departments with openings will have access to these resumes. Students seeking information about open graduate assistant positions should contact the Office of Student Employment.

Policies Governing Graduate Appointees

1. Definitions and Classifications

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.

b. 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 certificate 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.

c. 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 awardee—payment for service (salary) or as a gift (stipend) to help the awardee achieve an educational goal. Although there may be some aspect of service connected with a Fellow's particular departmental 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 developing skill in the discipline.

2. Types of Appointments

a. Assistantship

• Assistantships are awarded to graduate students in exchange for professional service. Graduate assistants are apprentices in the profession, 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.

• The service of a Graduate Teaching Assistant (G.T.A.) consists of activities directly related to teaching, while the service of a Graduate Research Assistant (G.R.A.) consists of research activity under the supervision of a faculty member, and the service of a Graduate Non-Teaching Assistant...
6. Professional Ethics

7. Notification of Status

a. At the time of their appointment, the amount of a fellowship grant (stipend) is set by the donor with the concurrence of the Provost and Vice President for Academic Affairs. Awards are made to outstanding students in doctoral programs. Service may involve teaching, research, or other appropriate activity.

8. Professional Development

a. Assigned activities of graduate appointees shall be relevant professional experiences.

b. Graduate appointees can expect professional guidance and timely evaluation in the performance of their duties.

9. Enrollment Status

a. 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 full-time enrollment (at least 9 credit hours per semester). Some circumstances may allow for decreased enrollment, however, departments will advise appointees.

b. It should be noted that students registered for seven or more credits a semester (four or more credits a term) are assessed, as part of the enrollment fee, prepaid student health center and recreation center fees that allow access to health center and recreation center facilities. Students enrolled for six or fewer credits a semester (three or fewer credits a term) are assessed a lesser enrollment fee that 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.

10. Evidence of Status

a. For formal identification as a graduate student, the student should carry a card (See "Statement on Professional Ethics" in current Agreement between WMU and the AAUP.)

b. It should be noted that students registered for seven or more credits a semester (four or more credits a term) are assessed, as part of the enrollment fee, prepaid student health center and recreation center fees that allow access to health center and recreation center facilities. Students enrolled for six or fewer credits a semester (three or fewer credits a term) are assessed a lesser enrollment fee that 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.

11. Benefits

a. Tuition fees. Graduate appointees may, at the discretion of the University, be granted partial or full tuition remission. Any such remission will be identified in the appointment letter and on the appointment form. Tuition remission is awarded only during the semester(s) a graduate appointment is held. Students who 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.

b. 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,
underrepresented groups. The awards are tailored to each individual and can be made in conjunction with other awards. Departmental teaching assignments may be required.

Financial Aid and Scholarships

Western’s Financial Aid Office administers a variety of financial aid programs designed to assist 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 plans. The federal and state governments, colleges and universities, private associations, companies, and private citizens are sources of financial assistance.

The information in this section describes both need- and non-need based financial aid programs based upon the 1998/1999 award year criteria at the time of this edition. Should Federal, state, or University regulations and procedures change for the 1998/1999 and subsequent award years, the University will be responsible for administering these programs according to updated descriptions and criteria.

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 the College’s Financial Aid Office. From other higher education institutions, or can be filed electronically at www.fafsa.ed.gov. Returning graduate applicants will receive a Renewal FAFSA at their home addresses by late December. 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 and must file the application today on their own. Students who have been admitted to The College Graduate as a PG student (Permission to Take Graduate Classes) are not considered as independent and must file a renewal application on a specific date to graduate program. Program requirements may result from parental information listed on the application. In addition, PG students have limited loan eligibility only, and may not be eligible for all Federal Perkins Loan, other State programs, and other University or privately funded programs.

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 Financial Aid Office. From other higher education institutions, or can be filed electronically at www.fafsa.ed.gov. Returning graduate applicants will receive a Renewal FAFSA at their home addresses by late December. 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 and must file the application today on their own. Students who have been admitted to The College Graduate as a PG student (Permission to Take Graduate Classes) are not considered as independent and must file a renewal application on a specific date to graduate program. Program requirements may result from parental information listed on the application. In addition, PG students have limited loan eligibility only, and may not be eligible for all Federal Perkins Loan, other State programs, and other University or privately funded programs.

Types of Financial Aid

Employment

Financial aid programs funded by Federal and State governments and the University to assist needy students 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 Service Office 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 Student Employment Referral Service 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 newly graduated 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 the funds 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 8.25%. The annual amount is determined by a combination of need, EFC, grade level, and other resources received. The total debt outstanding as a graduate student for the subsidized loan includes loans received for undergraduate studies.

Withdrawal from Courses: Impact on Financial Aid

In each class schedule students will find a list of dates and deadlines that are applied to all Western students who withdraw from school. Thus, if students withdraw and their tuition and fees (and housing, if on campus) have already been paid, the schedule identifies what percentage of those paid University charges can be returned to students. Students receiving financial aid, these same percentages are applied to determine what percentage of the paid charges must be returned to the financial aid programs instead of to the students. This is referred to as a refund. If students also receive a financial aid check to assist them with other school related costs, the Financial Aid Office will have to determine if any portion of that must be returned to the financial aid programs as well. This is called a repayment.

To calculate if a refund or repayment is due back to the financial aid program, the student’s withdrawal date from the University must be determined. Considering that date, a calculation is performed to determine what a student may owe, if anything. If a student leaves school without officially withdrawing, the Financial Aid Office will assume that the student never attended class upon the date of withdrawal. If this is the case, students would be responsible for paying back the full amount of financial aid received.

Therefore, it is to the student’s benefit to officially withdraw from the University.

Once the withdrawal date has been determined, Accounts Receivable and Financial Aid will work together to determine if refunds must be returned to financial aid programs. In the case of a refund, where a bill has been paid by financial aid, the University will send those funds back to the financial aid programs on the student’s behalf. In the case of a repayment, the student will be responsible for returning financial aid to Western so that Western, in turn, can return the money to the financial aid program.

Refunds will be applied to the financial aid programs in the following order: Federal Direct Subsidized, then Federal Perkins Loan, other State programs, and other University or privately funded programs.
study. Interest and principal payments are deferred as long as a student is enrolled at least half-time. Borrowers pay a 4% 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 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 letting the interest payments be added to the loan amount. Loan principal payments are deferred as long as a student is enrolled at least half-time. Borrowers pay a 4% 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.

**Michigan Alternative Loan (Mi-Loan)** provides needy students an alternative source of funds. The interest rate is variable, and students may borrow up to $10,000 per year. Borrowers must submit a FAFSA and pass a credit check. Eligibility is dependent upon the cost of attendance, eligibility for need-based programs, and other resources received.

Other loans are available from banks and private organizations that have set up a program not based on need and allows graduate students with financial need to borrow funds on an annual basis with a fixed interest rate. These programs require payment while in school, and repayment generally begins six months after the student ceases to be enrolled at least half-time.

**Western’s Emergency Loan Program** is funded by private donors and provides emergency short-term loans to Western enrolled students. The amount and type of loan are dependent upon available funds, degree classification, and loan purpose. Graduate students may apply for such a loan at the Customer Account Services Office in the Student Administration Building or at any Regional Center. Loans are charged a simple interest rate and require repayment generally in thirty days.

**Other Financial Opportunities**
- **WMU Nontraditional Student Scholarship** is available for part-time graduate students. The award usually covers the cost of in-state tuition for one class per semester for up to two semesters. Scholarship, need, special circumstances, and availability of funds are factors in determining recipients and award amounts. Applicants must complete the **Free Application for Federal Student Aid** and submit a scholarship application by a specified deadline. Contact Student Financial Aid or a WMU Regional Center for an application form.
- **On- and Off-campus Student Employment opportunities** exist. The Student Employment Referral Service Office actively recruits both on- and off-campus employment, including community service opportunities. Students may review the jobs listed with the service in the **Room A-100 Ellsworth Hall**. Openings include food service and clerical positions of all levels, retail sales positions, and technical positions requiring computer science skills.

Students may also directly contact specific areas of the University where they wish to work. University departments, offices, libraries, laboratories, residence halls, the recreation center, and the Bernhard Center employ students.

**Student Employment Referral Service** can help students find an existing co-op or internship program or design a program on their own for placement in the workplace. Employers are encouraged to contact the Student Employment Referral Service Office to arrange for a meeting with interested students.

**Student Employment Referral Service** also recruits employment opportunities for Western Michigan University students. Part-time employment is available in and around Kalamazoo, internships and and summer jobs are posted from all over the county.

Students seeking employment should visit the **office regularly**. Those interested specifically in an internship can register with Internship Services and have their employment information shared with interested employers. Listings of available part-time and internship positions are distributed to 30 locations on campus weekly. In the near future, available employment opportunities will also be posted through the university computer system for access 24 hours weekly.

The department oversees the administration of all on-campus student employment. Student pay rates are set by this office, and all student employees are monitored for minimal enrollment and maximum working hours. All student payroll cards pass through this office for verification before going to the payroll office for payment.

**College Work Study positions**, both for graduate and undergraduate students are posted in our office. Western Michigan University also participates in the Federal Community Service Work Study program, giving students a chance to use 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.

The office regularly hosts on campus interviews from such organizations as Chrysler, Upjohn, Dow Jones Newspapers and many others. General information on employment opportunities, job descriptions, and all application materials are available. The **FAX machine** can be used, free of cost, for WMU students applying for posted positions.

**Individual appointments** are encouraged for students with special employment questions, confidential referral of problems, and assistance in completing application materials. Please call (616) 387-2725.

**STUDENT ACADEMIC RIGHTS AND RESPONSIBILITIES**

**Academic Evaluation**

1. Student performance will be evaluated solely on academic criteria, as specified by the instructor in class or on the course outline in accordance with departmental, college, and University policy.
2. Students have protection against prejudiced or capricious academic evaluation.

3. Students are free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion and interpretation, but they are responsible for learning the content of any course of study for which they are enrolled.

4. Students will be informed by the faculty about course requirements, evaluation procedures, and the academic criteria to be used in each class. This information will be provided in writing at the beginning of the semester or sufficiently in advance of actual evaluation.

5. Students have the right to have all their academic work evaluated by the faculty member to resolve questions in any instance prior to the submission of the academic exercise.

Violations of academic honesty include, but are not limited to:

1. Cheating
   a. Definition: Cheating is intentionally using or attempting to use unauthorized materials, information, notes, study aids, or other devices or materials in any academic exercise.
   b. Clarification:
      - 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 others) unless specifically allowed in advance by the faculty member.
      - 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.

2. Fabrication, Falsification, and Forgery
   a. Definitions: 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 the act to imitate academic exercise or University record. Forgery is defined as the act to imitate academic exercise or University record.
   b. Clarification:
      - "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.
      - 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.
      - Fabrication of University records includes altering or forging any University document and/or record, including identification material issued by the University.

3. Multiple Submission
   a. Definition: Multiple submission is the submission of substantial portions of the same work (including oral reports) for credit more than once without authorization.
   b. Clarification:
      - Examples of multiple submission include submitting the same paper for credit in two courses without the faculty member's permission, multiple revisions in a credit paper or report (including oral presentations) and submitting it again as if it were new work. Different aspects of the same work may receive separate credit; e.g., a report in history may receive credit for its content in a history course and for the quality of presentation in a speech course.

4. Plagiarism
   a. 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.
   b. Clarification:
      - 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.
      - 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.
      - Borrowed facts: Information gained in reading or research which is not common knowledge must be acknowledged.
      - Common knowledge: Common knowledge includes generally known facts such as the names of prominent nations, basic scientific laws, etc. Materials which add only to a general understanding of the subject may be acknowledged in the bibliography and need not be footnoted or endnoted.
      - Footnotes and endnotes: One footnote or endnote 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 informing students concerning appropriate formats for handling quotations, footnotes, endnotes, and bibliographic references.

5. Complicity
   a. Definition: Complicity is intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.
   b. Clarification:
      - Examples of complicity include knowingly allowing another to copy from one's paper during an examination or test; distributing test questions or summaries of information about the materials to be tested before the scheduled 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 an academic exercise.

6. Computer Misuse
   a. Definition: Computer misuse is disruptive or illegal use of computer resources.
   b. Clarification:
      - No student shall access, copy, examine, modify, utilize, or destroy any computer equipment, hardware, software, or file that is not specifically intended for his/her own personal use, without authorization.
      - Disruptive or illegal use of computer resources includes, but is not limited to: violating copyrights held on software or programs; tampering with computer equipment, hardware or with the operation of any computer system or function/execution; plagiarizing or cheating in any form; acting in a manner disruptive to other users or operators; invading personal or institutional privacy with the use or aid of any computer equipment.

Conduct in Research

Research and creative activities occur in a variety of settings at the University, including classes, 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.

1. Misconduct
   a. Definition: Misconduct in research is defined as serious deviant, 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 results of research and creative activities. It does not include honest error or honest differences in judgments or interpretations of data.
   b. Clarification: Examples of misconduct in research include, but are not limited to:
      - Fabrication of Data: Deliberate invention or counterfeiting of information.
Academic Conduct Violation: Consequences and Appeals

The student may request assistance from the University ombudsman at any point during the appeals procedure. The contact may be for the purpose of clarifying procedures, obtaining information, or requesting assistance through an informal resolution.

Consequences

A description of every violation of standards for academic honesty, conduct in research, University academic policy, or other academic status matters cannot be included in this policy statement. When the academic rules and guidelines set forth in this policy are violated, consequences may vary according to circumstances since particular cases may involve very different situations. Faculty members may take those actions they deem appropriate; these may include 1) a failing grade for the work involved, or 2) failure in the course. Faculty may recommend actions to responsible academic supervisors, and supervisors may, with or without faculty recommendation, take action involving 1) removal from the program, and/or 2) other sanctions up to and including academic dismissal from the University. The faculty member or academic supervisor will file a memo with the registrar, indicating the violation and sanction involved. Before the memo will be placed in the student’s official academic file, the registrar shall provide an opportunity for the student to discuss the matter with him/her.

Appeals

1. Grade Appeals: Students may appeal grading decisions under the “Academic Grade Appeals Procedure,” described below.

2. All Other Appeals: All other actions may be appealed under “General Academic Appeals Procedure,” explained below after the academic grade appeals procedure description. In cases where a grade and another sanction are recommended, the General Academic Appeals Procedure will be used.

Academic Grade Appeals Procedure

1. Whenever a student has a grievance regarding a grade, that student shall first arrange a meeting with the faculty member who will explain the reasons for the grade and, if warranted, recommend a change.

2. The student must initiate contact with the faculty member involved or, in that faculty member’s absence, the appropriate unit chair/director within 90 days of the end of the semester for which the grade was assigned. Failure to act within the ninety-day time period will disqualify the student from further consideration of the matter.

3. If the student believes that a satisfactory resolution of the grievance has not been reached with the faculty member, the student shall then meet with the academic unit chair/director, who may effect a satisfactory resolution.

4. If the student remains dissatisfied after meeting with the academic unit chair/director, the student may meet with the University ombudsman for an appeal. The function of the ombudsman in this situation is to present the student, academic unit chair/director, and the faculty member. The University ombudsman may make a decision that:

   a. the student’s grievance is unwarranted and should not be considered further; or
   b. the student’s grievance is warranted and the ombudsman will attempt to arrange a resolution agreeable to the faculty member and the student; or
   c. the student’s grievance is warranted, but an agreeable resolution cannot be reached, and the grade grievance will then be referred to the Academic Fairness Committee.

5. The Academic Fairness Committee is appointed by the University President from a roster of faculty recommended by the Faculty Senate Executive Board and students recommended by the Western Student Association and the Graduate Student Advisory Committee. The Committee consists of four faculty, three undergraduate students, and three graduate students, with the chair appointed by the University President.

6. When a case is presented to the Academic Fairness Committee, the chair will call the Committee into session within 30 days of the referral. The Committee shall investigate the case, making sure that all interested parties have a full opportunity to present their positions. The Committee may decide upon: (a) no grade change, (b) a change of letter grade, (c) credit/no credit, or (d) any other grade used by the Records Office. The decision of the Committee shall be final and must be made within 60 days after the first meeting of the Committee on the case.

7. If the Academic Fairness Committee decides there should be no change of grade, it will so inform the student, the faculty member, the academic unit chair/director, and the University ombudsman. If the Committee recommends a change of grade, the Committee will first inform the faculty member of its intent so that he/she may initiate the change. If the faculty member prefers not to initiate the change, the Committee will notify the registrar of the change.

8. To protect all parties involved, confidentiality consistent with the Committee’s task will be maintained.

9. Occasions do occur when a faculty member or an administrative official may wish to question a grade or a grade change independent of the appeals procedure (Sec. VI, A-G). In such cases, the faculty member shall be consulted.

General Academic Appeals Procedure

Students may appeal charges of or sanctions for violations of the academic rules and guidelines concerning academic honesty, conduct in research, or applications of an academic policy using the following procedures.

1. A student who disagrees with the charge or decision shall first meet with the faculty member or person bringing the charge or making the decision within 90 days of receiving notification of the action.

2. If the disagreement between the student and the faculty member or the University official is not resolved, a student may appeal in writing to the next administrative level (e.g., academic unit) within 14 calendar days of receiving notice of the first review. If the academic unit has approved procedures in place for considering such appeals, the chair/director shall refer the appeal to that process. If it does not have established procedures, the chair/director shall consider the appeal.

3. If no resolution is reached and the student wishes to appeal the university decision, he/she may request in writing a review by the college dean within 14 calendar days of receiving notice of the unit’s decision.
In cases such as dismissal from an academic program or from the University, the student or the student's advisor or representative shall refer the student's appeal to a College Academic Review Board under procedures outlined below. The College Academic Review Board will establish a recommendation to the dean within 30 days.

Each college (excluding the Lee Honors College, The Graduate College) will establish a College Academic Review Board consisting of five members, three faculty and two students. The three faculty members are elected by the college at large for one nonrenewable four-year term. One undergraduate student and one graduate student who are pursuing degrees for degree programs in the college are appointed by the Western Student Association and the Graduate Student Advisory Committee respectively for one nonrenewable two-year term. Terms run from September 1 to August 31 of each calendar year.

The dean may accept the College Academic Review Board's recommendation or may forward the Board's recommendation and the dean's alternate recommendation to the provost. In a case involving a graduate student, the college dean (in consulta with the dean of The Graduate College) before issuing a decision.

If a student wishes to appeal the decision of the dean, the student may request in writing a review by the provost within 14 calendar days of receiving notification of the college level review. The provost's decision will be final, except for written appeal to the president when an academic dismissal from the University is the recommended penalty.

Students may have all charges of academic dishonesty made by the registrar, Undergraduate Admissions, The Graduate College, or other units not in an academic college transferred to the college of the unit, and then to the provost. The provost's decision will be final.

At each review level in the appeals procedure, the review will be able to recommend: (a) support for the initial charge and/or sanction; (b) modification of the initial charge and/or sanction; (c) no support of the initial charge and/or sanction; or (d) must be maintained at each review level.

If a student fails to appeal to the next step within any of the time limits specified in this policy, the prior action will be considered final.

Throughout the appeals process, a student may select one representative to provide assistance in proceedings. However, the student must advise the review officer or body, in writing, and identify the representative when requesting an appeal.

Thesis/Project/ Dissertation Appeals Procedure

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

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

Student Conduct

Rules and regulations in The Student Code covering student conduct are developed by the Division of Student Affairs and reviewed by the Admissions, Financial Aid and Student Affairs Council composed of faculty, administration, and students. The policies, when approved by the Board of Trustees, are published in The Student Code. Rules and regulations appearing in the code are developed under the philosophy reflected in this statement.

Western Michigan University is committed to maintaining a campus environment which promotes the rights of students to freely pursue academic inquiry and personal expression while encouraging them to develop critical judgment, civility, and self-discipline. The Dean of Students has overall responsibility for student conduct and discipline. When infractions of rules and regulations occur, students will be referred to the Office of Student Judicial Affairs for disposition.

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 procedures covering the privacy rights of students be made available. The law provides that the institution will maintain the confidentiality of student education records.

Western Michigan University accords all the rights under the law to students. No one outside the institution shall have access to, nor will the institution disclose any information from, students' education records without the written consent of students, except to personnel within the institution, to officials of other institutions in which students seek to enroll, to persons or organizations providing students financial aid, to accrediting agencies carrying out their accreditation function, to persons in compliance with the law or the 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 interests may have access to student education records. These members include faculty, administration, clerical and professional employees, and other persons who manage student information (e.g., The Graduate College, Office of the Registrar, Academic Records Office, Office, Controller, Financial Aid, and the Office of Admissions).

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.
Registrar, or a person designated by the Registrar, who does not have a direct interest in the outcome of the hearing.

Decisions of the hearing officer will be final, unless based solely on the evidence presented, and the decision will be made in accordance with the decisions of the hearing officer, if the decisions are in favor of the student. If the decisions are unsatisfactory to the student, the student may file an appeal with the Affirmative Action Department, using an official University appeal form. The Affirmative Action Department will, in turn, notify the appropriate Vice President or his/her designee of the grievance to the Step 1 representative, and the grievance may be appealed to the Step 1 representative (if requested), and any other individuals who may help resolve the grievance. This appeal must be filed within fourteen (14) calendar days after receiving the departmental representative's written answer. The student must file the appeal with the Affirmative Action Department, using an official University appeal form. The Affirmative Action Department will then forward the appeal to the appropriate Vice President. Within seven (7) calendar days after the event or knowledge of the event giving rise to the complaint, the President will make the final grievance decision and communicate it to the entire University community.

3. Sexual Harassment

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 assure equal opportunity and to oppose discrimination because of race, sex, sexual orientation, age, religion, national origin, or handicap.

Therefore, in that 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.

1. Sexual Harassment

a. Definition: Sexual harassment is 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 toward actual sexual relations. It applies as well to repeated or unwanted sexual-related attention, contact, touching, sexually explicit comments, and/or graphics. All persons should be sensitive to situations that may affect or cause anxiety, and a finding of sexual harassment may be based on a single occurrence.

\[ \text{Definition: Sexual harassment is unwelcome sexual conduct which is related to any condition of employment or evaluation of student performance. This definition is intended to include more than overt advances toward actual sexual relations. It applies as well to repeated or unwanted sexual-related attention, contact, touching, sexually explicit comments, and/or graphics. All persons should be sensitive to situations that may affect or cause anxiety, and a finding of sexual harassment may be based on a single occurrence.} \]

b. Clarification: The University's policy on sexual harassment and sexism states: "Sexual harassment and sexism constitute acts of misconduct. Therefore, whenever such acts are reported and confirmed, prompt disciplinary action will be taken, up to and including discharge."
including discharge. However, to enable the University to act through these formal procedures, employees and students are encouraged to report such incidents. Students and faculty should report such conduct to the Affirmative Action Office, 387-8658.

Recognizing Sexual Harassment and Sexism
Sexual harassment and sexism can take the following forms:

• Derogatory jokes or comments based on sex.
• The use of graphics or other materials degrading persons based on their sex.
• Unwelcome touching or ogling.
• Overt advances.
• Coercion, with the promise of reward.
• Threats, with the promise of punishment; and
• Physical assault.

Victims

Who are the victims? Anyone, male or female, young or old, can be the victim of sexual harassment from someone of the opposite, or even the same sex. But most often, women are harassed by men.

Any woman can be the target of harassment, but two groups are the most vulnerable: Women entering male-dominated fields of study, and women from minority groups. Both of these types of women may feel uncomfortable and out of place in their environments. The harasser, sensing this discomfort, finds them easy prey.

Taking Action Against the Sexual Harasser

If you are being harassed, take action to stop it. The University will support you. Some options available to you are:

• Say, “No.” Make it loud and clear. A harasser does not expect confrontation.
• Keep records of all incidents and confrontations.
• Find witnesses or others who will back up your claim.
• Get support from a friend, counselor, professor, or anyone else you trust. Make sure you don’t keep it bottled up inside; the more help you get, the faster the harasser will stop.

STUDENT SERVICES

Academic Skills Center

The Academic Skills Center, located in 1042 Moore Hall, telephone 387-4442, is designed to offer students the opportunity to strengthen their learning skills and improve their academic performance. Programs are offered within the following framework:

1. Graduate students may register for specific courses of an on-campus or off-campus basis.
2. Programs and seminars carry no academic credit.
3. Services are offered at no cost.

Writing Center

The Writing Center offers individual tutoring for students with questions about matters of writing (developing, organizing, focusing, synthesizing) and conventions (style, punctuation, grammar). Computer software related to writing is also available. Students may drop in or schedule appointments in advance.

Computer Lab

Registered Academic Skills Center participants may use a variety of software programs in the areas of reading, vocabulary, spelling, and writing. In addition, the SRSE, a well known study skills inventory, is available to all Western students for a $1.00 fee. Prior registration to use the SRSE is not required.

College Success Seminars

Students may participate in 50-minute College Success Seminars covering a multitude of topics to enhance the learning process. Topics include time management, math anxiety, proofreading techniques, learning styles, and note-taking, to name a few.

Career Services

Assistance with career planning and total job search planning is offered free of charge by the Career Services to students of Western Michigan University. These services include: career counseling, a career resource center, on-campus interviewing schedules, a weekly employment opportunities bulletin, job vacancy postings, computer referrals to employers, management and distribution of credentials for teacher candidates, assistance with career search correspondence such as resumes and cover letters, interviewing videotapes, career workshops and seminars, annual career fairs and referral to other campus agencies.

The office is centrally located on the first floor of Ellsworth Hall, adjacent to the Bernhard Center. Telephone 387-2745 for appointments and additional information.

Children’s Place Day Care Center

The Children’s Place Day Care Center, located in the middle of campus at 2210 Wilbur, is open from 7:00 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 4 years old can be enrolled full-time, part-time, or by the hour (maximum of 10 hours per week). Breakfast, lunch, and snacks are included in the tuition and are provided by WMU’s Dining Services Department. A full vegetable 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 (616) 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 the Faunce Student Services Building and can be reached by calling (616) 387-2116.

Learning Disabled Students

Students with documented learning disabilities may contact the Coordinator of Services for Learning Disabled Students to discuss requests for accommodations or other services. Contact the Coordinator at the Center for Academic Support Programs, 203 Moore Hall, (616) 387-3331 or (616) 387-4411.

Faith and Spiritual Development

Western Michigan University recognizes that helping people to clarify their values, act on their commitments, articulate their own beliefs, and understand the beliefs of others is an important part of the educational process. The University endorses no particular faith or religious tradition, but it welcomes and facilitates the presence of many religious and spiritual organizations. A broad spectrum of spiritual opportunities is available to interested students, including traditional, contemporary, and experimental worship; individual and small group studies; workshops and retreats; study-trips; experiences, social concerns, and action groups.

Various church groups provide support for clergy whom they assign to campus ministry. Those professionals are available to students and their families for personal and religious counseling, and materials and resources for religious activities. Campus ministers are not employees of Western Michigan University, but serve as a resource for students as representatives of their various beliefs.

The Office of Faith and Spiritual Development, a satellite unit of the Office of Student Life, is located in WMU’s Kanley Memorial Chapel. The Chapel is designed to serve as a center for worship-oriented and action-oriented religious and spiritual activities. In addition, the Chapel provides office space for eleven campus ministries. The Kanley Memorial Chapel facility includes an interfaith chapel, several meeting rooms, and offices. It is maintained by the University as a center for faith and spiritual activities and serves as the meeting place for most student religious organizations. It is also the home of Sunday worship services and provides a popular site for weddings.

In addition to Kanley Memorial Chapel, there are several student centers operated by specific denominations on or near campus. Specific information regarding the religious groups or services on or near campus is available in the Office of Faith and Spiritual Development. Telephone: 387-2501. World Wide Web site: http://dosaweb.faunce.wmich.edu/depts/os/kanley

Housing

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

WMU Residence Halls

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

Most halls offer a variety of services and opportunities for students: reception desk with mail and message services, formal lounges, all-purpose rooms for meetings or studying, extensive fitness/exercise rooms, aerobics,
saunas, television viewing areas, refrigerator rented, laundry room, 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 is eligible to live in a hall. Newly admitted students are automatically sent information (fall during the month of February, winter in November, spring and summer in March) detailing the residence hall offerings available for the semester or session they expect to be enrolled.

Many district 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, extracurricular activities, 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 winter semesters graduate and older students often prefer a specific hall supporting students in their academic and social development. In locations where coed assignments (coed) 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.

Off-Campus Housing

There are room-only halls available to those who do not wish to participate in the WMU Dining Service. At least one residence hall is open throughout the entire year, including periods of University closure. All other residence halls close between semesters and are re-opened for the fall semester. Students who remain in the area make their own alternative housing arrangements during these periods. All residents are permitted to remain in their assigned residence halls 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 students and professional dietitians. All hall residents (except those who live in the room-only hall) must choose between three available plans. Most residents select the Bronco Gold Dining Plan which includes all meals except Sunday dinner. For persons living campus every weekend, the Bronco Brown Dining Plan, providing 15 meals Monday through Sunday, is also available. The popular Bronco Ian (Burnham and Goldsworth Valley I) are open until 8:00 p.m. Monday through Thursday.

For further information contact the Residence Hall Office, Faunce Student Services Building, (616) 387-4735 or 800-545-6006.

WMU Apartments

Many students choose to live in one of these Western Michigan University Apartment complexes, close to academic buildings, recreation areas, libraries, and the Bernhard Student Center. Student families, single graduate and undergraduate students are eligible. The apartments are inexpensive and convenient to campus. Rental rates, which include parking, all utilities and cable television, are generally lower than area complexes.

Nearly 600 apartment homes are available. They are open all year and leases are renewable each semester. Residents are quick to find their niche in the apartment community and pleasant relationships are formed between neighbors that often continue long after graduation.

Many play areas, picnic areas, programs and activities for children are available within the complexes. Families with young children can offer exchange child care with a nearby family. School buses come through the complex to take children to and from the area public schools.

Make reservations directly to the WMU Apartment Office, Faunce Student Services Building, Western Michigan University, Kalamazoo, MI 49008-5078, Telephone: 800-882-9619 or (616) 387-2175 or fax (616) 387-3836.

Office of International Affairs

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 Living. Complete Off-Campus Life, Room 3510, Faunce Student Services Building, Telephone: 616-387-2336; Fax: 616-387-2325; World Wide Web site: http://dosaweb.fauence.wmich.edu/ocl.html

Career English Language Center for International Students (CELCIS)

The Career English Language Center for International Students (CELCIS) 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. F-1 students in the CELCIS program must be enrolled full-time: twenty hours of classroom instruction per week. Resident aliens and F-2 students may attend CELCIS part-time.

There are four CELCIS terms per year, two 15-week terms (fall and winter) and two seven-week terms (spring and summer). The University Testing and Evaluation Services offers the institutional TOEFL at the end of each term. The Certificate of Eligibility for a visa (Form I-20 or IAP-66) is issued by CELCIS for admission to the CELCIS program. Admission to CELCIS does not, however, imply admission to the University for academic study.

Office of Study Abroad

Students who are interested in studying abroad should contact the Office of Study Abroad. Assistance in selecting appropriate programs, as well as extensive resources about foreign study opportunities are available. Financial aid, International Student Identity Card, Youth Hostel Pass, and the CELCIS volunteer and work abroad information is available. For further information contact the Director of Study Abroad, B200 Floor Elliot Hall, Telephone: (616) 387-6805 or Fax: 616-387-3962.

Office of International Student Services

The Office of International Student Services handles the special needs of international students by processing applications for admission, conducting an orientation program for new foreign students, assisting with housing arrangements, coordinating community programs involving international students, providing immigration advising, serving as a liaison between students and their financial sponsors, and offering personal and social counseling. While the University, international students are encouraged to participate in academic and social activities as their interests and time allow.
Division of Minority Affairs

The Division of Minority Affairs facilitates the development and continuance of a supportive environment for our ethnic minority student population. As a result, the Division assists the University in its objective to increase the minority presence and participation at the institution. Specifically, the Division:

1. Provides information to the University community on the importance and value of diversity in this educational process.
2. Offers programs and services in response to ethnically specific student needs and concerns, including cultural awareness and student organizational support aimed at increasing minority student retention.
3. Monitors students impressions and satisfaction with delivery of services from other areas to which they have been referred. Provides feedback to these areas on students’ perceptions.
4. Serves as advocate in presenting concerns that affect the quality of life for minority students on the campus of Western Michigan University, and works with students to identify concerns and to develop solutions.
5. Programs targeted at pre-college youth in order to increase the participation of minority students in higher education.
6. Provides information and on-campus programs in response to the Office of Admissions and Orientation to help increase the recruitment and enrollment of minority students.

Additional information may be obtained from the Division of Minority Affairs, A214 Elsworth Hall; telephone (616) 387-4421.

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 listings through the World Wide Web. Carpooling, share-a-ride, and buy and sell information can be accessed on the World Wide Web as well. Listings of apartments, houses, and roommates, students in need of roommates and those available as roommates are also maintained and printed for distribution.

Recognizing the significance of an adequate housing environment for all students, the University’s rental listing program is supplemented with conflict resolution and educational programs as well as tenant/landlord services. For additional information regarding off-campus housing, contact the Office of Off-Campus Life, Room 3510, Faunce Student Service Building; Telephone: 616-387-2336; Fax: 616-387-2325; World Wide Web site: http://dosweb.fauonce.wmich.edu/ocl/index.html

Publications

Western Herald. WMU’s student newspaper, is published Mondays through Thursdays during the fall and winter semesters, Mondays and Thursdays during the spring session, and Wednesdays during the summer session. The Western Herald is made available to students partially through support from the general fund of Western Michigan University. All positions on the paper are filled by students with the exception of the general manager/advisor. Western Herald is the official publication for administration, faculty, and staff members. It is published every other Thursday by the Office of Marketing. Public Relations and Communications, which also produces WMU, The Western Michigan University Magazine in association with the Office of Alumni Relations. The magazine is published four times each year for alumni donors, and other friends of the University.

Sindecuse Health Center

The Sindecuse Health Center is a full-service health care facility that exists to support and promote optimal health for the University community. As a student attending Western Michigan University, you have access to high-quality, convenient, low-cost health care through our many professional services. Our entire staff works as a team to assist you with your health care needs.

Medical Services

The Health Center provides evaluation and treatment for a variety of illnesses and injuries in addition to preventive health care. Medical specialties include family practice, internal medicine, gynecology, psychiatry, dermatology, podiatry, orthopedics, and sports medicine. In addition, Health Center physicians and physician assistants can refer students to off-campus primary care specialists in the Kalamazoo area whenever indicated.

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

Pharmacy

A full-service pharmacy provides prescription medications at a cost savings to students. It also carries a limited number of non-prescription medications. Prescriptions written by your personal physician from home can be filled, as well as prescriptions written by Sindecuse Health Center medical staff. If you have prescription drug coverage, bring the identification card with you as many major insurance cards are accepted.

Laboratory Services

The Center’s full-service laboratory performs most standard diagnostic tests. These are often evaluated while you wait so that you receive prompt treatment, saving you both time and money. Electrocardiograms are also available.

X-ray Services

The radiology department performs general diagnostic x-rays. All x-rays are developed for immediate evaluation by Sindecuse Health Center clinicians and are further interpreted by a radiologist.

Sports Medicine Clinic

The Sports Medicine Clinic provides comprehensive diagnosis and treatment of bone and joint problems. Full physical therapy services are offered. Consultations with orthopedists, sports medicine physicians, and a podiatrist are available.

Physical Therapy Services

The Center’s Sports Medicine Clinic offers the full spectrum of treatment modalities provided by certified physical therapists and athletic trainers. Orders from your home physician are honored.

Allergy Injections

Students requesting allergy injections need to provide their antigen and injection schedule to Health Center staff. No appointment is needed. Check with the Health Center for time injections are given.

Immunizations

Several serious diseases, including measles, mumps, German measles, tetanus, diphtheria, and hepatitis B, are all vaccine preventable. You should be immunized to protect yourself and the University community. Sindecuse Health Center offers all immunizations and immunizations required for overseas travel. Appointments are required for some immunizations. Call 387-3290.

Tuberculosis Testing

Routine tuberculin testing, required for some classes and employment, is also available. No appointment necessary. Check with the Health Center for times TB testing is performed.

HIV Testing

Anonymous HIV testing with the oral HIV antibody test (Orasure) is available to all students. For more information, call 387-4HIV.

Nutrition Counseling

Appointments with a registered dietitian are available for weight management, eating disorders, sports nutrition, diabetic diet management, and more.

Office of Health Promotion and Education Programs, Sindecuse Health Center

The Office of Health Promotion and Education, Sindecuse Health Center, offers a variety of interactive computer resources, information programs and preventive health services designed to help students maintain and enhance their physical and emotional well-being. Services include an array of resources with special emphasis on the following health concerns and skills:

- Healthy intimate relationships
- Healthy sexuality
- Computerized HIV Risk Assessment
- Anonymous HIV Counseling and Testing
- Coping With Stress
- Increasing Assertiveness and Positive Thinking
- Understanding and Managing Depression
- Meditation
- Nutrition
- Vegetarian Food Choices
- Eating Disorder Assessment and Treatment
- Healthy Weight Management
- Recovery from Nicotine Dependence
- Cholesterol Testing and Education
- CPR Certification
- Blood Pressure Assessment

All programs are offered at little or no charge as a Student Health Benefit. Information regarding services and resources is published each semester in an informational brochure which can be picked up from our office or mailed to you by request. Information is also available through the Western Michigan University World Wide Web Home Page under Health Resources and Services, Sindecuse Health Center.

Office of Health Promotion and Education, Hours: Monday through Friday, 8:00 a.m. - 5:00 p.m. Location: Room 1110, Lower Level, Sindecuse Health Center

Appointment Information

Students are encouraged to make appointments whenever possible to prevent unnecessary waiting. Students are also encouraged to choose a clinician with whom they feel comfortable and request this clinician when scheduling appointments. Appointments may be scheduled by calling 387-3290, 8:00 a.m. - 5:00 p.m., Monday through Friday. Allow about an hour for an appointment and longer if lab tests or x-rays are required. Please cancel an appointment if unable to keep it. There is a charge for missed appointments.

Sindecuse Health Center

Appointments

Students are encouraged to make appointments whenever possible to prevent unnecessary waiting.
The Health Center’s urgent care clinic is designed for sudden injuries or illness. No appointment is necessary.

**Parking**

Parking is available in one of the designated Health Center parking spaces in student Lot No. 40 in front of the Health Center. You may obtain a parking permit in the Lobby. Short-term parking is available in the semicircle drive while you receive your permit.

**Student Health Fee**

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

The Student Health Fee benefits apply only to services rendered in the Sindecuse Health Center. Visits to hospital emergency rooms, immediate care centers, medical specialists by clinicians outside the University can also be charges for Health Center services may be paid by check, Master Card, Visa, Discover Card, debit card, or Bronco Card; however, we request that all fees under $1 be paid in cash. You may also charge your health care costs against your student account. The University assesses a service charge for any costs that are not paid within sixty days. Any balance on your student account may impact your ability to register or obtain a transcript. As a courtesy to you, the Health Center will assist in the billing of insurance claims to many of the major carriers, including Medicaid and Medicare. Charges will be placed as University accounts and are your responsibility to pay. The insurance carrier will reimburse you directly.

**Optional Hospital, Medical, and Surgical Insurance**

All students are urged to carry some form of health insurance that covers medical, surgical, and hospitalization expenses not covered by the Student Health Fee. It is important to be familiar with the services included in any insurance policy you purchase. Be sure to carry the insurance identification card with you at all times.

If you are not presently covered by a major medical insurance program, consider the student insurance plan offered through Western. This plan is provided at reduced rates to students of eligible dependent Brochures are available at the Health Center or by calling 387-3266.

**Mandatory Hospital, Medical, and Surgical Insurance**

All international students are required to carry health insurance if health care coverage is not provided by their sponsored programs. Students will be automatically enrolled in the University-sponsored policy unless an approved alternate policy is chosen. Non-sponsored international students must show proof of coverage and have alternate policies approved at the Health Center during the first two weeks of the semester/session. No refunds of insurance premiums can be given after that time. Call 387-3266 for guidelines on alternate policies.

The insurance coordinator at the Health Center is available to assist students weekdays from 9-11:30 a.m., Mondays, Tuesdays, and Fridays, 1-4:30 p.m. on Wednesdays, 9-11:30 a.m. on Thursdays, or by calling 387-3262.

**Important Phone Numbers**

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

**Speech, Language, and Hearing Services**

The Van Riper Language, Speech, and Hearing Clinic, a service program provided by the Department of Speech Pathology and Audiology for persons with communication disorders, is located in the University Medical and Health Sciences Center, 1000 Old polling Drive. Students may take advantage of diagnostic and therapeutic services by contacting the Clinic for an appointment. Special fees are paid by available for students.

**Student Directory**

The WMU Faculty/Staff/Student Telephone Directory is published annually by the Telecommunications Department of the University. It is distributed during early November, with the first two weeks in student residence halls, 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 (print and electronic) must fill out a Directory Exclusion Form (in Room 3210, Seibert Administration Building) during the first three days of classes fall semester. During winter, spring, and summer terms, students may restrict this information to academic use by filling out the Directory Exclusion Form during the first three days of classes.

The Directory can be accessed through the World Wide Web at the following address:

http://www.wmich.edu/wmu/directories

**Student Employment Referral Service**

Over 65% of Western Michigan University (WMU) students work while enrolled. Most student work part-time, although about 10% of our students work full-time. Students use employment to build skills, make connections, and develop careers. SERS sponsors a competition for Student Employee of the Year campus-wide.

SERS serves as a clearinghouse for all student jobs, averaging 600-700 jobs daily. These include assistantships, on-campus, summer, internships, federal work-study, community service work-study, part-time off-campus and others. Any WMU student is welcome to use our services by visiting A-100 Ellsworth Hall or viewing current job openings on WMU’s web page at http://dosaweb.faunce.wmich.edu/ departments/sers/ The student can assist in the billing of insurance claims to many

**Student Life**

The mission of the Office of Student Life is to enhance students’ out-of-classroom experience by providing opportunities for personal growth through diverse programming, leadership development, and campus involvement. Students may participate in events/programs and to strengthen and polish social, interpersonal, communication, and leadership skills. There is an expanded opportunity to meet and interact with people of diverse backgrounds (cultural, ethnic, economic, and social). We encourage you to visit us at 2420 Faunce Student Services Building, (Faunce Student Services, as well as Women’s Resources and Services are other Office of Student Life units listed independently within this catalog.)

**Student Volunteer Services**

Student Volunteer Services (SVS) is dedicated to furthering the student community service experience 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 600 community and campus organizations. The SVS staff will assist you in determining which of 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 such as 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 lists, volunteer positions, and how to get involved. Students
are encouraged to visit our office located in the Lee Honors College. Telephone: 367-5320.

University Computing Services

University Computing Services (UCS) encompasses the entire spectrum of computing and information technologies. In addition to supporting administrative computing functions on campus, UCS 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 student use, including a wide variety of computational workshops, and supporting a computing Help Desk.

University Computing Services is located on the third floor of the University Computing Center. Telephone: (616) 387-5430. World Wide Web site: http://www.wmich.edu/ucs

Computer Accounts

Student personal accounts are available to currently enrolled students. These accounts are available on either of the University’s main academic computing platforms and are free of charge. Students may take their WMU ID card to any UCS computer lab and use a convenient card swipe system to obtain an account. This account remains active as long as a student is enrolled at Western.

Enabling Technology Support

The University provides assistance to computing and information technology for individuals with disabilities through the Multipurpose Enabling Technology Lab (METL) and other sites around campus. METL is a centralized facility with a variety of solutions and services for a variety of disabilities. Some examples are software that generate speech from on-screen text; enlarge text and graphics on-screen; produce Braille printouts; allow input to programs through voice recognition, switches, and alternative keyboards. Orientation, training and consulting are some of the services available through METL staff.

Computing HELP Desk

UCS operates a Help Desk (387-5161) that is available to all students, faculty, and staff. The primary function of the Help Desk is to help computer users get “unstuck” with computing problems. They trained to answer questions, solve computing problems, and give information about UCS services and systems.

Open Access Computing Labs

There are a number of computing facilities located across Western’s campus. Four large “public” computing labs are available for walk-in use by the WMU community. These are located in the Computer Aided Engineering Center, the Bronco Mall area of the Bernhard Center, the Haworth College of Business, and the University Computing Center. The Bernhard lab houses 130 computers and is generally available on a 24-hour basis. Additionally, there are many small to medium-sized labs operated by departments and colleges across campus. An extensive list is available on the Web (http://www.comp.wmich.edu/labs). The computer labs provide a mix of platforms, including Macintosh, MS-DOS compatible, UNIX workstations and terminals which are used to connect to the WMU regional mainframes, the VMScalable, and UNIX servers.

Student Residence Hall Room Computer Connection

If you have your own personal computer, you can request a connection from your residence hall room to the campuswide computer network (WMUnet) for a fee. This connection will give you access to University and departmental computing systems, the library on-line card catalog and data base, and the Internet. You can explore the World Wide Web or FTP files using your personal computer and many host computers, as well as send electronic mail locally or around the world.

Computer Network and Systems

UCS supports an extensive on-campus network (WMUnet) and dial-up modem pool. As a member of Merit, dial-up access to University computing resources is available to students state-wide through local MicNet dial-up modems.

The primary academic time-sharing system runs Open VMS on Digital Alpha architecture. Major uses of this system include e-mail, electronic conferencing, courseware, statistics, and research. A UNIX server running Solaris is also provided, supporting many engineering and statistical software applications.

To order your WMUnet connection, stop by UCS Technical Computing Services (TCS), located in the University Computing Center.

Micros & More Store

The Micros & More Store located in the Bernhard Center on Bronco Mall, provides microcomputer consulting, system configuration, and needs analysis to current WMU students, faculty, and staff. Micros & More offers substantial academic discounts on a variety of brand-name microcomputers and on numerous industry standard software packages.

Statistical Services Center

The Statistical Services Center (SSC) helps clients improve the statistical quality of their research projects and reports. It is open to all University engaged in research, beginning with the grant-writing stage through interpretation and presentation of research results. Services include: assistance in writing statistical computer programs; help in the application and interpretation of statistics. SSC staff provide statistical support to faculty, staff, students, and individuals and organizations outside the University. The staff can also provide proctoring for very reasonable fees and vary according to project complexity. In addition, the SSC provides basic in-and-out computer support on the use of statistical packages such as BMDP, MINITAB, SAS, and SPSS.

Technical Computing Services

Technical Computing Services (TCS) provides technical expertise on hardware, software, and WMUnet connections for both departments and individual users. TCS looks upon each request for assistance as an opportunity to help users learn how to identify and resolve their own problems in the future. TCS is an authorized service center for the following products: Micros & More. Apple, Compaq, and Dell microcomputers and IBM and Lexmark printers. Out of warranty repairs can be made for Hewlett-Packard products. Sun Microsystems and most contracted personal computers. TCS can diagnose problems, provide estimate of cost and make necessary repairs for all of your computer repair needs.

Computer Workshops

Every semester University Computing Services (USC) offers a variety of computer workshops to the University and area communities. Workshops are led by WMU faculty and staff who use computers personally and/or professionally. Workshops are intended to guide participants to explore and experiment with computing technology. It’s a great way to start learning an application or exploring computing environment.

Look for Computer Workshop Catalogs published and distributed on campus with over 100 workshops from which to choose.

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 will become involved in social and personal situations that leave them feeling confused and upset. In addition, it may be likely that the inherent stresses of university life will, at some time, interfere with academic achievement and personal growth.

The University Counseling and Testing Center, located on the main floor of the Faunce Student Services Building, exists to help students deal effectively with such concerns. The Center is staffed with professionally licensed counselors and psychologists and is accredited by the International Association of Counseling Services.

Counseling and Testing Center services consist of the following:

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

Educational Counseling to help students deal with conflicts concerning vocational planning and educational goals. Academic advisement is provided for students in the Student Planned Curriculum.

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, abilities, and skills; (2) learn how to acquire information about careers; (3) review choices, make decisions, and establish goals; 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 collection of college and university catalogs, educational guides, and computer-aided guidance and information pertinent to carrier awareness. An extensive collection of professional journals is also available for student/faculty review.

Training and Internship Programs for graduate students and interns from the Department of Counseling Psychology, School of Social Work, and Department of Psychology are available. Included in the training experience are case consultation, supervised individual treatment sessions, didactic presentations and professional growth opportunities. The predoctoral internship in professional psychology is accredited by the American Psychological Association.

National Standardized Testing is conducted by the University Counseling and Testing Center. The following tests are currently offered: ACT, LSAT, GRE, GMAT, AICPA, MCAT, IELTS, DAT. The BOMI, CLEP, TOEFL and academic skills exams are offered
University Libraries

The University Libraries consist of the Dwight B. Waldo (Main) Library, the Music and Dance Library, the Maps and Atlases Room, the Archives and Regional History Collections, and the Visual Resources Library. The main collection is housed in Waldo Library, which is named for the first president of the University. Built in 1959 and enlarged in 1967, a new 105,000 square foot addition and renovation of 145,000 square feet of existing space was completed in 1991 prior to the ever-expanding and 1,900 student study stations. The total University Libraries' collection, which numbers over three million bibliographic items, includes books, bound periodicals, electronic data bases, music scores, sound recordings, maps, documents, and materials in microform. About 6,680 periodical and newspaper titles are frequently received. Through the use of various approval and gathering plans—as a part of the acquisitions program—the library emphasizes building a strong collection of current imprints in all the fields of study at the University. The University Libraries is a depository for United States and Michigan government documents. Microform editions of selected United Nations documents and official records are also available. A collection of about 1,592,770 microforms contains such items as the Human Relations Area File, the American Periodical Series, Early American Newspapers of the 18th and 19th centuries, Early English Books printed in Great Britain from 1475-1700, and the ERIC documents (documents in educational research published by the Educational Resources Information Center).

Certain special collections are maintained by the library, and holdings have been especially strengthened in some subject areas to support University programs:

1. The Ann Kercher Memorial Collection is an extensive collection of materials on Africa south of the Sahara. Started in 1963, the collection grew to become a noteworthy addition to library resources.

2. Library holdings on southern Asia represent another area of special strength. Together with the Kercher African collection, they help support the University's commitment to international and area studies.

3. Another area of collection strength is the history, religion, philosophy and culture of the Medieval period, holdings which help support the programs of the University's Medieval Institute. The collection also includes rare books, manuscripts, and incunabula, some of which are on indefinite loan to Western from the Abbey of Gethsmane. Over 900 of the some 9,000 volumes in this collection are rare items of special interest to medieval scholars from all over the world.

4. The Randall Frazier Memorial Collection, honoring a notable alumnus, has a wealth of materials on the history and culture of Black America.

5. The C. C. Adams Ecological Collection consists of the personal collection of books and papers of pioneer American ecologist, Charles Christopher Adams.

6. The Leslie H. Wood Memorial Collection is a specialized collection of books in the fields of geography and geology. Doctor Wood, who was one of the original group of faculty hired at Western, taught on campus from 1904-1933.


8. A strong business collection includes special microform collections, annual reports from businesses and industries, and many fine and serial titles in the field of business and finance.

9. The Carol Ann Haenicke American Women's Poetry housed in the Rare Book Room, Waldo, consists of around 6,400 volumes of first and early editions of poetry by American women poets.

The Music and Dance Library is located in the Dorothy U. Dalton Center. In addition to a collection of some 38,600 books and scores and extensive holdings in music periodicals and serials, this branch contains a collection of 17,360 sound recordings, and excellent listening facilities.

The Education Library in Sangren Hall has some 612,000 bibliographic items and receives over 600 periodical and serial titles. The University Archives and Regional History Collections located in East Hall, is also a branch of the University Libraries. The Archives staff collect, preserves and makes accessible records and materials documenting Western history. Its staff also collects, preserves, and manages the Regional History Collections of books, manuscripts, ephemera, oral history tapes, photographs, local public records, and other information resources that document the history of southwestern Michigan. In addition, there are local public records from southwestern Michigan communities which are on deposit from the Archives of the State of Michigan.

The Visual Resources Library contains over 80,000 slides of well known works of art such as paintings, sculpture, architecture, design, drawings, photographs, and illuminated manuscripts. The images represent artifacts of the Western World, Oceana, Asia, Africa, and the Americas.

The University Libraries have a large number of computer based services available to its users. The online catalog provides access to the University Libraries' collections by author, title, subject, and keyword. Over 50 databases are available through the OCLC FirstSearch system with additional resources available through the UnCover database, IAC reference Center Gold, and other easily 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. In addition, an online automated retrieval system (OARS) is available providing access to selected vendor supplied databases in nearly every subject. The computerized operation allows users to significantly shorten the time required to perform searches for research projects. It is available to faculty, staff, and students on a cost retrieval charge basis. Inquiries about this service may be made at Central Library Services in the main library and at all branch libraries.

General and specialized reference service is provided at the Central Reference Desk, the Science Reference Desk, and in the Document Department in Waldo Library. Reference collections of indexes, abstracts, dictionaries, encyclopedias, handbooks, bibliographies, and other sources are maintained in each of the libraries, and reference librarians offer personal assistance in finding the books, information, and other resources needed for class or research related problems.

Research materials which are not in the University Libraries' collections can usually be obtained from another library through interlibrary loan services. The University Libraries participates in the Resource Sharing Center of Waldo Library. The University Libraries participate in online interlibrary systems regionally, state-wide, nationally and internationally. They also hold membership in the Center for Research Libraries, a multi-million item collection located in Chicago. The Center operates as a cooperative library for less-used but important research materials.

Self-service photocopy machines are located throughout the library system. These machines operate with coins or Bronco ID chip cards and have enlarging and reduction capabilities. An attendant-operated copy service is located in the Copy Center in Waldo Library. Microform copiers are also available within the library system.

Students enrolled in off-campus classes are always welcome at the University Libraries, where they have all the same privileges as any other Western student and may borrow materials with their Continuing Education identification card and freely use library services. Selected library services are also available through arrangements with the Regional Centers in the locality where the classes are taught.

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 which will not only support the students' educational progress but also will encourage them to develop the habit of self-education.

University Ombudsman

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

**Vehicle Registration**

All students are eligible to park a motor vehicle on University property; however, they must first register their motor vehicle, motorcycle, and/or moped with WMU Parking Services and pay a registration fee. Detailed information concerning parking regulations, parking permits, and parking violations can be obtained by visiting the Parking Services Office or calling (616) 387-4099. After business hours, contact the WMU Police Department, located at 511 Monroe Street, or call (616) 387-5555.

**Veterans' Assistance**

The Office of the Registrar on the third floor of the Seibert Administration Building certifies veterans under the G.I. Bill and its extensions. The Veterans' Certification Officer will assist any person who seeks certification to the V.A. under any applicable program. 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 and declaring personal responsibility for regular attendance during that year. Students are certified on the basis of attendance and academic progress toward degree goals. 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 (616) 387-4115.

**Women's Resources and Services**

Women's Resources and Services (WRS), a unit of the Office of Student Life, provides educational programs and materials and personal assistance to students, focusing on issues that are not only of special interest to women, but also to an increasing number of men. Currently, WRS services are concentrated on three gender-related issues: sexual assault, sexual harassment, and abuse and violence in relationships. Both female and male students play an integral role in our work on these important social issues. Inquiries may be made by stopping by or calling the WRS office at A331 Ellsworth Hall, 387-2990.

**Educational Programs**

The S.T.A.R. Program: Students Talking About Relationships, is an educational program that provides presentations and training workshops on the issues of sexual assault, sexual harassment, and abuse and violence in intimate relationships. Programs are presented by women and men students who have completed special training as Peer Educators. Over 100 presentations are done each year for academic classes, residence halls, student organizations, and freshman orientation. Students are invited to inquire in the WRS office about being a Peer Educator.

Approximately 35 students are selected each November to begin training as Peer Educators in January.

**Victim Assistance Services**

Personal, confidential assistance is available to students or their friends who want help in dealing with a sexual assault, sexual harassment situation, or abusive relationship. The coordinator of the WRS office can provide information on legal rights, University policy, procedures, resources for help, emotional support, encouragement, a sympathetic sounding-board for decision-making, advice on how to help a friend, assistance in obtaining help and carrying out decisions, and support and assistance in filing a complaint with Student Judicial Affairs.

**Information Resources**

The WRS office maintains a file of information on local sources of financial aid targeted at women and older students and a large collection of information about campus, community, and national organizations, resources, and services of interest to women. The office also houses a resource library of books, reports, articles, pamphlets, and videotapes about sexual assault, sexual harassment, and relationship abuse. Many of these materials are available free to the WMU community and can be obtained by either stopping by the WRS office or requesting they be mailed.
Section III
Description of Graduate Programs and Courses

COLLEGE OF ARTS AND SCIENCES

Elise B. Jorgens, Dean
Leonard Ginsberg, Associate Dean
James Petersen, Associate Dean

Academic Units:
Anthropology
Arts and Sciences
Asian and Middle Eastern Languages and Cultures
Biological Sciences
Black Americana Studies
Chemistry
Communication
Comparative Religion
Computer Science
Economics
English
Foreign Languages and Literatures
Geography
Geology
History
Mathematics and Statistics
Medieval Studies
Philosophy
Physics
Political Science
Psychology
Public Affairs and Administration
Science Studies
Sociology
Women's Studies

The mission of the College of Arts and Sciences is to engage in students those skills, attitudes, and habits of mind which permit them to challenge successfully a profoundly complex and changing world. To that end, the College of Arts and Sciences offers graduate courses and programs of study in the humanities, the social and behavioral sciences, and the physical, biological, and mathematical sciences. In addition to providing specialization in its many disciplines at the graduate level, the College provides opportunity for the liberal education of all graduate students at the University. The goals of the graduate programs within the College are specifically focused to offer research, teaching, and professional degrees to prepare the graduate to assume a leadership role in academe, government, and other institutions of society.


ANTHROPOLOGY

Dr. James Petersen, Associate Dean and Interim Chair
Main Office: 116 Moore Hall
Telephone: 387-3969
FAX: 387-3999

Professors William Cremin, Arthur Helweg, Erika Loeffler, Robert Sundick; Associate Professors Michael Nassaney, Tal Simmons, Allen Zagarell; Assistant Professors Robert Anemone, Ann Mies, Rosario Montoya.

Master of Arts in Anthropology

Advisor:
Tal Simmons
Room 130, Moore Hall

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

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

Program requirements
1. Complete at least thirty semester hours in anthropology. Cognate courses may be
32 COLLEGE OF ARTS AND SCIENCES

substituted with approval from the graduate advisor.
2. ANTH 601, 602, and 603 are required.
3. Pass a comprehensive written examination on the field of Anthropology.
4. Complete an acceptable master's thesis, ANTH 700 (6 hrs.).

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 the specific prerequisite for each course.

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 ecology). The topic to be studied will be announced each semester. May be repeated for credit.

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, 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-Folsom 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 bio-ecological patterns of selected cultivars; and the cultural systems which have arisen from the economic foundations of plant domestication. Prerequisites: Junior/senior status, 12 hours of Anthropology, ANTH 110, 210, or consent of instructor.

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

ANTH 506 The Archaeology of Gender
3 hrs.
Gender constructs, a critical organizing principle for human interaction, are becoming an important focus for archaeological investigation. This course will explore the multiple ways in which 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 theoretically. 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 520 Social Science Theory
3 hrs.
The philosophical/theoretical and conceptual foundations of the social sciences in general will be discussed with special emphasis on contemporary anthropology, including traditional as well as post-struc-tural ways of thinking. Prerequisites: Junior/senior status, 12 hours of Anthropology, and ANTH 240 or social science equivalent.

ANTH 531 Medical Anthropology
3 hrs.
This course starts with the premise that illness is as much a cultural and 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 healthcare 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 globe of specific development problems, particularly in the Non-Western World. Explores a wide range of applied or adaptive research techniques designed to ensure 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 543 Art and Culture
3 hrs.
Various theories about creativity and about interrelationships among art, artists, and culture, will be explored in cross-cultural perspective, with examples drawn mostly from so-called "primitive art." Discussions will cover the biology and evolution of art; cross-cultural aesthetics; sociocultural contexts such as issues of gender, power, patron-client relations, material culture, semiotics, ritual and healing, and acculturation processes in arts and crafts. Prerequisites: Junior/senior status, 12 hours of Anthropology, and ANTH 240 or consent of instructor.

ANTH 545 Art and Culture
3 hrs.
Topics will vary and will be announced in the Schedule of Classes. May be repeated for credit with different topics. Prerequisite: consent of instructor.

ANTH 546 Topics in Sociocultural Anthropology
3 hrs.
An intensive study of a selected topic or emerging field in sociocultural anthropology. Topics will vary and may be repeated in the Schedule of Classes. May be repeated for credit with different topics. Prerequisite: consent of instructor.

ANTH 547 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 Classes. May be repeated for credit with different topics. Prerequisite: consent of instructor.

ANTH 548 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 Classes. May be repeated for credit with different topics. Prerequisite: consent of instructor.

ANTH 549 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 Classes. May be repeated for credit with different topics. Prerequisite: 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. Emphasis in this course will be paleontological theory, issues relating to species definition and recognition, functional anatomical complexes, adaptive processes, and human morphological variation. Prerequisites: Junior/senior status, 12 hours of Anthropology, and ANTH 250.

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.

Open to Graduate Students Only

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

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

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

ANTH 610 Topics in Archaeology
3 hrs.
An intensive study of a selected topic or emerging field in archaeology. Topics will vary and may be announced in the Schedule of Classes. May be repeated for credit with different topics. Prerequisites: 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 may be announced in the Schedule of Classes. 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). Students 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.
ASIAN AND MIDDLE EASTERN LANGUAGES

Dr. Hideko Abe, Chair
Main Office: 2313 Friedmann Hall
Telephone: 387-6240
FAX: 387-3999
Professor Timothy Light; Assistant Professors Hideko Abe, Xiaojun Wang

Chinese Courses (CHIN)

Open to Upperclass and Graduate Students

CHIN 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 to a maximum of three hours. Prerequisites: Completion of four courses in Chinese or equivalent; minimum grade point average of 3.0 in Chinese; departmental approval required.

Japanese Courses (JPNS)

Open to Upperclass and Graduate Students

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

BIOLOGICAL SCIENCES

Dr. Leonard Beuving, Chair
Main Office: 5330 McCracken Hall
Telephone: 387-5625
FAX: 387-2849


Master of Science in Biological Sciences

Advisor: David Karowe, Room 4190, McCracken 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 Biological Sciences program, both the Department of Biological Sciences and the graduate dean must endorse the students’ application. Applications can be obtained from the Department of Biological Sciences, (616) 387-5626. Applications are reviewed based on the following criteria, although no one criterion is sufficient to guarantee admission or dictate denial of admission:

1. A bachelor’s degree from an accredited college or university.
2. A grade point average of 3.0 or greater in all undergraduate courses.
3. Official scores on the verbal, quantitative, and analytical sections of the Graduate Record Exam, sent to the department and to the Admissions Office.
4. Appropriate prerequisite courses in biology, chemistry, physics, and mathematics.
5. Three letters of recommendation.
6. A major advisor available in the student's area of specialization.

NOTE: Some course deficiencies in admission requirements listed above may be completed after “admission with reservations.” However, these course deficiencies must be completed in addition to the minimum credit hours required for a graduate degree.

Probationary admission for students whose GPA is less than 3.0 or who do not meet other regular admission criteria may be possible via “Probationary Admission” as described in the section of this Graduate Catalog entitled Types of Admissions.

Program requirements

Thesis Option —The Master of Science in Biological Sciences requires 33 hours of work, including preparing and defending a thesis in an oral examination and presenting research results at a departmental seminar.

Non-Thesis Option — The Master of Science in Biological Sciences requires 33 hours of work, including presenting research results at a departmental seminar, defending research results in an oral examination, and preparing a manuscript suitable for publication in a refereed journal. The awarding of the master’s degree is not contingent upon submission of the approved manuscript for publication.

Required Courses (11 hrs.)

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

Elective Courses (16 hrs.)

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

Research Requirement (6 hrs.)


Certificate Program in Electron Microscopy

Advisor: Leonard Beuving, Room 5351, McCracken Hall

The Graduate Certificate in Electron Microscopy will be awarded to candidates who have completed a minimum of 16 credit hours of prescribed course and laboratory work beyond a Master of Science. The candidate must demonstrate the satisfaction of a committee composed of three members (two of whom must be Biological Sciences faculty) competence in preparation of specimens, operation and maintenance of equipment, and photographic processing and printing. The evaluation of competence will be by an oral or written examination and by practical
Demonstration of skills. The purpose of the program is to allow the interested student to acquire skills beyond the master's degree but short of the requirements for a Ph.D. The program is intended to be a bridge between theoretical, practical preparations, interpretation, and scope operation and maintenance. It will equip the candidate to be a productive member of an operating electron microscopy laboratory.

Admission requirements

1. Completed master's degree in a related area.
2. A degree of competence in electron microscopy (i.e., a Master's Thesis or project that required use of an electron microscope laboratory).
3. Chemistry background through two courses in biochemistry.

Program requirements

The candidate must complete BIOS 632, 710, 712, and a course in histology. List of required courses:

- BIOS 632 Advanced Techniques in Electron Microscopy, 4 hrs.
- **BIOS 712 Professional Field Experience—Working experience in a professional electron microscope laboratory, 6 hrs.
- BIOS 537 Histology, 3 hrs.
- BIOS 574 Embryology, 3 hrs.

*To be arranged as projects between W.M.U. and a commercial electron microscope laboratory.

**To be arranged between W.M.U. and the Argonne National Laboratories Electron Microscope Laboratory.

The student will work for one semester at Argonne National Laboratory full-time on projects mutually directed by Argonne and Western Michigan University faculty. The progress of the student will be monitored by frequent site visits by the W.M.U. participant. (Details of the appointment must be arranged on an individual basis between Argonne and W.M.U. personnel at least 5 months prior to actual work. Appointments can be made for only 1 candidate for each of the fall and winter terms.)

Doctor of Philosophy in Biological Sciences

Advisor: David Karowe, Room 4190, McCracken Hall

The Doctor of Philosophy in Biological Sciences at Western Michigan University is designed to train individuals wishing to pursue careers in teaching, teaching and research careers in the biological sciences in two- and four-year colleges and universities, or careers in industry and government. The program stresses breadth of knowledge and pedagogy in the biological sciences in addition to a significant, focused research project. Thus, the Ph.D. in Biological Sciences at Western Michigan University offers from traditional Ph.D. in Biology centered on a highly specialized, research-intensive experience. The program consists of three components: breadth of knowledge of modern biological sciences, teaching, and research. The breadth required to teach college level biology successfully and to perform meaningful research involving cellular and molecular aspects of biology is provided through course work and laboratory rotations. Communication of knowledge has long been a major function of Ph.D. scientists, and organization and dissemination of knowledge are critically important to all scientists. Therefore, an integrated part of the program is an emphasis on the training of Ph.D.'s for their central role as communicators and teachers. This will be accomplished through course work focused on teaching and supervised practical experience. Original research, culminating in the doctoral dissertation involving cellular or molecular aspects of biology, completes the triad and gives the student a focused area of one aspect of biology to complement the breadth achieved elsewhere in the program.

Admission requirements

Application materials may be obtained from the Office of Admissions and Orientation (Graduate Admissions) and from the graduate advisor. International students should also contact the Office of International Student Services. 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-iv above.

Note: Some course deficiencies in admission requirements may be completed after admission with reservations. These deficiencies must be completed in addition to the minimum credit hours required for the Ph.D. All reservations, including course deficiencies, must be removed before advancement to candidacy.

Applicancy

Applicancy requirements are those of The Graduate College.

Committee Structure: Prior to the first teaching experience, the student must establish a Teaching Committee. The teaching committee will be composed of one faculty member in Biological Sciences, one faculty member in Science Studies, and one representative from the biology department of a collaborating two- or four-year college. 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, the applicant must seek candidacy. By this time the student should have completed the distribution requirements, the research tools requirement, and a preliminary plan for the dissertation endorsed by the Dissertation Committee. To be admitted to candidacy, the student must successfully complete the Comprehensive Examination. This exam, administered by the Graduate Advisor, will examine the student over the biological science topics covered by the distribution requirements. Students will be given a grade of pass or fail. This exam may be retaken once in the event of failure.

Candidacy will be approved or denied by the Graduate Advisor based upon successful completion of the Comprehensive Examination, a positive recommendation of the Dissertation Committee, and the student's performance in course work, a positive recommendation from the teaching advisory committee, and successful performance in all other professionally related activities, including teaching assistantship.

Program requirements

1. A minimum of 76 graduate semester hours. These hours shall consist of the following:
   a. 18 hours of distribution courses.
      • BIOS 611, Eukaryotic Cell Biology (3 hrs.)
      • BIOS 612, Prokaryotic Cell Biology (3 hrs.)
   b. 18 hours of electives chosen in one of the biological sciences from an accredited university:
      • BIOS 614, Plant Physiology (3 hrs.)
      • BIOS 615, Ecology (3 hrs.)
      • BIOS 616, Evolution (3 hrs.)
   c. At least 21 hours of electives chosen from the graduate offerings of Biological Sciences or other departments appropriate to the student's research interest as agreed upon by the student and the Dissertation Committee.
   d. Three hours of BIOS 699 taken during three laboratory rotations.
   e. Four hours of BIOS 610 (Teaching of Biological Sciences), including a formal course and three Teaching Experiences.
   f. Doctoral Research composed of 15 hours of BIOS 735 (Independent Research) and 15 hours of BIOS 730 (Doctoral Dissertation).
   g. Satisfaction of the research tools requirement.
   h. Successful completion of Comprehensive Examination.
   i. Successful oral defense of dissertation and approval of the dissertation by the Doctoral Dissertation Committee.
   j. Any other requirements as specified by The Graduate College.

General Plan and Sequence of the Program

1. Students will satisfy any curricular deficiencies beginning with the first semester in residence.
2. Core courses should be taken early in the program to assist in preparation for the Comprehensive Examination. These courses and the electives need not be taken in sequence.
3. Course work pertaining to teaching and Teaching Experiences should be initiated no later than the second year of graduate study.

Financial Assistance

The Department of Biological Sciences offers opportunities for financial support of doctoral students through Graduate Assistantships and
Fellowships. Individuals desiring further information about such opportunities, or about the graduate program, should contact the Graduate Advisor and The Graduate College.

**Biological Sciences Courses (BIOS)**

**Open to Upperclass and Graduate Students**

All 500-level courses have the following prerequisites: junior standing and at least 12 credits in biology, including the specific prerequisite for each course.

**BIOS 507 The Biology of Addictive Drugs**

3 hrs.

The study of modes of action and effects of psychoactive drugs, such as alcohol, marijuana, cocaine, amphetamines, heroin, methadone, LSD, PCP, and nicotine. Prerequisite: An introductory physiology course or enrollment in the Specialty Program in Alcohol and Drug Abuse or consent of instructor.

**BIOS 512 Environment and Health Problems**

3 hrs.

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

**BIOS 515 Plants for Food and Industry**

3 hrs.

Representative cereal, fiber, and industrial plants of primary economic importance will be examined, such as wheat, rice, wood and its uses, soybeans, and grapes. Following discussion of plant composition and some of the important processes involved in plant growth, we will look into the botanical characteristics of each plant, the areas where it is grown and why, the special aspects of its composition and growth habits that account for its economic prominence, its value in human nutrition, and some of its special problems. The course is enriched with several demonstrations and lab experiences that include diverse practical applications. Prerequisites: BIOS 202 and a course in organic chemistry.

**BIOS 516 Endocrinology**

3 hrs.

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 250; biochemistry is recommended.

**BIOS 520 Human Genetics**

3 hrs.

The principles of human heredity with particular emphasis on the clinical significance of biochemical and chromosomal variation. Abnormalities of development and methods of risk analysis in genetic counseling are discussed. Prerequisite: BIOS 250; biochemistry is recommended.

**BIOS 524 Microbial Genetics**

3 hrs.

A lecture/seminar course emphasizing modern microbial genetics, as well as historic keystone experiments. 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 organization. Prerequisites: BIOS 250 (Genetics) and 312 (Microbiology) or consent of instructor.

**BIOS 528 Biology of Non-Vascular Plants**

4 hrs.

A detailed comparative study of the morphology, life cycles, and ecology of the algae, fungi, and bryophytes. Laboratory study will be complemented by field investigations. An independent project may be required. Prerequisite: BIOS 202.

**BIOS 529 Biology of Vascular Plants**

4 hrs.

A detailed comparative study of the morphology, life cycles, and phylogeny of the vascular plants. Laboratory study will be complemented by field trips. An independent project may be required. Prerequisite: BIOS 202.

**BIOS 530 Bryology**

3 hrs.

Mosses and liverworts will be studied in lecture, lab, field trips, and herbarium. Aspects of bryophyte ecology, systematics, and biogeography will be considered. Microscope and keying techniques will be developed. Each student will produce personal collections and keys. Prerequisite: BIOS 202.

**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 biological and biochemical mechanisms of the immune response and the chemical nature of antibodies, antigens, and their interaction. Emphasis will be placed on the in vivo and in vitro humoral and hypersensitivity reactions. Prerequisite: BIOS 312.

**BIOS 537 Histology**

3 hrs.

A study of the function and microscopic anatomy of mammalian tissues. Prerequisite: BIOS 211.

**BIOS 539 Animal Behavior**

3 hrs.

Animal behavior is studied with regard to our understanding of the cause of behaviors, and the possible reasons for their existence. Prerequisite: BIOS 211.

**BIOS 541 Invertebrate Zoology**

3 hrs.

A study of the anatomy, physiology, embryology, and histology of representatives of the major groups of invertebrate animals. Prerequisite: BIOS 151.

**BIOS 542 Entomology**

4 hrs.

This course is a general study of insects, their structure, classification, physiology, life histories, ecological relationships, and economic importance. Students will learn to identify common families of insects, and make individual collections. Prerequisite: BIOS 151.

**BIOS 547 Ornithology**

3 hrs.

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

**BIOS 549 Field Ecology**

3 hrs.

Field studies of forest, 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 methods are emphasized. Prerequisite: BIOS 301 or equivalent.

**BIOS 553 Limnology**

3 hrs.

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

**BIOS 555 Marine Biology**

4 hrs.

A survey of marine biology topics including: the physical marine environment and general principles of marine ecology, marine plants and animals, with emphasis on their special roles and adaptations; major marine communities; and marine biotic resource conservation and utilization. Selected topics of current research are included.

**BIOS 556 Tropical Biology**

4 hrs.

A travel study course providing an introduction to both terrestrial and marine ecosystems in the tropics. The course, consisting of lectures, field explorations, and individual projects, examines the major life zones and biogeography of the region visited, from an ecological perspective. Tropical Rain, Montane, and Dry Forests and the biology of a coral reef will be studied. Human ecology, agriculture (tropical fruits and vegetables, sugar cane and coffee) and environmental issues will also be included. The course will be presented on one of the islands of the Caribbean and/or in Central America.

**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 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.

Embyology 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**

3-4 hrs.

Lectures or seminars in various areas of the biological sciences will be offered. The
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 mechanism of action, impact on human health as well as practical aspects of detection of mutagens and carcinogens are examined. Prerequisites: A course in genetics and a course in biochemistry or consent of instructor.

BIOS 630 Electron Microscopic Techniques 3 hrs. A technique oriented laboratory stressing the various preparatory procedures employed for viewing biological materials. Prerequisite: Consent of instructor.

BIOS 632 Advanced Techniques in Electron Microscopy 4 hrs. A laboratory course emphasizing currently developing technology. This course is designed for graduate students who have a working knowledge of electron microscopy and its applications to biological problems. The course will be personalized instruction in techniques of autoradiography, protein tracer, such as peroxidase, ferritin, lanthanum, etc.; special tissue preparations, such as in vivo perfusion, varied fixatives, varied embedding material, etc.; and particulate materials preparation. The student will conduct detailed examinations of higher preparations and prepare critical critiques. 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 Classes 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.

BLACK AMERICANA STUDIES

Dr. Earl Washington, Director
Main Office: 816 Sprau Tower
Telephone: 387-2665
FAX: 387-3999

Professors Leander Jones, Ben Wilson; Associate Professor Earl Washington.

Black Americana Studies Courses (BAS)

Open to Upperclass and Graduate Students

BAS 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

BAS 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.

CHEMISTRY

Dr. Jay Means, Chair
Main Office: 3342 McCracken Hall
Telephone: 387-2845
FAX: 387-2909

Professors James Howell, Michael McCarville, Jay Means, Ralph Sternhaus; Associate Professors Donald Schreiber, Susan Stapleton, Assistant Professors Steven Bortman, Susan Burns, John Chateauneuf, Michael Dziewiatkowski, Yi-Ping Liu, John Miller, Marc Perkovic, David Reinhold

Master of Arts in Chemistry

Advisors: Donald Schreiber, Room 3302, McCracken Hall
Michael McCarville, Room 3341, McCracken Hall

The Master of Arts in Chemistry is planned to provide a broad background in the various fields of chemistry with concentration in one.

Admission requirements

Entrance requirements, in addition to those of The Graduate College, include taking entrance examinations covering the fields of Analytical, Organic, and Physical Chemistry. The entrance examinations are scheduled during the week preceding each semester and the spring session. New students, unless entering with an acknowledged deficiency, are required to take all three examinations before they start classes. Students who fail an entrance examination are required to attend the corresponding undergraduate course, if available, and/or repeat the entrance
examination if so advised. Enrollment in a 600-level Chemistry course is not permitted unless the appropriate entrance examination has been passed.

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 upon 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 510, Inorganic Chemistry or CHEM 550, Biochemistry I or CHEM 552, Biochemistry II with Laboratory.
5. CHEM 601, Graduate Seminar. (Attendance required every semester.)
6. Three 600-level courses from three different divisions (Analytical, Biochemistry, Inorganic, Organic, and Physical), 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 is required to pass a final oral examination 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 other environmentally related disciplines such as biological science, hydrogeology, or paper science. This educational goal provides 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 equivalent amount of experience or training. Application must be made to both 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 be used in the determination of admission and financial support.

Program Requirements
1. After admission, the student will be required to take standardized placement examinations. Identified deficiencies, if any, will be remedied with appropriate coursework determined by an academic advisor.
2. Within the first academic year, students will select a research advisor and a major area of study. Selection of the research advisor will be by mutual consent of the faculty member and student. Selection of the student's major area of study will be determined in conjunction with the research advisor. Major areas of study currently include analytical chemistry, biochemistry, inorganic chemistry, organic chemistry, and physical chemistry. Shortly after selection of a research advisor, a dissertation committee should be established. The committee should be comprised of the advisor serving as chair and at least two other members from the department and one member from outside the department. No more than two of the departmental committee members should be from the student's major area of study. Eminent faculty may serve on the committee. Removal of a committee member will require mutual consent of the student and the dissertation committee or a majority vote of the department faculty.
3. The student will complete at least sixty (60) semester hours of credit for the degree, with no more than half the credits as course work. A minimum of nine (9) graduate level courses must be completed satisfactorily. Fifteen (15) hours of doctoral dissertation research is required. The remaining hours will be completed through a combination of co-op/internship experiences and/or special research projects 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 3.25/4.00 to meet graduation requirements. The following describes the distribution of credit hours
   a. Chemistry courses
      • Three (3) courses with environmental emphasis (5 hrs.)
      • Four (4) chemistry courses that emphasize major field (12 hrs.)
   b. Cognate courses
      • Two (2) courses outside the department (6 hrs.)
   c. Other
      • Seminar credit (1 hr.)
      • Chemical literature (2 hrs.)
   d. Special research seminars or coop/internships (15 hrs.)
   e. Doctoral dissertation (15 hrs.)
4. Beginning in the first year and concurrent with course work, the student will be required to take cumulative examinations (CUME's) that cover all of the major areas of study in chemistry. The purpose of the cumulative examination is to assure that the student has, and can demonstrate and apply, knowledge of current, advanced chemical principles following:
   a. Eight (8) cumulative examinations (CUME's) will be given in each academic year.
   b. On each examination there will be 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 not included in the student's concentration.
   d. The student must pass at least two (2) CUME questions by the end of the first year.
   e. The student must pass a least four (4) CUME questions before standing for the research proposal defense.
5. Within the first two years, the student will be required to present a critique seminar on a paper or papers from the current literature. Upon successful completion of the seminar, a paper grade will be received for seminar credit.
6. The student, after successful completion of no less than four CUME questions, will be required to defend a written proposal for a unique research topic. The proposal must be unrelated to the student's current dissertation research project and must be approved by the student's dissertation committee.
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 examination before standing for the research proposal defense.
   b. At least five (5) of the seven (7) required chemistry courses with a minimum course grade point average of 3.25.
   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. The research tools requirement includes professional tools that facilitate successful academic, government, or industrial careers. Where necessary, satisfactory performance on the research tools requirement, including approval of appropriate courses, shall be determined by the dissertation committee. The committee can be comprised of students holding significant experience or expertise in these areas, which 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 by 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 a research problem. 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 showing proficiency by applying advanced statistical analysis such as multivariate analysis to a scientific research problem.
c. Shows proficiency in the design or manufacture of electronic circuits and devices by construction of an instrument used in a research project or by receiving a grade of "B" or better in an appropriate course.

d. Masters the design, repair, and development of chemical instrumentation used as part of an upper-level course or in a research project.

e. Demonstrates a reading knowledge of one of the foreign languages important in the chemical literature or chemical industry (French, German, Russian, Japanese) by receiving a grade of "B" or better in a 401 course in one of the languages, by passing a standardized examination, or by successfully translating a technical article assigned by the department.

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-four 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 be employed when accidents occur. Prerequisite: Twenty-four hours of chemistry.

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

CHEM 515 Inorganic Chemistry
3 hrs.
This course, along with CHEM 570 and CHEM 575, provides a capstone chemistry experience for undergraduates. The course will present the principles of inorganic chemistry in terms of its relevance to the "real world" of industry and environmental protection. Topics include symmetry, structure, and bonding, as well as a survey of the descriptive chemistry of the elements. Students are strongly advised to have already completed CHEM 570 and to be registered simultaneously in CHEM 575. Prerequisite: CHEM 431 or permission of instructor.

CHEM 520 Instrumental Methods in Chemistry
3 hrs.
This course, along with CHEM 515 and CHEM 575, provides a capstone chemistry experience for undergraduates in conjunction with the CHEM 570 and CHEM 515 capstone courses. The fundamentals of synthetic techniques will be exercised through independent synthetic laboratory projects and detailed investigations of molecular structure using modern spectroscopic methods. Students will get hands-on experience with modern spectroscopic instrumentation and will learn to utilize the chemical literature and databases. It is strongly recommended that CHEM 570 be taken before CHEM 575 to prepare students for spectral interpretation. Prerequisites: CHEM 377, 378, 431, 520 or permission of the instructor.

CHEM 580 History of Chemistry
3 hrs.
This course is taught from the point of view of the history of chemical theory in which the evidence for the theories is critically presented. Prerequisite: Sixteen hours of chemistry, including CHEM 370, 371 and CHEM 375, 376.

CHEM 590 Special Problems in Chemistry
2 hrs.
Research work on a problem in chemistry in association with a faculty member. May be repeated for credit. Graded on a Credit/No Credit basis. Prerequisites: Twenty-four hours of chemistry, which includes CHEM 436, and approval of the department 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 advanced degrees in chemistry. Graded on a Credit/No Credit basis. (Two semesters; 1 hr. credit.)

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

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

CHEM 611 Advanced Inorganic Chemistry
3 hrs.
The chemistry of the transition elements. Consideration of the electronic and magnetic states of the 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 course will be arranged in such a manner as to point out that the choice of analytical technique will depend on the type of information being sought, the characteristics of the analyte, and the sample form. Prerequisite: CHEM 520.

CHEM 630 Advanced Physical Chemistry  
3 hrs.  
A study of the fundamental 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 633 Chemical Thermodynamics  
3 hrs.  
Includes a review of the three laws of thermodynamics, state functions, activities, partial molar quantities, 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 examine what effects pertinent factors like pH, Eh, temperature, and salinity have on these processes, and how these processes control the fate of a pollutant when it enters a natural water system. This course requires a knowledge of basic physical chemistry. Prerequisite: CHEM 430 or equivalent.

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

CHEM 650 Proteins and Nucleic Acids  
3 hrs.  

CHEM 654 Environmental Influences on Biomolecules  
3 hrs.  
An examination of how environmental factors influence biomolecule expression, stability, and function. 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 interaction of these agents with DNA and how DNA repair enzymes act to protect organisms from the harmful effects of these agents. Prerequisite: Consent of instructor.

CHEM 661 Organic Reactions  
3 hrs.  
An intensive study of organic reactions with emphasis on preparative scope and utility. The following types are considered: Aliphatic substitution, oxidation and reduction, condensation, etc. Prerequisites: CHEM 377, 378.

CHEM 663 Mechanisms in Organic Chemistry  
3 hrs.  
Free radical, ionic, and multicenter reaction types are considered. The influence of structure and media on reactivity is included. Prerequisites: CHEM 377, 378, and 431.

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. Prerequisite: CHEM 550, 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. James A. Gilchrist, Chair
Main Office: Third Floor,Sprau Tower
Telephone: 387-3130
FAX: 387-3990
URL: http://www.wmich.edu/communication

Professors Richard Diemer, Peter Northouse, Steven Rhodes, Shirley Van Hoeven, Paul Yelensia, Associate Professors Loren Crane, Wendy Ford, Richard Gerston, James Gilchrist, Steven Lipkin, Thomas Page, George Robeck, John T. Sill, Assistant Professors Sandra Borden, Nancy Connell, Susan Fox, Melissa Hancock, Keith Keith, Joseph Kayany, Mark Orbe.

Master of Arts in Communication
Advisor and Director, Graduate Program: Shirley A. Van Hoeven, Room 312, Sprau Tower

The Master of Arts in Communication has three options: Option A—Interpersonal Communication, Option B—Organizational Communication, and Option C—Telecommunication. 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 Telecommunication 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. These programs are designed in consultation with the graduate advisor based on a student's needs, interests, and professional objectives.

Admission requirements
The primary criteria for admission are based upon answers to the following questions: Does the applicant have a clear understanding of his/her educational objectives? Will the graduate curriculum and staff provide a satisfactory educational experience for him/her? Undergraduate records, letters of recommendation, evidence of academic interest and ability, and a personal interview—when possible—are requested of each applicant. Undergraduate work in communication, speech, or allied disciplines is expected of all applicants. Academic deficiencies or reservations may be determined at the time of application.

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 receive an
emphasis in interpersonal communication, with the option of a thesis. A thesis is recommended for those considering further graduate work in communication. Elective credit may include course work in interpersonal, organizational, or mass communication, and up to 6 hours of graduate credit from another department.

**Required Courses** .......... 9 hours
COM 601 Introduction to Graduate Study in Communication .... 3
COM 602 Communication Research Methods .... 3
COM 674 Theories of Interpersonal Communication .... 3

**Elective Courses** .......... 12 hours
COM 600 Listening .... 3
COM 604 Seminar in Communication Ethics .... 3
COM 670 Seminar in Interpersonal Communication* .... 3
COM 671 Cognition and Emotion .... 3
COM 673 Conflict Management .... 3
COM 681 Group Communication Processes .... 3

**Thesis Option Requirements** .......... 9 hours
An approved statistics course* .... 3
COM 700 Master's Thesis .... 6

**Graduate Electives** .......... 3-12 hours
Select electives to complete 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 and presentation of messages. The program will prepare individuals for positions in public relations and information services, and for such positions as the directors or coordinators of communication in organizations.

This program is also 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 programs 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 telecommunication, and up to six hours of graduate credit from another department.

**Required Courses** .......... 9 hours
COM 601 Introduction to Graduate Study in Communication .... 3
COM 602 Communication Research Methods .... 3
COM 682 Organizational Communication .... 3

**Elective Courses** .......... 12 hours
COM 604 Seminar in Communication Ethics .... 3
COM 673 Conflict Management .... 3
COM 680 Seminar in Organizational Communication* .... 3
COM 681 Group Communication Processes .... 3 hrs.
COM 683 Power and Leadership in Organizational Communication .... 3
COM 685 Special Topics in Organizational Communication* .... 3

**Thesis Option Requirements** .......... 9 hours
An approved statistics course* .... 3
COM 700 Master's Thesis .... 6

**Graduate Electives** .......... 3-12 hours
Select electives to complete the 33 hours, which may include up to 6 cognate hours from other departments, selected in consultation with the advisor.

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

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

**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 Classes; 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.
Advanced study of special topics in Telecommunications. Further information and a full description may be obtained from the department. Possible topics, each of which may be taken for credit, include: A. Telecommunications Networks and B. Satellite and Wireless Telecommunications.

Prerequisites: COM 240 and junior or senior standing, or graduate standing.
COMM 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 libel, privacy, access and right to reply, and copyright. A case study approach is used for the purpose of understanding legal precedent. Prerequisite: COMM 200 or graduate standing.

COMM 551 Methods of Media Analysis 3 hrs.
An investigation of the approaches to media analysis (auteur, 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.

COMM 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. 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 telecommunication services. Prerequisite: COMM 240 or graduate standing.

Open to Graduate Students Only

COMM 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.

COMM 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.

COMM 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.

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

COMM 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. Emphasis is on the concepts, confidentiality, autonomy, and privacy.

COMM 640 Seminar in Telecommunication 3 hrs.
Exploration of selected topics in telecommunication. Possible topics, each of which may be taken for credit, include: Communication Technology and B. Effects of Mass Media.

COMM 641 Theories of Telecommunication Uses and Effects 3 hrs.
Examines issues related to mass communication and its effects on individuals, organizations, and society. Primary emphasis of this course will be on media effects theory and research, with a consideration of related ethical issues.

COMM 643 Telecommunications and Organizational Planning 3 hrs.
An overview of the basic principles involved in the management and implementation of telecommunication services within public and private organizations. Participants are introduced to three sectors of the telecommunications field, including broadcasting, cable, and telephone communications.

COMM 644 News Media and the Organization 3 hrs.
This course is designed for students of communication interested in the function and operation of the news media and its relationship to organizations. Focuses upon the effects of the news media on public opinion which can influence an organization's goals, as well as an understanding of the structure of news organizations, the forces that drive them, and the basis of news decisions.

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

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

COMM 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.

COMM 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. Topics of conflict are examined, and an explanation of the sources that stimulate conflict in humans is made.

COMM 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.

COMM 680 Seminar in Organizational Communication 3 hrs.
Exploration of selected topics in organizational communication theory. Possible topics, each of which may be taken for credit, include: A. Organizational Communication Ethics; B. Communication and Organizational Culture; C. Advanced Organizational Communication; and D. Corporate Advocacy.

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

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

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

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

COMM 690 Special Topics in Communication Research 3 hrs.
Offers focused training in specialized methods of communication research. Possible topics, each of which may be taken for credit, include: A. Ethnographic Research in Communication; B. Critical Research in Communication; C. Survey Research in Communication; D. Organizational Communication Assessment; and E. Communication Training Evaluation.
COMPARATIVE RELIGION

Dr. E. Thomas Lawson, Chair
Main Office: 223 Moore Hall
Telephone: 387-4391
FAX: 387-4914

Professors Byron Earhart, Nancy Falk, Frank Gross, E. Thomas Lawson, Timothy Light, Rudolf Siebert; Associate Professor David Ede; Assistant Professor Brian Wilson.

Master of Arts in Comparative Religion

Advisor:
E. Thomas Lawson
Room 222, 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. Completion of a baccalaureate degree from an accredited institution.
2. 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.

Doctor of Philosophy in Comparative Religion

The Doctor of Philosophy in Comparative Religion is designed to prepare students to teach in colleges and universities, and to initiate new areas of research. It requires of all students a breadth of knowledge in the religious traditions of humankind, depth of knowledge in at least two traditions, a thorough grasp of the principal classical works in the history of the study of religion, and sophisticated grasp of the central issues of theory and method that underlie the discipline as a whole. Ph.D. students will be expected to complete the equivalent of Western Michigan University's M.A. in Comparative Religion, with thesis. Students will become candidates for the Ph.D. after completing the course work, foreign languages, and comprehensive examination requirements. The doctoral dissertation will demonstrate the student's ability to develop comparative approaches to religious traditions, sophistication in method and theory, and knowledge of specific religious traditions.

Program requirements

The Ph.D. in Comparative Religion requires a minimum of 81 semester hours beyond the bachelor's degree. This includes work at the master's level and 15 hours devoted to the doctoral dissertation. Proficiency in two foreign languages (one in language of scholarship, the other in a primary language of one religious tradition) is also required but is not counted as part of the minimum credit hours requirement.

Required Courses

Students who are accepted into the program from a baccalaureate program must fulfill the following requirements.
1. REL 600 Classics I (3 credits)
2. REL 601 Classics II (3 credits)
3. REL 610 Theory and Method I (3 credits)
4. REL 611 Theory and Method II (3 credits)
5. REL 615 Survey of Religions of the World (3 credits)
6. REL 616 Teaching Comparative Religion (3 credits)
7. REL 620 Advanced Seminar in Comparative Religion (3 credits)
8. REL 695 Dissertation Tutorial (3 credits)
9. REL 700 Master's Thesis (6 hours) or equivalent
10. REL 730 Doctoral Dissertation (15 hours)
11. Thirty-six (36) credits of course work on religious traditions. In consultation with the student's advisor, some of this work may be taken outside the Department of Comparative Religion.

Cognate Courses

Approved cognate courses may be drawn from related disciplines such as Anthropology, Philosophy, Sociology, Psychology, English, History and Art History in consultation with the student's advisor.

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 Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Zen Buddhism; Buddhism, Taoism, Shinto; New Religions of Japan; Religion in Japanese Literature; Islam in the Modern World; Christian Theology 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 Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Millennium, Utopia, and Revolution; Femininity as a Religious Form; Great Islamic Thinkers; the Hindu Yogas, the Occult Tradition.

REL 511 Women in Religion

3 hrs.

Drawing together materials from many religious traditions, this course explores religion's effect 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 experiences 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 Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Scientific 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 Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: 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 theologians 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 the development of such theoretical options.

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 dynamics (actual practices such as annual celebrations, rites of passage). While learning the content of individual traditions and exploring the comparative questions between/among traditions, students will focus on the issues of teaching about religion generally and the 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, computer use (especially the PASS program), audiovisual materials, and test 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.

REL 620 Advanced Seminar in Comparative Religion 3 hrs. Advanced study in a major problem area of comparative research in the religions of humankind to be selected and evaluated for credit when topics vary. Prerequisite: Consent of instructor.

REL 695 Dissertation Tutorial 3 hrs. Planning and preparation for the dissertation, including selection of appropriate topic. The student will work with an advisor to develop a dissertation proposal to be submitted to his/her Ph.D. committee.

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

REL 700 Master's Thesis 6 hrs.
REL 710 Independent Research 2-6 hrs.
REL 712 Professional Field Experience 2-12 hrs.
REL 730 Doctoral Dissertation 15 hrs. Prerequisite: REL 695

COMPUTER SCIENCE

Dr. Ajay Gupta, Chair
Main Office: 3308 Friedmann Hall
Telephone: 387-5645
FAX: 387-3999

Professors Alfred Boals, Elise deDoncker, Dalai Motzkin, Thomas F. Pietkowsky, Ben Pinkowski, Kenneth Williams; Associate Professors Ajay Gupta, Donna Kaminiski, John Kapenga, Mark Kerstetter, Dionysios Kountanis, Donald Nelson, Robert Trenary

Master of Science in Computer Science
Advisor: Thomas F. Pietkowsky,
Room 3308, Friedmann Hall

The Master of Science in Computer Science is primarily a professional program that emphasizes computer software development. It is designed to prepare students for professional positions in industrial corporations, government service, or computer service companies. Graduates will also be well prepared to teach computer courses in two-year colleges or to undertake more advanced studies in computer science. Graduates of this program, in addition to receiving a strong theoretical background, should also become competent programmers and system designers.

Students with a strong undergraduate background in computer science and mathematics may be able to complete the program in sixteen months, but most students will probably require a longer period of time.

Admission requirements
Candidiates for admission to this curriculum must have satisfactorily completed an undergraduate program containing courses in both mathematics and computer science. The mathematics core includes calculus sequence, a course in linear algebra, and a course in discrete structures. Students without this background will be required to complete appropriate coursework, which may include MATH 122, 123, 124, 250, 251 as an admission requirement. Candidates should have computer science coursework, including a thorough knowledge of computer assembly language, computer organization, data structures, files structures, structured programming, and logic design. Students without this background will be asked to complete additional undergraduate course work from the following: CS 111, 112, 223, 224, 331, and EE 250 (or their equivalents).

Applicants are urged to submit Graduate Record Examination aptitude scores and TOEFL scores, if appropriate.

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. Additional approved electives chosen from CS 518, 520, 525, 526, 527, 520, 543, 554, 555, 581, 582, 595, 599, 603, 620, 625, 626, 627, 628, 631, 632, 633, 643, 644, 655, 660, 661, 672, 679, 680, 691, 692, 710, MATH 507, 607, 637, 640, and PHIL 520, for a program total of 33 hours.

NOTE: At least one half of the program hours must be at the 600-level or higher.

With the approval of an advisor, a student may elect to write a master's thesis, in which case the student will register for 6 credits of work in CS 700.

Financial Support
There are a variety of channels available for financial support of graduate students. Graduate Fellowships are available through The Graduate College. A number of teaching assistantships and possible research assistantships are provided through the Department of Computer Science. Certain other departments provide assistantships to computer science students. In addition, many students are engaged in educational institutions, educational institutions, or other areas of WMU. Individuals desiring further information on fellowships or assistantships should contact the Department Office.

Doctor of Philosophy in Computer Science

The Doctor of Philosophy in Computer Science is a research degree designed for persons intending to take leadership roles in research and teaching in computer science.

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 admission, students will be assigned an individual Doctoral Program Advisor, who will be responsible for assisting the student in planning their program. The plan of study will be approved by the Department Graduate Advisor.

Admission requirements
Admission will be granted based on The Graduate College requirements and the following:
1. Master's degree in Computer Science (normally required). Applicants with master's degrees in Electrical Engineering, Computer Engineering, Mathematics or other engineering and science disciplines...
will be evaluated for prerequisite work. Outstanding students who have not completed a master's degree but who have met all other entrance requirements may be considered for admission to the Ph.D. program.

2. A grade point average of 3.5 (of 4.0) should be achieved in graduate computer science courses.

3. Results of the Verbal, Analytical, and Quantitative portions of the Graduate Record Examination (GRE) and the subject test in Computer Science, or major area if other than Computer Science.

Program requirements
1. Complete at least 47 hrs. of course and dissertation credits beyond the master's degree (33 hrs.), or a total of at least 80 hrs. of credit. Students must be included in the student's master's program, the following courses are required of all students in the Ph.D. program: CS 525, 526, 554, 581, 626, 631, 632, 655, 679, 680, and 681.

2. Obtain approval for two research skills from the following:
   a. A foreign language other than English
   b. statistics or probability
   c. computer document preparation and library tools.

3. Secure appointment of a Doctoral Dissertation Committee. This is a Graduate College requirement for the student to be awarded the status of Applicant.

4. Pass Qualifying Examination. Before admission to Candidacy for the doctoral degree, the student must pass a general examination in Computer Science. This examination is intended to determine the student's fundamental knowledge of the field in several areas of specialization including: Theory, Algorithms, Operating Systems, Compiling and Computer Architecture. The student will have one opportunity to repeat a failed qualifying examination. A student who is an applicant for the doctoral degree must take the qualifying exam for the first time no later than the end of the second calendar year and pass it within three years after first enrollment. There are five examination topics, categorized as follows: Theory: a. Theory of Computation, b.) Design and Analysis of Algorithms, Systems: a.) Operating Systems, b.) Computer Architecture, and c.) Compiler Design. The student must complete the group of five areas. One area must be chosen from Theory and one from Systems. The third area may be chosen from either Theory or Systems. The student will have one opportunity to repeat a failed area of the examination, but upon repetition the student may not change the selected area of the examination.

5. Maintain a GPA of 3.25 (in accordance with the Graduate College requirements). Courses with a grade of "C" or lower cannot count towards the Ph.D. program.

6. Pass Preliminary Examination. Students must obtain approval of their thesis topic plan by their Doctoral Dissertation Committee through a preliminary examination. The preliminary examination must be passed a year before the thesis defense. A student will have one opportunity to repeat the examination.

7. Complete and successfully defend a dissertation. Fifteen (15) credit hours are required for the doctoral dissertation.

Financial Support
Financial support can be sought through departmental, university and grant-funded fellowships, and teaching and research assistantships. Application forms and additional information are available from the Department of Computer Science and The Graduate College.

Computer Science Courses (CS)

Open to Upperclass and Graduate Students

Undergraduates with junior or senior status who have met the specific course prerequisites or have the permission of the instructor may enroll in 500-level courses.

CS 503 Programming the Microcomputer for Teachers
3 hrs.
A course in programming at an intermediate level for teachers. An introduction to file handling and graphics on small computers will be provided. Flowcharting, top-down design and the development of algorithms are stressed. Some programming projects in each teacher's area of interest will be assigned. Not for Computer Science majors or minors (except teaching). Prerequisite: CS 502 or equivalent experience.

CS 518 Introduction to Computer Modeling and Simulation
3 hrs.
This course provides an overview of both model development and computer simulation. A methodology is introduced which is generally applicable to simulation projects. The relationships between real systems, models, and simulation are presented, and the concept of experimental frames is discussed. General purpose simulation languages (e.g. Simscript, GPSS, CSMP, Simula) and the formalism they support are presented. An introduction to random variables and elementary frequency distributions is provided. Simulation as a tool for exploring real world systems will also be discussed. Several small programs and a simulation project will be assigned the student. Prerequisites: CS 331 and a course in probability or statistics.

CS 520 Algorithms for VLSI Design 3 hrs.
Students will be expected to learn the basics of VLSI technology. The course will include a project involving the design of VLSI systems. Different phases of the physical design algorithms for logic partitioning, placement, global routing, channel generation and local routing will be covered. Additional topics may include algorithms for circuit compaction, circuit extraction, and design rule checking. Prerequisites: EE 250 and CS 331.

CS 525 Computer Architecture 3 hrs.
General topics in computer architecture, memory systems design and evaluation, pipeline design using RISC architectures, vector computers, VLSI systems architecture. Prerequisites: EE 250, CS 223 or EE 261, and CS 331.

CS 526 Parallel Computations I 3 hrs.
Parallel Computations I will cover architecture, synchronization and communication aspects of parallel and distributed systems. This course will focus on the design and analysis of algorithms which have a prototype treatment on current machines. These algorithms may include parallel sorting, combinatorial search, graph search, and combinatorial applications in graphics, 2-d finite differences, 2-d finite element techniques, matrix algorithms and the Fast Fourier Transform. Prerequisite: CS 331.

A first course in the design of interactive computer graphics systems. Currently available hardware and software systems are described. Emphasis is on theoretical considerations in the design of interactive computer graphics software systems. Prerequisites: MATH 230 and CS 331.

CS 530 Artificial Neural Systems 3 hrs.
An introduction to neural net concepts, algorithms, and applications. A history of neural nets will be presented along with some discussion of models of biological neural systems. The salient features of a neural net (architecture, activation functions, weighting scheme) will be characterized. Standard algorithms will be presented including Hopfield nets, linear associative memories, and adaptive resonance models. The student will use neural net software to experiment with standard models and to develop an application for a project. Prerequisite: CS 331. An introductory statistics course is recommended.

CS 531 Design and Analysis of Algorithms 3 hrs.
A continuation of the study of data structures and algorithms. It provides a theoretical foundation in designing algorithms. The focus is on the advanced analysis of algorithms and on how the selections of different data structures affect the performance of the algorithms. Algorithmic paradigms such as divide and conquer, greedy method, dynamic programming, backtracking and branch, and bound are covered. B-trees and 2-3 search trees and a variety of graph structures are discussed along with their applications to algorithm implementation. Algorithms will be analyzed for their computational complexity. NP-completeness will be introduced. Prerequisites: MATH 145 and CS 331 or equivalent.

CS 543 Principles of Database Management Systems 3 hrs.
The fundamental concepts of database design and efficient usage are presented. Topics include: an overview of data-bases, the three data models—relational, network, conceptual, logical, and physical database design and evaluation. The design theory of relational data models will be emphasized. Issues of data organization, optimization, security, integrity, and concurrency protocols will also be covered. A student may not 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. The fundamentals of systems and system design are stressed. Basic concepts and terminology are emphasized. Processes, communication and synchronization, deadlocks, scheduling, shared resources, resource allocation and deallocation, memory management, files, management, and protection are discussed. Applications to real systems is investigated to motivate the ideas presented. Students build or run simulations and modify the internals of a working operating system. Prerequisites: CS 224 and CS 331.

CS 555 Computer Networks and Distributed Systems 3 hrs.
The design and evaluation of computer networks using current hardware and software are explained. Various types of computer

buses, local area networks, and long haul networks are defined. Case studies of popular networks are presented. Layered network models are studied. There is lab work with local area and long haul networks.

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 are defined, and their properties treated with application to coding techniques. The Chomsky hierarchy of languages, including recursive and recursively enumerable sets and their acceptors, is introduced. Students are assigned theoretical as well as implementation oriented problems.

Prerequisites: MATH 145 and CS 331.

CS 581 Compiler Design and Implementation
3 hrs.
Students are introduced to major aspects of compiler design. These include lexical analysis, parsing, and translation. Each student will implement a small compiler using modern compiler writing tools.

Prerequisite: CS 485 or CS 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 searching techniques, knowledge representation, predicate calculus, and pattern recognition. It introduces AI applications such as game playing, expert systems, vision, natural language processing, and learning.

Prerequisite: CS 331.

CS 595 Advanced Topics in Computer and Information Science
1-3 hrs.
The content of this course varies. It is intended to introduce the student to advanced topics which are normally offered as separate courses. The course may be taken more than once with approval of the student's advisor.

Prerequisite: Approval of Department.

CS 599 Independent Study in Computer Science
1-3 hrs.
Advanced students with good scholastic records may elect to pursue independently the study of some topic of special interest. Topics are chosen and arrangements are made to suit the needs of each particular student.

Prerequisite: Written approval of instructor.

Open to Graduate Students Only

CS 603 Studies in Computer Science
3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once. Prerequisite: Approval of department.

CS 620 Algorithms for VLSI Design II
3 hrs.
Advanced topics in computer aided VLSI design will be covered. Students are expected to read research papers and complete projects using VLSI design software packages. Topics focus on various VLSI design representations, tools and algorithms for the representation and manipulation of the design of different levels, as well as on the analysis of the pertinent algorithms.

Prerequisite: CS 520.

CS 625 Advanced Computer Architecture
3 hrs.
Multiprocessor architectures, various interconnection networks, communication and synchronization with microcode, data flow architectures. Prerequisite: CS 525.

CS 626 Parallel Computations II
3 hrs.
This course will focus on advanced topics in Parallel Computations, such as on algorithms in the areas of graph algorithms, numerical algorithms, computer graphics and VLSI design, and on aspects of operating systems and languages. Students will be expected to read research papers, and complete a semester project involving the use and implementation of parallel programming paradigms on current machines.

Prerequisite: CS 625.

CS 627 Computer Graphics II
3 hrs.
A course in advanced computer graphics topics selected from current research. Some of the areas of interest include: visualization of complex processes, full motion video, virtual reality, client/server protocols and parallel image rendering. Emphasis is on research, and students are expected to participate in a research problem that is assigned during the course.

Prerequisite: CS 627.

CS 628 Parallel Scientific Computations
3 hrs.
This course will focus on the design and analysis of parallel numerical algorithms to solve problems such as singular value decomposition and the solution of linear systems for structured/banded and sparse matrices, partial differential equations, and multivariate numerical integration. Applications may include the solution of wave equations, hydrodynamic flow, particle dynamics, finite element applications and Monte Carlo methods.

Prerequisites: CS 526 and MATH 230.

CS 631 Advanced Data Structures
3 hrs.
Stresses the representation and implementation of various data structures. The effect of data structures on program complexity is investigated. The uses of data structures in a variety of application areas are covered. Introduces complex data structures.

Prerequisite: CS 526.

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, Delaunay, 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 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 331 and 543.

CS 655 Advanced Operating Systems
3 hrs.
Advanced and current topics in operating systems research will be discussed. Analysis of competing techniques will be undertaken to present a better understanding of tradeoffs in design decisions. Modeling and performance evaluation will also be presented. A detailed and theoretical view of the basic operating system concepts will be emphasized. Programming assignments involving simulation and performance evaluation will be required.

Prerequisite: CS 554.

CS 660 Software Engineering I: Formal Specifications of Software Systems
3 hrs.
Students will be introduced to various models of software life cycles. The remainder of the course will focus on formal methods for specifying requirements and design. Students will be introduced to a number of formal systems using axiomatic specification, 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 specification of real-time systems using Petri Nets, PAISLEY, CSP, SPUR and others. Examples and exercises illustrating the use of several formal systems will be given. Student teams will be expected to complete the specification of requirements and design of a project using one of the methods presented.

Prerequisites: MATH 145 and CS 331.

CS 661 Software Engineering II: Verification and Validation of Software Systems
3 hrs.
Students will become familiar with the terminology and will learn the limitations of verification and validation (V and V) approaches. Five approaches will be presented, technical reviews, testing, proofs of correctness, simulation and prototyping, and requirements 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 various 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: MATH 364 and CS 331 or CS 531.

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 their relation to models of automata. Prerequisite: CS 580.

CS 681 Compiling Theory and Practice
3 hrs.
A study of theoretical and applied strategies for designing compilers and other 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 691 Seminar in Computer Science
1-3 hrs.
Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

CS 700 Master’s Thesis
9 hrs.

CS 710 Independent Research
2-6 hrs.

CS 712 Professional Field Experience
2-6 hrs.

CS 725 Doctoral Research Seminar
2-6 hrs.

CS 730 Doctoral Dissertation
15 hrs.

CS 735 Graduate Research
2-10 hrs.

ECONOMICS
Dr. Werner Sichel, Chair
Main Office: 5307 Friedmann Hall
Telephone: 387-5535
FAX: 387-3999


Master of Arts in Economics
Advisor: Mark Wheeler, Room 5453, Friedmann Hall

The Master of Arts in 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, pursing the Ph.D. degree at WMU or at another university. Two tracks for the M.A. program are offered: Applied Economics and Traditional/Research.

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 required to complete satisfactorily ECON 403 and 406.
3. Satisfactory completion of at least one course in calculus.

APPLIED ECONOMICS
The Applied Economics track 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 organization. The degree is awarded on the basis of the satisfactory completion of thirty-three hours in a planned program prepared in consultation with the graduate advisor.

Program requirements
1. The satisfactory completion of thirty-three hours 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 advanced level program of study.
3. ECON 504, Mathematics for Economists; ECON 603, Advanced Price Theory; ECON 619, Introduction to Econometrics; ECON 622, Economic Statistics; and ECON 662, National Income Analysis, are required.
4. Pass comprehensive examination.

TRADITIONAL/RESEARCH
The Traditional/Research track is for those who have the objective of further graduate study at WMU or at another institution leading to a doctorate, or who desire a strong theoretical/research orientation leading to research-oriented business or government jobs. The degree is awarded on the basis of satisfactory completion of either thirty hours including the master’s thesis (6 hours) or thirty-three hours in a planned program prepared in consultation with the graduate advisor.

Program requirements
1. The satisfactory completion of either thirty hours including the Master’s Thesis (6 hrs.) or thirty-three hours, if additional courses are submitted in 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.
3. ECON 504, Mathematics for Economists; ECON 603, Advanced Price Theory; ECON 619, Introduction to Econometrics; ECON 622, Economic Statistics; and ECON 662, National Income Analysis, are required.
4. Pass comprehensive examination.

Doctor of Philosophy in Applied Economics
Advisor: Mark Wheeler, Room 5453, Friedmann Hall

The Doctor of Philosophy in Applied Economics is designed to meet the needs of future high-level practicing economists, pre- or post-industry professionals. Recent studies have found that non-academic employers of Ph.D.-level economists are concerned about the training that existing programs give 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 is 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
A number of doctoral assistantships are available to eligible students. It is expected that the distance of the University.

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 take a core of nine courses: ECON 604 Mathematical Economics, ECON 619 Introduction to Econometrics, ECON 622 Economic Statistics, ECON 655 Microeconomic Theory I, ECON 666 Microeconomic Theory II, ECON 675 Macroeconomic Theory I, ECON 676 Macroeconomic Theory II, ECON 670 Advanced Econometrics I, and ECON 671 Advanced Econometrics II. We consider 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.

ECON 500 Microeconomics 3 hrs.
This course provides students with the rudiments of mathematical techniques necessary to conduct the research being conducted by the Department's faculty. Topics include the theory of the firm, the theory of finance, and empirical economics by giving them the opportunity to discuss the research being conducted by various departments.

ECON 501 Microeconomics for Economists 3 hrs.
This course presents the mathematical material necessary for 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 403 and 406, or permission of instructor.

ECON 502 Applied Microeconomics 3 hrs.
This course concentrates on the main elements of microeconomic 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 relations. Prerequisites: ECON 201 and 202, MATH 122 or consent of instructor.

ECON 503 Monetary Theory and Policy 3 hrs.
This course concentrates on the main elements of microeconomic 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 relations. Prerequisites: ECON 201 and 202, MATH 122 or consent of instructor.

ECON 504 Mathematical Economics 3 hrs.
This course provides students with the rudiments of mathematical techniques necessary for conducting the research being conducted by various departments.

ECON 505 History of Economic Thought 3 hrs.
This course surveys the origins and development of economic analysis from the Ancient Greeks to the present. Prerequisites: ECON 201, 202.

ECON 506 Monetary Theory and Policy 3 hrs.
This course concentrates on the main elements of microeconomic 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 relations. Prerequisites: ECON 201 and 202, MATH 122 or consent of instructor.

ECON 507 Economic Analysis 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 508 Basic Econometrics 3 hrs.
The course will examine the development and utilization of econometrics in economics. Topics include the theory of the firm, the theory of finance, and empirical economics by giving them the opportunity to discuss the research being conducted by various departments.

ECON 509 Math Analysis for Economists 3 hrs.
This course provides students with the rudiments of mathematical techniques necessary for conducting the research being conducted by various departments.

ECON 510 Economic Analysis 3 hrs.
The course will examine the development and utilization of econometrics in economics. Topics include the theory of the firm, the theory of finance, and empirical economics by giving them the opportunity to discuss the research being conducted by various departments.

ECON 511 Economic Analysis 3 hrs.
The course will examine the development and utilization of econometrics in economics. Topics include the theory of the firm, the theory of finance, and empirical economics by giving them the opportunity to discuss the research being conducted by various departments.
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 undertake 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 topic areas in human resource and labor economics, such as discrimination, employment and training policies, income distribution, turnover and migration, unions and collective bargaining, and household production and family decisions. Prerequisite: ECON 610.

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

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

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

ECON 620 Economic Statistics 3 hrs.
This course focuses on the theory and practice of testing hypotheses, statistical estimation theory, the basic theory underlying the linear model, and introduction to econometric models, and the nature of difficulties which arise in applying statistical models to economic research problems. Prerequisites: MATH 122 or equivalent, ECON 402 or equivalent.

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

ECON 625 Public Finance II 3 hrs.
Selected topics from public sector economics will be presented. Foremost among these is benefit-cost analysis. Thus, consumers' surplus, the social discount rate, and decision making under uncertainty are other topics that will be covered regularly. The main purpose of this course is to provide students with the background necessary to conduct research in public finance. Prerequisites: ECON 604, 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 economic 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 equivalents.

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 667 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 668 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. Prerequisites: ECON 670.

ECON 675 Macroeconomic Theory 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 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 668.

ECON 699 Economics Workshop 3 hrs.
A workshop designed to deepen a student's understanding of theoretical and empirical economics by discussing the research being conducted by the Department's faculty, economists from other institutions, and Ph.D. candidate graduate students. Prerequisites: ECON 666, ECON 670, ECON 676. Topics will vary and course may be repeated.

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

ECON 700 Master's Thesis 6 hrs.

ECON 710 Independent Research 2-6 hrs.

ECON 712 Professional Field Experience 2-12 hrs.

ECON 730 Doctoral Dissertation 12 hrs.

ENGLISH

Dr. Arnold Johnston, Chair
Main Office: 620 Spraul Tower
Phone: 387-2572
FAX: 387-2562

Master of Arts in English

Advisor: Katherine Joslin, Room 518, Sprau Tower

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

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

Required courses in the program are ENGL 615 Literary Criticism, ENGL 630 Research and Writing, ENGL 640 The Nature of Poetry, and ENGL 690 Scholarship and Writing in the Profession. The additional courses needed to complete a coherent thirty-three-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.

Applications 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 beyond ENGL 615 Literary Criticism, ENGL 630 Research and Writing, and ENGL 640 The Nature of Poetry; (b) two courses in English pedagogy, including the pedagogy of teaching in secondary schools; and (c) one course in the study of multicultural literature; (d) one course in the English language; and (e) ENGL 691 Research and Scholarship in English Education. Of the additional graduate level courses needed to complete the thirty-three-hour program, at least nine 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 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 must present a thirty-three-hour undergraduate major with a grade-point average of at least 3.0 and a sample of both critical writing and 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 in English, and forward their scores to the Department of English.

Required courses in the program are (a) four writing courses: ENGL 630 Research and Writing, 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.

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 and depth required of teachers in relatively small English departments.

In order to be admitted to the program, candidates must take the Graduate Record Examinations, both the General Test and the Subject Test in Literature in English, and forward their scores to the Department of English.

On admission, students should consult with the advisor at the earliest opportunity concerning their program of study.

For more detailed information and for an application form, write to the department's 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 other institutions are accepted.) — 12 hours

1. Prerequisites (equivalent courses from other institutions are accepted) — 12 hours

   a. For candidates in literature, language, or pedagogy: Literary Criticism, Research and Writing, 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
2. Distribution requirement — 18 hours
   - Six graduate level courses from the following list of areas, selected so that no two contiguous periods are skipped. Candidates in creative writing must choose Contemporary Literature or as one area.
   - American literature before 1665
   - American literature 1865-1945
   - British literature to 1500
   - Renaissance British literature (through Milton)
   - Restoration and 18th-century British literature
   - Nineteenth-century British literature
   - Modern British literature
   - Contemporary literature

3. Non-traditional literature — 3 hours
   - At least one course in literature in English by an ethnic minority group, by post-colonial writers, or by other groups not traditionally included in the canon.

4. Teaching component — 6 hours
   - Six hours of credit elected from courses or practica in the teaching of composition, literature, English language, or creative writing.

5. Area of specialization — 12 hours
   - At least 12 credit hours in an area (or for creative writing students, a genre) chosen in preparation for the dissertation. The areas include the periods listed in the Distribution Requirement as well as English Language, and the Theory and Practice of Teaching English at the college level.

6. Cognate or 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 written examinations over their chosen areas, including an exercise in practical criticism. These examinations should be completed within three years of admission. May be repeated once.

8. Foreign Language Requirement
   - Students must demonstrate by examination or by completion of two 400-level courses basic reading competence in at least one foreign language.

9. Doctoral Readings and Oral Examination — 3-6 hours
   - Near the completion of course work and before beginning the dissertation, students will take ENGL 711, Readings in 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 at the college level.

10. Dissertation — 15 hours
    - The dissertation is to be a book-length manuscript of scholarship, criticism, research, or creative writing composed 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 available 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 hours 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 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 555 Studies in Major Writers
3 hrs.
Readings in representative writers who have come to prominence chiefly since 1945.

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. Prerequisite: 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 Classes, some are added during the semester. Further information and full listing of topics may be obtained from the English Department, sixth floor Sprau Tower.

ENGL 598 Readings in English
1-4 hrs.
Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each student. Approval of English advisor required. May be elected more than once.

Open Only to Graduate Students admitted to English Curricula or by Permission of the English Graduate Advisor.

ENGL 610 Seminar
3 hrs.
Study of a problem in literary history or criticism. May be repeated once with the permission of the graduate advisor.

ENGL 615 Literary Criticism
3 hrs.
Readings in several significant theorists on the nature of literature, the characteristics of audience response to literature, and principles underlying the analysis and evaluation of literature. Works in at least two genres will be examined in light of these theoretical writings.

ENGL 621 Studies in British Literature
3 hrs.
The advanced study of selected aspects of British literature. May be repeated once with the permission of the graduate advisor.

ENGL 622 Studies in American Literature
3 hrs.
The advanced study of a topic in American literary history, such as The American Renaissance, The 1920s, The Transcendental Tradition in American Literature, Fiction (or Poetry, or Drama) in America, or The Development of Modern American Prose Style. May be repeated once with the permission of the graduate advisor.

ENGL 630 Research and Writing
3 hrs.
A course in the writing of informalexpository 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, in preparing speeches, brochures, newsletters, and other publications, and on the techniques of non-personal prose.

ENGL 640 The Nature of Poetry
3 hrs.
A study of styles, techniques, forms, and conceptions of poetry, involving practice in explication, both oral and written, of individual poems.

ENGL 641 Studies in Modern Poetry
3 hrs.
An intensive study of the work of several modern poets.

ENGL 642 Studies in Drama
3 hrs.
Selected areas of drama from classical times to the present.

ENGL 644 Studies in the Novel
3 hrs.
An examination of significant forms and techniques employed in the novel from its beginnings to the modern age.

ENGL 645 Studies in the Modern Novel
3 hrs.
An intensive study of the works of some important novelists of the twentieth century.

ENGL 652 Studies in Shakespeare: Tragedy
3 hrs.
Selected tragedies of Shakespeare.

ENGL 653 Studies in Shakespeare: Comedy
3 hrs.
Selected comedies of Shakespeare.

ENGL 666 Graduate Writing Workshop
3 hrs.
Any given section of this course will focus on either poetry, fiction, or drama. Course organization will emphasize roundtable discussion of student writing. Course may be taken more than once; a student may elect up to 12 credit hours in one genre and up to 18 hours in all. M.F.A. candidates must take at least 6 hours in their area of specialization. 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 generoethnic 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 sociolinguistic 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 690 Scholarship and Writing in the Profession
3 hrs.
In this seminar students will prepare the capstone Essay to be submitted as the culminating requirement for the M.A. in English. The course will include analysis and evaluation of journals and articles in areas relevant to the student's research topic, "workshop" review and editing of the paper, and preparation for oral presentation and discussion of the student's work in a Master's Colloquium. Graded on a Credit/No Credit basis. Prerequisite: ENGL 630 and prior completion of at least 21 hours of credit toward the Master of Arts in English.

ENGL 691 Research and Scholarship in English Education
3 hrs.
As reflective practitioners in English classrooms, participants in this seminar will develop a research question, review relevant professional literature, conduct classroom and/or academic research using appropriate research techniques, and present findings orally and in a written paper or report that will be the capstone paper for the MA in English with an Emphasis on Teaching. 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 the variation. For further information, consult the graduate advisor.

ENGL 599 M.F.A. Project
3-6 hrs.
A collection of short fiction, a collection of poetry, a collection of one-act plays, a full-length play, or a novel. The work presented in fulfillment of this requirement must be judged by a committee of the graduate faculty to be worthy of publication or production; a public reading or performance is required.

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

ENGL 700 Master's Thesis
6 hrs.

ENGL 710 Independent Research
2-6 hrs.

ENGL 711 Readings in Doctoral Specialization
3-6 hrs.
In consultation with a faculty member, the doctoral student will design a reading list of 20 to 30 books in a specialized area. Students wishing additional guided reading may register a second time. The student will master these works independently and, in consultation with faculty members, select a representative list of approximately 20 works on which to be evaluated in a two-hour oral exam, conducted by a committee of at least two faculty members. Prerequisite: Doctoral candidacy.

ENGL 712 Professional Field Experience
2-12 hrs.

ENGL 713 Practicum in Teaching in the Discipline
3 hrs.
A practicum in teaching in the discipline will be done as collaborative teaching with an experienced faculty member in a broad-based undergraduate course in 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 790 Doctoral Dissertation
15 hrs.
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 Middle Ages to the Revolution
3 hrs.
The study of selected literary texts from the late eighteenth century to the present. Prerequisites: FREN 316, 317, and 325.

FREN 550 Independent Study in French
1-3 hrs.
Directed, individual study of a specific topic in a French literary or linguistic area. Departmental approval required for admission. Repeatable for credit. Prerequisite: A minimum grade point average of 3.0 in the major.

FREN 560 Advanced Readings in French
3 hrs.
Topics of literary, cultural, or linguistic merit will be analyzed. Topics will vary from semester to semester. May be repeated for credit. Prerequisites: FREN 316, 317, 325, or permission of instructor.

GERMAN

German Courses (GER)

Open to Upperclass and Graduate Students

500-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

GER 528 Survey of German Literature
3 hrs.
A comprehensive study of German literature from its beginning through Romanticism. Prerequisites: GER 316, 317, 322 or 325 or equivalent.

GER 529 Survey of German Literature
3 hrs.
A comprehensive study of German literature from German Realism to the present. Prerequisites: GER 316, 317, 322 or 325 or equivalent.

GER 550 Independent Study in German
1-3 hrs.
Directed, individual study of a specific topic in a German literary or linguistic area. Departmental approval is required for admission. Repeatable for credit. Prerequisite: One 500-level course in the major; a minimum grade point average of 3.0 in the major.

GER 559 History of the German Language
3 hrs.
Survey of the development of the German language. Prerequisite: Six hours of 300-level German or above.

GER 560 Studies in German Literature
3 hrs.
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisites: German 316, 317, 322 or 325 or equivalent. Representative topics which may be treated in this area include: The Novelle—Survey of the development with representative selections. Lyric Poetry—Survey of the development with significant selections. Nineteenth Century Drama—Purposes of Department and instructor.

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 hagiography, monastic rules, hymns, and homilies. Prerequisite: One of LAT 200, LAT 201, LAT 324, or equivalent, or permission of department.

LATVIAN

Latvian Courses (LATV)

Open to Upperclass and Graduate Students

500-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

LATV 550 Independent Study in Latvian
1-3 hrs.
Directed individual study of a specific topic in a Latvian language, literature, or culture area. Department approval required for admission. Repeatable for credit. Prerequisite: Permission of Department and instructor.

LANGUAGE

Language Courses (LANG)

Open to Upperclass and Graduate Students

LANG 550 Independent Study in Classics
1-3 hrs.
Directed, individual study of a specific topic related to Classical languages, literature, and/or culture. Department approval required for admission. Prerequisite: Completion of four courses or equivalent in classics; minimum grade point average of 3.0 in the major; departmental approval required. May be repeated for credit.

LANG 557 Modern Language Instruction (in French, German, Spanish, or other language)
3 hrs.
Required for modern language teaching majors and minors. This course will acquaint prospective language teachers with various approaches and strategies involved in modern language teaching. Specifically, in a performance-oriented program, students will learn theory and practice related to teaching the listening, speaking, reading, and writing skills, as well as the culture component. Students should complete this course before beginning directed teaching. This course will be offered regularly. (The comparable methods course for Latin is LAT 557, Teaching of Latin.)

LANG 580 Foreign Language for Special Purposes
1-12 hrs.
The study of or practice in a specialized area in the field of foreign language and culture such as court interpreting, medical or engineering terminology, or public school administration. The content of this course may vary from semester to semester. Students may repeat the course for credit, provided the subject matter differs. Prerequisite: Completion of four courses in area of specialization; departmental approval required.

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

LANG 710 Independent Research
2-6 hrs.
RUSSIAN

Russian Courses (RUSS)

Open to Upperclass and Graduate Students

500-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

RUSS 550 Independent Study in Russian

Directed individual study of a specific topic in Russian language, literature, or culture. May be repeated for credit. Department and instructor approval required.

SPANISH

Master of Arts in Spanish

Advisor:
Irma Lopez,
511 Sprau Tower
EMAIL: irmalopez@wmich.edu
Telephone: 387-3040

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
4. Submit a brief statement regarding areas of potential for graduate work in Spanish

Program requirements
1. Complete thirty hours of work in courses numbered 500 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.

Spanish Courses (SPAN)

Open to Upperclass and Graduate Students

500-level courses may be taken 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, 333, or 324; plus one additional course at the 300-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 eighteenth 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 a Spanish literary or linguistic area.

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 Theater—Main works of Lope de Vega through Calderon de la Barca. Nineteenth Century—The Romantic Movement. Nineteenth Century Novel—Development of the novel from Cervantes to the modern. The Generation of '98—Thought and works of typical representatives such as Unamuno, Azorin, Baroja, and A. Machado.

Spanish-American Short Story—Significant short stories along with the cultural and social background.

Contemporary Spanish-American Novel—The new Spanish-American novel along with the cultural and social background.

Open to Graduate Students Only

SPAN 600 Don Quijote
3 hrs.
An in-depth study of Cervantes' masterpiece. Emphasis is on literary analysis, but attention will also be paid to Cervantes' language.

SPAN 610 Topics in Hispanic Culture
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.

SPAN 620 Topics in Spanish Literature
3 hrs.
The advanced study of selected aspects of Spanish literature. Course varies according to topic and may be repeated with permission of advisor. Representative topics include: Medieval Spanish Literature; Golden Age Poetry and Theatre; Golden Age Prose; Cervantes: Galatea, Novelas ejemplares, Persiles y Sigismunda; Nineteenth Century Literature: Generation of 1898; Contemporary Spanish Theatre; Modern Spanish Literature; Modern Spanish Poetry.

SPAN 630 Topics in Spanish American Literature
3 hrs.
The advanced study of selected aspects of Spanish American Literature. Course varies according to topic and may be repeated with permission of advisor. Representative topics include: Medieval Spanish Literature; Golden Age Poetry and Theatre; Golden Age Prose; Cervantes: Galatea, Novelas ejemplares, Persiles y Sigismunda; Nineteenth Century Literature: Generation of 1898; Contemporary Spanish Theatre; Modern Spanish Literature; Modern Spanish Poetry.

SPAN 640 Topics in Spanish Linguistics and Methodology
3 hrs.
The advanced study of selected aspects of Spanish linguistics and methodology. Course 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 dialects: Acquisition of Spanish as a Second Language.

SPAN 680 Research and Writing
3 hrs.
A study of the techniques of research and the art of expression, leading to the completion of a scholarly monograph. (Enrollment limited to ten students.)

SPAN 690 Seminar
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.
The goals of the Master of Arts in Geography are: 1) to assist students in acquiring the skills needed for independent geographic research, including organizational and communication skills, and 2) to enable the student to develop a concentration in a particular aspect of the field.

At the same time, each program is individually designed to suit career or personal objectives. Students may prepare for a geographic career in government, business and industry, or for pursuit of a higher degree. A minimum of 30 graduate hours is required.

Admission requirements

Experience indicates that geography majors/minors, or social/biological/physical science majors with some geography normally can meet program requirements. Prior to the successful completion of ten graduate hours, the following admission requirements must be met or the student will not be admitted to further 600- or 700- level courses.

1. The attainment of passing scores on the comprehensive qualifying examinations in physical and human geography, and map, chart, and air photo reading. If unsuccessful the student may retake an examination. If a passing score is still not obtained, the student must receive a "B" or better in a course with comparable subject matter (GEOG 460, Concepts and Strategies in the Teaching of Geography, or an approved equivalent with a grade of "B" or better.

2. Successful completion ("C" grade or better) of GEOG 375) Principles of Cartography or approved equivalent.

Program requirements

1. Completion of a minimum of three courses in one of the three following areas of concentration:
   a. Community Development and Planning
   b. Environmental and Resource Analysis
   c. Geographic Techniques

2. Completion of 30 hours of approved graduate credits in all concentrations, except Community Development and Planning, where 36 hours are required, at least 20 hours to be completed in the Geography Department.

3. Completion of GEOG 661 (Geographic Research), GEOG 667 (Computerized Geodata Handling and Mapping), and GEOG 666 (Professional Development Seminar). GEOG 550a (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).

GEOG 544 Studies in Economic Geography 2-3 hrs.

Presents world patterns of agriculture, manufacture, or transportation which link global production and consumption. In any term, the course focuses upon one of these three economic sectors. Prerequisite: GEOG 205 or 244 or consent.

1. Agriculture. Describes and analyzes agricultural systems throughout the world; focuses on selected crop-livestock systems and the changing character of agricultural land use in the United States.

2. Manufacture. Examination of theories and strategies of industrial plant location, the relationship of industrialization to regional economic growth and development, and selected industry case studies evaluating the interrelations of locational, economic, technological, and political factors in the respective industry’s historic evolution.

3. Transportation. Examination of the historic evolution of transport systems in developed and developing nations, transport factors in location theory, techniques of transport analysis, the urban transport dilemma, and competitive and complementary characteristics of the different transport modes.

GEOG 545 Studies in Human Geography 2-3 hrs.

Each course listed under this general title is a concentrated study of one of the principal subdivisions of human geography. The scope and principal themes of each specialized field are reviewed, with consideration given to current research on selected problems. Prerequisite: GEOG 203 or GEOG 205 or GEOG 244, or by consent of instructor. Course may be repeated for credit.

1. Cultural Geography. Techniques of spatial analysis applicable to the study of humans and their environment. The place of origin, diffusion and present distribution of selected cultural patterns will be traced with emphasis given to cultural traits which significantly 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 Classes.

3. Political Geography. General survey of the principles and the applied aspects of political geography, primary emphasis on the physical and cultural resource bases and conflicts of national states, the assessment of location, boundary delimitation and the territorial sea, politically-organized territories within the administrative hierarchy, and electoral geography.

GEOG 553 Water Resources Management 3 hrs.

Examination of water resources management with emphasis on the effects of water uses and runoff on water quality and quantity. Topics include water resource planning, assessing 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 an emphasis upon recreational planning. Topics include supply and demand for outdoor recreation, identification of present and future recreational needs, policy considerations, administration roles required for analysis and various problems associated with outdoor recreation. Readings, discussions, and student-designed and executed individual studies provide professional orientation.

GEOG 555 Contemporary Issues in Resources Management
3 hrs.
Examination of selected contemporary natural resource and environmental problems, such as questions of natural resource adequacy, environmental pollution, energy shortages, political and economic problems related to resource management, and individual studies of local environmental problems. Prerequisite: GEOG 350 or consent.

GEOG 556 Studies in Urban and Regional Planning
3 hrs.
Each of the courses listed under this number focuses on a major aspect of planning, including a review of the objectives of the planning process, legislation pertaining to planning operations, and methods of field and library investigation required for analysis and policy formulation in matters related to planning.
1. Urban Planning and Zoning. The Planning Process and the development of Comprehensive Plans as practiced in American communities. The legal foundations of zoning and subdivision regulations, and the implementation of the comprehensive plan. The organization, role, and relationship of the planning commission, the zoning board, and the planning department in the community. Prerequisite: GEOG 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 economic and environmental tradeoffs, and on problems of implementing regionally-oriented planning programs.
3. Public Lands and Parks. Specific programs and policies relating to the preservation and/or development of government-controlled lands.

GEOG 557 Environmental Impact Assessment
3 hrs.
Alteration of the natural or human environment for perceived economic and social benefits often has significant adverse consequences. Recognition of this problem is reflected in federal, state, and local laws and regulations requiring environmental impact statements. The course provides an introduction to the analysis and preparation of environmental impact assessments. 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 the student with experience in the use of source materials and methods of analysis utilized in urban geography.

Open to Graduate Students Only

GEOG 620 Seminar in Physical Geography 2-3 hrs.
A review of the current literature and recent developments in several disciplines which form the basis of physical geography. Since each seminar emphasizes different subject areas, such as landscapes, soils, and vegetation, this seminar may be repeated. 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 556 (1.1) or 570.

Regional Geography

Open to Graduate Students Only

Prerequisites applicable to all 500-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor.

GEOG 510 Anglo American
3 hrs.
Review of the physical, cultural, and economic geography of the United States and Canada. Focus on regional problems and outlooks. Lectures, assigned readings, and periodic seminars. May not be taken for credit if student has received credit for GEOG 380.

GEOG 511 South America
3 hrs.
Regional study of the nations of South America with attention to the interrelationships of the physical and cultural environments. Historical background necessary for the interpretation of the present political, social, and economic conditions is included. May not be taken for credit if student has received credit for GEOG 381.

GEOG 512 Middle America
3 hrs.
Systematic consideration of the physical environment of Mexico, Central America, and the West Indies. A problems approach is utilized to reckon with the economic, social, and political trends of the region. May not be taken for credit if student has received credit for GEOG 382.

GEOG 513 Western and Southern Europe
3 hrs.
Examination from western Europe from a regional perspective. The environmental and historical backgrounds serve as a foundation for a more intensive study of contemporary conditions, problems, and issues. May not be taken for credit if student has received credit for GEOG 383.

GEOG 518 The Pacific Realm
3 hrs.
Analysis of the human and physical geography of the Southwest Pacific, with concentration on Australia, New Zealand, and Polynesia. May not be taken for credit if student has received credit for GEOG 385.

GEOG 520 South Asia
3 hrs.
Survey of the physical, cultural, and economic geography of the Indian and surrounding 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.

GEOG 609 Studies in Regional Geography
2-3 hrs.
An investigation of selected topics in physical and human geography of a region, e.g., Latin America, Anglo-America, Europe. Regional concentration will vary from semester to semester, with the region being indicated at time of enrollment. May also be offered in conjunction with field studies to various areas, and may be repeated for credit. Prerequisite: An appropriate introductory course at either the undergraduate or graduate level.

Geographic Methodology and Research

Open to Upperclass and Graduate Students

Prerequisites applicable to all 500-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor.

GEOG 557 Environmental Impact Assessment
3 hrs.
Alteration of the natural and human environment for perceived economic and social benefits often has significant adverse consequences. Recognition of this problem is reflected in federal, state, and local laws and regulations requiring environmental impact statements. The course provides an introduction to the analysis and preparation of environmental impact statements. Prerequisites: Senior standing and Geography 350 or permission.

GEOG 566 Field Geography
2-4 hrs.
The theory and application of geographic techniques and instruments of field investigations: collection and analysis of field data, preparation and presentation of materials. The course is based primarily upon field observations. (One hour lecture and three hours laboratory.) Prerequisites: GEOG 265 or 375 and 582 or consent of instructor.

GEOG 567 Geodata Handling and Mapping
4 hrs.
Introduction to fundamental principles and procedures of representation and analysis 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 concept and methods in the analysis of geographic problems. Emphasis is placed on data base management, computer and geographic modeling, and exploration of data. Prerequisites: GEOG 567 or consent.

GEOG 55
GEOG 569 Geographic Information Systems 4 hrs.
Geographic Information Systems (GIS) integrate geographically-referenced data from diverse sources, and assist in spatial decision-making. The course combines an overview of fundamental concepts and procedures of GIS with practical experience in the analytical use of geographic information, and covers a range of systems and applications. Course components include measurement and representation of geographic information, alternative GIS data structures and transformations, analytical operations on spatial and non-spatial data, digitizing and analyzing spatial data quality, institutional context of GIS use. Prerequisites: GEOG 567 or consent of instructor, senior or graduate standing.

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, multicolor production, photo-reproduction and computer-assisted mapping. It is recommended that GEOG 567 be taken before 580. Prerequisite: GEOG 375 or equivalent.

GEOG 582 Remote Sensing of the Environment 3 hrs.
The student will acquire proficiency in the fundamental techniques and skills of photogrammetry and photointerpretation during the first part of the course. The remainder of the semester will be spent in interpreting photos dealing with such topics as geomorphology, archaeology, vegetation and soils, water resources, rural and urban land use, as well as topics adapted to the interest and anticipated future work of the student.

GEOG 597 Independent Study 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: Written consent of departmental advisor and instructor.

Open to Graduate Students Only

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 the advanced student interested in analyzing problems related to various topics in geography. Prerequisite: Consent of instructor. May be repeated.

GEOG 666 Professional Development Seminar 1 hr.
Students participate in selected activities related to professional development. These activities include critiques of professional presentations, participation in professional meetings, and presentations of papers to faculty and colleagues. This course cannot be repeated for credit. This course is graded on a Credit/No Credit basis.

GEOG 669 Advanced GIS Seminar 3 hrs.
This course extends the focus of GEOG 569, Geographic Information Systems, from concepts and procedures to project applications and techniques in both individual projects and in seminar. 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 professional software for relevant issues such as interfaces of GIS with spatial analysis, spatial statistics, remote sensing, and spatial remodelling 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.

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

GEOG 700 Master's Thesis 6 hrs.

GEOG 710 Independent Research 2-6 hrs.

GEOG 712 Professional Field Experience 2-12 hrs.

GEOLOGY
Dr. Alan Kehew, Chair
Main Office: 1183 Rood Hall
Telephone: 387-5485 FAX: 387-3513

Professors Ronald Chase, William Harrison, Alan Kehew, R. V. Krishnamurthy, Christopher Schmidt; Associate Professors Estella Atekwana, David Barnes, George Guthrie, Duane Hampton, William Sauck; Assistant Professors Daniel Cassidy, Michelle Komniz.

The Department of Geology offers the Master of Science in Geology as well as the Master of Science in Earth Science, which is an interdisciplinary program having two options, with geology as a core. The Department also offers the Doctor of Philosophy in Geology.

Master of Science in Geology
Advisors:
David Barnes, Room 1135, Rood Hall

The Master of Science in Geology is designed to prepare the student for professional work in geology and for further graduate study.

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

Program requirements
1. Thirty semester hours (excluding deficiencies) of graduate credit in Geology and related areas (in other sciences and mathematics), with at least twenty-one hours in Geology. Up to nine hours in related areas may be chosen with the consent of the graduate advisor. Areas of specialization in the Geology Department include Sedimentary Geology-Paleontology, Structural Geology, Petrology-Mineralogy, Environmental and Surficial Geology, Hydrogeology, Geophysics, and Stable Isotope Geochemistry.

2. All students are expected to attend Departmental seminars and are required to give one presentation in residence. Students may enroll for credit in GEOG 660 for seminar.

3. A copy of the Graduate Record Examination score must be supplied to the department before the end of the first semester in residence.

4. Satisfactory completion of GEO 700, Master's Thesis (6 hrs.)

5. Successful completion of an approved rock-oriented field course if not completed in the student's undergraduate program.

6. Pass an oral thesis defense examination. In the case of failure, one retake is possible.

Master of Science in Earth Science

The Master of Science in Earth Science permits students to design programs of study, in consultation with the program advisor, that are compatible with the individual's goals. The program may be adapted for students with backgrounds in biology, geography, agriculture, geology, junior college science education, journalism, landscape architecture, anthropology, and physics. Some remedial work may be necessary for students entering the program with a minimal background. Courses for the program will be drawn from geology, geography, biology, anthropology, economics, political science, communication, chemistry, physics, agriculture, and others.

Program requirements
1. A minimum of thirty-five hours is required for the degree without a master's thesis or thirty hours with a thesis.

2. A core of eighteen semester hours in geology is required, including GEOG 438 (or equivalent).

3. May include satisfactory completion of four hours of GEO 710 (Independent Research) or three hours of GEO 712 (Field Experience), or both, but not to exceed seven hours.

4. Pass a comprehensive oral examination. If the first attempt at the oral exam is not considered satisfactory, then a second oral exam or a written exam will be required.

5. Students are expected to attend Departmental seminars and are required to give one presentation. Students may enroll for credit in GEOG 660 for seminar presentations.

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.
4. Applicants are to submit the results of the  
3. Applicants are to arrange for three letters  
2. Grade-point average of 3.25 (of 4.0) in  

Admission requirements  
Students should have completed an undergraduate major in earth science or its equivalent and one semester each of college chemistry and physics. Students planning to teach in secondary schools should complete certification requirements.

Program requirements
1. A minimum of thirty hours of graduate credit in earth science or related disciplines with consent of graduate advisor.
2. Students are expected to attend Departmental seminars and are required to give one presentation. Students may enroll for credit in GEOL 660 for seminar presentations.
3. Complete a general exploratory examination in earth science covering astronomy, oceanography, meteorology, and geology at the beginning of the first semester in residence.
4. Optional election of GEOL 700 (Thesis) or GEOL 710 (Independent Research).
5. To qualify for a thesis or independent research will substitute for the comprehensive exam.

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. Application 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 chairperson and two faculty sponsors. The composition of the committee will be based on the student's expressed interests.

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 geography may be admitted provided they take remedial work in hydrogeology.
2. Grade-point average of 3.25 (of 4.0) in graduate work.
3. Applicants are to arrange for three letters of recommendation to be sent from academic and/or professional sources.
4. Applicants are to submit the 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.
   b. Research skill in mathematics, statistics, or computer science. For specific details concerning approved research skills, students will consult with the graduate advisor.
3. Qualifying Examination. Before admission to candidacy for the doctoral degree the student must pass a general examination in hydrogeology. This examination is intended to determine the student's fundamental knowledge of the field in several areas of specialization including hydrology, geological measurements and interpretation, geochemistry, mathematics/modeling and field methods. It shall consist of an initial written portion, and a final oral portion. 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 the dissertation research to the University and defend his/her 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 their 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. A minimum of one deficiency must be satisfied each semester 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 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 101</td>
<td>General Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 102</td>
<td>Analytical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 104</td>
<td>Inorganic Chemistry</td>
<td>3</td>
</tr>
</tbody>
</table>

Sample Program for a Student Entering with a bachelor's degree in geology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 512</td>
<td>Hydrogeology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 609</td>
<td>Surface Water Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 544</td>
<td>Environmental Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 525</td>
<td>Surface Geophysics</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 526</td>
<td>Principles and Practices of Aquifer Testing</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 527</td>
<td>Principles of Well Drilling and Installation</td>
<td>1</td>
</tr>
</tbody>
</table>

Doctoral degree component of program

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 516</td>
<td>Geochronology and Global Change</td>
<td>3</td>
</tr>
</tbody>
</table>

Research and professional field experience

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 700</td>
<td>Master's Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

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.

Elective courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 516</td>
<td>Geochronology and Global Change</td>
<td>3</td>
</tr>
</tbody>
</table>
GEOL 536 Glacial Geology ........................................... 3
GEOL 561 Reflection Seismology .................................. 3
GEOL 562 Gravity and Magnetic Exploration ..................... 3
GEOL 563 Electrical Methods ..................................... 3
GEOL 564 Environmental Field Geophysics ....................... 3
GEOL 544 Environmental Geology .................................. 3
GEOL 610 Geochemistry ........................................... 3
GEOL 611 Mineral Analysis ....................................... 3
GEOL 613 Wetlands Hydrology .................................... 3

GEOL 516 Geochronology and Global Change 3 hrs.
Application of the concepts of nuclear physics and chemistry to geologic problems. Topics to include absolute and relative dating, formation of the elements, global change and causes of global change. Prerequisites: Basic knowledge of chemistry, physics, and math; GEOL 335.

GEOL 520 Economic Geology 3 hrs.
Origin, occurrence, and utilization of metallic and non-metallic mineral deposits, and mineral fuels. Three lectures a week. Prerequisite: GEOL 301 or GEOL 335.

GEOL 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: GEOL 412 or GEOL 512.

GEOL 526 Principles and Practices of Aquifer Testing 1 hr.
Introduction to the methods of aquifer testing with emphasis on step drawdown pump tests, forty-hour pumping test with recovery, slug tests and bail tests data processing, using computer software, water level and vector level measuring equipment. Prerequisite: GEOL 412 or GEOL 512.

GEOL 527 Principles of Well Drilling and Installation 1 hr.
An introduction to hollow-stem auger drilling and well installation, drilling with mud and air, cable tool drilling, monitoring well design, sample collection and description, cuttings, spot sample, and Shelby tube borehole geophysics, and installation and development of wells. Prerequisite: GEOL 412 or GEOL 512.

GEOL 528 Principles/Practices of Ground-Water Sampling/Monitoring 1 hr.
An introduction to state-of-the-art techniques for sampling, monitoring, and evaluating ground-water systems and surface water interactions. Includes quality control and assurance procedures, ground-water sampling equipment and procedures, field hydrochemical equipment and procedures, and vadose zone sampling of water and gas. Prerequisite: GEOL 412 or GEOL 512.

GEOL 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: GEOL 301 or GEOL 335, 430, or consent of instructor.

GEOL 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: GEOL 301 or GEOL 335.

GEOL 544 Environmental Geology 3 hrs.
Geology related to human affairs and land-use planning. Includes engineering properties of earth materials, waste disposal systems, slope stability, floods, erosion and sedimentation, land subsidence, volcanic hazards, earthquakes, and urban geology. Field trips required. Prerequisites: GEOL 131; GEOL 301 or GEOL 335, or consent of instructor.

GEOL 560 Introduction to Geophysics 3 hrs.
Introduction to geophysical exploration methods including seismic reflection and refraction, gravity, magnetic, and electric and electromagnetic. Prerequisites: Two semesters of college physics; GEOL 430, MATH 122, or consent of instructor.

GEOL 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. Prerequisites: GEOL 560 and MATH 123.

GEOL 562 Gravity and Magnetic Exploration 3 hrs.
Gravity and magnetic methods applied to tectonic, mineral exploration, hydrogeologic, and crustal studies. Theoretical background, instrumentation, surveying techniques, data reduction, computer modeling, and interpretation will be discussed. Two lectures and three hours of laboratory, problem solving, and field exercises. Prerequisites: GEOL 560 and MATH 123.

GEOL 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: GEOL 560, MATH 123, and PHYS 440, or consent of instructor.

GEOL 564 Environmental Field Geophysics 3 hrs.
Field studies utilizing seismic gravity, and magnetic, electromagnetic, georadar, and electrical resistivity methods for glacial geology and ground-water, engineering, and environmental problems in the Kalamazoo area. Course also includes field work at local sites. Prerequisite: GEOL 560, or consent of instructor.

Open to Graduate Students Only

GEOL 600 Hydrogeochemistry 3 hrs.
Geochemical origin and characteristics of surface and ground-water, equilibrium thermodynamics, the carbonate system, redox processes, ion exchange, organic compounds and isotopes. Prerequisite: GEOL 512 or consent of instructor.

GEOL 605 Ground-water Modeling 3 hrs.
Study of ground-water flow and contaminant transport rates using analytical and numerical models. Prerequisites: GEOL 512, 600, FORTRAN or Basic, MATH 214, or consent of instructor.

GEOL 608 Advanced Hydrogeochemistry 3 hrs.
Investigation of selected topics in hydrogeochemistry. A problem-oriented approach to the study of classical and current topics dealing with natural and contaminated ground waters. Prerequisite: GEOL 600.

GEOL 609 Surface Water Hydrology 3 hrs.
Hydrology describes the waters of the earth, their occurrence, circulation and distribution, and their reaction with the environment. Emphasis is on quantitative aspects of surface water. Topics include, stream flow, precipitation, evapotranspiration, hydrographs, runoff, probability analysis and modeling.
GEOL 610 Geochemistry
3 hrs.
An introduction to the basic principles and
theories of geochemistry. Prerequisite: GEOL 440 or permission.

GEOL 611 Mineral Analysis
3 hrs.
X-ray diffraction and fluorescence techniques applied to mineralogical and petrological problems. Prerequisites: GEOL 335 or permission.

GEOL 612 Advanced Hydrology
3 hrs.
Analytical and numerical analysis of ground-water flow and contaminant transport. Topics include well hydraulics, flow in unsaturated soils, multiple phase flow, and advection-dispersion. Prerequisites: GEOL 512, 525, and MATH 123.

GEOL 613 Wetlands Hydrology
3 hrs.
Introduction to hydrologic function of wetlands, wetlands classification, and the relationship between hydrology and soil and plant environments. Emphasis will be placed on the use of these parameters in wetlands delineation. Prerequisite: GEOL 512 or consent of instructor.

GEOL 614 Environmental Regulatory Overview
3 hrs.
Study of those federal and state laws that govern the distribution, use and pollution of natural waters. Emphasis is placed on current interpretations and policy.

GEOL 615 Contaminant Hydrology
3 hrs.
Theory and field methods related to the transport of contaminants in ground-water. Includes theoretical considerations, case histories, law, analysis of problems, and preparation of hydrogeological reports.

GEOL 617 Stable Isotope Hydrology
3 hrs.

GEOL 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: GEOL 432 and consent.

GEOL 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).

GEOL 640 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: GEOL 440 or equivalent.

GEOL 645 Carbonate Petrology and Paleocology
3 hrs.
Identification, recognition, and analysis of carbonate rocks in hand specimen and thin section and environmental conditions under which they were formed, also, ecological relationships of organisms living in carbonate environments. GEOL 433 and 435, or consent of instructor.

GEOL 646 Carbonate and Evaporite Depositional Systems
3 hrs.
Processes, characteristics, and relationships of modern and ancient basinal carbonate and evaporite facies. Course includes a 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: GEOL 433, GEOL 435.

GEOL 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.

GEOL 655 Clastic Petrology and Basin Analysis
3 hrs.
Examination, analysis, and interpretation of clastic rocks in hand specimen and thin section and the distribution of sediments in basinal settings. GEOL 536 or consent of instructor.

GEOL 656 Clastic Depositional Systems
3 hrs.
Description and analysis of clastic depositional systems and discussion of the sedimentary rocks they produce. Laboratory investigations include stratigraphic and seismic analysis. Prerequisite: GEOL 435 or consent of instructor.

GEOL 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.

GEOL 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.

GEOL 700 Master's Thesis
6 hrs.

GEOL 710 Independent Research
2-6 hrs.

GEOL 712 Professional Field Experience
2-12 hrs.

GEOL 730 Doctoral Dissertation
15 hrs.

GEOL 735 Graduate Research
2-10 hrs.

HISTORY

Dr. Ronald Davis, Chair
Main Office: 4301 Friedmann Hall
Telephone: 367-4650
FAX: 387-3999

Professors George Beech, Ernst Breisach, Lewis Carlson, Sherwood Cordier, Ronald Davis, Howard Dooley, James Ferreria, Donald Ficco, Ross Gregory, Bruce Haight, Paul Maier, Patrick Morris, Dale Porter, E. Rozanne Elder, Lucian Rosu, Peter Schmitt, Judith Stone, Luis Toledo Pereyra, Associate
Professors Linda Borish, Andrew Carlson, Janet Coryell, Ralph Gordon, Barbara Havria, John Norman, Victor Kong, Assistant
Professors Jose Brandao, Michael Chiarappa, Deborah Delyannis, Jena Gaines, Catherine Julien, James Palmisessa, Larry Simon, Kristin Szypkin.

Master of Arts in History

Advisor: Janet L. Coryell, Room 4406, Friedmann Hall
The Master of Arts in History serves both as preparation for doctoral study and as a professional degree in many fields of research, teaching, and public history.

Admission requirements
1. Substantial undergraduate course work in history and related social sciences and humanities. (Students with strong academic records but deficient in undergraduate course work in history may be admitted with a stipulation to complete appropriate undergraduate courses.)
2. Graduate Record Examination (GRE) general aptitude test scores.
3. Three letters of recommendation.
4. A brief essay concerning applicant’s academic and professional objectives.
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
All students in the program are required to complete the core:

HIST 510 Colloquium 1 hr.
HIST 600 Historical Method 3 hrs.
HIST 601 Historiography 3 hrs.

Three options for completing the degree are available.

THESIS OPTION (31 HRS.)

Designed for students who anticipate doctoral studies in history, or other subsequent graduate study, and/or careers in research.

Requirements:
1. Core: HIST 510, 600, 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.
3. At least two courses (including one at the 600-level) in theory, research, or applications drawn from HIST 590-596, 602, 625-635, 642-646, 671-672, or 689.
4. Electives chosen in consultation with the Graduate Advisor. The department requires at least one course covering theory and/or research practices in an allied social science or humanities discipline. (Up to 6 hrs. of appropriate course work may be chosen outside the department, and up to 6 hrs. of appropriate course work in history at the 400-level, exclusive of 496-499, may be elected with the approval of the Graduate Advisor.)
5. Thesis, a major research investigation in the field of specialization. Candidates with an advanced record of research and/or
60 COLLEGE OF ARTS AND SCIENCES

The research focus of the program is on geographically and/or demographically small-scale communities and sociocultural entities, with emphasis on material arts and culture, technology, social organization and the sociology of knowledge, and in historical theory and philosophy with a focus on the role of historical disciplines in public life.

Admission requirements
1. Admission normally requires a master's degree in history or a closely related discipline, or substantial prior coursework 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 coursework 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 in a discipline other 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.
5. Reading proficiency in foreign languages appropriate to the proposed program of study is strongly recommended. All required foreign language requirements. All required foreign language proficiency must be completed prior to qualifying examinations.

Qualifying Examinations
Written and oral qualifying examinations are taken at or near completion of required course work. Examinations cover the core, major, and minor fields, and in some cases the outside field.

Foreign language requirement
Each student in the program is required to demonstrate reading proficiency in at least one foreign language appropriate to the program of study, 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 coursework to achieve necessary foreign language proficiency must be completed prior to qualifying examinations.

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 program option and the Doctor of Philosophy program share many common structures and requirements, and may be completed 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 coursework to complete the field requirements.

The program includes coursework in three or four fields:

Core
HIST 510 Colloquium ...... 1 hr.
HIST 600 Historical Method ...... 3 hrs.
HIST 601 Historiography ...... 3 hrs.
HIST 602 Historical Theory ...... 3 hrs.
HIST 698 Teaching and Lecture Presentation ...... 3 hrs.

Each candidate will do additional coursework in theory and research techniques appropriate to the candidate's research agenda, including in each case coursework in an allied social science or humanities discipline.

Major Field
A chronologically broad teaching field covering a major civilization. Within the field candidates will identify, in consultation with the Graduate Advisor and appropriate faculty, chronological/geo- and topical research emphases. See the department's graduate handbook for additional information.

Minor Field
The minor field may be internal or external to the major field depending upon the NAL of the program of study. The minor field normally is a chronological/geo- and topical adjunct to the major field, but may also be a concentration in theory, research or application skills.

Outside Field
An outside field may consist of work in a single discipline, or a series of interdisciplinary courses appropriate to the proposed program. Each candidate will identify, in consultation with the Graduate Advisor, an outside field appropriate to the proposed program of study. The outside field may be planned as a single field or as a combination of related fields.

Doctor of Philosophy in History
The Doctor of Philosophy in History is designed to prepare candidates for careers in higher education, applied research, and historical administration. The program includes a core field of theory, research, and applications emphasizing cultural and social historical theory; multidisciplinary research techniques to develop a broad evidentiary base using diverse elements of documentation and material culture, and applications and field experience to develop interpretive skills appropriate to a broad range of teaching and communication venues.

The research focus of the program is on geographically and/or demographically small-scale communities and sociocultural entities, with emphasis on material arts and culture, technology, social organization and the sociology of knowledge, and in historical theory and philosophy with a focus on the role of historical disciplines in public life.
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 Classes. May be repeated under different topics.

HIST 530 Studies in Early American History 3 hrs. Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 535 Studies in Recent American History 3 hrs. Topics listed in Schedule of Classes. 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 Classes. May be repeated under different topics.

HIST 565 Studies in Modern European History 3 hrs. Selected approaches to European history since the Renaissance. Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 585 Studies in African History 3 hrs. Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 590 Proseminar 3 hrs. Research and writing on selected themes. Topics listed in Schedule of Classes. 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 Classes. 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. May be 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. Prerequisites: HIST 600 and HIST 601

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 colonial times until the late nineteenth century. 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 nineteenth 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 in world history. Prerequisites: HIST 600, HIST 601, and possession of or admission to candidacy for a graduate degree.

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 Classes. Prerequisites: HIST 600, HIST 601.

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 Classes. 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, and localizing these materials. Survey of techniques for interpreting artifacts and material culture such as archaeology, numismatics, and epigraphy.

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 Technology 3 hrs. Development of historical data and interpretations derived from portable artifacts such as ceramics, glassware, and metalwork, photographs, artistic traditions, structures, and secondary evidence of material use. Identification and analysis of objects including practical and aesthetic functions, economic and technological implications, environmental conditions, etc.

HIST 646 Historical and Industrial Archaeology 3 hrs. Theories, methods, and interpretive potential of historical and industrial archaeology. Survey of major sites in North America, Europe, and the rest of the world.

HIST 650 Special Projects 1-3 hrs. Participation in departmental research and interpretive projects. Topics may be listed in Schedule of Classes. 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 Classes. May be repeated under different topics.

HIST 671 Seminar in Theory and Philosophy of History 3 hrs. Advanced research. Topics may be announced in Schedule of Classes. May be repeated under different topics. Prerequisites: HIST 600 and 601.

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 Classes. 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 Classes. May be repeated. Prerequisites: HIST 600 and 601; 635 or consent of instructor.
HIST 678 Seminar in Recent United States History
3 hrs.
Advanced research. Topics may be listed in Schedule of Classes. May be repeated. Prerequisites: HIST 600 and 601; 612 or consent of instructor.

HIST 682 Seminar in Medieval History
3 hrs.
Advanced research. Topics may be listed in Schedule of Classes. May be repeated. Prerequisites: HIST 600 and 601; 612 or consent of instructor.

HIST 686 Seminar in Modern European History
3 hrs.
Advanced research. Topics may be listed in Schedule of Classes. May be repeated. Prerequisites: HIST 600 and 601; 616 or consent of instructor.

HIST 688 Seminar in Global and Contemporary History
3 hrs.
Advanced research. Topics may be listed in Schedule of Classes. May be repeated under different topics. Prerequisites: HIST 600 and 601.

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

HIST 696 College Teaching and Lecture Presentation
3 hrs.
Research and practice in oral presentation and instruction in the college and university classroom, professional meetings, and to media and public audiences.

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 AND STATISTICS

Dr. John Petro, Chair

The Department of Mathematics and Statistics 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 Biostatistics, the Master of Science in Statistics, the Master of Science in Operations Research, the Doctor of Philosophy in Mathematics, the Doctor of Philosophy in Mathematics Education, and the Doctor of Philosophy in Statistics.

Financial assistance
The Department of Mathematics and 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 Mathematics and Statistics Graduate Office (3325 Everett Tower) or the Department Office (Room 3319, Everett Tower).

Dr. John Martino, Graduate Committee Chair
Mathematics and Statistics Graduate Office
3325 Everett Tower
Telephone: 387-4512
EMAIL: grad@mth-stat.wmich.edu

Master of Arts in Mathematics

Advisor: See Mathematics and Statistics Office, Room 3319, Everett Tower

The Master of Arts in Mathematics extends the student's knowledge in the areas of algebra, real and complex analysis, applied mathematics, combinatorics, geometry, number theory, statistics, and topology. The program permits specialization in preparing for advanced study, and provides additional training for teachers of mathematics and students seeking employment in industry.

Admission requirements
To gain admission to this program the student must have completed, with satisfactory grades, an undergraduate major in mathematics. This major must ordinarily include a course in modern algebra and a course in advanced calculus or real analysis. If the student's undergraduate program in mathematics does not meet approved standards, the student may be required to elect additional courses or otherwise satisfy the requirements of the department.

Program requirements
1. Complete at least fifteen approved semester hours in graduate level mathematics courses, usually selected from:
   - MATH 522, Introduction to Topology, or have had the equivalent prior to entering the program;
   - MATH 530, Linear Algebra, or have had the equivalent prior to entering the program;
   - MATH 571, Advanced Calculus II, or have had the equivalent prior to entering the program;
   - MATH 630, Abstract Algebra I;
   - One of the following: MATH 670, Real Analysis I; or MATH 676, Complex Analysis;
   - An approved graduate level sequence.

2. A student must get a "B" or better in MATH 522, 530, and 571.

The specific requirements for an Master of Arts in Mathematics with concentration in Statistics are listed under the master's degree program in Statistics.

Mathematics in Mathematics Education

Advisor: See Mathematics and Statistics 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 curriculum and instructional leadership roles 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 560, Applied Probability
   - MATH 580, Number Theory
   - MATH 611, Mathematical Applications
   - MATH 615, Intermediate Analysis
   - MATH 616, Survey of Algebra
   - MATH 649, Studies in Geometry

2. Complete twelve semester hours of approved mathematics education courses:
   - MATH 619, Computer Methods in Secondary Mathematics
   - MATH 653, Studies in Teaching Secondary Mathematics
   - MATH 654, Secondary School Mathematics Curriculum Studies
   - MATH 695, Seminar in Mathematics Education

3. Complete an approved three-semester hour, 600-level elective, selected from mathematics, mathematics education, or professional education.

In meeting these program requirements an effort is made to select courses that deal with concepts and skills related to central themes in secondary school mathematics programs. These themes are given substance in courses that deal with topics enabling students to review and build on their previous course work, to explore new areas, to develop thorough understandings of concepts that are initiated in secondary school mathematics courses, and to achieve a high level of mastery of skills associated with these concepts.

Master of Science in Applied Mathematics

Advisor: See Mathematics and Statistics 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, computer science, and graph theory. 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 would 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 the programming languages 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 122, 123, 272, (374) or (230 and 274), (362 or 560), 570, 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 26 semester hours of specified courses:
   - MATH 507 Numerical Analysis I
   - MATH 510 Applied Matrix Algebra
   - MATH 562 Statistical Analysis I
   - MATH 574 Ordinary Differential Equations
   - MATH 602 Mathematical Modeling
   - MATH 607 Numerical Analysis II
   - MATH 608 Linear Programming
   - MATH 562 Statistical Analysis
   - MATH 690 Applied Mathematics Seminar (1 hr.)
   - MATH 699 Studies in Applied Mathematics Seminar (1 hr.)
   - MATH 712 Professional Field Experience Seminar (1 hr.)
   - MATH 605 Optimization
   - MATH 699 Research
   - MATH 680 Topics in Statistics
   - MATH 602 Mathematical Computing Seminar (1 hr.)
   - MATH 699 Reading and Research
   - MATH 680 Topics in Statistics
   - CS 527 Theory of Computer Graphics
   - CS 580 Theory of Computation
   - CS 631 Advanced Data Structures
   - CS 680 Mathematical Theory of Formal Languages
   - EE 530 Power System Analysis
   - IE 611 Operations Research for Engineers
   - MGMT 664 Simulation
   - MGMT 664 Analysis
   - MATH 510 Applied Matrix Algebra
   - MATH 530 Linear Algebra
   - MATH 527 Differential Geometry of Curves and Surfaces
   - MATH 602 Mathematical Modelling

Master of Science in Biostatistics
Advisor: See Mathematics and Statistics Office, Room 3319, 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 Mathematics and 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 biology or computer science, or an equivalent. 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, (374) or (230 and 274) or 374, 330, (362 or 560), 570, 507, and CS 111, (201 or 306), 112. 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 562 Statistical Analysis I
   - MATH 571 Advanced Calculus II
   - MATH 607 Numerical Analysis II
   - MATH 637 Numerical Linear Algebra
   - MATH 690 Applied Mathematics Seminar (1 hr.)
   - MATH 699 Reading and Research
   - MATH 680 Topics in Statistics
   - CS 527 Theory of Computer Graphics
   - CS 580 Theory of Computation
   - CS 680 Mathematical Theory of Formal Languages

Mathematics AND Statistics 63

4. Elective Component (3 credit hours): An approved 500-600 level course from Statistics or Biological Sciences.
5. Internship Component (5 credit hours): A professional field experience internship with a health-related industry. Normally this is taken as MATH 712.
6. Final Examination: Before beginning the internship, each program student must have successfully passed a written comprehensive examination covering the program requirements.
7. Final Report: At the completion of the internship, each candidate must submit a final report on the internship project.

Master of Science in Computational Mathematics
Advisor: See Mathematics and Statistics Office, Room 3319, 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, (362 or 560), 570, 507, and CS 111, (201 or 306), 112. 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 562 Statistical Analysis I
   - MATH 571 Advanced Calculus II
   - MATH 607 Numerical Analysis II
   - MATH 637 Numerical Linear Algebra
   - MATH 690 Applied Mathematics Seminar (1 hr.)
   - MATH 699 Reading and Research
   - MATH 680 Topics in Statistics
   - CS 527 Theory of Computer Graphics
   - CS 580 Theory of Computation
   - CS 680 Mathematical Theory of Formal Languages
   - EE 530 Power System Analysis
   - IE 611 Operations Research for Engineers
   - MGMT 664 Simulation
   - MATH 510 Applied Matrix Algebra
   - MATH 530 Linear Algebra
   - MATH 527 Differential Geometry of Curves and Surfaces
   - MATH 602 Mathematical Modeling

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
Master of Science in Statistics

Advisor: See Mathematics and Statistics Office, Room 3319, Everett Tower

Two types of master's programs in Statistics are offered through the Department of Mathematics and Statistics. Option I, Theoretical, is offered as a concentration within the Master of Arts in Mathematics. Option II, Applied, is a discrete program resulting in a Master of Science in Statistics. Each option is described below.

OPTION I, THEORETICAL

This option combines a regular Master of Arts in Mathematics with substantial work in statistics. A graduate from this option is well prepared to continue in a doctoral program in statistics, to teach basic statistics at the college level, or to use statistics professionally. A minimum of thirty hours is required, and the resulting degree is a Master of Arts in Mathematics with concentration in Statistics.

Admission requirements

Requirements are the same as for the Master of Arts in Mathematics.

Program requirements

In this option the student must complete the requirements of the Master of Arts in Mathematics with a program including the following courses: MATH 660 and 665 and three of the following—MATH 661, 662, 663, 664, 667, 669.

OPTION II, APPLIED

This option will give students a combination of knowledge of statistical techniques, experience with using these techniques in applied situations, and understanding of the theoretical principles behind these techniques. Students receive excellent training for professional employment in industry or government, and at the same time obtain sufficient theoretical background to qualify them to teach elementary statistics or to continue into more advanced degree programs. The student is encouraged to apply for an internship experience (MATH 712) where it is expected that students will collaborate with experienced statisticians in an actual work environment with real problems. A minimum of thirty-two hours is required, and the resulting degree is a Master of Science in Statistics.

Admission requirements

For admission to this option, candidates must have completed an undergraduate program containing a substantial amount of mathematics, including a complete calculus sequence, a course in probability, a course in statistical methods, and a course in linear algebra. A complete undergraduate mathematics major is not required since the requirements in pure mathematics are not as extensive as in Option I.

Program requirements

The option requires at least thirty-two hours of approved courses and a course in Complex Analysis. (1) The student must complete (1) (3 + 3) Graduate Mathematics Seminar (1 hr.) and MATH 699 Reading and Research. (2) MATH 712 Professional Field Experience.* These courses may be repeated for credit.

Doctoral Programs:
The Department of Mathematics and Statistics offers programs leading to the Doctor of Philosophy degree in either Mathematics, Mathematics Education, or Statistics. Alternately, a student may pursue a Ph.D. in Mathematics with a Concentration in Statistics. Doctoral work in Statistics can be in pure mathematics, applied mathematics, or college mathematics teaching. The program is designed to give the student a broad but intensive background in a variety of fields of mathematics, with special emphasis on some selected areas in which the student will be prepared for, and participate in, creative mathematical research. More specifically, the area of specialization may be chosen from among algebra, approximation theory, college mathematics teaching, complex analysis, differential equations, graph theory, group theory, optimization theory, and topological graph theory.

Financial assistance

The Department of Mathematics and Statistics offers opportunities for financial support of graduate students through Graduate Assistantships, Associatedships, and Fellowships. In addition, the student has the opportunity of taking further information about such opportunities, or about the graduate program as a whole, should contact the Mathematics and Statistics Graduate Office (3305 Everett Tower) or the Department Office (Room 3319, Everett Tower).
Doctor of Philosophy in Mathematics Education

Advisors:
See Mathematics and Statistics Office, Room 3319, Everett Tower

Admission requirements

Students in the doctoral program, Statistics Option, will be those who have been admitted to the doctoral program of the Department and who have been designated as "Statistics Option" at the time of admission. A student in the regular doctoral program can request a change of status to the Statistics Option.

Admission and change of status requests for the doctoral program, Statistics Option, will be considered by the Statistics Doctoral Subcommittee and final decisions will be made by the Department Doctoral Committee. The admission requirements of The Graduate College and the Department must be met. In addition, applicants should have completed (or be completing) a master's degree in mathematics or a closely related field.

Applications must include three letters of recommendation.

Advising

The Statistics Doctoral Subcommittee will be responsible for the advising of students in the doctoral program, Statistics Option.

Upon entrance to the doctoral program, Statistics Option, the student will be assigned an advisor by the Statistics Doctoral Subcommittee and the Department Doctoral Committee for planning the student's program until (s)he attains the status of candidate. The candidate and the dissertation advisor will select with the approval and advice of the Departmental Doctoral Committee and the Statistics Doctoral Subcommittee, (s)he will be assigned a dissertation advisor. The candidate and the dissertation advisor will select with the approval of these committees a Dissertation Committee for the candidate. Each of the above-mentioned appointments is subject to the approval of the Chairperson of the Department and The Graduate College.

During the first semester, the student must have a plan of study approved by the Statistics Doctoral Subcommittee and approved by the Departmental Doctoral Committee. The selection of preliminary exams shall be included.

Program requirements

1. Doctoral Entrance Examination (DEE)/Statistics Departmental Graduate Examination (DGE): As early as possible, a student must pass the Examinations in:
   a. Linear Algebra (530),
   b. Real Analysis (571), and
   c. Statistics. The DGE shall consist of three, two-hour examinations in the areas of probability, theoretical statistics, and applied statistics. The material covered will be from the courses MATH 560, 562, 660, and 662. The DGE will normally be given twice a year. A student should normally take the DGE at the end of the first year of graduate study.
   2. Course work and Dissertation (minimum of 90 hours):
      a. Approved two-semester graduate sequences in linear models and design, statistical inference, and analysis or algebra,
      b. An approved graduate course in measure theory,
      c. An approved cognate of 15 credit hours in computer science and/or numerical analysis,
      d. Approved professional and/or statistical laboratory experiences (not to exceed 10 credit hours),
      e. An approved one-year graduate course and seminars, and
      f. Research and dissertation (15 hours).
   3. Departmental Preliminary Examination: Each student in the statistics concentration must pass Departmental Preliminary Examinations in three areas: linear models and design, and two of the following—algebra, data analysis, or statistical inference (the choice being subject to approval)
      a. A student is expected to take preliminary exams at the first opportunity after the necessary course work is completed.
      b. 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 being dropped from the program.
   4. Research Tools: In accordance with the requirements of The Graduate College, each student is required to attain competence in two research tools.

Normally for students in the Statistics Option these will consist of demonstrated competence in computer usage and one foreign language, selected from French, German, and Russian.

Admission

This program is jointly administered by the Departmental Doctoral Committee and the Statistics Doctoral Committee. The Statistics Doctoral Subcommittee will be responsible for the scheduling, preparation, and grading of preliminary examinations in statistics.

Progress toward completion

Each year in February, the Statistics Doctoral Subcommittee will review the progress of all doctoral students in the Statistics Option. Any student not making satisfactory progress may be dropped from the program with approval of the Departmental Doctoral Committee. The schedule of completed classes, general progress towards completion, etc. will be considered in this decision.

Doctor of Philosophy in Mathematics Education

Advisor:
See Mathematics and Statistics Office, Room 3319, Everett Tower

The Doctor of Philosophy in Mathematics Education focuses on K-12 curriculum development and its teaching, as well as psychological foundations and theories of the learning of mathematics. The program will prepare students to teach and conduct research in mathematics education at the university level and serve as consultants in K-12 school systems.

Admission requirements

A student may enter the program with either a bachelor’s or master’s degree. In addition to satisfying the general admission requirements of The Graduate College, the student must have a mathematics background at least equivalent to that provided by the secondary mathematics teaching major at Western Michigan University. Classroom teaching experience at the elementary, middle or high school level is required for admission.

Program requirements

Course work and Dissertation

The program includes:

1. Six approved graduate mathematics courses selected from algebra, analysis, applied mathematics, computational mathematics, geometry, graph theory, number theory, probability and topology;
2. An approved two-semester 600-level graduate sequence in one of the following analysis, algebra, graph theory, computational mathematics, statistics, probability, educational leadership, education and professional development, psychology, or mathematics education;
3. Two approved graduate courses in statistics;
4. Fifteen graduate credit hours in mathematics education;
5. Two graduate credit hours in professional education;
6. Participation in research seminars for at least 6 graduate credit hours; and
7. A dissertation (15 credit hours) in mathematics education.

Departmental Examinations

1. Students must pass one Doctoral Entrance Examination (DEE) in linear and abstract mathematics and statistics.
algebra and one DEE selected from analysis or topology or one Departmental Graduate Examination (DGE) in statistics.

2. After Course work is completed students must pass three preliminary examinations: one in K-12 mathematics curriculum and its teaching, another in psychological foundations and mathematical learning, and the third in mathematics education research and design.

Research Tools

Students must demonstrate competency in the two research tools of statistics and computer usage.

Doctor of Philosophy in Statistics

Program Advisors

Room 3319 Everett Tower

The Doctor of Philosophy in Statistics is designed to prepare students for careers in teaching at a university, industry, or in government. It is expected that students, through courses and other experiences, will develop facility in theoretical statistics as well as in several applied statistics areas. Choices available in the cognate area should be designed to suit a variety of career interests.

Admission requirements

The usual admission requirements of The Graduate College and the Department must be met. In addition, applicants should exhibit good scholarship and have sufficient mathematics background, including courses in probability and advanced calculus.

Applications must include three letters of recommendation. Decisions on admission will be made by the Statistics Doctoral Committee.

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, an advisor will be assigned and advisor by the Statistics Doctoral Committee for planning the student’s program until he/she reaches the status of candidate. During the semester in which the student attains the status of candidate, with the approval and advice of the Departmental Doctoral Committee and the Statistics Doctoral Committee, he/she will be assigned a dissertation advisor. The candidate and the dissertation advisor will select, with the approval of these committees a Dissertation Committee for the candidate. In each of the above situations final approval is subject to the approval of the Chairperson of the Department and The Graduate College.

During the first semester, the student must 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 three two-hour-exams in the areas of probability, theoretical statistics and applied statistics from the courses MATH 560, 562, 660, and 662.

2. Course and dissertation work, at least 90 credit hours, including:
   a. Three approved two-semester sequences linear models/design, statistical inference and advanced statistics.
   b. Fifteen credit hours in an approved cognate area related to statistical applications such as computer science, computational or applied mathematics, engineering, biological science, management or economics.
   c. Five credit hours of seminar work, MATH 691 or 696.
   d. Research and dissertation, fifteen credit hours.

3. A student must pass Preliminary Examinations in Linear Models/Design (MATH 663, 684), in Statistical Inference (MATH 664) and in a third area to be chosen, with the approval of the Statistics Doctoral Committee, from Advanced Statistics, Analysis, Algebra 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 no more than 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 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 semester of dissertation work.

4. Research Tools. In accordance with the requirements of The Graduate College, each student is required to attain competence in two research tools. Normally for students in Statistics these will consist of demonstrated competence in computer usage and one foreign language, selected from French, German, or Russian.

Administration

This program will be jointly administered by the Departmental Doctoral Committee and the Statistics Doctoral Committee. The Statistical Doctoral Committee will be responsible for the scheduling, preparation, and grading of preliminary examinations in statistics and for arranging a Thesis Proposal Defense.

Progress toward completion

Each year in February, the Statistics Doctoral Committee will review the progress of all doctoral students in the Statistics program. Any student not making satisfactory progress may be dropped from the program with approval of the Departmental Doctoral Committee. Grades, performance on preliminary exams, the schedule of completed classes, general progress towards completion, etc. will be considered in this decision.

Mathematics and Statistics Courses (MATH)

Open to Underclass and Graduate Students

Undergraduates with junior or senior standing or 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 230, 272] or MATH 374, and CS 201 or 306.

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-deconpositions, QR-decompositions, singular value deconpositions, generalized eigenvalues, Hermitian symmetric matrices, position definite matrices and the Spectral Theorem.

Applications from multivariate calculus will be discussed. Prerequisites: Either MATH 230 and MATH 272 or 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 314 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 curriculum issues and trends in K-8 mathematics education. Specifically, it focuses on methods and materials for teaching mathematics effectively to K-8 students. This course is not open to undergraduate students who have completed MATH 352 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

3 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 and model numerical methods, and to explore the connections between symbolic and graphic representations of mathematical ideas. Prerequisite: MATH 352 or 552 with a grade of “C” or better or consent of instructor.

MATH 555 Mathematical Problem Solving in the Elementary/Middle School Curriculum

3 hrs.

This course provides experiences in mathematical problem solving for elementary/middle school teachers. Content for the problems is selected from number theory, algebra, geometry, probability and statistics. Emphasis is placed upon teaching problem solving. Concepts are developed extensively to solve problems. Prerequisite: MATH 352 or 552 with a grade of “C” or better or consent of instructor.

MATH 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 production problems, and Markov chain methods. Not recommended for students who have taken MATH 362 or 660. Prerequisite: MATH 272.

MATH 561 Applied Multivariate Statistical Methods 3 hrs.
An applied treatment of multivariate procedures is presented. Classical procedures such as Hotelling's T-squared methods are discussed for the one and two sample problems and MANOVA for standard designs. Topics that will be accentuated are principal components, discriminant analysis, cluster analysis, and factor analysis. Emphasis will be on graphical methods and applications. Prerequisites: An introductory course in statistics and a course in linear algebra.

MATH 562 Statistical Analysis I 4 hrs.
The first course in the sequence MATH 562, 662 of applied statistics which combines both theory and applications. Topics include elementary theory of estimation and hypothesis testing, the use of the normal, binomial, chi-square, F and T distributions in statistics problems, means and variances, simple linear regression; correlation; one-way and two-way analysis of variance, fixed effects models. Prerequisite: MATH 560 or 362.

MATH 563 Sample Survey Methods 3 hrs.
This course consists of a broad overview of the techniques of survey data collection and analysis and contains a minimum of theory. Topics may include: simple random, stratified, systematic, single-stage cluster, and two-stage cluster sampling; ratio and regression estimation; subpopulation analyses; problems of nonresponse; surveys of sensitive issues; minimization of survey costs; sample size determination. Real surveys are discussed and actual survey data are analyzed. Prerequisites: An introductory statistics course and consent of instructor.

MATH 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 designs. Applications include: elementary theory of estimation and hypothesis testing, the use of the normal, binomial, chi-square, F and T distributions in statistics problems, means and variances, simple linear regression; correlation; one-way and two-way analysis of variance, fixed effects models. Prerequisite: MATH 560 or 362.

MATH 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 comparison procedures; factorial arrangement of treatments; confounding, fractional replication. This course is molded around the complete analysis of good applied problems. Prerequisite: An introductory statistics course.

MATH 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.

MATH 570 Advanced Calculus I 4 hrs.
Properties of real numbers. Cauchy sequences, series, limits, continuity, 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 272 and 314. (MATH 330 is recommended).

MATH 571 Advanced Calculus II 3 hrs.
Topology in 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. Prerequisites: (MATH 230, 272 and 274) or 374.

MATH 574 Advanced Differential Equations 3 hrs.
Series solutions at ordinary and singular points of linear ordinary equations, Bessel and Legendre functions, self-adjoint boundary value problems, Fourier series, solution of partial differential equations by separation of variables. Prerequisites: (MATH 230, 272 and 274) or 374.

MATH 580 Number Theory 3 hrs.
Beginning with the fundamental theorem of arithmetic, congruences, quadratic residues, and properties of number-theoretic functions. Prerequisite: MATH 330.

MATH 595 Topics in Elementary/Middle School Mathematics 3 hrs.
This course addresses topics in mathematics content and pedagogy relative to the teaching and learning of elementary/middle school mathematics. Course may be repeated for credit. Prerequisite: MATH 562 or consent of instructor.

MATH 599 Independent Study in Mathematics 1-3 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. Prerequisite: Approval of chairperson of department.

Open to Graduate Students Only

MATH 601 Mathematical Modeling I 3 hrs.
This course considers the methodology of modeling a series of practical problems. The mathematical tools used may include dimensional analysis, optimization, differential and difference equations, graph theory and network flow theory. The practical problems may include population dynamics, economic theory of prices and production, scale models, scheduling problems, pollution, social group interaction, epidemics, and facility location. Prerequisite: MATH 574 or consent of instructor.

MATH 605 Optimization 3 hrs.
Optimization methods including nonlinear programming, calculus of variations, and integer programming will be covered. Network flow problems and dynamic programming may also be covered. Prerequisite: MATH 571 or equivalent.

MATH 607 Numerical Analysis II 2 hrs.
The analysis and use of numerical algorithms for the solution of ordinary and partial differential equations, and approximation theory. Prerequisite: MATH 507.

MATH 608 Linear Programming 3 hrs.
Linear inequalities; convex geometry; optimization in linear systems; zero-sum games; applications. Prerequisite: An introductory course in linear algebra.

MATH 609 Studies in Applied Math 3 hrs.
Advanced work organized around topics related to the field of study indicated at the time the course is scheduled. Students may take this course more than once.

The courses 611 through 619 are primarily for teachers and ordinarily will not apply towards the Master of Arts in Mathematics.

MATH 611 Mathematical Applications 3 hrs.
An introduction to the philosophy of, machinery for, and methodology in applications of mathematics. Topics will be chosen from graph theory, linear algebra, numerical approximation, optimization and graphical linear programming, probability, and linear differential equations. Prerequisite: Consent of the 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.

This course emphasizes the applications of computer 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 theorems of Nielsen-Van Kampen, 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, imbeddings, 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, and Eilenberg-MacLane Spaces. Prerequisite: 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 Group Representations, Group Theory, 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 square 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 510.

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 graphs, 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.

The courses 651, 652, 653, and 654 are more advanced methods classes devoted to teaching/learning processes. Prerequisite: Consent of advisor.

MATH 652 Studies in Teaching Middle School Mathematics
3 hrs.
This course considers 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 course devoted to teaching secondary school mathematics. 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 curricula 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.
This course considers the impact of technology on the teaching/learning process. Prerequisite: Consent of advisor.

MATH 660 Statistical Inference I
4 hrs.
A first course in mathematical statistics. Topics include: distributions of statistics; asymptotic distribution theory; theories of estimation, functions of sufficient statistics, confidence intervals; theories of testing, uniformly most powerful tests, likelihood tests; selected topics in statistics. Prerequisite: MATH 562.

MATH 661 Multivariate Statistical Analysis
3 hrs.
A theoretical treatment of multivariate statistical problems and techniques. Topics include: multivariate normal distribution; quadratic forms; multiple and partial correlation; sample correlation coefficients; Hotelling's T²-statistic; Wishart distribution, applications to tests of the mean vector and covariance matrix; principal components; factor analysis; cluster analysis; discriminant analysis. Prerequisite: MATH 663.

MATH 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. Prerequisite: MATH 562.

MATH 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: MATH 660 and 662 and 510.

MATH 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: MATH 662.

MATH 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: MATH 660.
MATH 660 Nonparametric Statistical Theory 3 hrs.
A theoretical study of nonparametric statistics and robust statistical procedures. Topics may include order statistics, empirical cdfs, M-estimates, rank statistics, optimality considerations, asymptotic distribution theory. Prerequisites: MATH 571 and 660.

MATH 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. Prerequisites: MATH 571, 510 or 530, and one probability course.

MATH 668 Categorical Data Analysis 3 hrs.
Statistical methods for discrete multivariate data and contingency tables will be discussed. The log linear model for two way and higher dimensional tables will be emphasized. Subtopics include: maximum likelihood estimates, iterative proportional fitting, model selection, goodness of fit, logistic models, incomplete tables, symmetry, marginal homogeneity, and conditional independence models. Prerequisite: MATH 662.

MATH 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.

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, Lebesgue and general measure and integration, differentiation and the Radon-Nikodym theorem. Hilbert spaces, Banach spaces, and product spaces and Fubini's theorem. Prerequisites: MATH 520 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, Lebesgue and general measure and integration, differentiation and the Radon-Nikodym theorem, Hilbert spaces, Banach spaces, and product spaces and Fubini's theorem. Prerequisites: MATH 660 and 571.

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, Hilbert spaces; self-adjoint operators, elementary spectral theory. Prerequisite: MATH 677.

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 680 Topics in Statistical Computing 3 hrs.
Study of the computational algorithms used in solving statistical problems. Students will write their own FORTRAN routines as well as drivers and subroutines to implement mathematical and statistical packages. Problems covered include approximating probabilities and quantiles for selected distributions; Monte Carlo studies; least squares computational procedures for linear and nonlinear models such as QR decompositions and iteratively reweighted least squares; and robust estimation processes. Additional topics may include generalized linear models, nonlinear models, and multivariate problems. Prerequisites: CS 306 or CS 201; MATH 662 or MATH 568 and MATH 230.

MATH 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: MATH 660 and MATH 662.

MATH 682 Time Series Analysis 3 hrs.
The theoretical development and practical use of seasonal and non-seasonal ARIMA (Auto-regressive Integrated Moving Average) Box-Jenkins time series models is presented. Identification of correct time series models, estimation of model parameters, and diagnostic checks of identified models will be covered. The use 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, plotting average models, seasonality, invertibility, and Box-Pierce tests. Prerequisites: MATH 660 and MATH 662.

MATH 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 R, M, L, and M-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: MATH 660 and MATH 682.

MATH 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, analysis of models with missing data using Types I, II, III, and IV SAS sums of squares, analysis of large experiments with many crossed and nested factors, and some Taguchi methods. Prerequisite: MATH 684.

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, statistics, 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 689 Studies in Number Theory 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.

MATH 690 Seminar in Applied Mathematics 1-3 hrs.
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 consulting experience from data manipulation and analysis to the design 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: MATH 662 (or concurrent enrollment) and at least one of MATH 563, 566, 567, or 568.

MATH 692 Seminar in Topology 1-3 hrs.

MATH 693 Seminar in Algebra 1-3 hrs.

MATH 694 Seminar in Graph Theory 1-3 hrs.

MATH 695 Seminar in Mathematics Education 1-4 hrs.

MATH 696 Seminar in Probability and Statistics 1-3 hrs.

MATH 697 Seminar in Analysis 1-3 hrs.

MATH 698 Statistical Consulting Internship 2-6 hrs.
The statistical consulting internship program provides a graduate student with the opportunity to work as a member of the staff in the Center for Statistical Services. The student gains considerable experience in all aspects of the consulting experience and the operation of a consulting center. Prerequisite: Consent of Advisor.

MATH 699 Reading and Research 1-6 hrs.
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.

MATH 736 Graduate Research 2-10 hrs.

MATH 739 Doctoral Research 15 hrs.

MATH 749 Mathematics Education Research 1-6 hrs.

MATH 755 Mathematics 69
MEDIEVAL INSTITUTE

Dr. Paul Szarmach, Director
Main Office: 100E Walwood Hall
Telephone: 387-8745
FAX: 387-8750

Professors George Beech, Clifford Davidson, E. Rozanne Elder, Robert Felkel, Otto Grundler, Thomas Sester, Larry Syndergaard, Paul Szarmach, Associate Professors Thomas Amos, Rand Johnson, Paul Johnston, Joyce Kubiski, Matthew Steel, Assistant Professors Deborah Deliyannis, Molly Lynde-Recchia, James Palmistessia, Marline Sauret, Larry Simon.

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. Either as preparation for further doctoral work (Option II) or for a terminal degree (Option III), the program provides students with a broad background in medieval and Renaissance history, languages, literatures, 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 library contains unique collections of early manuscripts and rare books in the field of monastic and Renaissance history and thought. Western Michigan University is the host institution for the annual International Congress on Medieval Studies, and the Medieval Institute Publications 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

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; 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, and Music.

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

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; 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, and Music.

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 Classes. 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
12 hrs.

PHILOSOPHY

Dr. Kent Baldner, Chair
Main Office: 320 Moore Hall
Telephone: 387-4389
FAX: 387-4390
EMAIL: baldner@wmich.edu
URL: http://www.wmich.edu/philosophy

Professors Shirley Bach, Joseph Ellin, Arthur Falk, Janet Pisaneschi, Michael Pritchard, Quentin Smith, Richard Wright; Associate Professors Kent Baidner, Sylvia Culp, John Dilworth, John Hartline, Assistant Professors Insoo Hyun, Timothy McGrew, David Newman.

Master of Arts in Philosophy

Advisors:
Sylvia Culp, Graduate Admissions Officer
Room 321, Moore Hall
Timothy McGrew, Advisor
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 to

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. Sylvia Culp, in the Department of Philosophy for additional information.

Program requirements

The program is 30 credit hours and offers students two options, thesis and nonthesis. Students wishing to go on to a Ph.D. program and a career of teaching and research in philosophy should elect the thesis option.

NON-THESIS OPTION

The student must complete a minimum of 28 hours of courses in philosophy which may include up to 4 hours of course work in other departments, if the Department of Philosophy approves, and an additional 2 hours of PHIL 710, Independent Research for which the student writes a substantial research paper. A faculty committee will assess the student’s work.

THESIS OPTION

The student must complete a minimum of 24 hours of Course work in philosophy, which may include up to 4 hours of Course work in other departments, if the Department of Philosophy approves. The student then elects to write a thesis, if the Department consents, by registering for PHIL 700, Master’s Thesis (6 hrs.).
Philosophy Courses (PHIL)

Open to Upperclass and Graduate Students

Undergraduates with junior or senior status and at least 12 hours of course work in philosophy may enroll in 500-level courses. Specific prerequisites may be added to individual courses.

PHIL 507 The Continental Tradition in Philosophy
2-4 hrs.
An examination of the Continental tradition in philosophy. Topics may vary from term to term. Examples include: phenomenology, existentialism, post-modernism, structuralism, deconstructionism, critical theory, and hermeneutics. Prerequisite: 12 credit hours in Philosophy, including PHIL 301. May be repeated for credit, with advisor's approval, when topics vary.

PHIL 520 Philosophical Applications of Symbolic Logic
3 hrs.
This course is designed to expose graduate students to the range of philosophical applications of modern symbolic logic. Starting with the sentential and predicate calculi, the course explores various extensions which may include algebraic modal logic, deontic logic, tense logic, relevance logic and counterfactuals. In addition, the course will address salient issues in the philosophy of logic and may include an investigation of the logical paradoxes and the controversy surrounding quantified modal logic. Prerequisites: 12 hours of philosophy, including either PHIL 225 or PHIL 320.

PHIL 525 Decision Theory
4 hrs.
Can there be a formal theory of what it is to be rational in one's beliefs and actions? This course is an introduction to decision theory, which claims to be just such a theory of rationality. Attention will be given to both its mathematical development and the issues it raises in the philosophy of science, the theory of knowledge, and action theory. A working knowledge of high school algebra is assumed. Prerequisites: PHIL 220, 225 or 320, and two other courses in philosophy, mathematics (above the level of MATH 110), or computer science (above the level of CS 105).

PHIL 534 Moral and Philosophical Foundations of Health Care
3 hrs.
In this course philosophical reflection and biological science are combined in a critical examination of the nature and purpose of the health sciences. Topics to be considered include: the aims of the health sciences, the interplay of fact and value in health care, computing images of human kind embedded in health science, patient autonomy, dignity and medical paternalism. Prerequisite: 12 credit hours in philosophy and/or biological sciences or experience in a health professional field.

PHIL 540 Philosophy of Mind
2-4 hrs.
A study of the philosophical problems surrounding our understanding of the nature of mind, mental states, and consciousness, and their relation to matter, and states of the brain and/or central nervous system. Possible topics include cognitive science, artificial intelligence, the relation of mind to body and/or behavior, teleological and mechanistic explanations of human behavior, the philosophical foundations of psychology, behaviorism, functionalism, the nature of intentionality, the concept of a person, the privacy of mental states, knowledge of other minds, and questions regarding free will and determinism. Prerequisite: 12 credit hours in Philosophy. May be repeated for credit, with advisor's approval, when topics vary.

PHIL 550 Philosophy of Science
2-4 hrs.
A detailed examination of some of the central problems in contemporary philosophy of science. Topics may vary from term to term. Typical topics include: nature of scientific explanation, theory structure and change, scientific realism vs. various anti-realisms, or issues in the special sciences, e.g., the physical, biological or social sciences. Prerequisite: 12 credit hours in Philosophy. May be repeated for credit, with advisor's approval, when topics vary.

PHIL 560 Philosophy at Pre-College Levels
2-4 hrs.
A content-oriented course that explores topics, reading materials, and ways of approaching them in the teaching of philosophy at the pre-college level. A special emphasis is put on critical and creative thinking.

PHIL 570 Philosophical Topics
1-4 hrs.
An examination of special philosophical topics. Topics to be listed in the Schedule of Classes. Prerequisite: Specific course prerequisites may be stipulated for specific topics and substitutions for philosophy may be allowed. Usually at least one of PHIL 300 or PHIL 301 will be required. May be repeated for credit, with advisor's approval, when topics vary. May be offered in an accelerated format.

PHIL 598 Readings in Philosophy
1-4 hrs.
Research on some selected period or topic under supervision of a member of the Philosophy faculty.

Open to Graduate Students Only

PHIL 600 Colloquium
2-4 hrs.
A seminar in which one or more faculty involve the students in their current research. Topics may vary from term to term.

PHIL 610 Seminar in the History of Philosophy
2-4 hrs.
A close reading and discussion of selected classics written by major philosophers from the ancient, medieval, or modern period. Selections may vary from term to term.

PHIL 620 Philosophy of Language and Logic
2-4 hrs.
An examination of the 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 630 Seminar in Ethics and Value Theory
2-4 hrs.
A study of theories of value and duty, with special emphasis on applications. Topics may vary from term to term.

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, epistemological 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: 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

PHYSICS 71

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 the three areas:

1. Theoretical physics—for example, astrophysics, atomic physics, nuclear structure, nuclear reactions, and condensed matter.
2. Experimental physics—for example, astronomy, atomic physics, nuclear physics, condensed matter physics, and materials analysis and accelerations. Equipment available for experimental research includes a 6 MV model EN tandem Van de Graaff accelerator and associated electronics and computers.
3. Computer and instrumentation physics, including the use of VAX and MicroVAX computers and assorted microprocessor-based computers.
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 Seminar, PHYS 622, Quantum Mechanics I, PHYS 624, Statistical Mechanics, PHYS 630, Classical Mechanics, and PHYS 662. These credits are composed of course work, supervised reading, seminars, and research. The research will be performed under the guidance of a research advisor and must culminate in a dissertation suitable for publication. The required, minimum 60 hours of graduate credit shall consist of the following:

   - A core of two classes listed below (15 credit hours).
   - Physics 730 Doctoral Dissertation (15 credit hours).
   - Additional courses chosen from:
     - a. Research courses (PHYS 680, 681, or 682)
     - b. Courses mutually agreed upon by the student and the graduate advisor or the research advisor.

4. An overall grade point average of 3.25 in all graduate work.

Basic Core Courses:

- PHYS 610 Research Seminar
- PHYS 615 Mathematical Physics
- PHYS 622 Quantum Mechanics I
- PHYS 623 Quantum Mechanics II
- PHYS 624 Statistical Mechanics
- PHYS 630 Classical Mechanics
- PHYS 662 Electricity and Magnetism I
- PHYS 663 Electricity and Magnetism II
- and one (1) of the following:
  - PHYS 670 Atomic Physics
  - PHYS 671 Nuclear Physics
  - PHYS 672 Condensed Matter Physics

The research tool requirements must be met by demonstrating competency in two of the following: (1) Professional exam 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) 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 content of the five core courses. This examination is written examination; however, if deemed necessary for a more precise judgment, the student may be required to take an additional 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 this 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, of 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 the agreement from his or her research advisor, the student will select a dissertation committee. This committee will consist of the research advisor and 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 project and 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 committee 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.

Physic Courses (PHYS)

Open to Underclass and Graduate Students

The department's 500-level courses are offered only to advanced physics majors who have successfully completed all prerequisite studies.

PHYS 562 Atomic and Molecular Physics 3 hrs.

This course consists of some applications of quantum mechanics. Topics include the helium atom, multielectron atoms, the Raman, Zeeman, and Stark effects, stimulated emission, transition rates, selection rules, the atomic 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
This course deals with the Dirac and quantum mechanics are discussed. Hamilton-Jacobi theory are introduced, and modifications of classical mechanics required the course and are used in the analysis of both point-mass and rigid-body problems. The and macroscopic properties are emphasized.

Lagrange's equations are developed early in development and applied to selected problems and one-electron atom and potential scattering.

This course is a continuation of 622. It employs advanced work in the physics and chemistry of interest in physics and chemistry. The Lagrange's equations are developed early in development and applied to selected problems and one-electron atom and potential scattering.

This course is designed to provide a foundation of fundamental techniques for more advanced work in the physics and chemistry of interest in physics and chemistry. The Lagrange's equations are developed early in development and applied to selected problems and one-electron atom and potential scattering.

This course is available for students performing doctoral research in atomic physics. A student must have a research advisor to enroll in PHYS 660. This course may be taken more than once. Prerequisite: PHYS 623 or consent of instructor.

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.

This course covers atomic structure, atomic radiation and matter, resonance phenomena, 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.

This course affords an opportunity for advanced students with good scholastic records in physics to pursue independently the study of some subject of interest to them. Prerequisite: Consent of instructor.

Open to Graduate Students Only

PHYS 610 Research Seminar
1 hr.
This is a required course for the first-year graduate students and will be offered every winter semester. The course consists of faculty research talks and student talks (one by each student) on papers chosen by the students and approved by the faculty members. This 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 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.

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.

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.
Lagrang'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 electro weak interaction of elementary particles.

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 multiple 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.
NON-THESIS OPTION

1. Thirty hours of graduate credit in Political Science. With written approval of the graduate advisor, 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, or PSCI 602, Foundations of American Politics II; or PSCI 641, Comparative Politics I; or PSCI 542, 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; PSCI 664, The Nature of Political Inquiry and Analysis; PSCI 694, Teaching Political Science; and PSCI 696, Qualitative Studies.

3. Pass written and oral field examinations on the student's political science program.

Master of Development Administration

MDA Director:
Lawrence Ziring,
Room 3356, Friedmann Hall

The Master of Development Administration (MDA) program is designed to prepare candidates for careers in international development and to meet the specialized needs of public administrators from the developing countries. The course of instruction has as its focus the political dimensions of development and democratization and includes a strong multidisciplinary component that draws from public administration, economics, computer science, business and management, social work, human resources and health delivery systems, and international leadership.

The program is designed for two types of students: Public administrators and officials from developing countries who require additional training to assume 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 organizations, or international organizations.

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 international organizations, or have worked with a variety of governments on development projects.

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 attainments for satisfying some of the 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, where 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 submit them through the WMU Graduate Admissions Office. The Department of Political Science also requires three recommendations (using WMU Graduate Reference Form), a copy of the student’s transcript, a statement of the student’s interest in the MDA program, and any other supporting data that can assist the Department’s Admissions Committee. 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 foreign students whose English language capabilities are limited.

Students are encouraged to submit all required application materials by June 15 for the fall semester; by September 15 for the winter semester; and by February 15 for the spring session.

Program requirements

The Master of Development Administration is a professional degree that requires forty-two semester hours of graduate courses. Up to six hours may be waived for those with extensive administrative experience. To earn the MDA degree, students must maintain a minimum "B" average (GPA 3.0 on a 4.0 scale) in all courses. Students must complete the program in 20 months. 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 an equivalent course 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 Developmental Policies;
   - PADM 610, Human Resources Administration; and
   - PADM 538, Organization Theory and Behavior.

3. Tools or Skills. Three courses (9 hours):
   - PADM 621, Program Administration
   - PADM 629, Supervisory Skills for Administrators
   - PADM 638, Seminar: Implementing Strategies of Development
   - PADM 649, Sustainable Rural Development
   - PADM 659, Second World Problems
   - PADM 662, Evaluation of Human Resources Administration
   - PADM 679, Seminar: Controlling Problems

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 may be selected with the approval of the MDA Director.

a. Leadership—the Standard Concentration
   - PSCI 644, Comparative Strategies of Development;
   - PSCI 649, Sustainable Development;
   - PADM 655, Managing Economic Development;
   - PADM 626, Administrative Law and Governmental Relations;
   - PADM 630, Administrative Analysis;
   - PADM 632, Policy Leadership in Administration;
   - PADM 636, Exercise of Power in Organizations;
   - PADM 599, Reinventing Government;
   - COM 673, Conflict Management; and
   - ECON 683, Power and Leadership in Organizations, or
   - EDDL 602, Educational Leadership.


c. Health and Human Services: PADM 651, Health Services Environment; PADM 655, Administration of Health Services; PADM 678, Program Evaluation; PADM 679, Seminar; PADM 680, Current Issues in Health Service Management and Delivery; HHS 561, Problem Solving in Health and Human Service Organizations; and
   - PADM 643, Leadership and Management in Human Services.

d. Urban and Rural Studies: PSCI 607, Resources, Environment and Technology; PSCI 640, Seminar in Comparative Politics; PSCI 645, Sustainable Rural Development; GEOG 544, Studies in Economic Geography; GEOG 553, Water Resources Management; GEOG 555, Contemporary Issues in Resources Management; GEOG 556, Studies in Urban and Regional Planning; or GEOG 670, Cities and Urban Systems; and
   - PADM 501, 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:
Chester B. Rogers,
Room 3356, Friedmann 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 write 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 coursework 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 or 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 in their first semester.

The doctoral program requires a minimum of 90 credit hours of work beyond the baccalaureate. After successfully completing 30 hours in the program and passing the preliminary examinations based upon one of three two-course sequences: Political Theory and Philosophy (PSCI 652 and PSCI 653) or American Politics (PSCI 601 and PSCI 602) or Comparative Politics (PSCI 641 and PSCI 642) in order to continue in the program.

Research area. After passing the preliminary examinations and completing the basic requirements, students will select their research area (either citizen politics; political theory and philosophy; comparative politics; or one foreign language), and electives.

Language requirements and research skills. All doctoral program students are required to demonstrate mastery of two foreign languages or one foreign language and either research methodology or statistics.

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; political theory and philosophy.

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, or who have obtained prior approval of the department chair, may enroll in 500-level courses.

PSCI 506 Problems of American Government 3-4 hrs.

A critical examination of major problems facing national, state, or local government with emphasis upon the executive branch and judicial review. Students must pass a preliminary examination and complete the course with a grade of B or better. May be repeated for credit when topics vary.

PSCI 526 Administrative Law and Public Regulation 3 hrs.

A study of the requirements for, and the limits on, the exercise of administrative powers by public officials charged with regulating significant aspects of the social and economic life of the nation. Special attention is paid to governmental regulation and the means of safeguarding individual rights through fair administrative procedures and judicial control over administrative determinations. Prerequisite: PSCI 200 or a course in Economics.

PSCI 530 Problems in Public Administration 3-4 hrs.

Consideration of issues and problems of current interest in the field of public administration. The course is intended to provide advanced work for undergraduates and to serve as an introduction to the field for graduate students without previous training in public administration.

PSCI 531 Administration in Local and Regional Governments 3 hrs.

The administrative organization, structure, procedures, and forms 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 formal organizations, decisional theories, and systems theories will be analyzed.

PSCI 535 The Politics of Governmental Budgeting and Finance 3 hrs.

An examination of processes of political change in Russia in areas of policy and structure. The course relates the Soviet and Russian experience to the literature on political change and theories of comparative politics.

PSCI 544 Political Change in Russia 3 hrs.

An examination of processes of political change in Russia in areas of policy and structure. The course relates the Soviet and Russian experience to the literature on political change and theories of comparative politics.

PSCI 549 Problems of Foreign Political Systems 3-4 hrs.

Course will consider selected problems of the governments and political systems of Western and Eastern Europe, Asia, Africa, and Latin America. The course will be designed to understand or solve such problems. May be repeated for credit when topics vary.

PSCI 552 Studies in International Relations 3-4 hrs.

Examine selected topics within the field of international relations. Topics will vary and will be announced each semester. May be repeated for credit when topics vary.

PSCI 553 United Nations 3 hrs.

A study of the United Nations in action. Attention is focused on significant political problems confronting world organization, i.e., functional and dysfunctional aspects of the UN; nationalism vs. internationalism; conflict resolution and UN peace-keeping efforts; specific UN accomplishments in maintaining a dynamic international equilibrium, UN weaknesses and the future of world organization.

PSCI 555 International Law 3 hrs.

The theory, sources, development, and general principles of international law, and the relationship of law to the dynamics of international politics. Decisions of international and municipal tribunals and the practices of states are used to examine both system and state behavior. 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 critique of these theories emerging from modern social science, particularly 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.

PSCI 563 Theories of Revolution 4 hrs.

Examine significant classical and contemporary theories of revolution with reference to both their analytical and normative implications.

PSCI 598 Studies in Political Science 1-4 hrs.

An opportunity for advanced students with good scholarly records to pursue independently the study of some subject of
When topics vary.

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.
This 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, ideology, 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.
This course provides a graduate-level introduction to American public policy. The focus of this course is on the stages or elements of the policy process as a means of analysis. While this approach has traditionally included policy formation, implementation and evaluation, it is expanded to include policy studies and other important theoretical aspects of public policy. Consequently, the course will attempt to provide a synthesis between classical and behavioral political science.

PSCI 605 Comparative Public Policy
3 hrs.
This 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 genetically engineered species) will be used to illustrate the dilemmas they create for policy makers at all levels.

PSCI 630 Seminar: Public Administration 1-3 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.
This course examines the interaction between the administrative agency and the social, economic, and political forces which constitute its external environment. Emphasis is placed on 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 636 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 bureaucracy 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 637 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 638 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 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 influence 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 affairs in both the materially developed and less developed areas of the world.

PSCI 644 Seminar: Comparative Strategies of Development
3 hrs.
The course focuses on the development areas and uses an interdisciplinary approach. The strategies of development are examined in selected countries or typically on a cross-national basis.

PSCI 645 National Political Systems and International Politics
3 hrs.
The course explores the interrelationships between national and international politics. Efforts are made to describe and explain variances and discontinuities between national policy and a country's international posture. Subjects to be explored focus on political culture, mechanisms for addressing popular demands, political movements, ideologically/philosophical conflict and external commitment.

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 foundations of representative political systems and evaluates the impact of basic constitutional provisions on contemporary governance practices.

PSCI 649 Sustainable Rural Development
3 hrs.
A seminar concerning changing perceptions of rural development in the academic world and in national and international development agencies. The links between rural development, agriculture, food security, health, population pressures, and resource
agencies, etc.), and basic descriptive surveys, interviews, archives, government statistics. 3 hrs.

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 department's research agenda; familiarity with the state of the discipline; overcoming common writing problems faced by professionals; demystifying certain professional activities such as conference participation, abstract submission and grant writing; familiarization with departmental 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 grantees, 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

Graduate Training Committee Chairperson: Wayne Fuqua, 3200 Wood Hall Linda Rowen, Program Secretary 3200 Wood Hall

The Department of Psychology has a strong scientific and behavioral 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 the Conduct of Research in Psychological Settings at WMU" and "Humane Care and Use of Laboratory Animals," published by Western Michigan University; and "Standards of Conduct or Professional Psychology," 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 fulfilment 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 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.

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.

Availability

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 690 Seminar in Advanced Political Analysis 3 hrs.

Variable topics in advanced political analysis and research methods are addressed. Topics may include time-series analysis, experimental design, formal methods, game theory, and comparative methods. May be repeated for credit when topics vary. Prerequisite: Permission of the instructor.

PSCI 691 Political Analysis I 3 hrs.

Introduction to the research process in political science including research design, sampling and case selection, sources of data (e.g., surveys, interviews, government agencies, etc.), and basic descriptive statistics.

PSCI 692 Political Analysis II 3 hrs.

The application of statistical and mathematical models to the analysis of political data with emphasis on methodological assumptions and problems; correlation, analysis of variance, and simple and multiple regression. Prerequisite: PSCI 691 or equivalent.

PSCI 694 Teaching Political Science 1 hr.

This course addresses the basics of teaching in higher education: class preparation, leading discussions, classroom policies, university policies, classroom management, dealing with problem situations, and basic teaching skills, among others.

PSCI 695 Teaching Excellence 2 hrs.

This course introduces advanced graduate students and teaching assistants to ideas, information and methods that are innovative and encourages them to approach teaching in a way that goes beyond the traditional lecture format. Critical thinking exercises, group projects, project-oriented learning, portfolio learning, computer-aided instruction and computer simulations are possible topics.

Recent research on the nature of the learning process, both among late adolescents and adults, will also be included. Graded on a Credit/No Credit basis. Prerequisite: PSCI 694.

PSCI 696 Research and Professional Skills 2 hrs.

Goals in this course include acquaintance with the department's research agenda; familiarity with the state of the discipline; overcoming common writing problems faced by professionals; demystifying certain professional activities such as conference participation, abstract submission and grant writing; familiarization with departmental 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 grantees, 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. Howard Farris, Chair
Main Office: 3200 Wood Hall
Telephone: 387-4500
FAX: 387-4500


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.
78 COLLEGE OF ARTS AND SCIENCES

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, quantitative, and analytical 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 February 1.

It is the policy and commitment of the Department of Psychology not to discriminate on the basis of race, sex, age, color, national origin, height, weight, marital status, sexual orientation, religion, handicap, or Veteran status in its educational programs, student programs, admissions, or employment policies. The Department of Psychology complies with all requirements of Title VII of the Civil Rights Act of 1964, Title IX of the 1972 Amendments, Executive Order 11246 as amended, and Section 504 or the Rehabilitation Act of 1973, and all other pertinent state and federal regulations.

Program requirements

BEHAVIOR ANALYSIS

Advisor: Alan Poling, Behavior Analysis Program Chair 3200 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. Behavior 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
2. PSY 689 Practicum
3. PSY 651 Systems Analysis
4. PSY 665 Behavioral Approaches to Treatment
5. PSY 666 Analysis and Treatment of Developmental Disabilities
6. PSY 697 Behavior Analysis Master’s Project or PSY 700 Master’s Thesis (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

Advisor: Alyce Dickinson, Industrial/Organizational Psychology Program Chair 3200 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/Organizational Psychology Core (9 hrs.)
2. Behavior Principles (3 hrs.)
3. Behavior Systems Analysis (6 hrs.)
4. Methodology (6 hrs.)
5. Research Methods and Applications (6 hrs.)
6. Elective Cognates (6 hrs.)
7. A master’s thesis is required of persons planning to pursue a Ph.D. degree, while those with a professional orientation select a research project (3 hrs.) and a professional practicum (3 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 Psychology program. 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 program and receive the Master of Arts only within that sequence. That master’s program requires a minimum of thirty-five credit hours.

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 methods 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 professional programs.

The program emphasizes the learning characteristics of mainstream and exceptional children as well as critical 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-hour 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 must 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 February 1.

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.

Experiences with children and educational staff in school settings, course work in education or psychology, 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.)
EXPERIMENTAL ANALYSIS (84 hrs.)

Advisor: Alan Poling, 3200 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 (91 hrs.)

Advisor: Howard Farris, 3200 Wood Hall

1. Professional Core (3 hrs.)
2. Foundations in Psychology (18 hrs.)
3. Methodology (6 hrs.)
4. School Psychology Core (24 hrs.)
5. Special Education (6 hrs.)
6. School Psychology Practicum and Field Experience (8 hrs.)
7. Pre-doctoral Internship (2 hrs.)
8. Specialist Project (6 hrs.)
9. Dissertation (15 hrs.)
10. CECP 607 (3 hrs.)

CLINICAL PSYCHOLOGY (96 hrs.)

Advisors: Richard Spates, 3200 Wood Hall
Alison Levine, 3200 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. Theses (6 hrs.)
7. Dissertation (15 hrs.)
8. Practicum and Internship (21 hrs.)
9. Research Tools (12 hrs.)

The research activity of the doctoral student is continuous and is encouraged through participation in the apprenticeship 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. Specific tool requirements differ by program; the adviser 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 credit, demonstration of competence in two research tools, satisfactory completion of comprehensive examination, and the oral defense of the dissertation before the student's doctoral committee at a public presentation.

The Department of Psychology offers financial assistance through Department assistantships and program fellowships. Additional information concerning financial awards and program requirements may be obtained from the Department office.

Psychology Courses (PSY)

Open to Upperclass and Graduate Students

All 500-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 330 and PSY 360. Exceptions to this requirement must be approved by the course instructor.

PSY 510 Advanced General Psychology 3 hrs.
Readings, lecture, and discussion designed to introduce students to modern behavior theory. Emphasis will be upon human behavior, both normal and abnormal, with a significant portion of the course devoted to the higher cognitive processes. Recommended as a cognate course in psychology. Recommended prerequisite: One prior course in psychology.

PSY 511 Research in Animal Behavior 3 hrs.
A review of the research literature in several areas of animal behavior. Particular emphasis will be placed on species-specific behaviors and their ecological significance, and forms of learning which are not easily explained by operant and respondent models.

PSY 517 Psychology of Learning for Teachers 3 hrs.
Designed to teach the principles of behavior and the application of these principles to teaching. Topics include the use of behavior principles in the development of objectives, selection and preparation of instructional material, classroom management and incentive motivation, behavior change, performance contracting and program evaluation; Practical application is stressed.

PSY 518 Stimulus Control and Perceptual Processes 3 hrs.
An examination of the literature surveying sensory and perceptual processes with an emphasis upon the research methodology in and theoretical interpretation of data from studies of stimulus control and discrimination in nonhuman organisms. Prerequisite: Twelve hours of psychology or permission of instructor.

PSY 519 Corrective and Remedial Teaching 3 hrs.
An introduction to and survey of various content skills; curriculum approaches, and special teaching techniques used in elementary school reading and mathematics instruction. Designed primarily for prospective school psychologists, focus is on academic skill content, sequencing of skill hierarchies, devising short term educational plans to teach specific skills, and evaluating the effectiveness of such plans. Graduate standing in psychology, education, or permission of instructor.
PSY 524 Human Sexuality
3 hrs.
Discussion of those human behaviors concerned with sex, sexuality, and reproduction. Consideration is given to the anatomical, physiological and psychological properties of sexual functioning in male and female. Emphasis is placed upon the sexual response cycle as described by Masters and Johnson. The course is not intended to provide therapy training.

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 535 Instrumentation and Computer Use in Psychology
3 hrs.
A survey of problems in response measurement in experimentation. Lecture and laboratory. May be repeated for credit.

PSY 560 Behavioral Medicine
3 hrs.
Application of behavioral technology to medical patients with emphasis on inpatient treatment. Topics may include biofeedback, pain control, compliance with medical regimen, and issues related to working in a medical setting.

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 578 Research Practicum: Developmentally Disabled Population
3 hrs.
Supervised experience at the Croydon Avenue School which offers an educational program for the developmentally disabled. This course involves a variety of problems in behavior change and learning which can be studied at the school. The research problems are carefully selected to be beneficial to the client and to provide appropriate experience for the student. Data collection and report writing are stressed. Prerequisite: PSY 570 or concurrent enrollment.

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.
An survey and discussion of selected research topics of current interest. Topics may include both basic science and applied aspects of the discipline. Permission of instructor. Courses may be repeated for credit, although the total number of credits may be limited by the degree program. Students should consult the program advisor.

PSY 598 Special Projects in Psychology
1-5 hrs.
This course provides the graduate student with the opportunity for independent reading and/or research under the direction of a faculty member. Graduate standing and permission of instructor. May be repeated for credit, although the total number of hours in a degree program may not exceed five.

PSY 599 Practicum in Psychology
1-4 hrs.
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 Classes. Each one hour of credit requires 100 clock hours. May be repeated for credit, although number of credits may be limited by program requirements. 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 decision making measures for practice. Additional areas covered will compare and contrast traditional psychometric considerations with behavioral assessment concerns, examine the latest version of the diagnostic and statistical manual of the DSM and behavioral assessment, address 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. Problems characterized by these theoretical models will be outlined. Client populations most suited treated by the various systems will also be identified. Considerable emphasis will be devoted to comparing and contrasting a radical behavioral model with alternative conceptual schemes. Emphasis will be placed on theoretical, 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.

PSY 603 Introduction to Professional Issues
1 hr.
This course is designed to introduce the student of professional psychology to many of the professional and ethical standards as well as contemporary issues affecting practice. Covered will be topics concerning the American Psychological Association's Ethical Standards for Psychological Services, Ethical Principles for Psychological Services, and Professional Training, and Ethics in Research and Practice. Students will develop an appreciation for the contemporary complexity of the field as it pertains to professional practice and related activity. This content will be addressed through course reading and lectures, as well as special projects conducted by students.

PSY 608 Research Methods in Applied Behavior Analysis
3 hrs.
This advanced course on research methods in behavior analysis addresses research with human and nonhuman subjects, placing an emphasis on applied human research. Research issues and specific research methods are discussed at philosophical, strategic, and practical levels. Research decision is placed within the context of the philosophy of science underlying all scientific research endeavors. Topics include: the mission of science; behavioral assessment and measurement; experimental design, with emphasis on single-subject designs; analysis and interpretation of data; dissemination of scientific research; and, ethical issues in research. Students demonstrate their mastery of research issues through the proposal of a research project. Prerequisites: Courses in applied behavior analysis and previous or concurrent enrollment in PSY 530, PSY 634, or the equivalent.

PSY 609 Advanced Seminar in Applied Behavior Analysis Research
3 hrs.
An advanced course emphasizing: a) research, conceptual and professional issues in applied behavior analysis; b) review, integration and critical analysis or research topics in psychology. Prerequisites: Previous enrollment in PSY 608 and permission of instructor.

PSY 610 Conditioning and Learning
3 hrs.
This course examines conditioning and learning from the perspective of the experimental analysis of behavior. Emphasis is placed on basic laboratory research procedures and findings.

PSY 611 Current Research in Experimental Analysis
3 hrs.
This course examines basic research areas of current interest to behavior analysts. A central component of the course is detailed consideration of articles published in the Journal of the Experimental Analysis of Behavior. Prerequisite: PSY 610.

PSY 612 Advanced Physiological Psychology
3 hrs.
A survey of the interrelationships of physiological and behavioral processes. Lecture and laboratory. Prerequisite: Permission of instructor.

PSY 613 Behavioral Pharmacology
3 hrs.
This course examines drug effects from a behavior-analytic perspective. Emphasis is placed on general mechanisms of drug action, variables that modulate drug effects, strategies for studying those effects, and the behavioral actions of commonly encountered drugs. Prerequisite: PSY 610.

PSY 614 Motivation and Emotion
3 hrs.
An introduction to the experimental analysis of psychological aspects of motives, incentives, and emotions. Prerequisite: Permission of instructor.

PSY 620 Analysis of Abnormal Behavior
3 hrs.
An advanced study of behavioral disorders as characterized by the standard classification systems, the DSM-III-R and ICD-9-M, with respect to their etiology, prognosis and treatment.

PSY 624 Personality Theory
3 hrs.
Consideration and evaluation of the major theories of personality with emphasis on those theories having implications for counseling.
and therapy. The course includes an examination of experimental evidence and illustrative case studies.

PSY 634 Advanced Statistics 3 hrs.
Topics include statistical decision theory, one factor analysis of variance, multiple comparison procedures, factorial designs, randomized block designs, fixed, random and mixed models, and basic issues in experimental design. Prerequisite: PSY 530 or equivalent.

PSY 635 Correlation and Regression Analysis 3 hrs.
An advanced course covering simple and complex correlation and regression, analysis of covariance, and related topics. Prerequisite: PSY 634 or equivalent.

PSY 636 Experimental Design 3 hrs.
A study of true and quasi experimental designs, comparisons of single organism and group designs, consideration of artifacts and interpretation, and comparisons of statistical and non-statistical designs. Prerequisites: PSY 634 and 635.

PSY 637 Advanced Data Analysis 3 hrs.
Advanced procedures for the analysis of single subject and group experimental designs, including several variants of time series and analysis of covariance. Prerequisites: PSY 634 and 635.

PSY 640 Industrial Psychology 3 hrs.
This course covers recent applications of behavior analytic strategies in organizational settings. Specific OBM techniques are reviewed and analyzed in behavioral terms. The goal is to train students to solve problems in organizations using a variety of techniques applies in a functional manner. Prerequisites: PSY 360 and 510, or permission of instructor.

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 personnel selection and placement instruments. Prerequisite: An undergraduate course in statistics.

PSY 644 Personnel Training and Development 3 hrs.
The course emphasizes the principles of learning as well as techniques and administrative procedures used in the development of human resources at all levels.

PSY 645 Psychology of Work 3 hrs.
This course is an advanced course designed 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 646 Advanced Organizational Behavior Management 3 hrs.
This course is designed to familiarize the student with current concepts in the field of Organizational Behavior Management (OBM) and to teach the skills necessary to translate basic research findings into a form that facilitates practical application. Laboratory and controlled field research will be reviewed and principles derived from this research will be applied to current practical problems in organizational settings. Prerequisites: PSY 610, PSY 645, and PSY 651.

PSY 650 Professional Issues in Psychology 3 hrs.
This course covers professional and ethical issues, including the American Psychological Association code of ethics, ethical issues in the conduct of research with human and nonhuman subjects; intrusive, restrictive, and aversive interventions; licensure; and career and professional development.

The application of systems analysis concepts to the design of systems which yield behavioral measures of complex social situations. Prerequisite: PSY 650 or permission of instructor.

PSY 652 Advanced Systems Analysis 3 hrs.
An advanced course stressing integration of behavior analysis and systems analysis applied to the design, creation, and management of human performance systems. Students analyze complex systems, propose alternative systems, and develop objective measures to determine whether organizational systems are consistent with and effectively contributing to the organization’s mission, goals and objectives. Prerequisite: PSY 651 or permission of instructor.

PSY 655 Seminar in School Psychology 3 hrs.
A seminar devoted to current professional practices in School Psychology. Focus is on studying various model systems for delivery of special services in the schools, as well as the various legal, ethical, and practical constraints on operation of such systems. Techniques of system analyses and synthesis are covered as well as various methods employed to implement or facilitate operation of new school programs.

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 the applications, theory and clinical literature of behavior therapy. This course is to be taken concurrently with PSY 669. 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 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 techniques and 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 techniques of a cognitively-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 dramatically brain injured.

PSY 669 Child Behavior Therapy 3 hrs.
An introduction to behavioral clinical approaches to emotional, social, and behavioral problems of childhood. 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 normal human beings. However, the course also continually stresses the relevance of these
Intelligence Scale (1972). McCarthy Scales of Children's Abilities (1972). Peabody Picture Vocabulary Test, Bayley Scales of Infant Development, ITTPA, Columbia Mental Maturity Scale, WPPSI, WISC-R, and WAIS. Prerequisites: PSY 601 or equivalent and graduate program status. Not open to students completing PSY 683.

PSY 683 Norm Reference Testing: Interpretation and Administration 4 hrs.
A combined lecture and laboratory in individual assessment. Lecture focuses on basic psychometric concepts directly related to test administration and interpretation, as well as behavioral concepts and operational analyses of performance on specific test items, development of written personalized educational programs from collected assessment data, and writing of clear and useable reports. Recent issues in the intelligence controversy are also covered. Laboratory focuses on supervised experience in administering, scoring, interpreting, and developing short term educational plans using selected batteries of standardized individual assessment techniques but not limited to Stanford-Binet Intelligence Scale (1972). McCarthy Scales of Children’s Abilities (1972). Peabody Picture Vocabulary Test, Bayley Scales of Infant Development ITTPA, Columbia Mental Maturity Scale, WP-PSI, WISC-R, and WAIS. Prerequisites: PSY 601 and graduate program status in school or clinical psychology or permission of instructor. Not open to students completing PSY 682.

PSY 684 Personality Assessment: Projective 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 Criterion Referenced Assessment 3 hrs.
A combined lecture and laboratory course covering theory and applications of concepts related to criterion or norm referenced behavioral assessment. Supervised experience in administering, scoring, and interpreting selected formal and informal criterion referenced assessment systems, as well as developing personalized intervention plans with the collected data. Focus is on academic and social behavior, including but not limited to, reading, language, mathematics, writing, spelling, fine and gross motor, social and self-help skills. Formal systems include: SRA Diagnostic Aids, reading and math. Pupil Record of Educational Behavior, Basile (basic educational skills inventory) Criterion Test of Basic Skills, Assessment of children’s language competency, Basic Concept Inventory, Key Math, and Woodcock Reading Mastery Test. Prerequisites: Graduate standing in school psychology, education, or permission of instructor; PSY 519.

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, task analysis, 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 600.

PSY 690 Behavioral Approaches to Training and Education 3 hrs.
This course addresses selection and use of text 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 is responsible for the design, execution, and evaluation of a college course section involving undergraduate students.

PSY 696 Systematic Psychology 3 hrs.
An intensive study of current theories in psychology with emphasis on the philosophy of science and the logic of system building.

PSY 697 Advanced Topical Studies in Psychology 2-4 hrs.
An in-depth examination, discussion, and survey of selected research and/or professional topics. Permission of instructor. May be repeated for credit, although the total number of credits may be limited by the degree program. Students should consult the program advisor.

PSY 698 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.

PSY 700 Master’s Thesis 2-12 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 1-4 hrs.
PSY 732 Doctoral Clinical Internship 1-4 hrs.
PSY 735 Graduate Research 2-10 hrs.
The Master of Public Administration (MPA) program provides advanced practitioners-oriented education to in-career professionals and pre-career students who aspire to positions of administrative leadership in public and nonprofit organizations. The MPA seeks to enhance the capacity of its graduates to be responsible public leaders who pursue democratic values, foster ethical behavior, and integrate theory and action to effective administrative practice. Program content emphasizes the administration of local, regional, and state government agencies; health care organizations, and other public and nonprofit agencies. Reflecting the multi-disciplinary nature of the field, the MPA draws upon the adverse talents of academic departments throughout the University in addition to the faculty of the School of Public Affairs and Administration. The MPA is offered on the main campus in Kalamazoo, and at the University's regional campuses in Lansing, Grand Rapids, and Battle Creek.

Admission requirements

Applicants to the MPA program must meet the following minimum requirements: an undergraduate degree from an accredited college or university with an overall grade point average of at least 3.0 on a 4.0 scale. Students with a minimum GPA of 2.5 who complete at least two years of undergraduate study may be considered for probationary admission. In addition, applications are reviewed by the MPA Admissions Committee in the School of Public Affairs and Administration. Admission is competitive and consideration is based on undergraduate grade point average, work experience, letters of recommendations, career goals, and personal interviews. The MPA Admissions Committee meets in March, July, and November of each year to consider applications for the following term.

Program requirements (42 hours)


Statistics and Quantitative Methods (3 hours): PADM 628 Statistical Applications in Administration, PSCI 530 Statistics for the Behavioral and Health Sciences, GEOG 568 Quantitative Methods. Applied Research Methods (3 hours): PADM 622 Applied Research Methods; PADM 678 Program Evaluation; EDDL 640 Introduction to Research. Special Topics (3 hours): PADM 599 Topics or another PADM special topics elective, PADM 634 Special Issues Workshops (1 hour each).

Area of Concentration (9-12 hours)
The Area of Concentration allows MPA students to focus on academic courses that focus on specific interests and needs. MPA students select a three (to four) course concentration which focuses on a particular area of administrative skill or practice. Students must select from course lists developed for frequently chosen concentrations or, with the help of an advisor, design their own from a variety of courses offered by the School of Public Affairs and Administration or by other departments in the University. A commonly selected area of concentration is health care administration (the requirements are listed below), but additional concentrations may be selected by students from nonprofit leadership and administration, local government administration, state agency administration, regional planning and economic development, human resource administration, organization behavior, and change.

The 12-hour Health Care Administration (HCA) concentration is composed of four, three-hour courses: one course from each of AREAS I, II, and III, and one course selected from either AREA IV or V. No more than three of these courses (or nine of the twelve hours required for the certificate) may be from any one college. MPA candidates completing the concentration in addition to all other degree requirements will have "Health Care Administration" noted on their official transcript.

Public Affairs and Administration

Dr. Ralph Chandler, Director
Main Office: 220E Walwood Hall
Telephone: 387-8930
FAX: 387-8935

Professors: Ralph Chandler, Peter Kobrak; Associate Professors: Susan Hannah, Kathleen Reding; Assistant Professors: Barbara Liggett, Robert Peters, James Visser; Instructor: Todd Dicker

The Master of Public Administration (MPA) provides advanced practitioners-oriented education to in-career professionals and pre-career students who aspire to positions of administrative leadership in public and nonprofit organizations. The MPA seeks to enhance the capacity of its graduates to be responsible public leaders who pursue democratic values, foster ethical behavior, and integrate theory and action to effective administrative practice. Program content emphasizes the administration of local, regional, and state government agencies; health care organizations, and other public and nonprofit agencies. Reflecting the multi-disciplinary nature of the field, the MPA draws upon the adverse talents of academic departments throughout the University in addition to the faculty of the School of Public Affairs and Administration. The MPA is offered on the main campus in Kalamazoo, and at the University's regional campuses in Lansing, Grand Rapids, and Battle Creek.

Admission requirements

Applicants to the MPA program must meet the following minimum requirements: an undergraduate degree from an accredited college or university with an overall grade point average of at least 3.0 on a 4.0 scale. Students with a minimum GPA of 2.5 who complete at least two years of undergraduate study may be considered for probationary admission. In addition, applications are reviewed by the MPA Admissions Committee in the School of Public Affairs and Administration. Admission is competitive and consideration is based on undergraduate grade point average, work experience, letters of recommendations, career goals, and personal interviews. The MPA Admissions Committee meets in March, July, and November of each year to consider applications for the following term.

Program requirements (42 hours)


Statistics and Quantitative Methods (3 hours): PADM 628 Statistical Applications in Administration, PSCI 530 Statistics for the Behavioral and Health Sciences, GEOG 568 Quantitative Methods. Applied Research Methods (3 hours): PADM 622 Applied Research Methods; PADM 678 Program Evaluation; EDDL 640 Introduction to Research. Special Topics (3 hours): PADM 599 Topics or another PADM special topics elective, PADM 634 Special Issues Workshops (1 hour each).

Area of Concentration (9-12 hours)
The Area of Concentration allows MPA students to focus on academic courses that focus on specific interests and needs. MPA students select a three (to four) course concentration which focuses on a particular area of administrative skill or practice. Students must select from course lists developed for frequently chosen concentrations or, with the help of an advisor, design their own from a variety of courses offered by the School of Public Affairs and Administration or by other departments in the University. A commonly selected area of concentration is health care administration (the requirements are listed below), but additional concentrations may be selected by students from nonprofit leadership and administration, local government administration, state agency administration, regional planning and economic development, human resource administration, organization behavior, and change.

The 12-hour Health Care Administration (HCA) concentration is composed of four, three-hour courses: one course from each of AREAS I, II, and III, and one course selected from either AREA IV or V. No more than three of these courses (or nine of the twelve hours required for the certificate) may be from any one college. MPA candidates completing the concentration in addition to all other degree requirements will have "Health Care Administration" noted on their official transcript.
Program requirements
Each student will satisfactorily complete a program totaling six three-credit-hour courses (18 hours). Students select one course from each of Areas I, II, and III and three elective courses from at least two of Areas IV, V, and VI.

AREA I: Legal Dimensions of Health Care Administration
FCL 668 Health Law Administration
FCL 669 Legal Problems of Health Care Organizations

AREA II: Health Care Budgeting and Finance
PADM 652 Financial Management of Health Care Organizations
FCL 612 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 679 Seminar on Current Issues in Health Services Management

MKTG 661 Healthcare Marketing

AREA V: Health Planning and Evaluation
PADM 654 Planning Strategies in Health Care
MGMT 600 Managing Arts Organizations

AREA VI: Special Topics
HHS 663 Ethical Issues in Human Services Organizations
PHIL 534 Moral and Philosophical Foundations of Health Care
ADA 680 Clinical Supervision in Substance Abuse Services
GRN 681 Program Planning and Development in Gerontology
SOC 640 Social Organization of the Health System

Certificate Program in Nonprofit Leadership and Administration
Advisor: Barbara Liggett, 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.

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 voluntary experience or familiarity with nonprofit organizations.

Program requirements
The Graduate Certificate Program in Nonprofit Leadership and Administration is an eighteen (18) credit hour program requiring four core courses (10 hours) are required. The remaining 8 hours may be taken as electives.

Area I: Core Courses
PADM 641 Administering Arts Organizations (2 hrs.)
PADM 642 Administering Human Services Organizations (2 hrs.)
PADM 643 Administering Nonprofit Organizations (2 hrs.)
PADM 644 Grant Writing for Nonprofit Organizations (2 hrs.)

Area II: Administrative Skills (2-4 hrs.)
PADM 645 Endowment Development/Investments (2 hrs.)
PADM 646 Fund Raising for Nonprofit Organizations (2 hrs.)
PADM 647 Budget Development for Nonprofit Organizations (2 hrs.)

Area III: External Relations (2-4 hrs.)
COM 685 Public Relations for Managers (3 hrs.)
PADM 648 Promoting Nonprofit Organizations (2 hrs.)
PADM 649 Grant Writing for Nonprofit Organizations (2 hrs.)

Area IV: Finance (2-4 hrs.)
PADM 645 Endowment Development/Investments (2 hrs.)
PADM 646 Fund Raising for Nonprofit Organizations (2 hrs.)
PADM 647 Budget Development for Nonprofit Organizations (2 hrs.)

Doctor of Public Administration
Advisor: Peter Kobrak, Room 220E, Walwood Hall

The Doctor of Public Administration is designed for those who have experience in an administrative or high-level staff position with federal, state, or local government or counterpart responsibilities in the private nonprofit or private sectors. A major purpose of the doctoral degree is to fill the state’s upper-level management and staff positions with public executives who possess excellent skills in leadership, public management, and policy analysis. Courses in the DPA program focus on strategic planning and management, administrative leadership, and policy analysis. The program is structured to provide decision makers with a more sophisticated understanding of the governing 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 staff position.
3. Two academic references and two letters of recommendation from persons acquainted with applicant’s professional work.
4. A career resume.
5. Graduate Record Examination (GRE) scores.

Program requirements
1. Sixty semester hours of course work beyond the master’s
2. Satisfactory performance on comprehensive examinations in Strategic Planning and Management, Policy Research, and Administrative Leadership.
3. The sixty hours of course work are divided into five core areas which contain the following courses:

STRATEGIC PLANNING AND MANAGEMENT (12 hours)
PADM 670 Public Policy and Strategic Planning (3 hrs.)
PADM 683 Seminar in Administrative Theory and Practice (3 hrs.)
PADM 674 Human Behavior in Public Organizations (3 hrs.)
PADM 684 Management of Public Financial Resources (3 hrs.)

ADMINISTRATIVE LEADERSHIP (9 hours)
PADM 677 The Public Administrator (3 hrs.)
PADM 685 Bureaucracy and Society (3 hrs.)
PADM 680 Intellectual Foundations of Public Administration (3 hrs.)

POLICY RESEARCH (15 hours)
PADM 676 Program Evaluation (3 hrs.)
PADM 691 Statistics for Public Administrators (3 hrs.)
PADM 693 Action Research Project (3 hrs.)
PADM 673 Quantitative Public Policy Analysis (3 hrs.)
PADM 694 Qualitative Research Methods (3 hrs.)
Students who enroll in this course will be expected to apply the economic tools presented to policy analysis and policy implementation questions facing agencies by which they are employed.

**PADM 605 Managing Economic Development** 3 hrs.

The course is intended for local and regional managers and professionals who have responsibility for economic development. Students will examine how economic development policies, programs, and techniques are used to manage local economic development successfully. The course integrates economic development into the broader context of community development in the areas of land use, housing, transportation, public facilities, utilities, and environmental concerns. It also addresses the economic, political, demographic, and technological forces of conflict and change impacting local economic development.

**PADM 610 Human Resources Administration** 3 hrs.

A survey course that examines the concepts and practices of human resource management and reviews the functions performed by human resource administrators and other agency officials. Areas of consideration may include, but are not limited to human resources planning and recruitment, training and development, compensation, and benefits plans.

**PADM 621 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 grantsmanship 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 622 Applied Research Methods** 3 hrs.

This course will stress the formulation of applied research questions, the design and utilization of various survey research methods and techniques; the essential distinctions between qualitative and quantitative research methods; the collection, manipulation, interpretation, and presentation of data gathered; and the use of information thus obtained in the solution of policy problems confronting professional administrators.

**PADM 623 Principles of Budgeting** 3 hrs.

This Managerial/Technical Core course examines the budgeting process; emphasis will be given to the last two phases of the budgeting cycle. Line item and alternative budgeting techniques—including zero base and program budgeting—will be considered. Sources of revenue will also be examined to determine their sufficiency, ease of collection, reliability, and public acceptability.

**PADM 624 Financial Decision Making** 3 hrs.

The course examines basic principles of public accounting; alternative sources of government revenue including intergovernmental transfers; risk management; insurance options; bonds and factors affecting bond ratings; cost benefit, cost revenue, and cost effectiveness analysis; privatization; service costs; and retrenchment.
their internal and/or external environment. It emphasizes the sources of bureaucratic 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 634 Professional Issues Workshop 1 hr.
All MPA Professional Core degree components include three one credit our workshops on different topics. These workshops ordinarily meet all day Friday and Saturday. Each workshop is valued at one credit hour and is graded on a credit/no credit basis. The students must attend throughout the workshop and actively participate to obtain credit for the workshop. These workshops are perceived as an innovative, flexible way to deal with a variety of interesting topics which do not lend themselves to consideration within the traditional lecture format. Experienced practitioners and academic specialists are frequently an important component of such workshops, as are simulations, role playing, and small group discussions. These workshops have in the past been devoted to a board variety of topics including, but not limited to: effective interpersonal communications; women in administration; public relations and the administrator; effective time management; performance measurement; an appraisal; pension system administration; administrators and the grievance process; the effects of DRG’s on the health care delivery system; human relations skills managers; volunteer recruitment and retention; nonprofit board-staff relations, among others.

PADM 635 Project Paper Seminar 3 hrs.
It is this seminar the MPA candidates write their project paper (thesis) proposing a solution to a major problem or issue facing the agency by which they will be employed, or to which pre-career candidates have been assigned as inter (field experience). Except with the express prior approval of the Academic Advisor, only candidates who have completed at least 30 semester hours of the MPA degree may enroll in PADM 635.

PADM 636 The Exercise of Power in Organizations 3 hrs.
This course addresses the need of managers and supervisors to understand how power in organizations is generated and exercised by individuals, by groups. Utilizing specialized literature and case studies, this course will examine the anatomy of power and how it is exercised.

PADM 637 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 specific applications of OD in organizational settings. The objective of this course is to develop competence in the application of OD practices in a variety of agency settings.

PADM 638 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 topics will be considered: theories of organization and management; individual behavior; group dynamics; organization change, organizational performance, efficiency, and effectiveness.

PADM 641 Administering Arts Organizations 2 hrs.
This is a course in arts administration, including a brief review of the implementation of the major areas of administration, i.e., management, planning, and program development; marketing and public relations; funding development, etc. The focus of the course will include both performing and visual arts. The performing arts component will highlight applications of managerial skill to music, dance, and theater, including audience development, union relations, front of house management, etc. The visual arts component will feature application of management skills to museums, commercial art, artists’ space, and corporate and individual collections. For students seeking a concentration or certificate in the Nonprofit Leadership and Administration program, this course will be offered as the capstone course.

PADM 642 Administering Human Service Organizations 2 hrs.
This course will deal with the issue of human service organizations (HSOs) and is intended to integrate theoretical and technical skill content from other courses in the program. The course uses a seminar format, along with case studies and problem solving simulations, to focus on a wide range of issues and dilemmas in the administration of HSOs. For students seeking a concentration or certificate in the Nonprofit Leadership and Administration program, this course will be offered as the capstone course.

PADM 644 Human Resources for Nonprofit Organizations 2 hrs.
This course provides an overview of the functions of human resources activities as they relate to the broad objectives of the whole organization. Participants will study the fundamentals of job design, employment techniques, performance appraisals, pay practices, benefit options, employee relations, and termination practices.

PADM 645 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 earnings in the nonprofit environment.

PADM 646 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 organization’s funding readiness and develop fund raising plans unique to their organizations.

PADM 647 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 operating budgets. Line item and alternative budget formats, including zero-based and performance budgeting, will also be considered. PADM 634, PC Budgeting, or familiarization with electronic spreadsheets is strongly recommended.

PADM 648 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 contributor, volunteer, and client markets based on an organization’s mission. 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 segments, communication messages and methods, location issues, and the development of market budgets.

PADM 649 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 651 The Health Services Environment 3 hrs.
This course provides a comprehensive analysis of the environment in which health services are delivered, with an emphasis on the United States delivery system. The analysis will focus on the historical interplay of competing and collaborative activities within and between institutional and community health care providers and the consumers that they serve. Ethical concerns facing providers and consumers will be discussed. Case studies on salient health care issues will be utilized.

PADM 652 Financial Management of Health Care Resources 3 hrs.
This course examines financial management issues in the rapidly changing health care industry. Students analyze healthcare reform proposals, the impact of insurance, managed care, and government policies on the operation of health care organizations, how to budget and analyze budgets, the process of costing health care services, the use of financial statements to assess the financial viability of health care organizations, financing options for capital management, the sources and uses of cash, and the preparation of cash budget is also developed. Students are strongly encouraged to take PADM 623, Principles of Budgeting, before enrolling in PADM 652.

PADM 653 Health Policy Analysis 3 hrs.
This course examines the public policy process as applicable to the physical and mental health fields. The impact of federal, state, and local policy on the delivery of health services within organizations is discussed and compared with international health delivery
systems. Underlying ethical issues confronting today’s health delivery system are explored.

**PADM 654** Health Care Planning Strategies 3 hrs.

This course provides an introduction to the principles and methods of planning in the health services system. It includes an analysis of the significance of planning effective health care services, alternative planning frameworks, and 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 and individual and organizational accountability to the health care field explored. Techniques on how to manage rapid organizational change are integral part of the course.

**PADM 670** Public Policy and Strategic Planning 3 hrs.

Public policy is examined as a process extending from policy formulation through implementation. Attention is directed both to strategic planning and to the political environment within which such planning occurs. The course reviews alternative models seeking to describe and explain planning and public policy making, and explores the role of agency leadership in making critical decisions.

**PADM 671** The Public Good 3 hrs.

This course will introduce students to the problems associated with defining the public good and the public interest; the historical and philosophical contexts of moral reasoning; the ambiguities of the value side of the policymaker’s life, and how to think constructively about moral dilemmas; how the administrative uses discretionary power; and how personal moral codes relate to assumptions about professional ethics and standards.

**PADM 672** Historical and Comparative Analysis of Public Policy 3 hrs.

This course will deal historically and comparatively with the substance of administrative practices and policy assumptions and applications.

**PADM 673** Quantitative Public Policy Analysis 3 hrs.

This course examines the principal quantitative methods employed in public policy analysis. A majority of the analytic tools and techniques considered are data and problem-oriented, utilizing applied economic and mathematical (econometric) models.

**PADM 674** Human Behavior in Public Organizations 3 hrs.

This course deals with the bases of organizational behavior, including conceptual material, empirical research, and applications. It examines the dimensions of organizational behavior as attitudes, values, perceptions, learning, personality, stress, and motivation. The course examines interpersonal influence and considers such dimensions of group dynamics as intragroup and intergroup behavior, group norms, cohesiveness, conformity, and leadership. It concludes with consideration of such organizational processes as power, authority, politics,

**PADM 675** Advanced Administrative Theory 3 hrs.

Students will assess current normative and descriptive theories of Public Administration, the variety of conceptual systems, operationalism and levels of organizational analysis, including the history of organization theory, the theory of bureaucracy, taxonomies, non-bureaucratic organizations, organization as a social issue, and tomorrow’s organizations.

**PADM 676** Cases in Public Policy Implementation 3 hrs.

This course will utilize a case study approach to public management problems. Students will be asked to weigh such factors as the following on a case-by-case basis: economic costs and benefits, political stakes, organizational processes, interpersonal relationships, legal requirements, ethical obligations, and technological constraints.

**PADM 677** The Public Executive 3 hrs.

This course examines the following factors: expectation versus reality in the administrative world; the nature of managerial work; asserting authority; building commitment and motivation; building lateral relationships; gaining power; working the hierarchy; designing valid controls; initiating change, the skills of the project manager, and the psychological matrix of leadership.

**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 679** Seminar: Current Issues in Health Service Management and Delivery 3 hrs.

An advanced seminar that will consider current issues in the organization, finance, and delivery of health services. May be repeated for credit with a different topic.

**PADM 680** Intellectual Foundations of Public Administration 3 hrs.

This course is designed to acquaint participants with the fundamental ideas of modern public administration. The material is presented both historically and topically, with special attention to the classical studies and seminal discussions which have shaped the discipline. Participants are also introduced to the problems associated with defining the public good and the public interest; the ambiguities of the value side of the policymaker’s life, and to how personal moral codes relate to assumptions about professional ethics and standards.

**PADM 682** Administrative Decision Making 3 hrs.

This course will examine the organization as a system of linked subsystems and analyze the elements of decision making as influenced by this environment. The impact of bureau pathologies on communication and control patterns will be related to managerial processes. Attention will be devoted to the effect of a systemic decision framework upon individual decisions and decision makers.

**PADM 683** Seminar in Administrative Theory and Practice 3 hrs.

The historical evolution of management thought is reviewed with particular reference to classical, neoclassical, and contemporary approaches to organizational structure and managerial functions. This course also pays particular attention to management strategy as reflected in public and private sector case studies, and examines how managerial decisions are made within such constraints as economic costs and benefits, political stakes, organizational processes, interpersonal relations, legal requirements, ethical considerations, and technological limitations.

**PADM 684** Management of Public Financial Resources 3 hrs.

Expenditure and revenue theory is examined here, with particular reference to alternative budgetary systems and how they are employed by state and local governments. The course then looks at how the budget and financial statements can be used to determine the financial health of an organization and to detect unintended public policy outcomes such as budget cuts in one area that lead to increases in another. Finally, alternative budget revenue projections and expenditure patterns are examined as tools for implementing strategic goals.

**PADM 685** Bureaucracy and Society 3 hrs.

Bureaucracy has become the predominant organizational form within the public sector in all advanced industrial societies today. This course explores the growth of bureaucracy, the expansion of its political role, goals, and objectives, and several alternative bureaucratic models, including the Weberian and Marxist approaches. Attention is also paid to the relationship of bureaucracy presently to power, to constituency groups, and to the people.

**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 into 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 commissioners, or the state legislature. Participants will learn to estimate the possible impact upon their agency of legislation under consideration, to assess the probable effect of proposed legislation upon their clientele, and
to project the amount of revenue to be generated by a proposed tax, fine, or fee.

Analysis
3 hrs.

This research seminar is designed to enable a PADM 689 Seminar in Quantitative Policy government. Such a problem will be identified prior to the course, and the collective task will be to complete a working paper utilizing qualitative analysis.

PADM 691 Statistics for Public Administrators 3 hrs.

This course is designed to assist public executives to better understand the various statistical procedures which are used to comprehend and interpret data sets employed in public policy analysis. It will employ examples from the policy analysis and program evaluation literature to illustrate the utility of those statistical procedures presented. Topics will include descriptive, difference, binomial, associational, and multivariate statistics.

PADM 693 Action Research Project 3 hrs.

A team research project in this course utilizes the skills acquired in the program evaluation and statistics courses. Teams are required to develop a research problem, review the relevant literature, collect and analyze data, and write a complete and scholarly report. Publication of the research results is encouraged where appropriate.

PADM 694 Qualitative Research Methods 3 hrs.

In this seminar, participants will conduct and be instructed in research using qualitative designs such as comparative, historical, case study, content analysis, observational, and intensive interviewing. The course will emphasize operationalism of qualitative concepts and the research potential of data sources such as census, archives, documents, and any natural setting.

PADM 695 Research Design 3 hrs.

This course will include conceptual and model analysis, hypothesis testing, literature review, theory construction, and individual research papers. Those papers may become the research design chapters for the students’ dissertations.

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.

PADM 698 Studies in Selected Public Policy Areas 3 hrs.

The students in this tutorial course will review the specialized literature in the substantive or functional area of particular interest to them. After surveying the literature generally, the student will write a paper that in a number of cases will become a literature review chapter in his or her doctoral dissertation.

PADM 699 Readings in Public Administration 1-3 hrs.

A program of independent study to provide the well qualified MPA candidate with an opportunity to explore in depth a topic or problem of interest under the guidance of a faculty member. The end product of this effort may be an annotated bibliography, a bibliographic essay or a major paper. Planning a topic for investigation is a joint responsibility of the candidate and supervising faculty. Approval is contingent upon the merits of the proposal. Prerequisite: Consent of both instructor and School Director.

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 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 experiences in an agency setting. An application form, signed by the candidate’s academic advisor and Internship Supervisor, can be submitted to the Registration Office at the time of enrollment. Graded on a credit/no credit basis.

PADM 730 Doctoral Dissertation 12 hrs.

SCIENCE STUDIES

Dr. Larry Oppinger, Chair
Main Office: 301 Moore Hall
Telephone: 387-5398
FAX: 387-4998

Professors Larry Oppinger, Robert Poli; Associate Professor Robert Halmer; Assistant Professors Janice Gobert, Kamlesh Sharma.

Master of Arts in Science Education

Advisor: Larry Oppinger,
Room 3601, Wood Hall

The Department of Science Studies offers a graduate program leading to the Master of Arts in Science Education. The program requires at least seventy-two semester hours. All candidates for the Master of Arts in Science Education must complete a minimum of seventy-two semester hours of graduate work in science and in science education. Appropriate course work at the master's level will count toward the seventy-two semester hours.

Admission requirements
The minimum admission requirements to this degree program are:
1. A master's degree in a science or science education, and
2. Teacher certification.

Students lacking the above may be admitted provisionally; however, satisfactory completion of 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, SCI 616, and SCI 690.
3. Six semester hours of thesis. SCI 700

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, 630) and material from the appropriate sciences area chosen by the student and the major dissertation advisor. The science area material will be prepared and evaluated by faculty in the science area after consultation with the science education faculty. The dissertation advisor may recommend either a written or an oral examination.

The research and dissertation are completed under the direction of a major advisor and a Doctoral Advisory Committee. The major advisor is selected by the student and the Committee members are selected by the student in consultation with the major advisor. The research problem generally must be formulated by the student and must be approved by the Committee. Dissertation Committee members and topics are subject to the approval of the deans of the College of Arts and Sciences and The Graduate College.

The residency requirement for this degree program is an academic year of two consecutive semesters of full-time study on the campus.

To be admitted to candidacy for the doctoral degree the student must have satisfactorily completed the course work, the research tools, the comprehensive examination, and a teaching experience in addition to the other candidacy requirements of doctoral programs in The Graduate College.

Science Studies 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 565 Physics Workshop for Teachers 1-3 hrs.

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of physics. This course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. It is intended for delivery in one to two week workshop format. Prerequisite: Teacher certification or baccalaureate plus work toward certification.

SCI 590 Earth Science Workshop for Teachers 1-3 hrs.

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of earth science. This course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. It is intended for delivery in one to two week workshop format. Prerequisite: Teacher certification or baccalaureate plus work toward certification.

SCI 598 Readings in Science 1-4 hrs.

To be used by students seeking work in topics not otherwise available. The student is limited to not more than four hours in all reading courses and work must be completed under a member of the graduate faculty.

Open to Graduate Students Only

SCI 601 Problems in Science Education 1-4 hrs.

This independent study course allows students to study various problems in Science Education under the direction of a supervising faculty member. Individual or small groups of qualified students may be involved in these problem areas reflecting the current concerns of Science Education. The course is designed to meet the needs of students for first-hand experience in science education 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. The nature of science 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 changes 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.

SCI 617 Science Education: Research Traditions 3 hrs.

This course is designed to familiarize students with the more productive research traditions in science education and with their historical, philosophical, and methodological foundations. Each offering of the course will focus upon a particular tradition, for example, problem solving research or conceptual change research. This course may be repeated for credit. Prerequisites: SCI 615 and SCI 616.

SCI 620 Topics in Science Education 2-6 hrs.

This course will present, analyze, and evaluate methods and techniques of teaching science. Topics may include new approaches for teaching science, new science curriculum, laboratory practices, science education research, motivational techniques, and other methodological problems confronting science teachers. Course content may vary, and the course may be repeated for credit provided different topics are involved.

SCI 621 Topics in Science 2-6 hrs.

This course is designed to examine various science concepts and new developments of science 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.
SOCIETY MAJOR, ACCELERATED BA/MA PROGRAM

This program is intended for the exceptional undergraduate sociology major who intends to pursue a disciplinary Master of Arts in Sociology at Western Michigan University; it is designed to accelerate progress toward the attainment of that degree. Applicants will be considered for this program through an evaluation by the Department of Sociology’s Graduate Admissions Committee.

Prerequisites include:
1. Application during the second semester of junior standing through the Office of Admissions and Orientation.
2. Declared sociology major.
3. Recommended 3.4 grade point average overall, based on at least 30 hours at WMU.

The program requires completion of all requirements of the sociology undergraduate major, and the disciplinary master’s program, with this difference: SOC 607 and one additional 500-level sociology course will be taken during the junior year and SOC 602 or SOC 603 or SOC 651 and one additional 600-level sociology course will be taken during the senior year as part of the thirty-hour minimum requirement for the Sociology Major.

OPTION I, DISCIPLINARY MASTER’S

This option of the Master of Arts in Sociology is designed to give students an advanced understanding of the significant factors and processes of human society; to further the preparation of those planning to teach in secondary or higher education; to prepare students for doctoral study in sociology; and to provide professional training for a variety of occupational opportunities in government, industry, education, research organizations, social agencies, and correctional systems.

Each student’s program is prepared individually in consultation with a graduate advisor.

Admission requirements
1. Twenty-four semester hours in undergraduate study in the social sciences, with at least fifteen semester hours in sociology, including courses in theory and research methods.
2. Grade point average of 3.0 or better in undergraduate sociology courses.
3. If these requirements have not been met, the student may be required to complete additional course work as a condition of admission.
4. Applicants must supply a biographical statement and three letters of recommendation from academic and/or professional sources to the Graduate Admissions Committee, Department of Sociology.

Program requirements
1. Complete at least thirty graduate credit hours, selected in consultation with the student’s master’s committee. At least twenty hours, including SOC 700 Master’s Thesis, must be in sociology, up to ten hours may be in an approved cognate area. SOC 602 or SOC 603 or SOC 651, SOC 602 or SOC 603 or SOC 651, and SOC 700 are required of all master’s students.
2. Maintain a grade point average of 3.0 or better in all course work.
3. Complete the original thesis, using approved methods for investigation of a sociological topic. Six hours of credit are given for the thesis.

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, or in special circumstances for a doctoral program. Graduates will be well trained for such positions as data analysts, social analysts and policy analysts, survey researchers, field directors, market researchers, and directors of research. This program will prepare graduates for the changing job market and the increased use of survey techniques and quantitative analysis to evaluate programs and shape decision-making in organizations.

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

Program requirements
1. Complete 40-42 graduate credit hours: Twelve hours in disciplinary core courses, twelve hours of research methods and statistics, and an additional nine hours of elective disciplinary and research courses.
2. Maintain a grade point average of 3.0 or better in all course work.
3. Complete an internship and internship report (internship essay) at the conclusion of the program. A thesis option is possible, with the addition of two credits, under special circumstances. Consult the departmental master’s advisor for the exercise of this option.

Financial support
A number of departmental, University, and governmental assistantships, fellowships, and scholarships 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, marital 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: Ronald C. Kramer, Room 2408, Sangren Hall

The Doctor of Philosophy in Sociology is designed to prepare students for careers in sociological research and teaching. Breadth in sociology is provided through a wide variety of courses and seminars in the department. Each student’s program is individually guided by a doctoral committee.

A basic feature is the core training in general sociology, social research methods, and social psychology. Concentration is required in two areas of sociology. The two are selected by the student from the departmental areas of concentration. Applicants must supply a biographical statement, a writing sample, and letters of recommendation from academic and/or professional sources to: Graduate Admissions Committee, Department of Sociology.

Program 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. Students who hold a master’s degree in a related field may be admitted to the program, but may be required to make up deficiencies as a condition of admission.
4. Applicants must supply a biographical statement, a writing sample, and three letters of recommendation from academic and/or professional sources to Graduate Admissions Committee, Department of Sociology.

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

Program requirements
1. Complete, beyond the master’s degree, at least sixty hours of course and dissertation credit; courses in addition to the required core courses are selected in consultation with the student’s doctoral committee.
2. Demonstrate competence in two research methods courses selected from a foreign language or English, research methodology, statistics, and computer programming.
3. Pass oral and written examinations in two departmental areas of concentration.
4. Write and successfully defend an original dissertation to the satisfaction of the doctoral committee and The Graduate College. Fifteen credit hours are required for the dissertation.
5. Criteria and procedures for meeting these requirements are described in detail in the department’s Graduate Manual.

Financial support
A number of departmental, University, and governmental assistantships, fellowships, and associateships are available to qualified students. Educational opportunities and part-time employment may be available through the facilities of the Leonard C. Kercher Center for Social Research. Research through the Center includes studies of education, mental illness, marital roles, race relations,
SOC 552 Sociology of Aging
3 hrs.
An examination of the process of aging in American society, with particular emphasis on the periods 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. Prerequisite: 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; recent theory and research on violence will be reviewed and various prevention and social policies will be discussed. Prerequisites: Graduate standing or SOC 200 or SOC 210, SOC 260, SOC 362 and one other 300- or 400-level course.

SOC 562 Victimization
3 hrs.
The study of crime victims, the probabilities of victimization, victim-offender relationships, the treatment of victims by the criminal justice system and the economic, social, and psychological impact of victimization. Prerequisites: SOC 200 or SOC 210, SOC 260, and SOC 362 and one other 300- or 400-level course.

SOC 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 affect the definitions (s) and distribution of justice in the United States. The primary focus is the differential treatment of African Americans, Native Americans, Latinos, and Asian Americans throughout the major institutions of society, particularly the legal institution. A critical analysis of the social, political, and economic forces that support the current social structure will direct the inquiry. Prerequisites: 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 upon the relationship between the legal system and the society in which it functions. Prerequisite: SOC 200 or equivalent.

SOC 590 Variable Topics in Sociology
3 hrs.
An examination of a selected topic in the field of sociology. The focus of the course may be theoretical, methodological, or substantive. Possible topics could include feminist theory, sampling and survey design, policy, and cultural studies. May be repeated for credit with a different topic.

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 initiative for planning the topic for investigation must come from the student. 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.

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 works. Theories will be examined with respect to both historical context and their influence on contemporary sociology.

SOC 603 Contemporary Sociological Theory
3 hrs.
An intensive and critical study of contemporary perspectives and theories in sociology. Theories which exemplify functionalist, conflict, and interpretive approaches will be examined. The course will examine the logical structure of contemporary theories and the relevance of contemporary perspectives and theories to major substantive areas in sociology.

SOC 605 Studies in Sociological Theory: Variable Topics
3 hrs.
Advanced study and exploration, following seminar format, of topics of interest to faculty and students, for example, various role theory formulations and their usefulness in understanding social behavior, ethnomethodology, sociology 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, the
choice of data gathering techniques and the development of research proposals. Students will learn to do sociological research by collecting documentary, observational, sample survey, and experimental data. Advantages and disadvantages of the different data collection techniques will be assessed.

SOC 607 Logic and Analysis of Social Research I and II

This course is designed to provide a thorough grounding in basic univariate and bivariate descriptive and inferential statistics for social scientists. Prerequisite: SOC 606.

SOC 617 Etiologies of Substance Abuse 2 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 problems and issues in the design of research and the collection of sociological data. Emphasis will be placed on the critical evaluation of current research designs and the development of research design skills. Topics will include: the internal and external validity of research designs, measurement and scaling, the uses of qualitative and historical data, and philosophical and ethical issues raised by various research designs and procedures. Prerequisite: SOC 606.

SOC 621 Logic and Analysis of Social Research II 3 hrs.

This course covers basic multivariate descriptive and inferential statistics for social scientists. 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 the 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 633 Proseminar on Social Problems 3 hrs.

A critical overview of the current state of knowledge in the major subfields of social problems. Emphasis will be placed on conceptual and methodological problems in the areas and the relationship of each of these areas to one another.

SOC 640 Social Organization of the Health System 3 hrs.

An examination of traditional and emerging ways in which health care is organized. A major concern will be the politics of health and the role of various interest groups (professional associations, unions, consumer groups) in the formation of health policy. Among the topics to be considered are the development of American medicine, the relationships of organizational structure to effectiveness in health organizations, the social control of health care organizations, and the growth of medical 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 epidemiological research process, epidemic investigation, rates, screening, risk estimation, the design of epidemiologic investigations, measures of central tendency, basic inferential statistics, sampling, and hypothesis testing. Open only to Health Care Administration students, except by permission of instructor.

SOC 650 Seminar in Social Psychology: Variable Topics 3 hrs.

An advanced seminar in some specialized aspect of social psychology. May be repeated for credit with a different topic. Prerequisite: SOC 651.

SOC 651 Social Psychological Theory 3 hrs.

A study of major theoretical approaches in social psychology and their methodological and substantive implications. Prerequisite: SOC 650 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, social 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 mobility and status inconsistency will be stressed. Prerequisite: SOC 200 or consent of instructor.

SOC 660 Seminar on Theories of Crime 3 hrs.

This course will deal with the chronological development of criminological theory in a critical and analytical manner, addressing the impact of ideology on theory and the subsequent impact of theory on criminal justice policy. Research relating to the verification of theory will be assessed. Prerequisite: SOC 466.

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 and western European countries. Emphasis is placed on theoretical and ethological 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. Prerequisite: SOC 262.

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 673 Formal Organization 3 hrs.
This course analyzes the nature of large-scale, formal organizations, concentrating on their structure, types of organizational goals, processes of control, authority and leadership, and the relationship of organizations to their social environment. Examples of organizations will be selected from different areas such as education, government, medicine, science, leisure, and industry. Prerequisite: SOC 200 or consent of instructor.

SOC 674 The Nonprofit Sector in Society 3 hrs.
This course will provide an overview of the nonprofit or third sector of society and will explore its interrelations 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 I 3 hrs.
A study of the assumptions, logic, and application of current multivariate techniques of analysis such as regression analysis, path analysis, factor analysis, and canonical correlation. Prerequisite: SOC 621.

SOC 685 Advanced Multivariate Analysis II: Variable Topics 3 hrs.
The study of advanced statistical techniques which are important to systematic research in sociology. Suggested specialized topics include: factor analysis, advanced non-parametric techniques, path coefficient analysis, and regression analysis. May be repeated for credit with a different topic. Prerequisite: SOC 681 or equivalent.

SOC 686 Applied Sociology 3 hrs.
Provides an overview of the development of applied sociology and an introduction to essential skills. Among the topics covered are proposal writing, budget preparation, systems analysis, presentation of data to clients, and the writing of research reports. Case study material will be used to introduce students to applied sociology in public, private, and non-profit settings.

SOC 687 Evaluation Research I 3 hrs.
The basic purpose of this course is to familiarize students with the various research techniques for evaluating action agencies through a survey of the literature, study of evaluation models, and study of techniques and procedures used in evaluation. Prerequisite: SOC 621.

SOC 688 Practicum in Social Research 3 hrs.
A research seminar structured to provide practical experience in various phases of research related to the student’s major area of interest. Under faculty supervision, students will act as consultants to projects initiated by other agencies in the community or carry out their own supervised projects. May be repeated in different areas of concentration with permission of student’s doctoral committee. Prerequisite: SOC 621.

SOC 690 Computer Applications for Sociologists 3 hrs.
This course is designed to provide doctoral students in sociology with essential skills in the use of mainframe computers and microcomputers 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.

WOMEN’S STUDIES

Dr. Gwen Raaberg, Director
Main Office: 3327 Rood Hall
Telephone: 337-2510
FAX: 337-2507
Associate Professor Gwen Raaberg

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. Prerequisites: For undergraduates, WMS 400.

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, the Master of Science in Accountancy, and the Master of Science in Business 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 the American Assembly of Collegiate Schools of Business (AACSB). Enrollment in any graduate business course requires active admission to the MBA, MSA, or MSB 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 Graduate Business Programs, Haworth College of Business, 2130 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 Academic Advising and Admission Office, Room 2130 Schneider Hall on the University campus in Kalamazoo, Michigan.
2. Contacting the Admissions Office of Western Michigan University by (a) visiting the Office of Admissions and Orientation in Room 2240 Seibert Administration Building; (b) requesting an application for admission by writing to the Office of Admissions and Orientation, Graduate Admissions, 1201 Oliver Street, Western Michigan University, Kalamazoo, Michigan 49008-5120; or (c) telephoning the Admissions' Voice Enhanced Request Line, 1-800-400-4968.
3. Personal visit to the Grand Rapids Regional Office at 2333 East Beltline, S.E. in Grand Rapids or telephone the Regional Office, 1-616-771-9478, or a personal visit or telephone call to another Western Michigan University Regional Office in Battle Creek, Holland, Muskegon, Lansing, or St. Joseph, Michigan.
4. Electronic access via the Internet, with access to the Western Michigan University's homepage at http://www.wmich.edu, selecting the "Graduate Programs" link and following the steps for an on-line application.
5. Applicants who are not U.S. citizens must contact, in writing, the Office of International Student Services, Room A411 Ellsworth Hall, 1201 Oliver Street, Western Michigan University, Kalamazoo, Michigan 49008-5899. International applicants may also E-Mail the Office of International Student Services at oiss.info@wmich.edu, or may telephone the Office at 616-387-5865, or may reach the Office through the Internet at http://www.wmich.edu/oiss and follow the application procedures presented.

Appeals Process
An applicant who has been denied admission to a graduate program in the Haworth College of Business and is choosing to appeal that decision (or whose admission contains conditions that are being appealed) shall contact the Office of Admissions and Advising by telephone (616-387-5075) or by mail (Office of Admissions and Advising, Haworth College of Business, Western Michigan University, Kalamazoo, Michigan 49008-3899) and request a copy of the College's "Admission Appeal Policy" which provides guidance on the appeal process.

Continuation Requirements
To continue enrollment in graduate programs in the Haworth College of Business students must meet published University standards for graduate education. These standards require active admission status and an overall grade point average of at least 3.00 in all graduate business course work with alternative enrollment conditions possible as defined in the "Academic Standards" section of this Graduate Catalog.

Master of Business Administration
Advising and Admissions Office, 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 graduate faculty advisors of the Haworth College of Business, personal programming for the participant is provided.

Admission requirements

1. To be eligible for admission to the MBA degree, a process managed by the Office of Admissions and Advising 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 in an accredited, undergraduate university program of 2.50 or higher.
   b. A GMAT score of 450 or higher with a grade point average for the last two years in an accredited, undergraduate university program of 3.00 or higher.
   c. Satisfactory completion and receipt of a graduate professional degree from a U.S.A. accredited university, for example, a graduate degree in law, education, medicine, or engineering.
   d. A grade point average of 3.0 or higher for the last two years in an accredited, undergraduate degree program and at least seven (7) years of substantial, full-time professional, business work experience (which has occurred within the ten years prior to the date of program application) as reflected in a professional work portfolio, which must be reviewed and accepted by a majority vote of the Haworth College of Business Academic Review Board.
   e. For Western Michigan University, admission to an international program locations only: A review of academic accomplishment, professional business experience, and educational certification accompanied by personal interviews will provide the basis for judging a candidate's ability. All international applicants must have a bachelor's degree with an acceptable grade point average from an educational institution approved by Western Michigan University.
2. Applicants who are not U.S.A. residents (international students) may be required to demonstrate English language proficiency with a TOEFL score of not less than 550.
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 3.50 or higher on the essay portion of the GMAT.

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

Advising and Admissions Office, Room 2130, Schneider Hall

The Master of Science program permits the student to specialize in a specific area of business such as Finance, Management, or Marketing. The program is designed primarily to permit exceptional students to work on individualized programs, generally in preparation for further academic studies. It is a departmental program and specific admissions and course requirements are determined by the department.

Admission requirements

Applicants must submit scores for the Graduate Management Admission Test (GMAT) prior to consideration for admission to the program, and also meet undergraduate grade point requirements specified by the department.

Students admitted to the University on a Permission to Take Classes (PTG) status are not allowed to enroll in graduate business courses.

Program requirements

1. Prerequisites or Basic Core (12 hours) in order to provide students with the background of the common body of knowledge in business and administration, study in areas of Accountancy, Economics, Finance, and Law is required. These requirements are automatically fulfilled if the applicant completed an undergraduate business degree.

2. A departmental concentration of a minimum of twenty-one semester hours, including the satisfactory completion of a research methodology course and a Master's Thesis (6 hrs.) or a major research project assigned by the department.

Master of Science in Business

Advising and Admissions Office, Room 2130, Schneider Hall

Advising and Admissions Office, Room 2130, Schneider Hall

The Master of Science program permits the student to specialize in a specific area of business such as Finance, Management, or Marketing. The program is designed primarily to permit exceptional students to work on individualized programs, generally in preparation for further academic studies. It is a departmental program and specific admissions and course requirements are determined by the department.

Admission requirements

Applicants must submit scores for the Graduate Management Admission Test (GMAT) prior to consideration for admission to the program, and also meet undergraduate grade point requirements specified by the department.

Students admitted to the University on a Permission to Take Classes (PTG) status are not allowed to enroll in graduate business courses.

Program requirements

1. Prerequisites or Basic Core (12 hours) in order to provide students with the background of the common body of knowledge in business and administration, study in areas of Accountancy, Economics, Finance, and Law is required. These requirements are automatically fulfilled if the applicant completed an undergraduate business degree.

2. A departmental concentration of a minimum of twenty-one semester hours, including the satisfactory completion of a research methodology course and a Master's Thesis (6 hrs.) or a major research project assigned by the department.
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 (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.

Prerequisites to Graduate Study

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 518, Accounting Theory and Problems; ACTY 522, Cost Accounting-Concepts and Practice; ACTY 524, Advanced Tax Accounting; ACTY 610, Seminar in Financial Accounting Theory; ACTY 617, Seminar in Auditing Theory and Practice; ACTY 621, International Accounting; ACTY 622, Seminar in Management Accounting Concepts; ACTY 624, Seminar in 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 600-level courses outside the Department of Accountancy. If a student has not had an undergraduate capstone course, the MGMT 699, Business Strategy, must be selected as one of the non-accounting courses.

The overall 150-hour program must include at least 90 hours outside the Department of Accountancy. To summarize the requirements:

1. Minimum of 30 hours of graduate coursework.
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 39 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 study in systems and governmental accounting. To receive a year’s credit toward the experience requirement in Michigan, a 150-hour program must contain 39 semester hours of accounting and 36 hours of general business subjects.

Accountancy Courses (ACTY)
Open to Upperclass and Graduate Students

ACTY 511 Advanced Accounting
3 hrs.
A study of entities and special transactions not covered in Financial Accounting I and II. Particular emphasis is given to partnership equity accounting, fund accounting, accounting by agencies and branches, business combinations, reporting by parent-subsidiary consolidated entities (including foreign subsidiaries). Prerequisite: ACTY 311 or equivalent.

ACTY 513 Advanced Accounting Systems
3 hrs.
Special studies related to computerized accounting packages currently used in practice. A case study approach involving typical business transactions, internal accounting control review, financial statement preparation, special reports, and decision making processes using specific software packages. Prerequisite: ACTY 313.

ACTY 514 Institutional Accounting
3 hrs.
A comprehensive study of the recording of transactions by government units and the preparation of financial statements by fund entities. Only government is the basic unit of study; however, school districts, universities, and hospitals are given brief coverage to illustrate the similarity in accounting for all not-for-profit entities. Prerequisites: ACTY 210 and ACTY 211 or consent of instructor.

ACTY 516 Auditing
3 hrs.
The theory and practice of auditing business enterprises and government agencies. Topics include a review of professional pronouncements, internal control concepts, ethics, and discussion of audit objectives. Prerequisites: ACTY 311 and 313.

ACTY 518 Accounting Theory and Problems
3 hrs.
A study of financial accounting theory and practice. The course is organized around pronouncements of the Financial Accounting Standards Board and other authoritative bodies. Case studies are used to illustrate application of the concepts of such pronouncements. Prerequisites: Senior standing and accounting major.

ACTY 522 Cost Accounting—Concepts 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. Includes product costing for job order and continuous process situations with related systems concepts, cost allocations among departments of an enterprise, joint and by-product costing, and standard costing as it relates to inventory pricing. Prerequisite: ACTY 322.

ACTY 524 Studies in Tax Accounting
3 hrs.
Special studies related to tax problems of individuals, partnerships, and corporations. Emphasis is on federal taxation of corporations, trusts, and estates. Prerequisite: ACTY 324 or equivalent.

ACTY 598 Readings in Accounting
1-4 hrs.
Directed individual study of topics not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

Open to Graduate Students Only. Enrollment in HCOB graduate business courses requires admission to the MBA, MSA, or MSB program or the consent of the Director of Graduate Business Programs.

ACTY 601 Accountancy
3 hrs.
A study of the fundamental concepts and applications of financial and managerial cost accounting. An understanding of financial statements and the effect of alternative accounting principles on financial statement analysis, basic management accounting concepts, cost behaviors, product costing concerns, and the use of accounting information in short-run decisions are discussed. The course emphasizes the understanding of accounting concepts and reports and their use in decision making, rather than the recording of transactions and the preparation of accounting statements. Students can not receive credit for both BUS 601 and equivalent course(s).

ACTY 606 Financial Accounting Concepts I
3 hrs.
An intensive study of asset liability valuation, income determination, and financial reporting. The current literature is explored, and a research paper on one of the course topics is required. Prerequisite: ACTY 211 or equivalent.

ACTY 607 Accounting Control and Analysis
3 hrs.
A study of management systems and techniques used for profit planning and control of a business firm. Organizational relationships and implications are examined in the development of operations controls, management controls, and strategic planning. This course is in the graduate business core, and is closed to students with credit in Cost Accounting 322 or its equivalent. Prerequisite: ACTY 210 and ACTY 211 or equivalent and MSA admission.

ACTY 608 Financial Accounting Concepts II
3 hrs.
Financial Accounting Concepts II is a continuation of ACTY 606. The accounting and financial reporting for liabilities, long-term investments stockholders’ equity, pensions, leases, and taxes are studied. A research paper on a financial accounting topic is required. Prerequisite: ACTY 606 or equivalent.
ACTY 610 Seminar in Financial Accounting Theory 3 hrs.
Intensive examination and study of the underlying postulates, concepts, and principles of accounting. Course may be repeated under different topics. Prerequisite: ACTY 608 or consent of instructor.

ACTY 611 Managerial Accounting 3 hrs.
The use of accounting information for planning, control and decision making is emphasized. The course will emphasize managerial accounting topics including job order costing, process costing, and operations costing, activity-based costing, standard costing, transfer pricing and international issues. Prerequisite: ACTY 601 or equivalent.

ACTY 617 Seminar in Auditing Theory and Practice 3 hrs.
A critical study and examination of the theory of auditing and auditing practice, 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.

ACTY 622 Seminar in Management Accounting Concepts 3 hrs.
A study of advanced methods of cost measurement and control. Includes standard cost, budgetary control, profit-volume analysis, direct cost, return on employed capital, and quantitative methods. Prerequisite: ACTY 522 or equivalent.

ACTY 624 Seminar in 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 corporations, partnerships, and liquidations, estates and trusts, partnerships, and capital gains will also be included. Case studies will be used, and research in taxation will be emphasized. Prerequisite: ACTY 524 or equivalent.

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 632 Accounting and Financial Reporting by Nonprofit Organizations 3 hrs.
A study of the accounting and financial reporting standards applicable to nonprofit organizations. Primary topics in the course include an overview of the fund structure used by different types of nonprofit organizations, basic fund accounting entries, and a review of financial reporting models for nonprofit organizations. Additional topics to be studied include budgeting and financial analysis techniques, applicable internal controls components, as well as the organization’s relationship with internal and external auditors. Course is not available for credit in a Master of Science in Accountancy or a Master of Business Administration program.

ACTY 642 Selected Topics in Accountancy 3 hrs.
The advanced study of selected topics in accountancy. Course varies according to topic. Prerequisite: Enrollment in MSA program or the consent of the Director of Graduate Business Programs.

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

Business Courses (BUS)

Open to Graduate Students Only. Enrollment in HCOb graduate business courses requires admission to the MBA, MSA, or MSB program or the consent of the Director of Graduate Business Programs.

BUS 615 Global Business and Intercultural Communication 3 hrs.
This course enables the student to explore how business practices and policies are affected by international, cultural, political, legal, social, and economic environments. Viewed from the perspective of corporate managers and entrepreneurs, this course provides a global foundation for other business work, for example, in accounting, information management, finance, marketing, and management. Additionally, intercultural communication skills required to conduct business successfully in a global environment will be examined. Written and oral reports will be incorporated to provide practical knowledge about intercultural business communication.

BUS 616 Business Policy and the Social and Ethical Environment 3 hrs.
This course introduces students to the concepts of social responsibility and ethics in strategic business settings. Coverage includes strategic business concepts and associated legal issues. An examination of a firm’s mission, goals, and business strategy will be considered within an ethical and legal framework. Diverse viewpoints regarding the nature and limits of corporate social responsibility will be explored in the context of alternative strategic choices for the firm. The emphasis will be on understanding the conceptual tools to analyze behaviors in the context of business decision making.

BUS 618 Information Technology Management 3 hrs.
This course enables the student to understand the use of information technology as part of business strategy. Issues surrounding information technology and enterprise-wide systems will be expanded such as information and communication systems and services and enterprise-wide systems-traditional, networked, and virtual-in operations will be explored. The growing convergence of technologies—computer, video, and telecommunications—within sophisticated information networks also will be examined. Students should gain knowledge about strategic issues involving information technology management rather than the development of specific computer skills.

BUS 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 competencies, and (3) directing the integration of strategy with operating plans through formal and informal networks. This is an integrative course designed to provide a total business perspective. Prerequisites: Admission to the MBA or MSA program or consent of the HCOb Director of Graduate Business Programs. Completion of MBA Business Context and Functional Core courses.

BUSINESS INFORMATION SYSTEMS

Dr. Hung-Lian Tang, Chair
Main Office: 3310 Schneider Hall
Telephone: 387-5410
FAX: 387-5710

Professors Kunakose Akhappily, Joel Bowman, Andrew Targowski; Associate Professors Roberta Allen, Pamela Rooney, Hung-Lian Tang; Assistant Professors Earl Halvas, Alan Rea, Douglas White

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, structured concepts, networking, programming documentation, and efficiency; planning, organizing, and directing management information systems. May be repeated for credit.

BIS 560 Office Systems and Procedures 3 hrs.
A study of paperwork systems and procedures. Emphasis is placed on office systems and the techniques of systems development including fact gathering and recording, work analysis, and office work simplification and measurement. Prerequisite: BIS 102

BIS 596 Independent Study 1-4 hrs.
A directed independent project in an area of administrative systems, business communication, or computer information systems. Prerequisite: Consent of department chair.

BIS 598 Readings 1-4 hrs.
A series of direct readings in the area of administrative systems, business communication, or computer information systems. Prerequisite: Consent of department chair.

Open to Graduate Students Only. Enrollment in HCOb graduate business courses requires admission to the MBA, MSA, or MSB program or the consent of the Director of Graduate Business Programs.
BIS 600 Seminar in Business Information Systems 3-4 hrs. Intensive problem solving in the area of administrative systems, business communication, or computer information systems. May be repeated for credit.

BIS 630 Data Administration 3 hrs. Emphasizes the administrative aspects of managing data resources in organizations. Orientation of the course is towards developing specific skills in MBA students that will empower them to administer databases using Data Base Management Systems effectively. Prerequisites: 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 students’ understanding of software development methodology. Major emphasis of course will be on managing those projects which involved SDLC methodology. Prerequisites: BIS 260, 261, and 360.

BIS 664 Export Systems in Business 3 hrs. Objectives of course are to familiarize students with ESKBS 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. Prerequisites: 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. Prerequisites: BIS 260, 261, and 360.

BIS 685 Research in Business Education 3 hrs. An examination and analysis of research in business education with special emphasis on utilization of these findings in the upgrading of instruction. Research tools and methodology are also examined. Prerequisite: ED 601.

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: 387-5710

FINANCE AREA


Finance Area Courses (FCL)

Open to Graduate Students Only. Enrollment in HCOB graduate business courses requires admission to the MBA, MSA, or MSB 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. Prerequisites: BUS 601 or an equivalent course(s). Students cannot receive credit for both FCL 602 and equivalent course(s).

FCL 610 The Capital Market 3 hrs. Study of the sources and flow of demand and supply of credit. The business application of monetary theory to financial institutions and their operational problems. Prerequisite: FCL 612.

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 will include short-term financing, capital budgeting, asset pricing theory, sources of long-term capital, optimal capital structure, corporate restructuring and international dimensions of corporate financial management. Prerequisite: FCL 602 or equivalent.

FCL 622 Mergers and Acquisitions 3 hrs. A detailed investigation and analysis of the financial aspects of corporate business combinations. The course analyzes valuation considerations in large and closely-held companies and examines the structuring of the financial package to be offered. Prerequisite: FCL 612.

FCL 624 Applied Financial Management 3 hrs. An analytical approach to problems facing the financial executive. Cases selected cover short- and long-term financial decision-making processes with particular emphasis on statement analysis and working-capital management. Other problems will emphasize capital investment decisions, valuation and cost of capital, risk analysis, capital structure, and dividend policies. Prerequisite: FCL 612.

FCL 642 International Finance 3 hrs. A study of contemporary problems in international finance. The course examines the international money markets, working-capital considerations, and capital budgeting problems as faced by the multinational corporation. Prerequisite: FCL 612.

FCL 644 Quantitative Finance 3 hrs. The focus of this course is the use of various quantitative techniques and computer programs to analyze financial problems. Examples of quantitative techniques are regression and simulation. Examples of computer programs are spreadsheet programs such as Lotus 1-2-3 or Excel, and statistical packages such as MINITAB. The primary financial problems analyzed are the valuation and use of options, futures, and swaps. Prerequisite: FCL 612.

FCL 654 Investment Analysis and Management 3 hrs. A detailed analysis of the investigation of corporate securities as long-term investment media, largely from the standpoint of the individual investor. Investigates the techniques for security valuation and portfolio management, with some discussion of financial institution investment procedures. Considers mechanics, markets, institutions, and instruments important to the investment process. Not open to students with credit earned in FCL 351 or its equivalent. Prerequisite: FCL 612.

FCL 655 Portfolio Theory and Analysis 3 hrs. A study of the theoretical structures (models and their applications). Theoretical concepts are used to study model development and evaluate competing models. Extensive use of market-based data for computer applications of models such as Markowitz analysis, single and multiple index models, simplified techniques, duration and convexity. Prerequisite: FCL 612.

FCL 662 Health Care Financial Management 3 hrs. This course deals with advanced financial management concepts affecting health care institutions. Working-capital management, capital-budgeting, and Medicare reimbursement programs are examined. Prerequisite: FCL 320 or equivalent.

FCL 691 Seminar in Finance 3 hrs. The analysis of specialized financial problem areas (e.g., financial futures markets, financial forecasting, commodities, and similar contemporary problems). Topics will vary from semester to semester. Prerequisite: FCL 612.

LAW AREA

Professors Thomas Gossman, William McCarty, Associate Professors Nicolas Batch, Leo Stevenson, Carol Van Auker-Haught, Assistant Professor Norman Hawker.

Law Area Courses (FCL)

Open to Graduate Students Only. Enrollment in HCOB graduate business courses requires admission to the MBA, MSA, or MSB 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. Students cannot receive credit for both FCL 604 and an equivalent course.

FCL 681 Legal and Ethical Issues for Nonprofit Organizations 2 hrs. This course will provide students with the property understanding and practical applications of the legal framework pertaining to the establishment, operation, and funding of nonprofit organizations. It will also examine ethical behavior in the nonprofit world, provide examples of questionable conduct and unethical behavior, and offer solutions to ethical dilemmas. Not available for credit toward graduate business programs.

FCL 682 Managerial Aspects of Labor Law 3 hrs. Provides an overview of the background and consequences for business of the laws governing collective relationships between employers and employees and their representatives. Special emphasis is given to the interpretation and evaluation of current legislation. Prerequisite: FCL 380 or 604.

FCL 684 International Business Law 3 hrs. Private international law and selected regional and national laws affecting foreign investment, licensing, and trade are reviewed. International sales, financing, transportation, intellectual property, and taxation topics are discussed.

FCL 686 Legal and Regulatory Issues in Marketing 3 hrs. This course examines the legal, regulatory, and political issues which affect marketing. The course offers legal and regulatory information that parallels and affects marketing decision making. Prerequisite: MBA admission or permission of Director of 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 administration and disclosure of medical records and organizational certificate of needs will be examined. Prerequisite: FCL 688 or consent of instructor.

GENERAL AREA

General Area Courses (FCL)

Open to Undergraduate 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 reading. Prerequisite: Participant knowledge.

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 686 Legal and Regulatory Issues in Marketing 3 hrs. This course examines the legal, regulatory, and political issues which affect marketing. The course offers legal and regulatory information that parallels and affects marketing decision making. Prerequisite: MBA admission or permission of Director of 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 administration and disclosure of medical records and organizational certificate of needs will be examined. Prerequisite: FCL 688 or consent of instructor.

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. Using process simulation software, students will either develop and simulate new systems or improve existing systems within the supply chain of an organization. This course is cross-listed with MKTG 614, Business Process Management.

MGMT 617 Managing Human Resources and Behavior 3 hrs. Work is a dominant theme in the lives of most people. The way people are managed and relate to one another affects the quality of their lives and the effectiveness of their organizations. Understanding individual differences, sources of behavior, choices people make, and how issues come together in groups and organizations is imperative for today’s managers. A clear understanding of how diverse managerial approaches positively impact the performance of a diverse workforce is of growing importance. The course instructional technology ranges from lecture to self-directed work. There is, however, an emphasis on participative and experiential learning.

MGMT 632 Incentive Compensation 3 hrs. Incentive compensation covers pay related incentives useful for implementing business strategies. Topics covered include executive compensation (e.g. stock options), special group incentives, gain sharing, and ESOP’s. Students are expected to develop an incentive plan for an existing organization.

MGMT 644 Health Care Strategic Management 3 hrs. The course develops a strategic management perspective, a clear understanding of the dynamics of the health care environment, and the methods and constructs to position the health care organization for success. Theory, policies, strategies, and practices that guide effective health care management are explored. Prerequisite: Admission to the MBA program or consent of the HCOB Director of Graduate Business Programs.

MGMT 650 Managing Change 3 hrs. The process of change inside organizations with particular emphasis on managerial actions that influence effectiveness is investigated. Change is examined at the strategic, organizational, and behavioral levels.

MGMT 652 Strategic Human Resource Management 3 hrs. The role of HRM in generating sustained competitive advantage is examined. Theory, policies, and practices that guide effective
MGMT 655 Organization Theory
3 hrs.
Theses, models, and applications relevant to the structure of complex organizations and their subunits. Emphasis on alternative designs, their causes and consequences.
Prerequisite: Consent of instructor.

MGMT 659 Managing a Diverse Workforce
3 hrs.
"Workforce 2000" is creating as challenge and opportunity for managers in Corporate America. The entrants into the workforce over the next decade will come from different cultural backgrounds, physical abilities, gender, ages, lifestyles, and ethnic groups. This course examines these issues and challenges that managers will face while managing a diverse human resource.
Prerequisite: Consent of instructor.

MGMT 661 Introduction to Management Science
3 hrs.
A systematic study and application of the scientific methods 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 216 or equivalent.

MGMT 664 Simulation
3 hrs.
Simulation is a widely used managerial technique for analyzing the operations of existing or planned systems. It is applied in the analysis and improvement of system operations involving uncertainty and interactions among system components. This course familiarizes students with development and use of computer-based simulation models to evaluate the effectiveness of operational improvement strategies. Experiential learning is emphasized through projects in manufacturing/service/construction organizations. Prerequisite: MGMT 360 or equivalent.

MGMT 665 Advanced Simulation
3 hrs.
Analysis, design, and implementation of computer-based simulation models. Emphasis on effective use of simulators for training system managers and workers. Prerequisite: MGMT 664.

MGMT 666 Inventory Management
3 hrs.
The theory of scheduling and inventory management, including both deterministic and probabilistic models beyond the introductory level. An intermediate course in management science. Prerequisite: MGMT 463 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 acquisition options), management of innovation (including internal entrepreneurship and organizational change, and managing R&D), the economics of innovation, and the relevance of Management of Innovation and Technology in helping a firm meet-surpass global competition.

MGMT 685 Quality Management Strategies
3 hrs.
The purpose of this course is to investigate strategic quality management issues as they apply to the management of business in today's competitive environment where the customer satisfaction and continuous improvement have become requirements. Topics covered will include product and process quality, leadership, benchmarking, employee participation and empowerment, quality function deployment, and process innovation. Students will be assigned materials from the latest textbooks and journals. Practice and application will result from participation in group projects conducted in local firms. Prerequisites: MGMT 300 and MKTG 250.

MGMT 695 Advanced Independent Study
3 hrs.
Independent study of current trends and advanced problems in the organization and management of complex organizations. Prerequisite: Consent of department chairman. May be repeated for credit.

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 weaknesses, and (3) integrating strengths and weaknesses with opportunities and threats to achieve and sustain competitive advantage and accomplish the organization's 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.

MGMT 699 Applied Independent Research
2-6 hrs.
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
2-12 hrs.

MARKETING

Dr. Andrew A. Brogowicz, Chair
Main Office: 3210 Schneider Hall
Telephone: 387-6130
FAX: 387-5710

Professors Joseph Belonax, Andrew Brogowicz, Lowell Crow, Linda Delene, Jay Lindquist, Muthsavat Luangman, Edward Mayo, Zahr Quraeshi, Associate Professors Frank Gambino, Paul Lane, Hanjoon Lee, Richard Plank, Robert Reck; Assistant Professors Betty Parker.

Marketing Courses (MKTG)
Open to Graduate Students Only. Enrollment in HCOB graduate business courses requires admission to the MBA, MBA, or MSB program or the consent of the Director of Graduate Business Programs.

MGMT 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.

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. Using process simulation software, 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.

MGMT 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, fair point and boundary analyses for healthcare services.

MGMT 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 Promotional Strategy
3 hrs.
A decision-making course, taught using the case method; includes exposure to communications, demand analysis, promotional objectives, budget determination, personal selling resource management, reseller support, and promotional campaigns. Prerequisite: MKTG 613.

MKTG 675 Services Marketing
3 hrs.
The study of services marketing with an emphasis on service quality and customer satisfaction. Topics will include the nature and environment of services, customer expectations and satisfaction, TQM, competitive benchmarking, service quality measurement and gap analysis, relationship marketing, and strategy planning for services.

MKTG 676 Multinational Marketing Management
3 hrs.
Managerial analysis of the global marketing environment and evaluation of market entry strategies including exporting, licensing and direct investment, developing and assessing multinational product, pricing, promotional, and distribution strategies; critical discussion of contemporary international marketing issues.

MKTG 677 Buyer Behavior
3 hrs.
A decision-making course, taught using the case method; includes analysis of variables affecting buyer behavior. Course focuses on the consumer decision process and such influences on the process as culture, social status, economic condition, personality, the family, and mass communications. 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 697 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
Telephone: 387-5100
Fax: 387-5090

Professors Robert Betz, Robert O. Brinkerhoff, John Geisler, Arien Gullickson, Alan Hovestadt, Joseph Morris, Edward Trembly; Associate Professors James Croteau, Jerry Gilley; Assistant Professors Mary Anderson, Karen Blaisure, Suzanne Hedstrom, Theresa O'Halloran, Donna Talbot; Sharon

Master's Programs:
Two 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, and the Master of Arts in Counselor Education, with four program options, prepares graduates to be eligible for a license as a professional counselor.

Master of Arts in Counseling Psychology
Advisors:
Mary Anderson, Robert L. Betz, Karen Blaisure, Robert O. Brinkerhoff, James Croteau, John S. Geisler, Jerry Gilley, Suzanne Hedstrom, Alan J. Hovestadt, Joseph R. Morris, Theresa O'Halloran, Donna M. Talbot, Edward L. Trembley; Department Office, Room 3102, Sangren Hall.

The Master of Arts in Counseling Psychology provides, beyond the departmental required core course work, a focus on psychopathology, psychological assessment, counseling and psychotherapy theories and practices, and advanced practicum experiences. This program is selected by students seeking limited licensure as a psychologist in the State of Michigan.

Admission requirements
Admission to the Master of Arts in Counseling Psychology is based upon grade point average, educational background, counseling and/or student affairs 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 minority students, as well as ensuring diversity of role models in the fields of counseling, psychology, rehabilitation, and student affairs. 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, support, and graduate minority students prepared for their chosen careers.

Program requirements
The counseling psychology program requires a minimum of forty-eight semester hours of course work, including six 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, Robert L. Betz, Karen Blaisure, Robert O. Brinkerhoff, James Croteau, John S. Geisler, Jerry Gilley, Suzanne Hedstrom, Alan J. Hovestadt, Joseph R. Morris, Theresa O'Halloran, Donna M. Talbot, Edward L. Trembley; 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 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 Counselor Education and 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 any of the options above is based upon grade point average, educational background, counseling and/or student affairs related experiences, as well as other factors. Prior to application, applicants are required to complete and return a questionnaire indicating, among other things, the program option they wish to pursue. Applicants are required to meet the Department's Academic Standards. Applicants are required to complete a professional essay, including letters of recommendation, test scores, and other material as required.

Admission is competitive and admission requirements vary from program to program. The department 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 fall semester of each application deadline. Application deadlines are January 15 for the fall semester and August 1 for the spring semester. Applications materials may be obtained from the Office of Admissions and Orientation.

The department recognizes the importance of increasing the educational opportunities of minority students, as well as ensuring diversity of role models in the fields of counseling, psychology, rehabilitation, and student affairs. Therefore, the department strives to create an atmosphere conducive to the concerns of diverse populations, to identify and attract these concerns into programs and course offerings, and to fulfill its commitment to recruit, admit, support, and graduate minority 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 six, 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 admissions. Applications required for designated courses. A student's performance and progress will be evaluated throughout the program. This process begins with the completion of required courses.

The Community Counseling option provides great flexibility in designing a course of study to meet the needs of students and the profession. In addition to the required courses, students must, with the approval of an advisor, select courses for a special area of concentration related to counseling. Selection may be based on interest, but not limited to such areas as counseling psychology, social work, and related areas.

Programs in School Counseling (Elementary, Secondary, or Career Development Specialist) incorporate courses emphasizing counseling theory and practice, personality, ethics, testing/appraisal, career development, and psychoeducational consultation. In addition, students desiring school counselor certification will elect courses related to the administration of pupil personnel services in elementary and/or secondary schools. A license as a professional counselor may be obtained through this option.

The Student Affairs in Higher Education (Administration of College Student Affairs) option focuses on college student development, philosophy of student affairs, legal and ethical issues, college populations and educational environment, communication skills, and administration of student affairs in higher education. Completion of this option leads to a professional counseling license.

The Rehabilitation Counseling option is offered in conjunction with the Master of Arts in Blind Rehabilitation. In certain circumstances the rehabilitation counseling option of the Master of Arts in Counseling Education may be earned independently. Application for the dual Master of Arts degree in rehabilitation counseling/teaching (RCT) is made through Department of Blind Rehabilitation. Upon completion of the RCT program, the individual earns a Master of Arts in Counseling Education (Rehabilitation Counseling Concentration) and a Master of Arts in Rehabilitation Teaching.

Doctoral Programs:
Two doctoral programs are offered by the Department of Counselor Education and Counseling Psychology. The doctoral program in Counseling Psychology leads to a Doctor of Philosophy (Ph.D.) and holds full accreditation by the American Psychological Association (APA). The doctoral program in Counseling 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: Counseling Education and Supervision, Counseling and Leadership, and Student Affairs in Higher Education.

Admission requirements
Admission to a specific doctoral program or option may be considered by the appropriate departmental committee. Applicants should request current admission information from the Office of Admissions and Orientation.

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 program prepares students 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.

The program typically fulfills expectations for psychologist licensure/certification eligibility. The program is fully 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/Language (9 hrs.)
   *The student will demonstrate doctoral level competency in one of the following areas: foreign language, computers, Braille or American Sign Language.
   c. Biological basis of behavior (3 hrs.)
   d. Cognitive-affective basis of behavior (3 hrs.)
   e. Social basis of behavior (6 hrs.)
   f. Individual behavior and human development (6 hrs.)
2. Specialization in Counseling Psychology (29 hrs.)
   a. Counseling Psychology (21 hrs.)
   b. Human Assessment (6 hrs.)
   c. Supplied Practica (12 hrs.)
   d. Recommended Electives (9 hrs.)
   e. Doctoral Dissertation (12 hrs.)
   f. Pre-doctoral Internship (12 hrs.)
   Total Hours 97

Doctor of Philosophy in Counseling Education
The doctoral program in counseling education is joint major program (Counselor Education and Counseling Psychology) and is designed as a doctoral program in psychology by the Council for the National Register of Health Service Providers in Psychology. 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.)
2. Specialization in Counseling Education (78 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.)
   f. Pre-doctoral Internship (12 hrs.)
   Total Hours 97

Doctor of Psychology in Counseling Psychology
The doctoral program in psychology is joint major program (Counselor Education and Counseling Psychology) and is designed as a doctoral program in psychology by the Council for the National Register of Health Service Providers in Psychology. 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. Basic scientific core (33 hrs.)
   a. Research design and statistics (15 hrs.)
   b. Communication/Language (9 hrs.)
   *The student will demonstrate doctoral level competency in one of the following areas: foreign language, computers, Braille or American Sign Language.
   c. Biological basis of behavior (3 hrs.)
   d. Cognitive-affective basis of behavior (3 hrs.)
   e. Social basis of behavior (6 hrs.)
   f. Individual behavior and human development (6 hrs.)
2. Specialization in Counseling Psychology (29 hrs.)
   a. Counseling Psychology (21 hrs.)
   b. Human Assessment (6 hrs.)
   c. Supplied Practica (12 hrs.)
   d. Recommended Electives (9 hrs.)
   e. Doctoral Dissertation (12 hrs.)
   f. Pre-doctoral Internship (12 hrs.)
   Total Hours 97
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 qualifications. Upon completion of the Counseling and Leadership doctoral option, graduates should be prepared to assume leadership, administrative, and supervisory roles in mental health centers, substance abuse agencies, family counseling services, juvenile and youth consultation centers, rehabilitation clinics, outpatient and after-care services, public and private school systems and other human services agencies which provide counseling, psychological, and educational services for their clientele. In consultation with a doctoral advisor, some students entering this doctoral option may develop or enhance significantly their 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) demonstrable expertise in counseling and psychotherapy with a wide variety of individuals, groups, couples, and families; 3) a working knowledge of the full spectrum of the counseling, consulting, and supporting services in the community; 4) research skills; and 5) administrative, leadership, and supervisory competencies relevant to the design, funding, organization, implementation, and evaluation of community mental health service delivery systems.

In consultation with a doctoral advisor, some students entering this doctoral option may develop or enhance significantly their 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) demonstrable expertise in counseling and psychotherapy with a wide variety of individuals, groups, couples, and families; 3) a working knowledge of the full spectrum of the counseling, consulting, and supporting services in the community; 4) research skills; and 5) administrative, leadership, and supervisory competencies relevant to the design, funding, organization, implementation, and evaluation of community mental health service delivery systems.

Other experienced school counselors, and guidance specialists may choose to prepare for administrative and leadership positions in public and private school systems and intermediate school districts. To administer an integrated and systematic program of guidance services, an individual needs to demonstrate: 1) competencies in guidance and counseling activities; 2) organizational and administrative skills; 3) competencies in personnel services, program conceptualization, budget development, accountability evaluation, and research; 4) competency in public relations; 5) competency in career development; 6) competency in program delivery systems; 7) competency in management, 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.

Professional Counselor in the State of Michigan.

Counselor Education and Counseling Psychology Courses (CECP)

Open to Upperclass and Graduate Students
CECP 580 Principles of Counseling and Guidance
3 hrs.
The content of this introductory course focuses on the concepts underlying school guidance programs and related service delivery systems. Open to all students, but is not intended for counseling majors.

CECP 583 Workshops in Counseling Education and Counseling Psychology
1-4 hrs.
Workshops designed to enhance skill development related to Counseling Education and Counseling Psychology practices. Open to all students, but is not intended for counseling majors. May be repeated for credit.

Open to Counseling Education and Counseling Psychology Graduate Students Only. Graduate students in other programs may enroll by special permission.

CECP 601 Research Methods
3 hrs.
The study of research designs and techniques utilized in the field of Counseling Education and Counseling Psychology. Students are expected to formulate and submit a research project in their area of specialization.

CECP 602 Group Dynamics and Procedures
3 hrs.
The study of group dynamics, i.e., the nature of groups and the laws affecting group development and process. An analysis of various group procedures and the process associated with these procedures.

CECP 603 Tests and Measurement
3 hrs.
Designed to develop skills in analyzing, scoring, administering, and interpreting standardized tests. Students will examine selected aptitude, achievement, intelligence, personality and vocational instruments, as well as analyze their use in the student's area of specialization. Issues related to testing will be reviewed, including legal matters, ethical concerns, and use of tests with persons of varying social, economic, cultural, and ethnic backgrounds.

CECP 604 Counseling Techniques
3 hrs.
An introductory laboratory study of the concepts and skills required in interviewing and counseling. In addition to developing basic techniques and skills, special attention will be given to the impact of interview settings, interviewer/counselor attire, sex, ages of clients, and their social, economic, cultural, and ethnic backgrounds. Graded on a Credit/No Credit basis.

CECP 605 Professional Issues and Ethics
3 hrs.
Identification and discussion of issues in counseling, psychological services, and related programs will be the focus of this course. The study of ethical standards of relevant professional organizations. A presentation of case studies applicable to an understanding of current issues, multicultural concerns, legal decisions, and ethics in the field.

CECP 607 Multicultural Counseling and Psychology
3 hrs.
This course is designed to help students develop knowledge, skills, and attitudes for more effective work as helping professionals with culturally different groups and individuals.

Counselor Education and Counseling Psychology

Counselor Education and Counseling Psychology Courses (CECP)
Substantial attention is given to interpersonal issues, conceptualized different cultures, and programming in a variety of settings.
Prerequisites: CECP 604 and 611.

CECP 608 Counseling Across the Life Span: A Family Systems Perspective 3 hrs.
The course describes counseling implications for assessing and enhancing human development across the life span from a family systems perspective. The content includes: (a) theories of human development; (b) the stages of family development; (c) factors which influence family system patterns (e.g., race, socioeconomic status, sexual/affectional orientation, childbearing status, marital status, and divorce or blending of families); and (d) implications for assessing and enhancing the development of family members and family systems within each stage.

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 emotional life of the individual; (2) an examination of career development theory, decision-making, and application to counseling and psychotherapy; (3) the identification and location 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 work with clients from differing social, economic, cultural, and ethnic backgrounds. Graded on a Credit/No Credit basis. Approved application required.

CECP 613 Field Practicum 2-6 hrs.
A supervised field placement in a setting appropriate to the student's M.A. option arranged in consultation with admission 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. Prerequisite: 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 selected supervised settings so that students can apply knowledge and skills acquired during previous studies. Graded on a Credit/No Credit basis. Prerequisite: Consent of advisor.

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 620 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, work evaluation, work adjustment, supported employment, transition, client assistance programs, job analysis, job development, postemployment, and advocacy. Major emphasis is given to the operation of the state vocational/federal system.

CECP 621 Psychopathology: Classification and Treatment 3 hrs.
Basic concepts of history, current paradigm, 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-affective 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 Emotional 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 institutional environments will be presented. Opportunities for theory-to-practice experiences will be provided. Prerequisites: CECP 623 and 633 or the permission of the instructor.

CECP 625 Legal Issues in Higher Education 3 hrs.
The litigious nature of American (U.S.) society has made knowledge of legal issues related to liability, contract, 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. Primary focus of course content will relate to: (1) organizational models; (2) budgetary systems, (3) personnel practices, and (4) administrative tools and techniques.

CECP 627 Community Agency Counseling and Administration 3 hrs.
This course is designed to acquaint participants with a broad range of policies and procedures of administration and selected principles in program evaluation drawn from various organizational settings. The role and function of counselors and counseling psychologists will be analyzed. Evolving directions in the field of counselor education/counseling psychology will be considered.

A thorough investigation of philosophical concepts and principles 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 is required.

Enables students to understand, apply, and formulate programs of guidance as they apply to secondary schools. In particular the historical, philosophical, role, function, organization, administration, and development of guidance will be examined in depth. The student counsel 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 650 Intellectual Assessment 3 hrs.
This course provides instruction in clinical assessment with primary emphasis on individually administered paper and pencil tests. Emphasis is placed on accuracy of administration, scoring, and interpretation of psychological results via written and oral reports. Laboratory experiences provide instruction in the administration of the Wechsler scales, Binet IV, and other individually administered measures of intellectual functioning. Additional topics include theories of intellectual development, neuropsychological assessment, test bias, and procedures for non-biased assessment. Prerequisite: CECP 603.

CECP 651 Personality Assessment 3 hrs.
Survey of theory of personality assessment and the basic concepts of non-projective measurement, with emphasis on the administration, scoring, and interpretation of various instruments. Primary attention given to the MMPI. Additional emphasis includes study of the Milon, 16-PR, CPI, and other measures. Prerequisite: CECP 603.
CECP 654 Psychoeducational Assessment 3 hrs. This course combines lecture and laboratory experience in psychoeducational assessment with primary emphasis on academic learning problems. Diagnostic assessment of reading, math written language, perceptualmotor, adaptive behavior, and social problems 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 623 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, and multicultural development in school psychology.

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 family therapy are stressed. Course content also includes an overview of the historical development of 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 couple 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 and role of each in the dysfunction. Finally, there is in-depth study of current approaches to therapy as well as attention to other issues such as comorbid treatment of couples, resistance, sexual dysfunction in both partners, and sexual dysfunction and its relationship to marital discord. Prerequisites: CECP 661 and 662, or 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. 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 students. Prerequisite: CECP 623 or equivalent.

CECP 674 Psychological Development Theory 3 hrs. This course examines psychological development from a number of perspectives including psychodynamics, object-relations 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 practicum type 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 Student Affairs options. Prerequisite: Admission to a CLASA doctoral option in the department.

CECP 686 Topical Seminars 1-4 hrs. Seminars to study current topics relevant to counseling psychological services and related fields. Additional course descriptions may be obtained from the instructor involved and arrangements made with instructor's consent. May be selected more than once; total may not exceed four hours.

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 635 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 4 hrs. Supervised practicum for doctoral students with emphasis in (a) Individual Counseling and Psychotherapy, (b) Group Counseling, (c) Maternal 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 also 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.
EDUCATION AND PROFESSIONAL DEVELOPMENT

Dr. Joseph Ketrovic, Chair
Main Office: 2112 Sangren Hall
Telephone: 387-3465
FAX: 387-2682


Master of Arts in Education and Professional Development

The Master of Arts in Education and Professional Development provides a comprehensive professional development program with six distinct areas of concentration:
1. Early Childhood Education
2. Elementary School Teaching and Learning
3. Human Resources Development
4. Reading
5. Socio-Cultural Foundations and Educational Thought
6. 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 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 admission 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 graduate credits taken before admission may be applied to the Master of Arts in Education and Professional Development with advisor approval.

Program requirements

EARLY CHILDHOOD EDUCATION, (36-39 hrs.)

Advisors: Ariel Anderson, Susanne Davis, Regena Fails Nelson, Andrea Smith
Room 2112, Sangren Hall

1. Education and Professional Development Core (9 hrs.)
   - ED 601 Introduction to Research in Educational Settings (3 hrs.)
   - ED 633 Human Nature and Diversity (3 hrs.)
   - ED 634 Culture and Politics of Educational Institutions (3 hrs.)
2. Program Concentration (18 hrs.)
   - ED 606 Early Childhood Curriculum Workshop (6 hrs.)
   - ED 608 Seminar in Early Childhood Development (6 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. Electives (6 hrs.). Each student, with advisor approval, will choose two courses from an extensive list of options including, but not limited to, the following:
   - ED 575 Administration of Child Development Centers (3 hrs.)
   - 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 Discipline (3 hrs.)
ED 675 Multicultural Education (3 hrs.)
ED 697 Special Topics in Reading (3 hrs.)
SPED 530 Education of Exceptional Persons (3 hrs.)

4. Capstone Research Project or Master's Thesis (3-6 hrs.)
   - ED 679 Capstone Research Project (3 hrs.)
   - 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:
Dwayne Anderson, William Cobern, Susan Edgerton, M. Arthur Garmon, Gunilla Holm, Robert Kotecki, Elena Lisovskaya, Carol Payne Smith, Allison Young
Room 2112, Sangren Hall

1. Education and Professional Development Core (9 hrs.)
   - ED 601 Introduction to Research in Educational Settings (3 hrs.)
   - ED 633 Human Nature and Diversity (3 hrs.)
   - ED 634 Culture and Politics of Educational Institutions (3 hrs.)
2. Program Concentration (21 hrs.)
   - Required, 12 hrs.
     - ED 600 Fundamentals of Measurement and Evaluation (3 hrs.)
     - ED 602 School Curriculum (3 hrs.)
     - ED 608 Seminar in Early Childhood Development (3 hrs.)
   - ED 636 Advanced Instructional Strategies (3 hrs.)
3. Electives (3 hrs.) in consultation with a faculty advisor, the student will select one additional course from the elective option areas or a course from a content area.
4. Capstone Research Project or Master's Thesis (3-6 hrs.)
   - ED 679 Capstone Research Project (3 hrs.)
   - ED 700 Master's Thesis (6 hrs.)

HUMAN RESOURCES DEVELOPMENT, (36-39 hrs.)

Advisors:
Robert Brinkerhoff
Room 2112, Sangren Hall

1. Education and Professional Development Core (9 hrs.)
   - ED 601 Introduction to Research in Educational Settings (3 hrs.)
   - ED 679 Capstone Research Project (3 hrs.)
   - ED 700 Master's Thesis (6 hrs.)

DEVELOPMENT
108 COLLEGE OF EDUCATION

2. Program Concentration (18 hrs.)
   Required, 9 hrs.
   ED 660 Principles of Human Resources Development (3 hrs.)
   ED 661 Fundamentals of Needs Analysis (3 hrs.)
   ED 662 Evaluation of Human Resources Development (3 hrs.)

   Electives, 9 hrs.
   Select three courses from:
   ED 505 The Adult Learner (3 hrs.)
   ED 641 Instructional Development (3 hrs.)
   ED 663 Project Management in Human Resources Development (3 hrs.)
   ED 664 Learning and Organizational Effectiveness (3 hrs.)
   ED 665 Practicum in Human Resources Development (3 hrs.)

3. Electives (6 hrs.): With advisor approval, select two courses in an area of interest.

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.)

SOCCER-CULTURAL FOUNDATIONS AND EDUCATIONAL THOUGHT, (36-39 hrs.)

Advisors:
Paul Farber, Gunilla Holm, G. Thomas Ray,
Gerald Pillsbury, Elena Lisovskaya, Joseph Kretovics
Room 2112, Sangren Hall

1. Education and Professional Development Core (9 hrs.)
   ED 601 Introduction to Research in Educational Settings (3 hrs.)
   ED 633 Human Nature and Diversity (3 hrs.)
   ED 634 Culture and Politics of Educational Institutions (3 hrs.)

2. Program Concentration (15 hrs.)
   Select at least one course in educational technology competencies for
   individuals that are employed or seek professional employment in the field of
   educational technology. The audience for the program is anticipated to be
   inservice teachers interested in educational technology in the classroom, intervierce

TEACHING IN THE MIDDLE SCHOOL, (36-39 hrs.)

Advisors:
Lynn Nations-Johnson, Jennifer Fager,
Lauren Freedman
Room 2112, Sangren Hall

1. Education and Professional Development Core (9 hrs.)
   ED 601 Introduction to Research in Educational Settings (3 hrs.)
   ED 633 Human Nature and Diversity (3 hrs.)
   ED 634 Culture and Politics of Educational Institutions (3 hrs.)

2. Program Concentration (15 hrs.)
   ED 621 The Early Adolescent Learner (3 hrs.)
   ED 622 Middle School Curriculum (3 hrs.)
   ED 624 Middle School Methods and Materials (3 hrs.)
   ED 625 Strategic Learning through Texts for Middle School Teachers (3 hrs.)
   or
   ED 617 Reading in the Content Area (3 hrs.)
   SPED 530 Introduction to the Exceptional Learner (3 hrs.)
   or
   SPED 661 Transdisciplinary Teaching (3 hrs.)

3. Electives (9 hrs.)
   Select one course from the following:
   ED 603 Social and Philosophical Foundations (3 hrs.)
   ED 604 Psychological Foundations of Education (3 hrs.)
   ED 631 Comparative Education (3 hrs.)
   ED 670 School Climate and Discipline (3 hrs.)
   ED 671 Structuring Classroom Dialogue (3 hrs.)
   ED 673 Class, Ethnicity, and Gender in Education (3 hrs.)
   ED 675 Multicultural Education (3 hrs.)
   ED 676 Teaching Thinking in the Schools (3 hrs.)
   ED 677 Ethnicity of Schooling (3 hrs.)

   Select six hours from one or two subject matter areas that correspond
   with the student's professional content area assignment and/or professional
   development interests.

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

Certificate Program in Educational Technology

Advisors:
James Bosco, Howard Poole
Room 2112, 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 employment 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, intervie
teachers with more advanced technology knowledge, and in competencies and responsibilities required for building level technology specialists, inservice teachers or individuals who desire or assume the position of district technology coordinator and, district administrators, the classroom teacher, or 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 of purpose (1,000-1,500 words), and complete the application form required by the department. Admission decisions will be made by the department's Graduate Studies Committee, following a review of the applicant's admission materials and a recommendation by an ad hoc educational technology advisory committee.

Program requirements
Students will complete a planned program of study consisting of 15-21 hours of course work (1,000-1,500 words), and complete the following a review of the applicant's admission and ED 649, Planning and Implementing Technological Leadership. Successful completion of ED 540 will start with the ED 541 or ED 542. Students who demonstrate prior mastery of the knowledge and skills in ED 541 and ED 542 will have other course choices available.

The courses within the certificate program are presented in levels related to their intended audience and the application of the knowledge and skills developed (i.e., Level I, Teaching: ED 540, 541; Level II, Building Level Technology Coordination: ED 542, 548; Level III, District Technology Coordination: ED 549, 648, 649). A minimum of 15 hours is necessary to complete the Certificate Program in Educational Technology, and competence in all courses must be demonstrated by course credit or by evaluation of prior mastery of the performance outcomes of ED 540, 541, and/or 542.

ED 501 In-Service Professional Development I
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 outcome assessment includes a 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 training 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. Participation in the certificate program is required for any given subtitle. No more than six hours of 502 may be applied toward a master’s degree with advisor’s approval.

ED 503 Educational Technology Academy
1-3 hrs. This course is designed to provide students to update knowledge and skills in current educational technology and apply learning to additional 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 preserve and inservice professionals. Participation in the course may be a requirement. Special emphasis will be placed on the development, implementation, and use of technology in the classroom. This course is designed to provide students with the skills necessary to work with computers, video and audiovisual technologies in literacy development, content area programs, instructional management, and the arts, as well as others appropriate to preserve and inservice professionals.

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 life-styles, mid-life career change, 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.

ED 506 Teaching in Adult Education
3 hrs. This course is designed to provide teachers with a knowledge of special situations incurred in the teaching of adults. Included also are techniques of interpersonal communication with adults, as well as practical exercise in the designing of learning experiences for adults. Extensive use will be made of audiovisual media, and computers, experts in the field, and field observation of programs and activities. The course should be helpful to administrators in planning inservice programs for their staff.

ED 508 Seminar in Parent Education
2 hrs. Emphasis is placed on cooperative problem-solving between parents and teachers of school-age children and youth. Problems considered include such topics as grief and loss through death, divorce, or separation, special needs and contributions of multicultural parents, parents as resource persons and paraprofessionals in the schools, and problems identified by members of the seminar. Members of the seminar will report on the current literature available through libraries and community resources and work toward potential solutions.

ED 516 Professional Symposium in Reading
3 hrs. This course provides an overview of the course in the graduate program in reading. It is designed to present the basic concepts concerning the nature of the reading process and the teaching of reading. Emphasis will be placed on reading as a thinking process and on factors affecting reading performance. Special emphasis will be placed on child development, language development, concept development, physical, psychological, and environmental factors affecting the literacy development. In addition, the course will provide a brief overview of the delivery systems and procedures used in the U.S. to teach reading. This will involve an historical overview as well as current and potential future practices.

ED 540 Introduction to Computing and Technology for Productivity
3 hrs. This course is an introduction to computing and technology for productivity software. Designed for the beginning computer user, this course covers necessary information for the student to understand how to successfully a computer and other technology devices (CD-ROM, laserdisc player, etc.). Operation includes running programs, accessing information, data 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 terminology. The student will be aware of the various types and uses of software for learning and productivity and will be able to evaluate educational software for classroom application.

ED 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 will be examined. 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
ED 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 a survey of learning theory and instructional design principles related to the development of educational technology programs. A review of the theory of individual learning styles and application of technology will be presented. Upon completion of this course, students will possess knowledge in the planning, delivery, and evaluation of instruction through the implementation of various technologies. Students will design and develop educational technology products (computer based, hypermedia/multimedia, WWW, etc.) based upon instructional design principles. Prerequisite: ED 540 or equivalent.

ED 549 Instructional Technology I
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: ED 542 or equivalent.

ED 549 Instructional Technology II
3 hrs.
This course manages issues related to the selection, purchase, installation, and maintenance of software programs for computer and network systems. Students will learn how to conduct a technology needs assessment for a school district. Using information gained from the needs assessment, students will also learn methods of planning for, implementing, and maintaining technology across an entire system. A detailed review of networking items including hardware, software, Internet connectivity, and troubleshooting issues will also be addressed. Prerequisite: ED 542 or equivalent.

ED 550 Photography Workshop
1-3 hrs.
Intended to sharpen visual perception while improving technical skills, this laboratory course emphasizes photography as a creative and expressive medium of visual communication. Each student is expected to produce new photographs each week and to submit one or more mounted enlargements for group critique at each class meeting. Each student will be responsible for the use of appropriate equipment and should expect to spend $80 or more for supplies. Although no prerequisite is required, it is helpful to have some experience with basic darkroom processes. May be repeated up to a total of six credits.

ED 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 FCS 575.)

ED 597 Reading and Related Language Experiences
3 hrs.
A study of the current research on language related skill acquisition and literacy development.

ED 598 Selected Reading in Education
1-4 hrs.
Designed for highly qualified students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Written consent of departmental advisor and instructor.

Open to Graduate Students Only

ED 600 Fundamentals of Measurement and Evaluation in Education
3 hrs.
This course is designed to develop understandings and competencies in educational measurement and evaluation. Emphasis is placed on the application of research techniques to evaluation, the interpretation of quantitative data in educational situations, and the application of basic evaluation models.

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 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 the structures of the discipline as guidelines for a curriculum emerging from and serving a democratic society.

ED 603 Social and Philosophical Foundations
3 hrs.
A cultural approach to the development of American educational policy and practice in its broad social setting. Consideration is given to historical, economic, social, and philosophical factors which influence educational thought and practice. The need for historical perspective and sound analysis of conflicting points of view is emphasized in the interpretation of current educational and social issues and the alternative solutions of present educational problems.

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. Prerequisites: Admission to the master's program in Early Childhood Education and permission of instructor.

ED 607 Research Methods in Early Childhood Education
3 hrs.
The purpose of this course is to acquaint the student with major types of research about young children, the steps involved in conducting such investigations, and the basic statistical concepts needed for understanding and designing research. This course will be required for a research proposal. Prerequisites: ED 606 and permission of instructor.

ED 608 Seminar in Early Childhood Development
3 hrs.
The content of this seminar may vary each semester depending on the interests and needs of the students, but is invariably designed to provide an in-depth exploration of some facet of development in young children. Each student is expected to conduct a search of the literature on a specific topic. Topics may include child-rearing practices, sex-role identification, cognitive development, language acquisition, psychomotor development, and parent education. Prerequisites: ED 606, ED 607 or ED 601, and permission of instructor.

ED 609 Early Childhood Education in Perspective
3 hrs.
A study of the history of the education of young children with emphasis on the philosophy, social settings, and people who have influenced the movement. Prerequisites: ED 606, ED 607 or ED 601, ED 608, and permission of instructor.

ED 610 Montessori Education
3 hrs.
This course is an introduction to the philosophy of Dr. Maria Montessori for teaching the child “for life” and its application to classroom practice. Students will become familiar with the life and work of Dr. Montessori and their influence on her philosophy of education. Students will study the techniques and the learning materials she developed and consider their universal applicability.

ED 611 Informal Approaches to Studying Young Children’s Development
3 hrs.
The course helps teachers observe, evaluate, and guide young children’s growth while developing their skill in informal observation techniques. Teachers will learn about their children from new perspectives, recognizing and meeting children’s needs. Evaluation procedures will help account for children’s psychological and social growth while creating classroom conditions to maximize this growth.
This course is designed to assist elementary classroom teachers and those interested in literacy for young elementary students in using appropriate strategies for accessing meaning of text. This course will have ways to help students understand and apply strategies in using reading and writing as ways of knowing for young children. Prerequisite: ED 516.

ED 613 Early Childhood Problems and the Teacher 3 hrs.
Deals with the concepts of discipline and questions teachers ask about children and focuses on tasks and challenges students with growing children's learning. Knowledge of how young children develop practical strategies used in the process of reading to application to their own curriculum for children.

ED 614 Parent Education for Teachers of Young Children 3 hrs.
Presents a variety of techniques for teachers to use in working together with parents. Teachers will study child-rearing factors which parents must most 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 will 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 process of reading to learn. Participants will consider the text factors which affect student learning, and develop and evaluate strategies and materials to enhance their students' learning in specific content areas.

ED 619 Clinical Studies in Reading 3 hrs.
This course is intended to provide the basic information needed in the examination of persons with reading disabilities. Interviewing techniques and examination procedures will be the basic content of the course. Emphasis will be placed on the educational, physical, psychological, and sociological factors affecting reading performance. Students will be provided with a knowledge of both standardized and informal reading tests. Students will have the opportunity to construct, administer, score, and interpret both standardized and nonstandardized reading tests. Emphasis will be placed on producing a practical bibliography of measurement instruments and materials. Prerequisite: ED 512 or 522.

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 and their use, administration, and interpretation. Students will also learn techniques of therapy and recognize those factors necessary for effective therapy. Prerequisites: ED 512 or 501 and 619.

ED 621 The Early Adolescent Learner 3 hrs.
Theoretical background and research related to the intellectual, emotional, perceptual, social, and personality development are presented and explored. Emphasis is placed upon problems teachers face with early adolescent learners and appropriate strategies for helping these students realize their potential.

ED 622 Middle School Curriculum 3 hrs.
This course examines the historical and philosophical foundations of middle level schools, effective organizational components, supporting research and current trends and issues affecting early adolescent schooling. An emphasis on how appropriate middle level schools strive to meet the developmental needs of young adolescents undergirds all topics. Prerequisite: ED 621.

ED 624 Middle School Methods and Materials 3 hrs.
This course presents instructional strategies designed to meet the developmental needs of young adolescents. It reflects the middle school philosophy by focusing on personal, skill, and cognitive development. Students work in interdisciplinary teams on a group project. Other topics of emphasis include middle level educators are examined, including teaching responsibility, grading and evaluation, and whole brain learning. Prerequisites: ED 621 and 622.

ED 625 Strategic Learning through Texts for Middle School Teachers 3 hrs.
This course is designed to assist middle school classroom teachers to design and develop strategies in using reading and writing as ways of knowing for middle school students. Prerequisite: ED 516.

ED 628 Curriculum Theory 3 hrs.
This course provides students with an in-depth examination of significant historical and philosophical influences on curriculum, as well as important theoretical orientations within the field. The purpose of the course is to enable students to engage in critical reflection from theoretical perspectives on the purposes and practices of schooling, and to bring this critical reflection to the design, planning and evaluation, and to their own teaching practices.

ED 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 content and methods of schooling in the United States. Particular attention is given to cultural dissonance among students, teacher, and text, and to culturally grounded ways of knowing that emerge from schooling experiences.

ED 630 History of Education in the United States 3 hrs.
Development of educational thought, practice, and social change from 1620 to the present. An examination of the development of the American commitment to communitarian education. The changing relationship between school and community. The role of the professional educator; and the shift and progress toward educational goals. Implications of historical background for present problems in education will be the focus of the course with an emphasis on the revision of previously held conventional thinking about schooling in America will be addressed.

ED 631 Comparative Education 3 hrs.
This course provides an overview of comparative education, a field concerned with schooling within different national and historical contexts. Educational patterns and their societal determinants around the world will be examined. Selected problems and patterns of American education will also be highlighted from comparative perspectives. It will explore major theories and methodological approaches in comparative educational research as well as examine representative cross-national issues and themes.

ED 633 Human Nature and Diversity 3 hrs.
This course examines practical and theoretical issues in the definition of desirable educational aims and practices as related to the perceived needs, interests, and potentials of those involved. The course places the process of defining aims and practices in social, cultural, and historical perspective, with particular attention to the influence of concepts 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.

ED 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 method. The course also examines the roles of professional educators in effecting organizational change.

ED 635 Children, Science, and Technology 3 hrs.
The course is intended to help elementary and middle school teachers capitalize on children's natural interest. In this course students will explore a number of inexpensive and practical activities that teachers can use to encourage children to explore. The activities teach science processes; that is, they involve the children in processes of gaining knowledge similar to what scientists do. The course emphasizes the development of scientific knowledge. The processes will include observing, measuring, classifying, recording, and problem solving. The course will explore different uses for
computer technology including the World Wide Web. The course will also cover assessment methods for activity-oriented instruction.

ED 636 Advanced Instructional Strategies for Elementary Teachers
3 hrs.
This is an advanced course on teaching strategies at the elementary grade level. The course focus is thematic and interdisciplinary. The course is intended to help teachers develop advanced strategies for making instructional connections among the basic disciplines of an elementary curriculum. In addition, the course includes technology and multicultural issues in teaching.

ED 641 Instructional Development
3 hrs.
Intended for media specialists and experienced teachers, this course employs an accountability model for application of media research and technology to actual courses and bodies of instruction. Students follow a systematic instruction development procedure from task analysis to evaluation, working together with their own students or as assistants and consultants to other professionals. Prerequisite: ED 548 or equivalent.

ED 643 Practicum in Clinical Studies in Reading
3 hrs.
This course is intended to give students experience in employing informal and formal standardized instruments and techniques necessary for the diagnosis and treatment of the disabled reader. The course emphasizes the use of various measurements pointing out their capabilities and limitations. Skills in interviewing, observing, diagnosing, planning treatment, and working with parents and school personnel are emphasized. Prerequisites: ED 619 and 620.

ED 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 Individualized Instruction, Instructional Simulation and Gaming, Computer Applications in Instruction, and Diffusion and Adoption of Innovative Practices in Education. This course may be repeated for credit as different topics are offered. Prerequisite: ED 548 or equivalent experience.

ED 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. The 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: ED 542 or equivalent.

ED 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 in 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: ED 542 or equivalent.

ED 652 Oracy and Literacy
3 hrs.
The course explores the foundations of language, language acquisition, language development, and the ties between oral language and written language. The role of oral language, applied linguistics, and dialects is studied and applied to the literacy process.

ED 653 Practicum in Reading Therapy
3 hrs.
This course affords students the opportunity to build on competencies attained in ED 643. Reading therapy is offered on a one student to client basis under the direction of a trained clinical therapist. The course serves as an internship for working with pupils who have problems in reading and related areas. This course will provide graduate students with experience in developing and carrying out 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. This 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 660 Principles of Human Resources Development
3 hrs.
The course provides an overview of the human resource development (HRD) function in an organization. The course will cover the role 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 understanding the HRD function in any organization to identify those elements and characteristics of HRD associated with successful, state-of-the-art and worldwide 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.

ED 661 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.

ED 662 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, implement, and evaluate 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 impinge on successful HRD efforts. Students analyze more major HRD interventions for a real or hypothetical organization, including plans for creating the pre- and post-training organizational environment needed to impact effective performance, and design and evaluation approach to assess the quality of the intervention.

ED 663 Project Management in Human Resources Development
3 hrs.
This course responds to both general project management concerns as well as the particular demands and problems associated with managing human resource development and other educational projects. Students will develop an understanding of project management needs, problems, concepts and strategies. They will be introduced to and practice particular project management skills, such as project definition, work flow analysis, dependency charting, budgeting, planning, etc. Emphasis in the course is on acquisition of practical skills and knowledge. The course is intended especially for persons who have recently or will in the near future assume responsibility for managing a project and who have had little previous management experience.

ED 664 Learning and Organizational Effectiveness
3 hrs.
Examination of characteristics and elements of effective organizations that can be positively impacted by educational concepts and interventions, with special attention to the roles of individual and organizational learning in organizational effectiveness. 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 worldwide 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.

ED 665 Practicum in Human Resources Development
3 hrs.
This course is a supervised practicum integrated with a class meeting component. Students work together on human resources development projects with real clients in the Kalamazoo area. The bulk of work takes place in the field, in project work and client contact. Class meeting sessions will be spent in project reviews and group problem solving. Students will develop consultation skills and gain experience in solving HRD application problems.

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. Emphasis on 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...
This course investigates the issues involved in will be stressed. and schooling. Participant observation, 3 hrs. This course provides a foundation to examine higher level thinking skills into the curriculum. Students will design and execute a small-scale ethnographic study focused on an population. Ethnographic research on in-depth interviewing, and document analysis will be stressed. Strategies for resolving cross-cultural conflicts will be examined.

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 order thinking skills into the curriculum.

ED 677 Ethnography of Schooling 3 hrs. This course is an in-depth exploration of the use of ethnography in the study of teaching and school observe patterns, 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 as they arise in the work of students. Ethnographic research on educational issues, with an emphasis on teaching, will be read concurrently.

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 both concentration core courses, 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 development 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 process, helping teachers create an environment in which children develop a strategy of oral language learning, learning to read, and learning to write. The relationship of early writing to early reading is examined, and 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 current research and exploring middle level education issues. Students will examine curricular issues with an emphasis on integrative approaches to organizing knowledge and then identify topics for study based on their professional interests and goals. These topics are explored along with a variety of middle level education issues and their policy implications. Students identify a culminating project and conduct a review of literature pertaining to the project. Projects are completed in ED 694.

ED 694 Middle School Project 3 hrs. Students continue their investigation of middle level education issues identified in ED 693. The main focus of the course is the completion of the previously identified culminating project. Students work independently on their projects with periodic class sessions designed to discuss education issues and project progress. Students present their projects for critical review and analysis. Prerequisite: ED 693.

ED 695 Reading Seminar 3 hrs. This course is designed to be the culminating course in each of the three streams in the master's program in reading and is designed to acquaint reading specialists, and administrators with the current research and literature pertinent to their areas of specialization. Students should be able to demonstrate an ability to design reading research studies which contribute to the body of knowledge in reading. As this course is intended as the capstone course, it must be taken in the last six hours of graduate work.

ED 697 Special Topics in Reading 1.5-3 hrs. A variable credit course designed to provide a vehicle for the development and implementation of special topics in the field of literacy. The purpose is to provide students with the opportunity to study topical current issues.

ED 698 Resolving Educational Problems in the Schools 1.5-6 hrs. With variable topics and variable credit, this course is offered for in-service teachers, supervisors, and administrators who come together to solve school problems which they are encountering in the field. Problem-solving techniques, theoretical and evidential support for solutions, and workshops will be applied to actual school or classroom situations. The topic of the course will be stated in the Schedule of Classes each time the course is offered. Students may repeat this course, providing topics vary. No more than six hours of 698 may be applied toward a graduate degree.

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

ED 700 Master's Thesis 6 hrs.

ED 710 Independent Research 2-6 hrs.

ED 712 Professional Field Experience 2-12 hrs.

EDUCATIONAL LEADERSHIP

Dr. Alonzo Hannaford, Associate Dean and Interim Chair

Main Office: 3312 Sangren Hall
Telephone: 387-3579
FAX: 387-3880

Professors Mary Anne Bunda, Frank Rapley, James Sanders, Ulidis Smidchens, Daniel Suffetbeam, Donald Thompson, Associate Professors Van Cooley, Charles Warfield, Assistant Professors David Cowden, Jianping Shen, Catherine Sielke, Julia Smith

Master of Arts in Educational Leadership

Advisors:

Mary Anne Bunda, Van Cooley, David Cowden, James Sanders, Jianping Shen, Catherine Sielke, Ulidis Smidchens, Julia Smith, Charles Warfield.

Room 3312, Sangren Hall.

The Department of Educational Leadership offers a Master of Arts program for those individuals interested in developing and enhancing leadership skills for use in various settings within government, education, and other institutions. The Master of Arts in Educational Leadership offers several areas of concentration, in addition to the general degree: A concentration in educational evaluation, measurement, and research design, and other concentrations which lead to endorsement for certification as an elementary or a secondary principal, a chief school business official, a central office administrator (with course substitutions allowed for Directors of Special Education), and a school district superintendent. At Western Michigan University the term
concentration is a formal designation obtained through the curriculum review process. Transcripts and degrees, when granted, carry the formal designation of any concentration which has been adopted and approved.

Persons who wish to apply to the Educational Leadership master's program must apply directly to the Admissions Office. Applicants who need advice or information prior to admission are urged to contact the Educational Leadership office. Satisfactory completion of courses prior to admission to a Department program does not guarantee admission to the program.

GENERAL EDUCATIONAL LEADERSHIP

This degree is designed for graduate students who desire to develop and enhance their leadership skills and who find specialization in the concentration areas unnecessary. The program requires a minimum of 33 credit hours. Required courses are EDLD 602, Educational Leadership, EDLD 640, Introduction to Research, and EDLD 673, Supervision. In addition, the student and the advisor develop a program of study with 6 credit hours in courses selected from EDLD 660, Site Based Budgeting, EDLD 662, School Business Management, EDLD 663, Personnel Administration, and EDLD 664, Curriculum Development; 9 credit hours selected from EDLD 641, Measurement Techniques, EDLD 642, Program Evaluation, EDLD 643, Personnel Evaluation, EDLD 647, Survey Research Design and Analysis, and EDLD 648, Techniques of Naturalistic Inquiry; and 9 credit hours of electives that provide strengths needed by the student to achieve the student’s leadership goals.

ELEMENTARY/SECONDARY PRINCIPAL

A program of study leading to a master’s degree with endorsement as a chief school business official consists of a minimum of 33 credit hours and includes the following required courses: EDLD 602, Educational Leadership; EDLD 640, Introduction to Research, and EDLD 664, Curriculum Development; EDLD 665, Elementary Administrator or EDLD 670, Secondary Administrator (according to emphasis selected); EDLD 667, School Community Relations; and EDLD 674, School Community Relations. In addition, 9 credit hours of electives which add to the student’s skills will be chosen with the advisor’s approval. Contact the Teacher Certification Office at Western Michigan University for complete information on compliance for certification for the State of Michigan as a building principal.

CENTRAL OFFICE ADMINISTRATOR

A program of study leading to a master’s degree with endorsement as a central office administrator consists of a minimum of 36 credit hours and includes the following required courses: EDLD 602, Educational Leadership; EDLD 640, Introduction to Research, EDLD 665, Elementary Administrator or EDLD 675, Secondary Administrator; EDLD 661, School Law; EDLD 662, School Business Management; EDLD 664, Curriculum Development; EDLD 665, Elementary Administrator or EDLD 670, Secondary Administrator; EDLD 673, Supervision; and EDLD 674, School Community Relations. In addition, 9 credit hours of electives which add to the student’s skills will be chosen with the advisor’s approval. Contact the Teacher Certification Officer at Western Michigan University for complete information on compliance for certification for the State of Michigan as a central office administrator.

SPED courses. Contact either the Special Education or the Educational Leadership office for particulars. Contact the Teacher Certification Officer at Western Michigan University for complete information on compliance for certification for the State of Michigan as a central office administrator.

CHIEF SCHOOL BUSINESS OFFICIAL

A program of study leading to a master’s degree with endorsement as a chief school business official consists of a minimum of 33 credit hours and includes the following required courses: EDLD 602, Educational Leadership; EDLD 640, Introduction to Research; EDLD 662, School Business Management; EDLD 663, Personnel Administration; EDLD 664, Curriculum Development; EDLD 672, School Finance, and EDLD 682, Computer Applications in Administration. In addition 9 credit hours are selected, with advisor approval, that add to the personal skills and strengths of the student. Contact the Teacher Certification Officer at Western Michigan University for complete information on compliance for certification for the State of Michigan as a chief school business official.

EDUCATIONAL EVALUATION, MEASUREMENT, AND RESEARCH DESIGN

Persons applying to this program, in addition to satisfying the admission requirements for The Graduate College, must take the Graduate Record Examination (GRE) scores. Students completing this degree program will be qualified to serve in a staff position in educational evaluation, testing, or research units in school and non-school settings, or in local, state, or federal government agencies. This 33 credit hour program requires the satisfactory completion of EDLD 612, Educational Leadership; EDLD 640, Introduction to Research; EDLD 641, Measurement Techniques in Education; EDLD 642, Program Evaluation; EDLD 643, Personnel Evaluation, EDLD 647, Survey Research Design and Analysis; EDLD 648, Techniques of Naturalistic Inquiry; and EDLD 673, Measurement, Data Analysis II: Research Design and Data Analysis I; EDLD 647, Survey Research Design and Analysis; EDLD 673, Supervision; and EDLD 712 Professional Field Experience. 3 credit hours. In addition, 9 credit hours are chosen, with advisor approval, from courses designed to complement and strengthen skills acquired by the student.

Specialist in Education in Educational Leadership

Advisors:
Mary Anne Bunda, Van Cooley, David Cowden, James Sanders, Jiaping Shen, Catherine Siewe, Uldis Smidchens, Julia Smith, Charles Warfield.
Room 3312, Sangren Hall.

The Specialist in Education (Ed.S.) prepares persons for leadership roles in educational administration positions. The Ed.S. is a terminal degree appropriate for students wishing to earn a post-master’s, but not doctoral, degree. Persons seeking admission to the Ed.S. program should be definite about academic and professional goals and aspirations. Students are cautioned that satisfactory completion of courses prior to admission to the Department program does not guarantee admission to the program.

Admission procedures
Applicants to the Ed.S. program should submit application materials to the Office of Admissions and Orientation, Gradate Admissions, and designate Educational Leadership. In addition to the Graduate College requirements, the Department of Educational Leadership requires the submission of an autobiography, 3 graduate reference forms, completion of a Resume of Leadership Experience form (available from the Educational Leadership office), an interview with at least two members of the Educational Leadership faculty, and review and acceptance by the faculty as a whole at a meeting scheduled for student admission. The admission meetings are held in November and March.

Program requirements
A program of study consists of a minimum of 66 credit hours beyond the baccalaureate degree and leads to an Ed.S. degree and endorsement as a central office administrator or superintendent, if the appropriate electives are completed, and includes the following courses: EDLD 602, Educational Leadership; EDLD 640, Introduction to Research; EDLD 665, Elementary Administrator or EDLD 670, Secondary Administrator; EDLD 661, School Law; EDLD 662, School Business Management; EDLD 663, Supervision, EDLD 674, School Community Relations; EDLD 680, The Superintendent; EDLD 712, Professional Field Experience (6 credit hours), and EDLD 720, Specialist Project (6 credit hours).

In addition, 24 semester credit hours of elective courses will be selected, with advisor approval, that will complement and broaden strengths and skills acquired in the program. Contact the Teacher Certification Officer at Western Michigan University to be sure you meet the State of Michigan requirements for certification beyond 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.

Doctoral Programs:
The Department of Educational Leadership offers programs that lead to either a Doctor of Education (Ed.D.) or a Doctor of Philosophy (Ph.D.), depending upon the area of concentration selected. At Western Michigan University the term concentration is a formal designation obtained through the curriculum review process. Transcripts and degrees, when granted, carry the formal designation of any concentration which has been adopted and approved.

In addition to the general degree (Ed.D.), the Department offers degree programs that lead to concentrations in Central Office Administration (Ed.D.), Superintendency (Ed.D.), and Educational Evaluation, Measurement, and Research Design (Ph.D.).

Admission requirements
Admission to the Department requires that students meet The Graduate College criteria for admission, submit 3 graduate reference forms, and complete a Resume of Leadership Experience form (available in the Department).
Each student will be interviewed by a minimum of two members of the faculty, and each application will be reviewed for acceptance by the entire faculty at a meeting scheduled to consider student admissions. Meetings are scheduled in November and March. After admission, a doctoral advisory committee will be appointed from among the faculty advisors, and the student will work with this advisor to complete an appropriate doctoral 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 contacting the Educational Leadership Department.
Doctor of Education in Educational Leadership

Advisors: Mary Anne Bunda, James Sanders, Jianping Shen, Charles Warfield, Room 3312, Sangren Hall.

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; EDLD 640, Introduction to Research; EDLD 645, Research Design and Data Analysis I; EDLD 646, Research Design and Data Analysis II; EDLD 673, Supervision; EDLD 681, Policy Development; EDLD 682, School Facilities Planning; EDLD 685, School Facilities Planning.

EDLD 660, Education Leadership (99 hours minimum) with a concentration in Educational Evaluation, Measurement, and Research Design.

Required Courses:
EDLD 602, Educational Leadership; EDLD 609, Theories of Leadership; EDLD 640, Introduction to Research; EDLD 645, Research Design and Data Analysis I; EDLD 646, Research Design and Data Analysis II; EDLD 665, Elementary Administrator or EDLD 670, 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 Superintendency; EDLD 695, Dissertation Seminar.

EDLD 611, Measurement, and Research Design.

Doctor of Philosophy in Educational Leadership

Advisors: Mary Anne Bunda, James Sanders, Room 3312, Sangren Hall.

EDUCATIONAL EVALUATION, MEASUREMENT, AND RESEARCH DESIGN

The following requirements and courses will lead to a Doctor of Philosophy in Educational Leadership (99 hours minimum) with a concentration in Educational Evaluation, Measurement, and Research Design. This program prepares graduates to serve in leadership roles in educational evaluation, testing, or research units in school and non-school settings, as well as in local, state, or federal government agencies and to serve in faculty positions in educational educational, measurement, and research at institutions of higher education.

Required Courses:
EDLD 602, Educational Leadership; EDLD 609, Theories of Leadership; EDLD 640, Introduction to Research; EDLD 641, Measurement Techniques in Education; EDLD 642, Program Evaluation; EDLD 643, Personnel Evaluation; EDLD 647, Survey Research Design and Analysis. Another 12 credit hours will be selected with advisory committee approval, from related courses. A minimum of 6 credit hours will be selected from courses outside the Department of Educational Leadership.

Doctor of Philosophy in Educational Leadership Courses (EDLD)

Open to Graduate Students Only
EDLD 600 Academy 1-4 hrs.
Topics of interest to professionals in the field of educational leadership are examined in academic offered by the department. May be repeated. May not be applied to degree programs. Graded on a Credit/No Credit basis.
EDLD 601 Workshop Seminar 1-4 hrs.
Seminars and workshops focusing on topics of interest to professionals in the field of educational leadership. May be repeated. May not be applied to degree programs in educational leadership. Total credits not to exceed six hours.
EDLD 602 Educational Leadership 3 hrs.
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 609 Theories of Leadership 3 hrs.
Critical examination of principles of leadership theory construction, practice with and development of skills in evaluating and applying theoretical perspectives regarding leadership. Prerequisite: Admission to the doctoral program.
EDLD 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.
EDLD 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.
EDLD 642 Program Evaluation 3 hrs.
Prerequisite: EDLD 640.
EDLD 643 Personnel Evaluation 3 hrs.
Prerequisite: EDLD 640.

ELECTIVES

Supervision, evaluation, measurement, and research at institutions of education. May be repeated. May not be applied to degree programs in educational leadership. Total credits not to exceed six hours.
EDLD 602 Educational Leadership 3 hrs.
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 609 Theories of Leadership 3 hrs.
Critical examination of principles of leadership theory construction, practice with and development of skills in evaluating and applying theoretical perspectives regarding leadership. Prerequisite: Admission to the doctoral program.
EDLD 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.
EDLD 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.
EDLD 642 Program Evaluation 3 hrs.
Prerequisite: EDLD 640.
EDLD 643 Personnel Evaluation 3 hrs.
Prerequisite: EDLD 640.

ELECTIVES

Supervision, evaluation, measurement, and research at institutions of education. May be repeated. May not be applied to degree programs in educational leadership. Total credits not to exceed six hours.
EDLD 602 Educational Leadership 3 hrs.
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 609 Theories of Leadership 3 hrs.
Critical examination of principles of leadership theory construction, practice with and development of skills in evaluating and applying theoretical perspectives regarding leadership. Prerequisite: Admission to the doctoral program.
EDLD 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.
EDLD 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.
EDLD 642 Program Evaluation 3 hrs.
Prerequisite: EDLD 640.
EDLD 643 Personnel Evaluation 3 hrs.
Prerequisite: EDLD 640.

ELECTIVES

Supervision, evaluation, measurement, and research at institutions of education. May be repeated. May not be applied to degree programs in educational leadership. Total credits not to exceed six hours.
EDLD 602 Educational Leadership 3 hrs.
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 609 Theories of Leadership 3 hrs.
Critical examination of principles of leadership theory construction, practice with and development of skills in evaluating and applying theoretical perspectives regarding leadership. Prerequisite: Admission to the doctoral program.
EDLD 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.
EDLD 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.
EDLD 642 Program Evaluation 3 hrs.
Prerequisite: EDLD 640.
EDLD 643 Personnel Evaluation 3 hrs.
Prerequisite: EDLD 640.

ELECTIVES

Supervision, evaluation, measurement, and research at institutions of education. May be repeated. May not be applied to degree programs in educational leadership. Total credits not to exceed six hours.
EDLD 602 Educational Leadership 3 hrs.
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 609 Theories of Leadership 3 hrs.
Critical examination of principles of leadership theory construction, practice with and development of skills in evaluating and applying theoretical perspectives regarding leadership. Prerequisite: Admission to the doctoral program.
EDLD 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.
EDLD 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.
EDLD 642 Program Evaluation 3 hrs.
Prerequisite: EDLD 640.
EDLD 643 Personnel Evaluation 3 hrs.
Prerequisite: EDLD 640.
EDLD 645 Research Design and Data Analysis I 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. Prerequisites: Admission to a doctoral program and EDLD 640.

EDLD 646 Research Design and Data Analysis II 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. Prerequisites: EDLD 640.

EDLD 647 Survey Research Design and Analysis 3 hrs.
The principles and practices of survey research design and analysis are the focus of this course. Critical examination is made of the appropriate uses of survey research in response to educational issues. Students are expected to develop instrumentation used in survey research, to engage in the design of a survey research study in a field setting, and to critique survey studies and findings. Prerequisite: EDLD 640 or permission of instructor.

EDLD 648 Techniques of Naturalistic Inquiry 3 hrs.
A study of the philosophical and methodological foundations of naturalistic research in education. Students will develop skills in planning and conducting naturalistic studies in education. Standards for judging naturalistic inquiry will be studied and applied to selected naturalistic study reports. Prerequisite: EDLD 640.

EDLD 651 Advanced Applications of Measurement Methods 3 hrs.
Intensive study of applications of educational measurement theory and methodology to specific needs for instrumentation in education. Students will engage in development, validation, and application of new instruments for collecting educationally important data. Prerequisites: EDLD 641 and EDLD 646.

EDLD 652 Evaluation Practicum 1-6 hrs.
Planned field applications of principles of program evaluation. Approved application and permission of instructor required. May be repeated for credit to a maximum of six hours. Graded on a Credit/No Credit basis.

EDLD 655 Research Methodology Seminar 3 hrs.
A seminar for students seeking advanced theoretical understanding and skill development in educational research methodologies. New methodologies and current research dilemmas are the central focus of the seminar. Prerequisites: EDLD 646 and permission of advisor.

EDLD 656 Theories of Measurement Seminar 3 hrs.
A seminar for students seeking advanced theoretical understanding of the principles of measurement. Theories of instrument construction beyond classical test theory (e.g., item response theory and generalizability theory) are applied to instruments relevant to education. Prerequisite: EDLD 651.

EDLD 657 Evaluation Seminar 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: EDLD 647.

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 processes 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 EDLD 640 and EDLD 662 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. Completion of EDLD 662 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, administration, accounting, inventorying of equipment and supplies, use of standard budget forms, preparation of required reports. 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 style and behaviors on employee satisfaction and productivity are studied. Prerequisites: EDLD 602 and 640.

EDLD 664 Curriculum Development 3 hrs.
Principles of curriculum design; study of value premises, processes, and skills necessary for organization and administration of the scope and sequence of curricular offerings in educational institutions. Study of the process of curriculum implementation and of forces which influence curriculum development. Prerequisites: EDLD 602 and 640.

EDLD 665 The Elementary Administrator 3 hrs.
Systematic study of the tasks and functions of elementary and middle school administration. Emphasis 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. Development of generic leadership skills by use of simulations and case studies. One or more field projects required demonstrating strategic and long range planning skills for an elementary or middle school. Prerequisites: EDLD 602; EDLD 640 recommended.

EDLD 670 The Secondary Administrator 3 hrs.
Systematic study of the tasks and functions of middle school and secondary administration; emphasis given to planning within the context of the community, planning and evaluation for program development and school improvement, and planning for supervision of programs and personnel. Development of generic leadership skills by use of simulations and case studies. One or more field projects required demonstrating strategic and long range planning skills for a middle or secondary school. Prerequisites: EDLD 602; EDLD 640 recommended.

EDLD 672 School Finance 3 hrs.
Intensive instruction and discussion of political and economic value premises involved in the funding and financing of 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.
Principles and practices of supervision of personnel are studied. Special attention is given to differencing perspectives on the supervision function within organizational contexts. Prerequisites: EDLD 602 and 640.

EDLD 674 School Community Relations 3 hrs.
Thorough study of the school in interaction with communities served by the school. Consideration of internal and external “communities” and the relationships between and among the “communities” of the school as an organization. Role of communication in school-community relations; consideration of the balance of rights and responsibilities between schools and communities. Prerequisite: EDLD 602.

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 facilities and equipment requirements for the school organization. Attention will be given to the educational program and stated philosophy of schools and to the present and
future needs of the student and the learning environment respective to facilities development. Integration of technology in the planning and design of facilities will be addressed as well as the human physiological and psychological needs. Current state and Federal regulations will be reviewed as they relate to new facilities and to remodeling of current facilities. Prerequisites: EDLD 602 and 640.

EDLD 690 Professional Development Seminar 3 hrs.
Field-based and performance-based application of knowledge to major functions, 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. Prerequisites: 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 requirements, 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 course descriptions. Prerequisite: 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 hrs.

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.

FAMILY AND CONSUMER SCIENCES

Dr. Linda Dannison, Chair
Main Office: 3018 Kohman Hall
Telephone: 387-3704
Fax: 387-3353

Professors Linda Dannison, Carl Woloszyk; Associate Professors Margie Geasler, Maya Petersons, Nancy Sternhaus; Assistant Professors Mariene Brea, Todd Edwards, Areezo Rojhani.

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.

Master of Arts in Career and Technical Education

Advisor: Linda Dannison, Room 3018, Kohman 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 field. Emphasis is placed on career and technical education areas of marketing education, business education, home economics, and technology education.

The Master of Arts in Career and Technical Education is designed for bachelor's graduates planning and design of facilities will be reviewed as they relate to new facilities and to remodeling of facilities. 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 requirements, 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 course descriptions. Prerequisite: 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 hrs.

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.

FAMILY AND CONSUMER SCIENCES

Dr. Linda Dannison, Chair
Main Office: 3018 Kohman Hall
Telephone: 387-3704
Fax: 387-3353

Professors Linda Dannison, Carl Woloszyk; Associate Professors Margie Geasler, Maya Petersons, Nancy Sternhaus; Assistant Professors Mariene Brea, Todd Edwards, Areezo Rojhani.

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.

Master of Arts in Career and Technical Education

Advisor: Linda Dannison, Room 3018, Kohman 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 field. Emphasis is placed on career and technical education areas of marketing education, business education, home economics, and technology education.

The Master of Arts in Career and Technical Education is designed for bachelor's graduates planning and design of facilities will be reviewed as they relate to new facilities and to remodeling of facilities. 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 requirements, 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 course descriptions. Prerequisite: 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 hrs.

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.

FAMILY AND CONSUMER SCIENCES

Dr. Linda Dannison, Chair
Main Office: 3018 Kohman Hall
Telephone: 387-3704
Fax: 387-3353

Professors Linda Dannison, Carl Woloszyk; Associate Professors Margie Geasler, Maya Petersons, Nancy Sternhaus; Assistant Professors Mariene Brea, Todd Edwards, Areezo Rojhani.

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.

Career and Technical Education Courses (CTE)

Open to Upperclass and Graduate Students

CTE 510 Special Populations in Career and Technical Education 3 hrs.
Special populations enrolled in Career and Technical Education programs and the identification of appropriate teaching strategies, materials, and support services for effective teaching and learning.

CTE 512 Principles of Career and Technical Education 3 hrs.
Exploration, identification, investigation of the history, philosophy, principles, programs, and services in career and technical education.

CTE 513 Technical Education Methods 3 hrs.
Analysis and methods of organizing instruction in career and technical education. Advanced teaching plans and methodologies.

CTE 514 Workshop in Career and Technical Education 1-3 hrs.
Investigation, research, and development of a particular topic or area of interest for career and technical education. (Students may enroll for more than one topic; but in no topic only once, to a maximum of three hours credit.) Prerequisite: Vocational certification or consent.

CTE 515 Grant Writing for Career and Technical Educators 3 hrs.
Analysis of the grant writing process, including the identification of a sponsor, development of an idea and plan, and completion of a proposal.

CTE 542 Advanced Curriculum Development 2 hrs.
Social, political, and economic factors which influence curriculum change, curriculum innovations, trends, implementation, and evaluation.

CTE 543 Work-site Based Education Programs 3 hrs.
Study of work-site based education programs, including the organization and establishment of training programs, supervision of training on the job, development of individual training plans and programs. Emphasis on establishing working relationships between school, business, and the community, including cooperative education, work experience, apprenticeship, work-study, and work exploration programs for Career and Technical Education.

Open to Graduate Students Only

CTE 612 Studies in Technology 1-4 hrs.
Designed to permit students to take advantage of opportunities offered through technical workshops, seminars, short courses, or field research offered on campus or in approved off-campus settings under the supervision of a member of the graduate faculty. Prerequisite: Consent of instructor and department chair prior to registration.

CTE 614 Administration and Supervision of Career and Technical Education 3 hrs.
Emphasizes functions of administration and supervision, and problems involved in organizing and operating career and technical education programs. For teachers, administrators, and supervisors of career and education programs and those preparing for such positions.
Family and Consumer Sciences Courses (FCS)

Open To Upperclass and Graduate Students

FCS 520 Insurance Education Seminar
1-2 hrs.
Fundamental principles of consumer insurance; overview of insurance availability; family insurance issues involving automobile and home (property and casualty insurance); methods of teaching insurance education in diverse curricula; review and analysis of insurance policies; research in insurance education; and careers in insurance and the insurance industry.

FCS 522 Topics in Family and Consumer Sciences
1-3 hrs.
A study of the current issues impacting the areas of study in Family and Consumer Sciences: Dietetics, human nutrition, family life education, home economics education, textile and apparel technology or career and technical education. Prerequisite: Seniors and graduate students only.

FCS 524 The Socio-Psychological Aspects of Clothing
3 hrs. Winter—Even Years
Study of dress and adornment as related to human behaviors. An interdisciplinary approach to clothing-related research and non-verbal communication, person perception, and group conformity.

FCS 555 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 596 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.

FCS 600 Clothing Techniques
2 hrs.
Meets the needs of the advanced student in clothing construction techniques.

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
2 hrs.
Marketing problems and consumer credit. Students work on individual problems which concern the buying of consumer goods.

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 consumer resources and technology.

FCS 622 Practicum
2-3 hrs.
A supervised experience program in a specific occupational area.

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.

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 666 Studies in Family Relationships
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 life cycle, 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 668 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 690 Seminar in Family and Consumer Sciences
2 hrs.
Investigation and discussion of current research and literature in specified family and consumer sciences topics.

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

FCS 700 Master's Thesis
6 hrs.

FCS 710 Independent Research
2-6 hrs.
HEALTH, PHYSICAL EDUCATION, AND RECREATION

Dr. Debra Berkey, Chair
Main Office: 4024 Student Recreation Center
Telephone: 387-2710
FAX: 387-2704

Professors Mary Dawson, Roger Zabik; Associate Professors Debra Berkey, Jody Brylinsky, Marianne Frauenknecht, William Gross, Robert Moss; Assistant Professors Robert Bensley, Ray Cool, James Lewis, Linda Powell, Jeanne West, Jiabei Zhang.

Master of Arts in Physical Education

Advisors: Debra S. Berkey, Room 4021, Student Recreation Center
Jody Brylinsky, Room 4024-7, Student Recreation Center
Ray Cool, Room 4024-19, Student Recreation Center
Mary Dawson, Room 4024-9, Student Recreation Center
Robert Moss, Room 4024-8, Student Recreation Center
Roger Zabik, Room 4021, Student Recreation Center

The Department of Health, Physical Education, and Recreation offers a Master of Arts in Physical Education which prepares teachers, coaches, supervisors, and administrators to assume leadership roles in the following: Administration, Sports Studies, Exercise Science, Pedagogy, Athletic Training, and Special Physical Education.

Admission requirements

To be admitted to the master's degree program in this department, the Graduate College admission standards must be met, and the graduate student must have successfully completed an appropriate undergraduate major or minor or equivalent in Physical Education, Health, Recreation, Athletic Training, or Coaching.

Program requirements

Each graduate student is expected to show competence in four professional areas: research, socio-cultural issues, curriculum or psychological foundations, and a professional area of emphasis. Such competence will normally be provided through five to six graduate semester hours of required course work (1) PEGR 690 and PEGR 692; (2) PEGR 650; (3) PEGR 645; or PEGR 691; and (4) course work prescribed in an emphasis 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, Sports Studies, Athletic Training, Exercise Science, Pedagogy, or Special Physical Education. 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) PEGR 700. Thesis; (2) PEGR 710. Independent Research, or (2) PEGR 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 (PEGR)

Open to Upperclass and Graduate Students

PEGR 500 Studies in Health, Physical Education, and Recreation

- Open to upperclass and graduate students.
- 1-2 hours.
- In-depth study of selected topics in PEGR. Format can include clinics, workshops, seminars, travel and/or mini-courses, and provide opportunities 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.

PEGR 510 Modern Health for Teachers and Health Professionals

- 3 hours.
- 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.

PEGR 512 Principles, Practices, and Methods in Health Education

- 3 hours.
- 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. Content development and teaching methods focus on content and strategies considered most effective in teaching selected topics. A field experience which can be met through (1) PEGR 700, Thesis; (2) PEGR 710, Independent Research, or (3) PEGR 712, Professional Field Experience.

PEGR 514 Methods and Materials in Health Education

- 2 hours.
- 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: PEGR 314 and 315, or consent of instructor.

PEGR 516 Issues in Health Education

- 1-4 hours.
- 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.

PEGR 520 Physical Activities for Exceptional Children

- 3 hours.
- Physical and recreational activities and games used in corrective, adaptive, and general physical education programs for special education children.

PEGR 521 Therapeutic Trends for Exceptional Children

- 3 hours.
- A study of past, present, and future trends in habilitation and rehabilitation programs for handicapped people.

PEGR 530 Practicum in Teaching and Coaching

- 1-2 hours.
- 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.

PEGR 535 Principles and Problems of Coaching

- 2 hours.
- 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.

PEGR 540 Movement Education

- 2 hours.
- A concept in physical education which deals with the way children learn the basic principles of how their bodies move.

PEGR 560 Administration of Physical Education

- 2 hours.
- For administrative officers, as well as for teachers and directors of physical education. Includes a study of representative programs of physical education and a discussion of standards for evaluating such programs. Case studies examined.

PEGR 562 Administration of Athletics

- 2 hours.
- Discusses administrative procedures and problems connected with athletic programs, including scheduling, facilities, personnel problems, school law and liability, eligibility, finance, safety, and the conduct of athletic events.

PEGR 580 Studies in Athletic Training

- 1-2 hours.
- Listed with various topics. A lecture/demonstration course concerned with the prevention, diagnosis, and treatment of sports type injuries. Prerequisites: BIOL 211, 240, PEGR 380.

PEGR 582 Athletic Training for Coaches

- 2 hours.
- Basic procedures in injury prevention, assessment, treatment, and rehabilitation will be covered. Principles and techniques are presented in a lecture and laboratory format.

PEGR 590 Exercise Physiology

- 2 hours.
- 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 athletes. Prerequisites: BIOL 210, 240.

PEGR 591 Evaluation in PEGR

- 2 hours.
- 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.

PEGR 595 Analysis of Movement in Sport 2 hrs.
The study of movement of muscles and the application of kinesiology to physical activity.

PEGR 598 Readings in PEGR 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

PEGR 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: PEGR 520, 521.

PEGR 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 PEGR 530 and 630 combined toward the master's degree program.

PEGR 641 Physical Education for Preschool, Elementary, and Middle School 2 hrs.
A study of the development needs of the child in terms of physical activity, the role of physical education in childhood education; the responsibility of the classroom teacher in this area; demonstrations and practice in teaching activities.

PEGR 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.

PEGR 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.

PEGR 645 Curriculum Building in PEGR 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.

PEGR 648 Advanced Studies in Motor Development 1-3 hrs.
A series of advanced seminars dealing with specific topics in motor development and special 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, Methods and Materials in Physical Education; Teaching Skills and Strategies in Physical Education.

PEGR 650 Socio-Cultural Foundations in PEGR 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.

PEGR 661 Problems and Trends in PEGR 2 hrs.
Deals with modern trends, and with instructional and supervisory problems involving in conducting an effective program of physical education including a critical appraisal of present practices.

PEGR 662 Legal Liability in PEGR 2 hrs.
This advanced studies in administration course is designed to help the PEGR 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.

PEGR 663 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, reflexive value structure to utilize in addressing moral questions. In addition, the course structure is to allow participants to develop a personal and ethical structure that will be successful in the physical activity environment. Content will include description of the "great game" and application of the guidelines to right actions in sport.

PEGR 668 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.

PEGR 672 Exercise Science Lab Techniques 2 hrs.
The purpose of this course is to provide 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.

PEGR 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.

PEGR 675 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 PEGR 590, 595, 672, 690, and 692 in problem-solving situations related to exercise. Students will conduct small, structured investigations in both the biomechanics and exercise physiology areas. The application of the scientific 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.

PEGR 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.

PEGR 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 expertise. The scientific basis for the techniques will provide the main focus of the course.

PEGR 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 basis will be the main focus of the course.

PEGR 687 Administration of an Athletic Training Program 2 hrs.
This course will offer comprehensive material regarding administrative management of athletic training programs in a high school, college, and clinic scenario. Professional and industrial settings will also be considered.

PEGR 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.

PEGR 690 Research Procedures in PEGR 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.
EXERCISE SCIENCE

PEGR 691 Psychological Foundations in 2 hrs.
PEGR 692 Analytical Techniques in PEGR 2 hrs.
PEGR 698 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 section for course descriptions. Prerequisite: Approval of graduate director in Physical Education.

PEGR 700 Master's Thesis 6 hrs.

PEGR 710 Independent Research 2-6 hrs.

PEGR 712 Professional Field Experience 2-12 hrs.

SPECIAL EDUCATION

Dr. Elizabeth Whitten, Interim Chair
Main Office: 3506 Sangren Hall
Telephone: 387-5535
FAX: 387-5763

Professors Alonzo Hannaford, Howard Poole; Associate Professors Christine Bahr, Michael Bahr, Barbara Harris, George Haus, Dona Icabone, Elizabeth Whitten; Assistant Professors Ruth Ervin, Troy Manage.

Master of Arts in Special Education

Advisors: Christine Bahr, Michael Bahr, Barbara Harris, George Haus, Dona Icabone, Troy Mariage, Howard Poole, Elizabeth Whitten
Room 3506, Sangren Hall

The Master of Arts in Special Education 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, and Visually Impaired.

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

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, and Visually Impaired.

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

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 Special Education

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 Special Education

SPECIAL EDUCATION ADMINISTRATION OPTION

This option, designed for certified and experienced special education teachers, provides course work and field-based experiences necessary to gain State of Michigan Central Office Administrator Certification and approval as either a Director of Special Education or a Supervisor of Special Education.

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

Master of Arts in Teaching

Children Who Are Visually Impaired/Orientation and Mobility

Advisors: George Haus, Howard Poole, Annette Skellenger, Elizabeth Whitten
Room 3506, Sangren Hall

This degree is offered through the Teaching Children Who Are Visually Impaired/Orientation and Mobility program (VIOM) which is jointly administered by the Department of Blind Rehabilitation and the Department of Special Education.

This fifty-eight 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. Graduates receive two master's degrees that make them eligible to become certified teachers and certified orientation and mobility specialists. For individuals who already possess certification in one of the areas, it is possible to complete the degree in the second area. These teacher-practitioners are able to educate students in academic studies and teach them to travel independently. A curriculum guide for the program is available in the department office.

Doctor of Education in Special Education

Advisors: Christine Bahr, Michael Bahr, Barbara Harris, George Haus, Dona Icabone, Troy Mariage, Howard Poole, Elizabeth Whitten
Room 3506, Sangren Hall

The Doctor of Education in Special Education is designed to prepare an individual to serve as a college teacher in a special 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 Special Education. Application materials are available from the Office of Admissions and Orientation and from the Department of Special Education. 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 internship in administration of programs in special education. During the last semester of
course work, the student will be required to complete successfully a written 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 an oral defense of the dissertation as per Graduate College policy.

**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 current issues 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: Elementary
1 hr.
This course provides the student with a structured assignment with an elementary-level 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 self-contained setting. Graded on a Credit/No Credit basis. Prerequisites: Consent of department and concurrent enrollment in SPED 534.

**SPED 506** Teaching Practicum in Special Education: Secondary
1 hr.
This course provides the student with a structured assignment with a secondary-level 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 self-contained setting. Graded on a Credit/No Credit basis. Prerequisites: Consent of department and concurrent enrollment in SPED 536.

**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 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 504/534 or SPED 506/536.

**SPED 534** Curriculum and Instruction in Special Education: Elementary
3 hrs.
This course focuses on application of the Clinical Teaching Model to the education of elementary and preschool 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 elementary special education. Prerequisites: Consent of department and concurrent enrollment in SPED 504 and SPED 533.

**SPED 536** Curriculum and Instruction in Special Education: Secondary
3 hrs.
This course focuses on application of the Clinical Teaching Model to the education of preschool/elementary, adolescent, and young adults with mild and moderate disabilities. Topics include understanding the needs of learners with disabilities; education, curricular, and instructional interventions; and transition programming. Prerequisites: Consent of department and concurrent enrollment in SPED 506 and SPED 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. 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 strategies 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 and 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** Program Practicum in Special Education: MR
1 hr.
This course provides the student with guided observations of schools and community agencies serving individuals with mental retardation. It provides an awareness of a continuum of special education placements and the role of non-school agencies serving persons with mental retardation and their families. Graded on a credit/no credit basis. Prerequisites: Consent of department and concurrent enrollment in SPED 540.

**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...

122 COLLEGE OF EDUCATION
SPED 571 Program Practicum in Special Education: EI 1 hr.
This course provides the student with guided observations of school and community agencies serving individuals with emotional impairments. It provides an awareness of a continuum of special education placements and the role of non-school agencies serving persons with emotional impairments and their families. Graded on a credit/no credit basis. Prerequisites: Consent of department and concurrent enrollment in SPED 570.
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 new issues are examined. Prerequisite: Consent of department.
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.
SPED 591 Braille and Other Communication Methods 2 hrs.
This course provides students with a basic knowledge of the Braille literacy code—reading and writing, Nemeth code, adaptations of worksheets and tests, Spanish (including Nuremberg), transcription of diacritical marks (dictionary notation), and an introduction to computer Braille notation. Prerequisite: Consent of department.
SPED 593 Methods and Techniques of Teaching Braille and Other Areas of Communication 3 hrs.
This course explores various methods and techniques of teaching essential communication skills—Braille, typing, social communication, handwriting, abacus, computation, the use of electronic devices and other media to students with visual impairments. Opportunity for supervised practical application of methods are afforded to 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 Organization of Information in Special Education 3 hrs.
This course is designed to provide an introduction to information processing techniques in special education. The course will present an information processing model emphasizing the initial components of that model, namely methods and techniques for locating, accessing, organizing and manipulating text and media source material as well as field-based information. Students will apply the model by analyzing information needs, accessing material, and organizing information related to current issues and trends in the field of special education. Prerequisite: Consent of department.
SPED 602 Seminar in Critical Analysis of Information in Special Education 3 hrs.
This course is designed to provide graduate level special educators with the skills to evaluate and develop responses to questions related to etiology, identification of, and programming for students with disabilities. Using skills learned in SPED 601, related to the acquisition of information, students will learn and apply the processes of information synthesis, inductive and deductive reasoning, critical analysis, and hypothesis generation. Prerequisites: SPED 601 and consent of department.
SPED 603 The Special Educator as User and Disseminator of Information 3 hrs.
This course is designed to prepare the special educator to use information to form judgments, make decisions, substantiate positions, persuade others, and/or demonstrate or explain to others. The processes will be directly related to a variety of special education programs and/or issues. Students will learn to use these processes through demonstration, guided instruction, small group activities, and individual assignments. Special education content domains targeted by this course includes: Parent Relations, Collaboration, Community Resources, Advocacy, Interdisciplinary Concerns and Inservice Training. Prerequisites: SPED 602 and consent of department.
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 language (French, German, and Spanish), transcription of diacritical marks (dictionary notation), and an introduction to computer Braille notation. Prerequisite: Consent of department.
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 Preprimary Learners with Disabilities 3 hrs.
This course is designed to provide teachers with skills in translating diagnostic information into a meaningful educational plan for children from birth to five years of age. Emphasis will be placed on situation-specific teaching roles as well as curricular and methodological strategies in preprimary special education. Prerequisite: Consent of department.
SPED 630 Clinical Practice in Special Education 3 hrs.
This course serves as a clinical/practical experience within the Master Teacher Program, the Clinical Teacher Program, and the Special Education Technology Program. Students will apply their knowledge and skills in a clinical setting with youngsters with varying handicapping conditions. This course is offered on a credit/no credit basis. Prerequisites: SPED 603 and consent of department.
SPED 632 Assessment, Teaching, and Curriculum Adaptation for Infants, Preschoolers, and Children Who Are Visually Impaired 3 hrs.
This course is designed to examine how to assess, teach, and modify existing curriculum for infants, preschoolers, and young school-aged children who are blind. This course combines these three elements and prepares teachers for the role of itinerant or classroom teacher, as well as for the role of consultant for parents and other teachers.
SPED 633 Education of Gifted and Talented Children and Youth 2 hrs.
This course is designed for regular classroom teachers, administrators, and other personnel. The characteristics of gifted and talented learners will be discussed. Personal, social, and multi-cultural factors which directly or indirectly influence the growth and development of these individuals will be considered. Attention will be given to methods and criteria used in identifying and programming for gifted, talent, and creative individuals. Prerequisite: Consent of department.
SPED 636 Topical 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, observations and measurement instruments,
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 programs at the 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 643 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 Teaming 3 hrs.
This course is designed to provide students with the information needed for effective collaboration and interactive learning in school and agency settings. Emphasis is placed on transdisciplinary teaming which will include components of effective communication, problem-solving, and the various direct and indirect service delivery models that can be used by collaborative team members to facilitate the success of all students in the mainstream. Prerequisite: SPED 603 and consent of department.

SPED 662 Service Delivery Models that Foster Collaboration 3 hrs.
This course is designed to acquaint students with the service delivery models that foster collaboration presently in the schools as well as rural and urban communities. Students will demonstrate collaboration and teaming skills through urban and rural field experiences. Prerequisites: SPED 661 and consent of department.

SPED 663 Professional Field Experience in Collaboration 3 hrs.
This course will provide 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 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’ performances. 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. Prerequisites: SPED 529 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.
The College of Engineering and Applied Sciences includes the School of Aviation Sciences and the Departments of Construction Engineering, Materials Engineering, and Industrial Design; Electrical and Computer Engineering; Industrial and Manufacturing Engineering; Mechanical and Aeronautical Engineering; and Paper and Printing Science and Engineering.

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 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 Sciences and Engineering through the Department of Paper and Printing Science and Engineering.

Course descriptions: Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours; laboratory hours).

Academic Units:
- Construction Engineering, Materials Engineering, and Industrial Engineering
- Electrical and Computer Engineering
- Mechanical and Aeronautical Engineering
- Paper and Printing Science and Engineering

CONSTRUCTION ENGINEERING, MATERIALS ENGINEERING, AND INDUSTRIAL DESIGN

Dr. Vladimir Tsukruk, Interim Chair
Main Office: 2007 Kohrman Hall
Telephone: 387-6515
FAX 387-6517

Professors Roman Rabiej, Vladimir Tsukruk, Associate Professor Phina An-Gur, Dmitry Azrikam, Assistant Professors Osama Abudayyeh, David Middleton, Abiodun Olowe, Anil Sawhney.

The Department of Construction Engineering, Materials Engineering, and Industrial Design offers two graduate degree programs, the Master of Science in Construction Management and the Master of Science in Materials Science and Engineering. Courses are offered in the evenings and in off-campus locations to enable working students to study without quitting their jobs. The programs are designed to enable qualified full-time students to complete their studies within two years and fully employed students within three years.

Master of Science in Construction Management

Advisor: Anil Sawhney,
Room 2070B, 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.

2. The 30 semester hours must be completed as follows:
   a. 12 semester hours of core course requirements (CMD 530, 630, 631, and 633).
   b. 6 semester hours of CMD 700, Master’s Thesis, which requires a written thesis meeting Graduate College requirements and an oral examination in defense of the thesis.
   c. 12 semester hours of approved electives (not more than three hours of CMD 639 can be applied).

PROJECT OPTION
1. An approved program with a minimum of 34 semester hours of credit and an overall average grade of “B” or better.

2. The 36 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.

Program requirements:

Students admitted to the Construction Management program can select a thesis or a project option. The Project option is intended primarily for students who want to work in the industry after graduation. Choosing to do an industry-supported project helps prepare students for future jobs by integrating classroom knowledge and real-life experiences. The thesis is intended primarily for research-oriented students and those planning to pursue a doctoral degree. But the thesis also serves students pursuing industry jobs, because engineers with a master’s degree are often expected to conduct applied research. The requirements for each option, Thesis and Project, are presented below.

THESIS OPTION
1. An approved program with a minimum of 30 semester hours of credit and an overall average grade of “B” or better.

2. The 36 semester hours must be completed as follows:
   a. 12 semester hours of core course requirements (CMD 530, 630, 631, and 633).
   b. 6 semester hours of CMD 700, Master’s Thesis, which requires a written thesis meeting Graduate College requirements and an oral examination in defense of the thesis.
   c. 12 semester hours of approved electives (not more than three hours of CMD 639 can be applied).
Master of Science in Materials Science and Engineering

Advisor: Pnina Arli-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 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 under PTG status will be considered part of a degree program.

Program requirements:
To graduate, students will be required to take thirty-two credit hours that must include the following:
1. Complete at least eighteen credit hours of core course work selected from the list of core courses. These courses will both broaden and deepen the student's knowledge of materials. The accumulated information will enable them to characterize materials, select materials wisely for demanding applications, avoid materials failure, develop new materials, improve processes, and conduct research. The list of core courses, each for three hours of credit, follows:
2. Elect eight credit hours of course work to suit the interests and needs of individual students. A graduate advisor will assist the students in tailoring a course program to fit their interests and backgrounds. The courses selected must be approved by the advisor.
3. Complete six hours of a capstone project course (CMD 697) or a Master's Thesis (CMD 700). The project option is intended mainly for students whose objective is to work in industry after graduation. An option of an industrially funded project will provide the student with the job and help the student integrate the knowledge from the courses to real-life applications. The thesis option can serve students who are inclined towards research, as well as interested in pursing 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 (CMD)

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 included in the course. Analysis of traditional and current project delivery methodologies will also be presented. Issues related to insurance and bonding in the construction industry will be highlighted. Advanced topics such as alternate dispute resolution will also be covered. Prerequisites: CMD 436, or equivalent, and departmental approval.

CMD 531 Advanced Construction Project Management 3 hrs.
This course will build on the information that is normally provided to students in the undergraduate construction management courses on planning and control of construction projects. The focus of this course will be to provide the students with knowledge of quantitative tools that can be used in planning and controlling construction projects. Topics to be covered will include cash flow forecasting, site planning, site administration, risk analysis, contract documents, and contracts administration. Advanced planning tools such as line of balance, velocity diagrams, time-cost trade off, resource planning with applications to construction projects will also be discussed. Prerequisites: CMD 431, 436, and 438, 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 (3-2) 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 concepts and techniques in the construction industry. The course will provide knowledge of important topics such as data modeling and database design issues related to information management in construction, knowledge-based system design, artificial intelligence, and object-oriented modeling methods. Advanced computing concepts such as neural networks, genetic algorithms, petri nets, collaborative and integrated environments, and 4D-CAD models will be highlighted. Use of real world applications in this course will further strengthen the knowledge and skills attained by the students. Prerequisites: CMD 431, 436, and 438, or equivalent, and departmental approval.

CMD 631 Design and Analysis of Construction Operations 3 hrs.
The basic objective of the course will be to provide the students the knowledge to design and analyze construction operations and processes. The course is designed to provide a thorough understanding of the fundamentals of discrete event simulation methodologies. The CYCLic Operations NEtwork (CYCLONE) modeling methodology will be used as the basis for design and analysis of construction operations. Recent advancements in the area of simulation based project planning will also be provided. Issues related to object-oriented simulation, hierarchical and modular simulation, query based simulation, and web based simulation will also be highlighted in this course. Prerequisites: CMD 431, 436, and 438, or equivalent, and departmental approval.

CMD 632 Construction Project Control 3 hrs.
The course will involve instruction on a number of topics related to the administration of construction contracts. The content 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 (COSCSC) will be used to demonstrate the importance of monitoring, updating, and control functions on a construction project. Prerequisites: CMD 431, 436, and 438, or equivalent, and departmental approval.

CMD 633 Design of Construction Systems 3 hrs.
The 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, shoreline
structures, and supporting structures. Knowledge of structural analysis and design and construction practices will form the basis of this course. Prerequisites: CMD 336 and 386, or equivalent, and departmental approval.

CMD 639 Construction Management Seminar 1-3 hrs.

This course will allow graduate students to explore the recent advancements in the area of Construction Engineering and Management. A series of presentations by the graduate students, industry experts, visiting researchers, and the Construction Engineering and Management faculty will provide a broad information base to the students enrolled in this course. The course is repeatable. Prerequisite: Departmental approval.

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 metallurgical techniques. Prerequisites: MATH 374, PHYS 207, ME 250, and consent of instructor.

CMD 657 Analysis of Metal Forming and Cutting Operations (3-0)
3 hrs.

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

Dr. S. Hossein Mousavinezhad, Chair

The Department of Electrical and Computer Engineering offers graduate programs leading to a Master of Science in Engineering (Electrical) and to a Master of Science in Engineering (Computer). 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, 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, or science can be considered for probationary admission into the MSE (Electrical) or the MSE (Computer) program if 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 requirements
The program consists of thirty-three hours:
1. Twenty-two hours of required 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
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 thesis (Electrical) or a course work option. A common requirement for each option is twenty-four hours of core courses.

Master of Science in Engineering (Electrical)

Advisors:
John Gesink,
S. Hossein Mousavinezhad,
Room 3058, Kohrman Hall

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.
Electrical and Computer Engineering Courses (ECE)

Open to Upperclass and Graduate Students

ECE 515 Real-Time Computing (3-0)
- 3 hrs.
- Characterizing, modeling and specifying real-time systems. Designing, programming and verifying sequential and concurrent real-time systems. Case studies using Ada, OCCM, RTL and 2. Introducing students to problems specific in the engineering of real-time systems with a number of tools used to analyze these systems. Prerequisite: Consent of instructor.

ECE 551 Application Specific Integrated Circuit Design (4-0)
- 4 hrs.
- Design, analysis and implementation of application-specific circuits (ASIC). Emphasis will be placed on programmable design (including field programmable gate arrays (FPGA) and programmable logic devices (PLD)). Semi-custom design will also be discussed and full-custom design will be briefly introduced. Introduction to contemporary CAD systems.

ECE 552 Switching and Automata Theory (4-0)
- 4 hrs.

ECE 553 Advanced Microcontroller Applications (3-0)
- 3 hrs.
- 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 DFT methods of spectral analysis and estimation. Discrete Hilbert Transforms and multidimensional signal processing. Prerequisite: ECE 455 or equivalent.

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, transmissions 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 linear regulator—deterministic and stochastic state observers. Prerequisite: ECE 371.

ECE 595 Introduction to Advanced Topics (3-0)
- 3 hrs.
- To introduce students to advanced topics in electrical/computer engineering not included in other course offerings. May be taken more than once up to six hours.

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 640 Electronic Instruments (3-0)
- 3 hrs.
- Analysis of instrumentation systems including basic instrumentation 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 670 Modern Control Theory (3-0)
- 3 hrs.
- Modern control theory using "state variable" formulations provides a unified approach to a wide variety of problems. Depends on matrix theory and linear algebra. Prerequisite: ECE 371 or permission of instructor.

ECE 671 Optimal Control Systems (3-0)
- 3 hrs.
- Optimal control dynamic programming, Pontryagin's principle, linear optimal regulator, system identification. Stochastic and adaptive control. Prerequisite: ECE 670.

ECE 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 projects. Prerequisite: Graduate standing in computer engineering.

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)
- 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.)

INDUSTRIAL AND MANUFACTURING ENGINEERING

Dr. Michael Atkin, Chair
Main Office: 2043 Kohrman Hall
Telephone: 387-3737
FAX: 387-4075

Professors Michael Atkin, Kalilsh Bafna, Abdolazim Houshyar, Leonard Lamberson, Bob White, Robert Wygant; Associate Professors Liwana Bringelson, Paul Engelmann, Tarun Gupta, David Lyth, Larry Malak, Sam Ramrattan, Fred Sikins, Ralph Tanner; Assistant Professors Steven Butt, Tycho Fredericks, Michiel Keil, Jorge Rodriguez.

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 2070D, Kohrman Hall

The objectives of the program leading to a Master of Science in Engineering (Industrial) are:

1. To prepare students who hold a baccalaureate degree in a related discipline or are related discipline.
   - to prepare students to formal post-master's and doctoral programs, as their inclination and professional growth require.

Graduates of the program can look forward to a variety of levels in manufacturing and service-related industries.

Admission requirements

1. Possess a baccalaureate degree in engineering or a related discipline.
   - Have an undergraduate grade point average of 3.0 for regular admission. Probationally admission may be granted to students with a grade point average of at least 2.5 and less than 3.0.
2. Submit GRE (Graduate Record Examination) scores for the General Test.

4. Where the student's background is found deficient, foundation courses will be required. Students with a baccalaureate degree in industrial engineering will typically not be required to take any prerequisite classes.

Admission requirements
Program requirements

THESIS OPTION

1. An approved integrated program with a minimum of 30 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 Operations Research for Engineers; IME 612 Productivity and Operations Management; 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. 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. No more than half of the credit hours needed for graduation can be at the 500 level.
2. A written thesis which meets The Graduate College requirements and an oral examination in defense of the thesis.
3. An overall 3.0 grade point average.

NON-THESIS OPTION

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 Operations Research for Engineers; IME 612 Productivity and Operations Management; IME 630 Advanced Simulation Modeling and Analysis; IME 642 Ergonomics and Occupational Biomechanics.
   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. 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. No more than half of the credit hours needed for graduation can be at the 500 level.
   c. IME 697, with a written report and presentation, OR an approved 600-level IME elective.
2. An overall 3.0 grade point average.

Master of Science in Engineering Management

Advisors:
David Lyth,
Room 2070D, Kohrman Hall
Robert Wygant,
Grand Rapids Regional Center

The objectives of the graduate program leading to a Master of Science in Engineering Management are:
1. To increase the breadth of understanding of the students’ responsibilities as technically educated individuals through the development of analytical and management skills, and knowledge in cognate areas.
2. To develop the capabilities to deal appropriately with resources available in commerce and industry (i.e., people, time, and money).
3. To prepare students for formal post-master’s and doctoral programs, as their inclination and professional growth require.

The scope of the graduate program includes studies in the areas of engineering, technical resource management, and industrial leadership. The program requires completion of a minimum of thirty semester hours beyond the entry level prerequisites in the student’s program.

Admission requirements
1. Possess a baccalaureate degree with a major in a technical field, such as engineering, technology, mathematics, computer science, or the physical sciences. For other majors, see item 2.
2. Show evidence of completion of at least eight semester hours of mathematics and 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 the student’s background is deficient, foundation courses will be required.

Program requirements
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.
2. Elective courses (12 hours at minimum) to be selected from graduate courses available in the Department of Industrial and Manufacturing Engineering, or any other department within the University. Among the electives is IME 697, with a written report and presentation. The elected courses must be compatible with the overall program and the career objectives of the student, and must be approved by the program advisor prior to registration.
3. An overall 3.0 grade point average.

Master of Science in Manufacturing Engineering

Advisors:
Michael Atkins,
Room 2043, Kohrman Hall
Paul Engemann,
Room 2092, 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 graphics and design, process engineering, quality assurance, and tooling design.

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 for the General Test.
3. Have completed undergraduate courses in computer-aided design, properties of materials, quality control, and manufacturing processes. Where a candidate’s background is deficient, foundation courses will be required.

Program requirements
The Master of Science in Manufacturing Engineering requires a minimum of thirty (30) hours: Fifteen (15) hours of core courses and fifteen (15) hours of electives.
2. Elective courses (15 hours) are chosen in consultation with the academic program advisor. Electives may include a project (IME 697) with a written report 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:
Azim Houshyar,
Room 2070D, 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, and 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, or mathematics. Students with degrees in other areas will also be considered.
2. Where the student’s background is found deficient, prerequisite courses will be required.

Program requirements
1. Complete a minimum of 30 hours of graduate work as follows:
   a. Seven hours of Mathematics: MATH 550, Applied Probability (3 hrs.), MATH 562, Statistical Analysis I (4 hrs.).
   b. Twelve hours of operations research-related courses selected from an approved list.
   c. Eight hours of courses cognate to the student’s undergraduate degree.
   d. Three hours of a project-oriented course developed around a significant focal area resulting from graduate study interest. It includes a written report and an oral presentation.
   2. An overall 3.0 overall grade point average.

Candidacy requirements
The candidate must seek candidacy no later than the end of the third calendar year after enrollment in the program. By this time the student should have completed the coursework and have a planned preliminary plan for the dissertation submitted by the chair of the dissertation committee. To be admitted to candidacy, the student must successfully complete the comprehensive examination. This exam, administered by the dissertation committee, will be composed of both a written and an oral component. The written portion will include questions submitted by the student’s dissertation 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 dissertation committee. The student’s performance in this exam will be evaluated by the dissertation committee. If the student fails the comprehensive exam, the student can retake the exam in the next semester. A second failure results in dismissal from the program. Candidacy will be approved or denied based upon the student’s performance in the course work, successful completion of the comprehensive examination, and a positive recommendation of the dissertation committee.

Program requirements
In addition to the Graduate College requirements, the following requirements must be fulfilled:
1. Eighty-four (84) credit hours of courses beyond the baccalaureate. A student with a master’s degree may be able to transfer up to thirty-six (36) credit hours, with this decision being made by the doctoral committee at the time of admission.
   a. The determination of how the master’s level credits can be used to fulfill the requirements listed below is made at the time of admission.
   b. For students 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 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 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.

Financial Assistance
The Department of Industrial and Manufacturing Engineering offers opportunities for financial support of doctoral students through graduate assistantships and fellowships. Information is available from the department or The Graduate College.

Industrial and Manufacturing Engineering Courses (IME)

Open to Upperclass and Graduate Students
IME 500 Advanced Industrial Relations (3-0) 3 hrs.
Interplay among government agencies, labor organizations, and management. Particular emphasis is placed on collective bargaining procedures, issues, and applications through case studies. Prerequisite: IME 403 or permission of instructor.

IME 501 Survey of Industrial Engineering Topics (3-0) 3 hrs.
Course devoted to studying the basics of the industrial engineering profession. Subjects will include work analysis, engineering economy, statistical quality control, manufacturing control, and materials handling. Emphasis is placed on the application of these techniques to manufacturing related problems. This course cannot be applied for credit toward the Master of Science degree in engineering management or industrial engineering. Prerequisites: MATH 122 or MATH 200, MATH 260 or MATH 360, 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 NC programming systems, and Statistical Process Control (SPC). Laboratory exercises include the use of commercial CAD/CAM systems, NC programming software, and precision measurement devices.
program. Prerequisites: MATH 122 or MATH 200, CS 104 or CS 105, IME 142 and IME 154.

IME 503 Manufacturing Materials Fundamentals (2-3) 3 hrs.
The course is focused upon the study of identification, properties, processing, applications, and testing techniques of industrial materials. Topics discussed include: plastics, metals, ceramics, wood, and composites materials. Analysis and property definition utilizing standardized (appropriate) testing techniques will be carried out for selected industrial materials. Processing of plastics and composites will be investigated. This course cannot be applied for credit toward the Master of Science in Manufacturing Science. This course may be used to meet the stated prerequisite requirements normally satisfied by IME 250 and CMD 256 in the graduate program.

IME 505 Continuous Improvement in Operations (3-0) 3 hrs.
The purpose of this course is to introduce business and engineering students as well as managers to the process of kaizen (Continuous Improvement) and Total Employee Involvement.

IME 507 Computer Integrated Manufacturing (3-0) 3 hrs.
Topics related to computer integrated manufacturing. Topics include computer process control, robotics, group technology, CNC, CAO, 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 329 or 501 or equivalent.

IME 512 Management of Service Operations (3-0) 3 hrs.
An analysis of service industries exploring differences in planning and controlling operations. Emphasis will be on service system design, service quality, and comparing customer expectations with their perceptions.

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, factorial designs, multiple correlation and regression, and its application to response surface problems. Prerequisite: IME 261 or equivalent.

IME 524 Human Factors Engineering (3-0) 3 hrs.
The course covers the study of the interactions between the individual, equipment, products, and the environment in any human-task-environment system. Topics include human capabilities and limitations; human input, output, and control; work space design; and the work environment. (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 within injection molding and extrusion systems. Prerequisites: Basic understanding of plastics processing, as documented on work record.

IME 557 Special Topics in Industrial 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 lifetime dependent and lifetime independent prediction measures for both maintained and non-maintained systems. Prerequisites: IME 261 and 262 or MATH 362.

IME 610 Linear Programming for Engineers (3-0) 3 hrs.
The formulation of linear mathematical models as applied to engineering problems. Solutions to linear programming problems are obtained by using appropriate algorithms. Sensitivity analysis techniques are presented, and the significance of changes in the model is studied. Prerequisite: MATH 123.

IME 611 Operations Research for Engineers (3-0) 3 hrs.
Concepts and techniques of operations research with emphasis on industrial applications. Topics include queuing theory, inventory models, Monte Carlo simulation, game theory, and dynamic programming. Linear programming is not included; see IME 610. Prerequisite: MATH 362.

IME 612 Production/Operations Management (3-0) 3 hrs.
Topics relating to the planning and control functions of manufacturing systems are presented. These topics include management of the production system, strategies of product design and process selection, design of production systems, plant location, shop floor control, purchasing, quality management, and productivity improvement. Prerequisite: IME 526 or 541 or 501, or equivalent.

IME 614 Project Management (3-0) 3 hrs.
To address the basic nature of managing projects and the advantages and disadvantages of this method of getting things done. The problems of selecting projects, initiating them, and operating and controlling them are discussed. The demands made on the project manager and the interaction with the parent organization are also presented.

IME 622 Industrial Supervision Seminar (3-0) 3 hrs.
An analysis of the writings, literature, and philosophy concerning line supervision and employee direction in manufacturing industries. Prerequisite: IME 600 or permission of instructor.

IME 626 Advanced Engineering Economics (3-0) 3 hrs.
Advanced topics in engineering economics including deterministic and stochastic investment analysis, life cycle analysis, and linear programming and applications in capital budgeting. Prerequisites: IME 606 and 610.

IME 630 Advanced Simulation Modeling and Analysis (3-0) 3 hrs.
Advanced topics in modeling of complex systems using both discrete and continuous simulation. Emphasis on the simulation of manufacturing systems. Prerequisite: IME 430 or equivalent.

IME 642 Ergonomics and Occupational Biomechanics (3-0) 3 hrs.
Topics related to work physiology and biomechanics. Topics include anthropometry, skeletal system and muscle, neuromuscular control system, biomechanics, respiratory system, circulatory systems, and metabolic systems.

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 efficient and cost effective manufacturing. Topics include the design of part families, geometric classification 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,
MECHANICAL AND AERONAUTICAL ENGINEERING

Dr. Parviz Merati, Chair
Main Office: 2065 Kohrman Hall
Telephone: 387-3366
FAX: 387-3358
URL: http://www.mae.wmich.edu


Master of Science in Engineering (Mechanical)

Advisor: Jerry Hamelinik
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, manufacturing, machine tool design and product development, energy conversion and distribution, computer hardware and software; air, land, sea and space transportation; environmental systems; and construction and development. Opportunities for mechanical engineers continue to develop with the rapid expansion of the knowledge base.

Class sequencing (including 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 Mechanical Engineering from an institution with 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 of Mechanical Engineering.

Probationary admission is granted to a student with a baccalaureate degree and less than the required academic record or anyone having a baccalaureate degree from a non-accredited college or anyone needing more than three prerequisite courses. A student admitted on non-degree probationary status may be admitted to the Ph.D. program.

Program requirements

The Master of Science in Engineering (Mechanical) consists of thirty hours, of which six hours may be taken as a thesis or project. A specific program of study for each student is determined in conjunction with and is subject to the approval of the student’s advisor.

The program of study includes the following: Six (6) hours of mathematics, eighteen (18) hours in the area of mechanical engineering, and six (6) hours of electives. Elective courses may be selected from mechanical engineering, other engineering departments in the College of Engineering and Applied Sciences, or in mathematics and the physical sciences.

Doctor of Philosophy in Mechanical Engineering

Advisor: Parviz Merati
Room 2065, Kohrman Hall

The Doctor of Philosophy in Mechanical Engineering is designed to intensify the learning and research in an area of interest, 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 Doctor of Philosophy 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 an ABET/EAC 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 successfully completing the required courses in engineering, will also be considered in evaluating the application. The applicant must also submit the results of the verbal, analytical, quantitative, and engineering portions of the Graduate Record Examination.

In exceptional cases, experienced, superbly qualified and highly recommended engineers with only a bachelor’s degree in mechanical engineering (or a related area) may be admitted to the Ph.D. program.

Program requirements

The main accomplishment of the Ph.D. student should be original, high quality research. The program is oriented toward that achievement. The course work and number of credit hours that a student will be required to take depend on the individual qualifications, level of preparation for independent research, and the needs for successful accomplishment of the dissertation.

The doctoral student must acquire through course work and demonstrate in a qualifying examination a broad knowledge and understanding of mathematics and some of the core areas of mechanical engineering: materials and structures, the dynamics of flows and transfer, fluid mechanics, and systems and controls. Intensive and successful use of a 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 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.

In addition, students who were admitted with only a Bachelor of Science need 24 more graduate credit hours, or a minimum total of 69 credit hours for graduation.

Details of the Ph.D. study process may be obtained from the office of the Department of Mechanical and Aeronautical Engineering.

Mechanical and Aeronautical Engineering Courses (ME)

Open to Upperclass and Graduate Students

ME 530 Theoretical and Computational Fluid Mechanics 3 hrs. Theory and numerical implementation of ideal flow, viscous effects and exact solutions of Navier-Stokes equations. Special emphasis on panel 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 MATH 506 or equivalent.

ME 540 Automatic Control of Flight Vehicles 3 hrs. Synthesis of basic autopilot and stability augmentation systems for flight vehicles. Advanced flight control structures including integrated flight/flight control, control of inertial cross-coupling. Human pilot plus airframe and the relationship with flying qualities requirements. Extensive use of commercial software tools. Prerequisite: ME 360.


ME 545 Computational Fluid Dynamics I 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, conservation, simulation, introduction to vibrations. Prerequisites: ME 258, MATH 374.

ME 558 Mechanical Vibrations (3-0) 3 hrs. Winter. 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. Fall. 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. Weighted residual methods, finite element techniques in one-, two-, and three-dimensional problems of heat transfer, fluid flow, structures and elasticity, time dependent problems, higher order elements, non-linear problems. Prerequisite: MATH 506 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, ad boundary element method applications to differential equations of heat transfer, fluid flow, and solid mechanics. Prerequisite: MATH 506 or equivalent.

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 571 Gas Dynamic (3-0) 3 hrs. Basic equations of compressible flow, isentropic relationships, normal and oblique shocks, Prandtl-Meyer expansion, Fanno Line and Rayleigh Line flow. Applications to nozzles, diffusers, supersonic wind tunnels, and linearized flows and method of characteristics. Prerequisites: ME 431, 432.

ME 572 Advanced Thermodynamics (3-0) 3 hrs. Conditions of equilibrium, process and thermodynamic engines, the extremum principle, Maxwell relations, stability of thermodynamic systems, phase transitions, chemical thermodynamics, irreversible thermodynamics, and introduction to the statistical thermodynamics. Prerequisites: ME 431, 432.

ME 573 Engineering Materials (3-0) 3 hrs. Material selection for resistance to both load and environment. Design parameters for material selection and various metal systems, corrosion, service failures and mechanical behavior or engineering alloys at high and low temperatures. Prerequisite: ME 250.

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 595 Topics in Mechanical Engineering 1-4 hrs. A specialized course dealing with some particular area of mechanical engineering not included in other course offerings. This course may be repeated for credit with a different topic to a total of six credit hours. Prerequisite: Consent of department.

Open to Graduate Students Only


ME 630 Advanced Fluid Dynamics (3-0) 3 hrs. Modern developments in fluid dynamics of compressible and incompressible fluid flow. Includes aerodynamics and build-up of aerodynamic and thrust data bases and modeling of control surfaces, actuators, and power plants. Implementation of continuous and sampled-data flight control laws. Some use of commercial software tools. Prerequisites: ME 360 and AAE 460.

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. Fall. 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. Prerequisites: ME 232 or consent.

ME 633 Advance 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 369.
ME 634 Digital Flight Control Systems
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 transfer 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 635 Applied Optimal Flight Control
3 hrs.
Introduction to optimal control for multi-input multi-output (MIMO) control system design. Application of linear quadratic (LQ) methods to the control of aircraft and missile systems. Necessary conditions for optimality, solution of matrix Riccati equation, and robustness properties. Topics to include continuous, discrete, and sampled-data regulators, non-zero setpoint problems, output feedback, and sub-optimal control. Also advanced controller structures, including control rate weighting, fractional order integral (FOI), command generator tracker (CGT), and multi-variable dynamic compensators (LOG). Extensive use of commercial software tools. Prerequisites: ME 533, or equivalent, and 540.

ME 637 Design Optimization
3 hrs.

ME 645 Computational Fluid Dynamics II
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, curved 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 hrs.

ME 654 Composite Materials
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. Material selection criteria. Prerequisites: ME 520, 550.

ME 657 Viscoelastic Behavior of Solids
3 hrs.

ME 658 Similarities in Structural Dynamics
3 hrs.

ME 659 Multibody Dynamics
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 660 Boundary Element Methods
3 hrs.
The use of boundary element methods to solve engineering problems. In particular, application to potential problems and elastostatics problems in two and three dimensions. Prerequisite: ME 561.

ME 661 Advanced Finite Elements
3 hrs.

ME 662 Nonlinear Finite Elements
3 hrs.
The application of the finite element method to nonlinear problems in solid mechanics. In particular, finite element displacement and elastic-plastic problems. Numerical procedures for solving nonlinear problems. Prerequisite: ME 561.

ME 663 Structural Vibrations (3-0)
3 hrs.

ME 664 Acoustics
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 equations; integral equations; attenuation; acoustics of pipes, ducts, cavities, wave guides and resonators, environmental, architectural, underwater acoustic transducers. Prerequisites: ME 555 or ME 564.

ME 665 Sound and Structure Interaction
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 exploitation of elastic plates and coupling between panels and open and enclosed acoustic spaces. Prerequisite: ME 555 or ME 558.

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—Convection and Radiation Heat Transfer (3-0)
3 hrs.
Fundamentals of thermal radiation for black, gray, non-gray, diffuse, and specular surfaces. Gaseous radiation and special applications of thermal radiation including derivation and application of equations of mass, energy, and momentum transfer. Prerequisites: ME 431, 432.

ME 673 Power Plant Design (3-0)
3 hrs.
Theory and application of internal combustion engines, gas turbine power plants, steam turbine power plants, and other prime movers. Emphasis is on application of thermodynamic principles combined with open-ended design problems in power plant applications. Prerequisites: ME 431, 432.

ME 676 Phase Change Phenomena
3 hrs.

ME 677 Mass Transfer
3 hrs.
Fick's Law of Diffusion, mass diffusion, mass convection, simultaneous heat and mass transfer; high mass transfer rate theory. Mass exchangers: system balances, single stream mass exchangers, two-stream mass exchangers, and simultaneous heat and mass exchangers. Prerequisite: ME 431.

ME 678 Absorption Space-Conditioning
3 hrs.

ME 695 Advanced Topics in Mechanical Engineering: Variable Topics
1-4 hrs.
A specialized course dealing with some particular advanced area of Mechanical Engineering not included in other course offerings. May be repeated for credit with a different topic up to six credits. Prerequisite: Consent of instructor.

ME 697 Problems in Mechanical Engineering
1-6 hrs.
Special problems of individual need or interest under the direction of a member of the graduate faculty. May be elected with approval of department chairperson and faculty.
4. Applicants are encouraged to submit Program requirements
2. At least one semester of college chemistry

requirements for each option are identical.

coating, paper recycling, and imaging
tools. Thus, the key component of
and Imaging Science and Engineering.

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 derived from course work completed to achieve a master's degree, is required to prepare for and support original research projects 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. Application must be made to both the Office of Admissions and Orientation and the Department of Paper and Printing Science and Engineering.

All applicants must meet the general admission 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 and

3.25 grade point average. The Graduate Record Examination, General Test, is required of all applicants, as are at least three letters of recommendation and a statement 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 requirements, the student may be able to satisfy all the requirements and competencies with fewer than thirty hours. However, in this research-based degree program, if an exceptionally well prepared student enters the program having satisfied one or more of the research requirements, the student may be able to satisfy all the requirements and competencies with fewer than thirty hours. Upon formal petition by the Chair, the student may continue to accumulate 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 650), papermaking (PAPR 650), pulping and bleaching (PAPR 698), recycling (PAPR 655), environmental engineering (PAPR 693), digital printing (PAPR 621), and ink technology (PAPR 620).

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 Graduate College to ensure readiness for the research or after admission by the Dissertation Advisory Committee to remedy deficiencies revealed by the Comprehensive Examination.

2. Two research tools chosen in consultation with the Dissertation Advisory Committee from the following three options:
   a. Reading proficiency in one foreign language other than English at the course level of 401 (with a grade of “B” or better).
   b. Statistics and experimental design at the level of MATH 567 (with a grade of “B” or better).
   c. Computer modeling and simulation expertise at the level of CS 518 (with a grade of “B” or better).

3. An oral Comprehensive Examination will evaluate the student’s general knowledge of paper and imaging science and engineering and the competency of the formal dissertation research plan. The student is encouraged to take the Comprehensive Examination as soon as deemed appropriate by the Dissertation Advisory Committee. It is expected that all students will demonstrate knowledge of the fundamentals of paper and imaging science and engineering through the level of PAPR 620 and PAPR 650; additional expected knowledge and competency will be specific to the student’s proposed research. The Dissertation Advisory Committee may give a rating of “Pass” on the Comprehensive Examination, or may give a rating of “Conditional Pass” and recommend additional courses, if the Comprehensive Examination is generally of passable quality but reveals specific areas of deficiency, or may give a rating of “Fail.” A student who fails the examination may apply to retake the Comprehensive Examination in a subsequent semester or term. A second failure will result in dismissal from the program.

4. Full-time enrolment on campus for at least four semesters.

5. Completion of at least one University-sponsored TA training workshop and completion of six hours of PAPR 713, Teaching Practicum. The first three credits of PAPR 713 will be earned by observing a faculty member teaching a class and by preparing to teach that course under the guidance of a graduate faculty member. The second three credits will be earned by having primary responsibility for teaching one course under the guidance and supervision of a member of the department’s graduate faculty.

6. Completion of at least six hours of PAPR 725, Research Seminar. The objective of this requirement is to participate in discussion of recent research findings which may be used in the student’s research and to gain practice in the presentation of research results.

7. Completion of six to nine hours of PAPR 735, Graduate Research. The objective of this requirement is to ensure that the student prepares a thoughtful, coherent research plan for the dissertation under the guidance of the Dissertation Advisory Committee.

8. Completion of at least twelve hours of PAPR 740, Doctoral Dissertation. The objective of this requirement is to ensure that the student carries out the research and prepares the dissertation under the guidance of the Dissertation Advisory Committee. The student must successfully defend the dissertation and have the dissertation approved by the Dissertation Advisory Committee and by the graduate dean. The student, with approval of the Dissertation Advisory Committee, may choose between two dissertation options.

   a. Option 1: The student will present a traditional comprehensive dissertation and two journal papers based on the doctoral research and judged by the Dissertation Advisory Committee to be ready for submission to an identified, refereed journal.
   b. Option 2: The student will present at least four journal papers based on the doctoral research and judged by the Dissertation Advisory Committee as ready for submission to an identified, refereed journal. These must be submitted with an introduction, review of relevant literature, and a summary explaining the significance of the research.

Financial support

The Department of Paper and Printing Science and Engineering offers opportunities for financial assistance of doctoral students through graduate assistantships and fellowships. Information concerning these opportunities is available from the department’s graduate advisor of The Graduate College.

Paper and Printing Science and Engineering Courses (PAPR)

Open to Graduate Students Only

PAPR 600 Surface and Colloid Chemistry (3-0) 3 hrs.

Intermediate molecules are considered in detail to build a sound background for consideration of surface and colloidal behavior of materials. The thermodynamics of interfaces and surfaces is covered in detail considering the topics of absorption, surface films, wetting, capillary penetration, and diffusion. Colloidal topics covered include areas such as ionic boundary layers, electrokinetic potential, swelling and shrinkage of gels, on 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, electrohydrography, 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. Flow models 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 (1-6) 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 (2-3) 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 (2-3) 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 in-depth 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) 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.


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 hardware 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. Repeatable for two semesters.

PAPR 725 Doctoral Research Seminar
2-6 hrs.
Seminars presented by graduate students, faculty, and visiting lecturers concerning their research. Course is repeatable.

PAPR 730 Doctoral Dissertation
24 hrs.
PAPR 735 Graduate Research
2-10 hrs.
ART

Professor Charles Stroh, Chair
Main Office: 1420 Sangren Hall
Telephone: 387-2436
FAX: 387-2477

Professors John Carney, Richard dePeaux, Edward Hennesy, Richard Keaveny, Donald King, Albert LaVergne, John Link, Curtis Rhodes, Louis Rizzolo, Charles Stroh, Phillip VanderWeg; Associate Professors Keith Jones, Bruce Nafeli, Assistant Professors Barbara Brotherton, Cat Crotchett, Joyce Kubiski, Charles LoVerme, Paul Solomon.

The philosophy underlying the Department of Arts courses and programs is to establish an awareness and understanding of the visual arts to gain a liberal arts education, and likewise, that a liberal education is a necessary part of a professional artist's training. To that end, programs in Art seek to meet the objectives of three different types of students: those who have an interest in simply taking courses in the field for personal enjoyment and growth, those with professional ambitions in the various areas of practice and teaching, and those liberal arts oriented persons who seek a major in the general field of the visual arts.

The various programs offered by the Department of Art are designed to promote the education of good artists and artist-teachers and to increase the artistic awareness among students in other areas. Extracurricular activities include many exhibitions, lectures by visiting artists, and a student-operated gallery. The purpose of graduate study in the Department of Art is to advance: Individual studio and scholarly talents, interests, and philosophies, used creatively both to expand and preserve our cultural heritage; professional studio competence exemplified by a significant body of work; the student's potential to solve contemporary problems in all aspects of the visual arts and to explore and address new questions and issues; professional competence in the dissemination of knowledge, including logical, clear verbal and written presentation of aesthetic ideas in teaching and other contexts; scholarly competence in the organization, evaluation, and interpretation of knowledge.

Both the Master of Arts, an initial graduate degree, and the Master of Fine Arts, which is the terminal studio degree, are offered in the following practice-oriented areas of emphasis: Sculpture, ceramics, printmaking, photography, painting/watercolor, and graphic design. All programs have the same admission requirements.

Western Michigan University is an accredited member of the National Association of Schools of Art and Design and subscribes to the recommendations of this organization.

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 résumé.

Master of Arts in Art

Advisors:
Ellen Armstrong, Graduate Coordinator
Room 1406, Sangren Hall
Richard dePeaux, Graduate Coordinator
Room 1402, Sangren Hall

Art Practice emphasis requires a minimum thirty credit hours, for students interested in advanced study in art practice for professional reasons.

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, Graduate Coordinator
Room 1406, Sangren Hall
Richard dePeaux, Graduate Coordinator
Room 1402, 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.

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.
ART 538 Jewelry and Metalsmithing Workshop 1-6 hrs.
Advanced work in jewelry design and metalsmoothing. 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 544 Hand Papermaking 1-6 hrs.
Continuation of ART 244 and ART 344. Prerequisite: ART 344.

ART 548 Photography Workshop 1-6 hrs.
Professional development through research in advanced projects. Repeatable for credit. Prerequisite: ART 348.

ART 552 Preparation for Art Teaching 3 hrs.
A course designed to investigate: the current problems and issues on the social scene which affect teaching and learning in the visual arts at all levels of the public school; the creative person, product, process, and press (environment); the phenomena of perceptual learning, the actual construction of an operant 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: ART 220 and 221 or equivalent for Art majors.

ART 554 Hand Papermaking 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 555 Independent Studies in Art Education 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 558 History of 19th Century European Art 3 hrs.
The development of art through the early Renaissance to the Late Renaissance and Mannerism. Some of the major artists discussed are: Giotto, Donatello, Van Eyck, Bruegel, and Durer. Prerequisite: ART 221.

ART 587 History of American Art, Colonial to 1900 3 hrs.
Art in the United States from the Colonial Period to 1900. Emphasis are Federal and Georgian 18th Century styles, 19th Century Realism, Romanticism and Nativism genesis and development of distinctly "American" consciousness and styles. Prerequisite: ART 221.

ART 588 History of 19th Century European Art 3 hrs.
Major developments, such as Neo-Classicism, Romanticism, Realism, Impressionism, and Post-Impressionism, are discussed. Key figures whose works lie at the roots of modern art are considered in relationship to their times. Prerequisite: ART 221.

ART 589 History of European Art: 1900-1945 3 hrs.
Emphasis is placed upon the roots of contemporary trends and the contributions of the individuals to new modes of presentation. Major developments including Fauvism, Cubism, Expressionism, and Surrealism are discussed. Prerequisite: ART 221.

ART 590 History of 20th Century Art: 1945 to Present 3 hrs.
Major trends in art since World War II are discussed. Included are Abstract Expressionism, pop and op art, the new realists, and conceptual art. Prerequisite: ART 221.

ART 591 History of Prints 3 hrs.
Major developments in printmaking, including origins of woodcut and engraving. Renaissance and Baroque master etchers and engravers (Durer and Rembrandt). Lithography in the nineteenth century (Delacroix, Daumer, Toulouse-Lautrec). Twentieth century printmaking. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

ART 592 20th Century Design History 3 hrs.
Major trends in design in the past 100 years beginning with the arts and crafts movement through post modernism. Major developments include Art Nouveau, Art Deco and the
CRAFTS. Prerequisite: ART221.

Bauhaus. Art forms include architecture, interior design, graphics, illustration and crafts. Prerequisite: ART221.

ART 597 History of Modern Architecture 3 hrs.

Major developments in architecture since c. 1750 with emphasis on late nineteenth century and twentieth century developments in domestic and commercial architecture and city planning in the West and in Asia. Special consideration given to works and influences of Wright, LeCorbusier, and Mies van der Rohe.

Open to Graduate Students Only

ART 610 Advanced Drawing 1-6 hrs.
Graduate level work in drawing. Repeatable for credit. Prerequisite: ART 510 and official admission to an Art graduate program.

ART 613 Graduating Presentation 2 hrs.
Preparation and presentation of graduating exhibition, portfolio, and oral examination with the assistance of the student's major advisor. Evaluated by the student's Graduate Committee. Prerequisite: Last year of graduate study.

ART 620 Independent Study in Art History 1-3 hrs.
Problems in art history from ancient times to the present selected by the individual student 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 Artist and the 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.

DANCE

Professor Jane Baas, Chair
Main Office: 3107 Dalton Center
Telephone: 387-5830
FAX: 387-5809

Professors Wendy Cornish, Janet Stillwell; Associate Professors Jane Baas, Trudy Cobb, Nina Nelson, Lindsay Thomas; Assistant Professor Sharon Garber.

Dance Courses (DANC)

Open to Upperclass and Graduate Students

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 standing may elect to pursue independently the study of some area of dance through the creative process. Topics are chosen and arrangements are made to suit the needs of each particular student. Prerequisite: Approved application required.

MUSIC

Dr. Richard O’Hearn, Director
Main Office: 2146 Dalton Center
Telephone: 387-4667
FAX: 387-5809


Master of Music

Advisors:
David Sheldon,
Room 2146, Dalton Center
Brian Wilson,
Room 2117, Dalton Center

The Master of Music is designed to enhance the student's training in performing, research, and creative abilities in music. The School of Music offers course work leading to a Master of Music degree in five different areas of concentration: Performance, Composition, Conducting, Music Education, and Music Therapy. Western's School of Music is accredited by the National Association of Schools of Music and all areas of concentration carry curriculum approval from that accrediting association. The Music Therapy program is certified by the National Association of Music Therapists.

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. At the same time, will 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. At that time 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 Music (8); MUS 690, Graduate Recital (2), including oral exam.

2. Cognate music studies: a composition, music education, history/literature, theory, jazz studies (9-12).

3. Electives to make a total of at least 30 semester hours. Must include a 600-level music theory and a 600-level music history course, unless already required in the program.

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 requirements  
1. Required courses: MUS 530, Advanced Choral Conducting (2) or MUS 531, Advanced Instrumental Conducting (2); MUS 677, Symphonic Literature (2) or MUS 581, Choral Music Literature (2) or MUS 582, Wind Music Literature (2); MUS 600, Applied Conducting–2 semesters (4); MUS 610, Introduction to Research in Music (3); MUS 664, Form in Music (2). MUS 670, Seminar in Musicology (2) or MUS 679, Compson (2); and MUS 690, Graduate Recital (2) including oral exam.

2. Cognate music studies: Nine (9) hours of course work in a secondary area of specialization to be determined in consultation with the candidate's major professor and graduate coordinator. To be chosen from the applied, composition, theory, history/literature, jazz, or music education areas. Cognate must include at least one 600-level course area.

3. Four (4) hours of electives are selected in consultation with the candidate's major professor and graduate coordinator and are to support the major curriculum in the program.

4. Special information: One component of MUS 600 will be the preparation and performance of a work with a major ensemble each semester. MUS 600 is taken. Documentation of these performances must be included in the candidate's video tape log of conducting experiences, which will be compiled over the course of the candidate's conducting study. This log will become a part of the materials reviewed by the Graduate Committee during the MUS 690 Project and Oral Examination process. The video tape log must include a minimum of 20 minutes of conducting two or more performances and must be complete prior to registering for MUS 690. Additional special conducting activities as determined by the student and the major professor may also be included. Consult the Graduate Coordinator for further details.

MUSIC EDUCATION  
(Minimum of 30 hrs.)

Admission requirements  
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 completed.

3. A videotape (VHS) demonstrating the applicant's conducting skill must be received on or before February 15. Applicants who pass this initial screening will be invited for a conducting audition in April.

4. A live audition will be administered on the Western Michigan University campus by three full-time members of the conducting faculty, with one being outside the applicant's conducting area. Applicants will a) conduct an appropriate University ensemble or ensembles reviewed by the audition committee, b) demonstrate an ear for pitch and content, choral sight reading and score reading skills, and c) demonstrate, if a choral applicant, keyboard competency, singing proficiency, and dictation proficiency (English, French, Italian, and German).

Candidates will be informed of their audition results within ten (10) days of their audition date by the coordinator of graduate studies in music. Applicants must be accepted to the conducting program prior to the 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.

("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  
(Minimum of 30 hrs.)

Admission requirements  
1. Bachelor of Music, AB or 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 requirements for undergraduate courses, including the six-month internship, for RMT 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 music, 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 700, Master's Thesis, including oral exam (6)*; MUS 712, Professional Field Experience (3)*.

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 Mediation, Counselor Education and Counseling Psychology, Mathematics and Statistics, Occupational Therapy, Psychology, Sociology, Special Education, Speech Pathology and Audiology, Education and Professional Development (6-9).* (The student must have completed the six-month internship required for RMT 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 coursework in music and teacher education which will enhance the student's teaching abilities in general, and more especially in the area of music. This degree program is accredited by the National Association of Schools of Music. A minimum of thirty semester hours of credit are required to complete this degree.

Admission requirements  
A Bachelor of Arts or Science degree, or equivalent, with a major in music, and a teaching certificate are required for admission. Students are admitted on the basis of transcripts, which must include at least forty semester hours of acceptable work in music. Exceptions to admission requirements may be granted if competency can be demonstrated through Preliminary Examinations. Program of study will not be determined until Preliminary Examinations are taken and the student has
completed 6-10 semester hours of course work. At that time, a recommendation for degree candidacy will be approved if the student has demonstrated a sufficient level of scholarship and musicianship. Preliminary Examinations will be administered in the areas of music history, literature, and music theory.

**Program requirements**

The graduate student advisor in the School of Music 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 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 limitation 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 620, Social and Philosophical Foundations (3); ED 604, Psychological Foundations of Education (3).
2. Twelve 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). Culminating option (choose one or both) MUS 691, Special Project in Music (2) with oral exam or MUS 681, Research in Musical Behavior (2) typically in a two-hour format for nine semester hours credit or eight (8) hours for 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 Underclass 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, accompanists, instrumentalists, and persons interested in production techniques. Admission by audition or permission of the instructor. May be repeated for credit.

**MUS 517 Collegium Musicum**

1 hr.
Performance of early Western music. Open to all students of the University. Additional transcription, arranging, editing, and conducting of early music is required for enrolled Music History majors. Graduate students may count no more than two hours of this course for graduation. Membership by audition.

**MUS 518 Improvisation**

2 hrs.
A course in the fundamentals of instrumental improvisation. Assignments 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 530 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 or similar topics: Music in the Humanities, Evaluation of Music Education Materials, and Curriculum Planning for Innovation in Music Education. This course may be repeated for credit. No more than four hours for graduation. Prerequisite: MUS 263 or permission of the instructor.

**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 techniques specific to using 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 in addition to at least potentially qualify it for publication. Prerequisite: CS 105 or 520 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 voicings, scoring practices, calligraphy, and contemporary trends within the medium. Prerequisite: MUS 558 (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 158 (or consent of Instructors) and MUS 161; “C” or better required in each course.

**MUS 559 Jazz Improvisation II**

2 hrs.
A study and directed application of advanced techniques of jazz improvisation including chord extension, voicing, inversions and substitutions, chord function and progressions, and complex scales and their applications. All students will be required to develop aural and performance skills relative to those theory skills. Prerequisite: MUS 558 and MUS 218 Jazz Ensemble or concurrently.

**MUS 560 Counterpoint**

2 hrs.
A study of the contrapuntal techniques of the 18th, 19th, and 20th centuries. Written assignments are closely related 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 a wide variety of sound synthesis, as well as the operation of studio sound mixers and multi-track recorders. In addition to the weekly seminar, the student will be assigned a number of hours weekly for independent work in the studio for the realization of the project, which will receive periodic guidance and criticism from the instructor. May be repeated for credit. Lab fee required ($30). Prerequisite: MUS 263 or permission of the instructor.

**MUS 565 Seminar in Music Theory**

2 hrs.
Research projects in music theory. Research methods and 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 of 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 bibliographic field. Prerequisite: MUS 570.

MUS 572 Baroque Music (1600-1750)
3 hrs.
A survey of the chorale 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 Operatic Literature
2 hrs.
A survey of opera from 1600 to the present.

MUS 580 Solo Literature: (topics)
2 hrs.
Solo literature for a specific medium (voice, piano, violin, etc.) will be studied from a theoretical, historical, and performance point of view. Topics to be announced. May be repeated for credit. Prerequisites: MUS 270 and 271.

MUS 581 Choral Music Literature
2 hrs.
A survey of choral music (mass, motet, anthem, cantata, oratorio) from the Renaissance through the Romantic period.

MUS 582 Wind Music Literature
2 hrs.
A survey of windband ensembles and literature from the Renaissance period through the twentieth century.

MUS 583 Jazz History and Literature
4 hrs.
A survey of the history of jazz including aspects of sociology and history as they relate to the art form of jazz. All periods in jazz history, from its earliest roots in Africa and the slave culture in the United States, up through the blues, dixieland, swing, bop, mainstream and the more eclectic period of jazz rock and free-form jazz will be explored. Important works will be examined from each period in order to grasp the essentials of a particular style. Prerequisite: MUS 558 or department 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. Development in the major musical genres of the era will be examined with emphasis on a comparison of the Franco-Flemish tradition with the emerging national styles. Performance practice options will be explored. Prerequisites: MUS 270 and MUS 271.

MUS 587 Contemporary Music
2 hrs.
A survey of trends in European music and music of the Americas from about 1910 to the present.

MUS 588 Music Cultures of the World
3 hrs.
This topics course is designed to provide students with an intensive study of the musical traditions of a single cultural-geographic area. Attention will focus on the characteristics of instruments and instrumental ensembles, vocal traditions, sound structures, and theatrical traditions as well as the historical, political, and socio-demographic factors that shape the area’s performing traditions. May be repeated for credit with different topics. Prerequisite: Consent of instructor for non-music majors.

MUS 589 Topics in Ethnomusicology
3 hrs.
This topics course examines various methods, problems, and issues in ethnomusicological writing and research. Topics will vary and be announced each semester. The approach taken in the course reflects current practice in the field of ethnomusicology, drawing upon theoretical writings in a variety of disciplines including ethnomusicology, musicology, anthropology, theater, 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, Piano 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. ($30)
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 predominantly a technique course, areas which affect 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 drums, and various sound modification devices).

MUS 595 Workshops in Music Education
1-4 hrs.
Intensive, short-term courses that address the instructional and pedagogical issues found in today’s schools, as well as issues of specific concern for current teachers in the field of music. Topics will be from all areas of music education. Prerequisite: Advisor consent.

MUS 596 Multi-track Recording
2 hrs.
A course in the theory and techniques of multi-track recording and mixing. Students begin with an in-depth study of the mechanics of a multi-track recorder and the signal flow of a recording/mixing console. Microphone techniques as well as various approaches to room set-up are presented through reading assignments and studio demonstrations. Attention is given both to traditional techniques and the need for engineers to try new approaches to familiar circumstances. Students also study the most commonly used signal processors and how they might be used during recording of mixing for best results. Various listening assignments introduce students to the subtleties of mixing. A final project is required wherein each student must organize and execute a full 24-track production, from microphone selection through the final mix. Prerequisite: MUS 594 or instructor consent.

MUS 597 Projects in Music
1-4 hrs.
A program of independent study to provide the unusually qualified music student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the department. The initiative for planning the project must come from the student and must be approved by the faculty member proposed to supervise the study. Prerequisite: Application approved by School of Music.

MUS 599 Projects in Recording Technology
1-4 hrs.
An independent student allowing the unusually qualified student the opportunity to explore a topic or problem in recording technology. Prerequisites: MUS 598, approved application, and instructor permission required.

Open to Graduate Students Only

MUS 500 Applied Music
1-2 hrs. ($7)
Private lessons for the graduate student in a non-major area of performance.

MUS 600 Applied Music
1-4 hrs. ($7)
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 scene. Open to advanced singers, pianists, and persons interested in production techniques. Admission is by personal interview with the instructor.

MUSIC 143
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 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.

MUS 662 Seminar in Composition 2 hrs.
The completion of an original composition of larger scope for any combination of acoustic instruments, and which may include multi-media. Seminars will include analysis of advanced contemporary works, discussion of current trends in music composition, and reading assignments. May be repeated for credit. Prerequisite: MUS 362 or equivalent.

MUS 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 Classes. 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 is the case of music education students, will satisfy the "terminal project" requirement (MUS 691) or, in the case of music therapy students, will provide the data basis for the required MUS 700, Master's Thesis. When this course is the culminating project for the master's degree, an oral examination on the project and related areas is an integral part of the requirements. Prerequisite: MUS 510 or ED 601.

MUS 689 Music Teaching Practicum 2 hrs.
A course for teaching assistants which provides for faculty instruction, observation, and supervision in the area of the teaching assignment. The course shall be taken during the first semester of appointment.

MUS 690 Graduate Recital 2 hrs.
Presentation of a full-length recital in the student's area of concentration (music performance or composition). When this course is the culminating project for the master's degree, an oral examination on the recital materials and related areas is an integral part of the requirement.

MUS 691 Special Project in Music Education 2 hrs.
A research project in the area of the teaching of music. The nature of the special project is to be determined in consultation with the Graduate Advisor and appropriate members of the graduate faculty. Projects must be approved prior to registration. When this course is the culminating project for the master's degree, an oral examination on the project and related areas is an integral part of the requirements. May be repeated for credit.

MUS 698 Readings in Music 1-4 hrs.
An advanced, designated project of study. Graduate students may enroll in this course after consultation with the graduate advisor. Prerequisite: Approval of graduate advisor.

MUS 700 Master's Thesis 2-6 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 710 Independent Research 2-6 hrs.

MUS 712 Professional Field Experience 2-12 hrs.

THEATRE

Dr. D. Terry Williams, Chair
Main Office: 1103 Gilmore Theatre Complex
Telephone: 387-3220
FAX: 387-3222

Professors James Daniels, Lyda Stillwell, Greg Roehnck, Von Washington, D. Terry Williams; Associate Professors Robert Luscombe, Gwen Nagle.

Theatre Courses (THEA)
Open to Upperclass and Graduate Students

THEA 564 Drama in Education 4 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. $15. fee. Prerequisites: EED admission; ART, DANC, MUS, or THEA 148; ART 200, ED 230, DANC 290; MUS 140; consent of instructor.
The professional preparation for students entering any of the four degree programs described below includes academic study on evaluated throughout the program. This assignment of a grade below “B” in any internship placement. A student’s performance and progress will be monitored by the academic advisors in order to be informed of policies, available from the Department office. Curriculum guides for the four programs are available from the Department office. The Teaching Children Who are Visually Impaired/Orientation and Mobility and in Rehabilitation Teaching are accredited by the Council on Rehabilitation Education. The thirty-six hour Orientation and Mobility program requires 58 semester hours of course work and can be completed in six consecutive semesters. The Teaching Children Who are Visually Impaired/Orientation and Mobility program requires 58 semester hours and can be completed in six consecutive semesters. Curriculum guides for the four programs 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. This includes “check points,” such as candidacy, assignment of a grade below “B” in any course, and final grade point check prior to internship placement. The professional preparation for students entering any of the four degree programs described below includes academic study on campus, simulated disability experiences, a research project, practicum, and an off-campus supervised clinical field experience.

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 a departmental application obtained from the Department of Blind Rehabilitation 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 degree program prepares specialists who teach children and adults, who are blind and visually impaired, the conceptual and physical processes involved in moving independently, safely, and efficiently in their homes and communities. If a student so chooses, an additional semester’s work may be elected to complete a specialized concentration in Low Vision or Gerontology. One may also earn dual degrees in Orientation and Mobility and in Rehabilitation Teaching.

Master of Arts in Rehabilitation Teaching

Advisor: Susan Ponchillia, Room 3405, Sangren Hall

The thirty-seven hour Rehabilitation Teaching degree program prepares practitioners to offer instruction to people who are blind and visually impaired in the following skills: independent living, communications, adapted
computer technology, personal management, home management, minor household repairs, and leisure time activities. If a student so chooses, an additional semester's work may be elected to complete a specialized concentration in Low Vision or Gerontology. One may also earn dual degrees in Orientation and Mobility and in Rehabilitation Teaching.

Master of Arts in Rehabilitation Counseling/Teaching

Advisor: William R. Wiener, Room 3409, Sangren Hall

This degree program* is offered through the Rehabilitation Counseling/Teaching program (RCT) which is jointly administered by the Department of Blind Rehabilitation and the Department of Counselor Education and Counseling Psychology.

The seventy-four hour Rehabilitation Counseling/Teaching degree program prepares a dual competency practitioner who is able to provide both rehabilitation counseling and rehabilitation teaching skills. Graduates receive two Master of Arts degrees that make them eligible to become certified rehabilitation counselors (CRC) and AER certified rehabilitation teachers (AA). They provide the full range of vocational rehabilitation counseling services to individuals impaired by sensory handicaps, physical handicaps, and mental disability. As rehabilitation counselors, the graduates assist clients with career choices, manage their acquisition of work-related skills, develop jobs, and assist with placement into employment. As rehabilitation teachers, they serve blind and visually impaired individuals by providing instruction in the activities of daily living, communications, and recreation/leisure.

Master of Arts in Teaching Children Who are Visually Impaired/Orientation and Mobility

Advisor: Annette Skelenger, Room 3404, Sangren Hall

This degree** is offered through the Teaching Children Who are Visually Impaired/Orientation and Mobility program (VIOM) which is jointly administered by the Department of Blind Rehabilitation and the Department of Special Education.

This fifty-eight hour degree program prepares a dual competency practitioner who is able to serve in the schools as a teacher of the blind. Students will learn the uses, 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 584 Computer Technology in Rehabilitation

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 Psychosocial Aspects of Disability

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 representation, psychosocial disabilities, theories of adjustment, psychosocial losses, issues relating to sexuality, personal adjustment, the role of the family, the use of effective interaction skills, and the stages of group process.

** BLRH 589 Medical and Functional Aspects of Rehabilitation

This course presents an interdisciplinary approach to the study of multi-handicapped 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 disabilitues, and other selected disabilities. Emphasis is placed upon the cumulative effects of combining disabilities with additional emphasis on visual impairment.

** BLRH 590 Physiology and Function of the Eye

This course is designed to familiarize the student with the special needs and services of the low vision person. Low vision care is viewed from an historical perspective and compared with current practice. The relationship of eye pathology to function is explored. Assessment methods and remediation techniques for functional problems brought on by low vision will be emphasized and taught. Emphasis is placed on the use of optical and non-optical devices as well as the role of the low vision clinic. Psycho-social reactions to low vision are examined. Prerequisite: Approval of advisor.

** BLRH 594 Principles of Orientation and Mobility

This course is designed to familiarize the student with the special needs and services of the low vision person. Low vision care is viewed from an historical perspective and compared with current practice. The relationship of eye pathology to function is explored. Assessment methods and remediation techniques for functional problems brought on by low vision will be emphasized and taught. Emphasis is placed on the use of optical and non-optical devices as well as the role of the low vision clinic. Psycho-social reactions to low vision are examined. Prerequisite: Approval of advisor.

** BLRH 598 Readings in Blind Rehabilitation

This course is designed to familiarize the student with the special needs and services of the low vision person. Low vision care is viewed from an historical perspective and compared with current practice. The relationship of eye pathology to function is explored. Assessment methods and remediation techniques for functional problems brought on by low vision will be emphasized and taught. Emphasis is placed on the use of optical and non-optical devices as well as the role of the low vision clinic. Psycho-social reactions to low vision are examined. Prerequisite: Approval of advisor.

** BLRH 599 Gerontology

This course covers an examination and application of the fundamental principles underlying the acquisition and interpretation of sensory information by severely visually impaired individuals. It examines theories of orientation and human movement, psycho-social aspects of mobility, the conceptual understanding of the environment, the history of the profession, and the use of various travel aids.

** BLRH 596 Electronic Devices

This course provides systematic instruction in use of fundamental electronic travel aids. An overview of major electronic devices is also explored. Prerequisite: BLRH 595.

** BLRH 597 Principles of Low Vision

This course is designed to familiarize the student with the special needs and services of the low vision person. Low vision care is viewed from an historical perspective and compared with current practice. The relationship of eye pathology to function is explored. Assessment methods and remediation techniques for functional problems brought on by low vision will be emphasized and taught. Emphasis is placed on the use of optical and non-optical devices as well as the role of the low vision clinic. Psycho-social reactions to low vision are examined. Prerequisite: Approval of advisor.

** BLRH 598 Readings in Blind Rehabilitation

This course is designed to familiarize the student with the special needs and services of the low vision person. Low vision care is viewed from an historical perspective and compared with current practice. The relationship of eye pathology to function is explored. Assessment methods and remediation techniques for functional problems brought on by low vision will be emphasized and taught. Emphasis is placed on the use of optical and non-optical devices as well as the role of the low vision clinic. Psycho-social reactions to low vision are examined. Prerequisite: Approval of advisor.

** BLRH 599 Gerontology

This course covers an examination and application of the fundamental principles underlying the acquisition and interpretation of sensory information by severely visually impaired individuals. It examines theories of orientation and human movement, psycho-social aspects of mobility, the conceptual understanding of the environment, the history of the profession, and the use of various travel aids.

** BLRH 596 Electronic Devices

This course provides systematic instruction in use of fundamental electronic travel aids. An overview of major electronic devices is also explored. Prerequisite: BLRH 595.

** BLRH 597 Principles of Low Vision

This course is designed to familiarize the student with the special needs and services of the low vision person. Low vision care is viewed from an historical perspective and compared with current practice. The relationship of eye pathology to function is explored. Assessment methods and remediation techniques for functional problems brought on by low vision will be emphasized and taught. Emphasis is placed on the use of optical and non-optical devices as well as the role of the low vision clinic. Psycho-social reactions to low vision are examined. Prerequisite: Approval of advisor.

** BLRH 598 Readings in Blind Rehabilitation

This course is designed to familiarize the student with the special needs and services of the low vision person. Low vision care is viewed from an historical perspective and compared with current practice. The relationship of eye pathology to function is explored. Assessment methods and remediation techniques for functional problems brought on by low vision will be emphasized and taught. Emphasis is placed on the use of optical and non-optical devices as well as the role of the low vision clinic. Psycho-social reactions to low vision are examined. Prerequisite: Approval of advisor.

** BLRH 599 Gerontology

This course covers an examination and application of the fundamental principles underlying the acquisition and interpretation of sensory information by severely visually impaired individuals. It examines theories of orientation and human movement, psycho-social aspects of mobility, the conceptual understanding of the environment, the history of the profession, and the use of various travel aids.

** BLRH 596 Electronic Devices

This course provides systematic instruction in use of fundamental electronic travel aids. An overview of major electronic devices is also explored. Prerequisite: BLRH 595.
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 Blind Rehabilitation for the Elderly 2 hrs.
Elderly individuals who are visually impaired have specific rehabilitation needs that differ from those of younger people. This purpose of the course is to provide students with the special knowledge and adapted skills necessary to help older, visually impaired individuals meet their travel needs and independent living needs. The course is also intended to prepare students to work cooperatively with hospital and nursing home staff, and to teach families of elderly individuals how to develop a supportive emotional and physical home environment. Prerequisite: Enrolled in the Graduate Certificate Program in Gerontology or the master’s program in Rehabilitation Teaching for the Blind.

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 course is designed to give the student hands-on experience in assessing the functional vision of low vision persons. The student learns to evaluate visual acuity, peripheral field, reading, and color vision function and the need for sun filters. In addition, the student learns to assess functions of the eye. The student uses visual acuity with optical and non-optical devices used to enhance visual function, and training strategies are taught. Prerequisite: Approval of the Graduate Program.

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 adaptive equipment, and e) resources useful for obtaining sports and recreational materials and information. Participation will be required. Each enrollee will partake 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 introduces students to the adapted methods which may be utilized in teaching the arts and their appreciation to young learners with visual impairments. The course will include a combination of lecture and practice. It will present: a) a general introduction to mainstream arts activities and basic techniques; b) techniques for adapting the activities; c) methods for teaching these techniques; d) an overview of appropriate elementary and secondary level art; music, and drama activities; and e) resources related to supplies and organizations involved with support of the arts for people with visual impairment. Participation will be required. Students will learn to explore a variety of art, music, and drama activities using either low vision simulators or occluders.

BLRH 610 Assisted Research 2-6 hrs.
This course requires a semi-independent research project related to blind 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 2 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. Graded on a Credit/No Credit basis.

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.

BLRH 699 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, job analysis, employment, 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.

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.
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 can be determined for each department or school in addition to the six-semester hour field training experience, the following courses are required in the Graduate Certificate Program in Alcohol and Drug Abuse: ADA 630 Legal and Illegal Drugs of Abuse (3 hrs.); SOC 617 The Etiologies of Substance Abuse (3 hrs.); and ADA 631, CECP 632, or SWRK 663—Seminar in Substance Abuse I (3 hrs.) or ADA 632. CECP 632, or SWRK 665—Seminar in Substance Abuse II (3 hrs.).

These courses are cross-listed in the departments and school indicated and are graded on a Credit/No Credit basis.

SPADA participants must also elect one of the following courses: PSY 526 Human Drug Use and Abuse (3 hrs.); PSY 663 Mental 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.

**Alcohol and Drug Abuse Courses (ADA)**

**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 and workplace settings. The spectrum of testing ranges from field dip tests to more complex chromatographic Federal requirements are reviewed for application in both clinical and work settings.

**ADA 537 Constructive Confrontation and Referral in Substance Abuse Services** 3 hrs.
This course provides students with knowledge of intervention strategies for active substance abusers. Emphasis is placed on strategic constructive confrontation techniques and effective referral processes.

**ADA 540 Current Issues in Alcohol and Drug Abuse** 1 hr.
This course, taught in seminar, reviews basic and applied research advances in prevention and treatment of substance abuse. Emphasis is on bridging research advances to practice areas. The focus of the course is research published in the previous year.

**ADA 541 Group Home Treatment** 1-6 hrs.
This course reviews custodial, milieu, and function aspects of group home treatment. Theories and practices are presented with emphasis on long-term treatment outcomes.

**ADA 545 Alcohol, Drugs, and Aging** 3 hrs.
The problems of alcohol, medication, and legal and illegal drug use, misuse, and abuse among older persons will be discussed. Prevention, intervention, and treatment will be considered. (Cross-listed with GRN 545.)

**ADA 560 Clinical Practice in Selected Substance Abuse Services Areas** 1-4 hrs.
This course covers variable topics in clinical substance abuse services practice. It is a skills development course which helps students to become proficient in specific techniques and procedures related to client service. The specific areas are announced with each semester.

**ADA 565 Alcohol, Drug Abuse, and Violence** 3 hrs.
This course provides the student with knowledge on the multiple relationships of substance abuse and violence, child abuse, and other assaultive behaviors.

**ADA 567 Legal Offenders and Substance Abuse** 3 hrs.
This course provides the student with knowledge on the theories associating substance abuse with criminal and civil 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 meeting practice requirements in certification of 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 provides individualized, independent study and reading under guidance of a faculty member. Initiative for planning topic for investigation and seeking the appropriate faculty member comes from the student, with consultation from the advisor. May be repeated up to a maximum of 4 hours in a program of study. Prerequisite: consent of instructor and program advisor.

**Open to Graduate Students Only**

**ADA 610 Drugs and the Workplace** 3 hrs.
This course provides knowledge of work-based programming theories and practices regarding drugs of abuse. Course work and readings focus on policy formulation and implementation of procedures.

**ADA 630 Legal and Illegal Drugs of Abuse** 3 hrs.
This course deals with the pharmacological aspects of psychoactive/psychotropic drugs having abuse potential. Special emphasis is placed on observable signs and symptoms resulting from use/abuse/independence 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. (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 of course descriptions.**

**ADA 710 Independent Research** 2-6 hrs.

**ADA 712 Professional Field Experience** 2-12 hrs.
COMMUNITY HEALTH SERVICES

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. Topics include medical problems, long-term care, nursing, rehabilitation, and the social considerations will be broadly discussed. In addition, the interaction of all 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 dementia. 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. (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 provides individualized, independent study and reading under guidance of a faculty member. It is intended for planning 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.

Certificate Program in Gerontology

Dr. Ellen Page-Robin, Director
Main Office: B303 Ellsworth Hall
Telephone: 387-2647
FAX: 387-3348

Certificate Program in Gerontology

Advisor: Ellen K. Page-Robin, 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 totaling 20 semester hours. Some required courses for the specialization may be integrated into related graduate degree programs. Four courses are required: BLRH 511 Gerontology, 2 credit hours; BLRH 602 Blind Rehabilitation for the Elderly, 2 hrs.; GRN 680 Multidisciplinary Seminar in Gerontology, 3 credit hours; and GRN 681 Program Planning and Development in Gerontology, 3 credit hours. Up to six hours of thesis/dissertation or field experience in Gerontology or from a related graduate department may also be counted. The thesis/dissertation topic or the field placement must be approved by the Gerontology advisor.

The remainder of the 20-hour requirement will be satisfied through elective courses chosen from a list of approved courses available through the Gerontology Program Office.

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

CHS 700 Master’s Thesis 3 hrs.

Open to Graduate Students Only

CHS 598 Readings in Community Health Services 1-4 hrs.
This course focuses on emerging issues relevant to the certificate program at the School of Community Health Services.

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

GERONTOLOGY

Dr. Ellen Page-Robin, Director
Main Office: B303 Ellsworth Hall
Telephone: 387-2647
FAX: 387-3348

COMMUNITY HEALTH SERVICES

Open to Graduate Students Only

GRN 680 Multidisciplinary Seminar in Gerontology 3 hrs.
This is a multidisciplinary seminar in gerontology, drawing upon staff from various academic and professional departments in the campus, as well as from practitioners in the community. Course work and readings will deal with various theoretical and practical aspects of gerontology, including policy formulation and implementation and with academic emphasis on the contributions of various academic fields to the understanding of aging.

GRN 681 Program Planning and Development in Gerontology 3 hrs.
This seminar in the gerontology graduate specialty program will explore the process of program planning and development through meetings with national, state, and local funding agencies and meetings with service providers in various kinds of programs for older persons throughout the region.

GRN 690 Field Education in Gerontology 1-6 hrs.
This course is designed to give the student a learning experience during which the student can apply some of the knowledge and information acquired in the gerontology academic setting and further develop and refine his/her professional skills with the guidance and assistance of those professionals currently working in gerontology. Prerequisite: Admission to the program and permission of instructor.

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

GRN 710 Independent Research 2-6 hrs.

GRN 712 Professional Field Experience 2-12 hrs.

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 interaction 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 for the use of financial information in health care management decision making. Prerequisite: ECON 517 or equivalent.
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 mental retardation services, 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 560 Clinical Practice in Selected Health and Human Service Areas
1-4 hrs.
This course covers variable topics in clinical health and human service practice. It is a skills development course which helps students to become proficient in specific techniques and procedures related to patient care or client service. Clinical applications of biofeedback, clinical practice in genetic counseling, the role of the health team in clinical practice, the patient and clinical laboratory services, and community health education practice are among the possible areas of study. The specific areas are announced with each semester. 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: Natural History of an Epidemic
3 hrs.
This course is intended to provide a historical perspective and introduction to the social, psychological, biological, political, economic, ethical, and medical implications of HIV infection and the Acquired Immune Deficiency Syndrome (AIDS). The course will be taught by faculty and others in a variety of fields.

HHS 570 Field Education
1-6 hrs.
This registration 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 the skills and professional responsibilities associated with the guidance and assistance of those professionals currently working in the health and human service area. Prerequisite: Consent of instructor.

HHS 598 Readings in Health and Human Services
1-4 hrs.
This course provides individualized, independent study and reading under the guidance of a faculty member. Initiative for planning 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) 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.

HOLISTIC HEALTH CARE
Dr. Thomas Holmes, Director
Main Office: B302 Ellsworth Hall
Telephone: 387-3389
FAX: 387-3348

Certificate Program in Holistic Health Care
Advisors:
Thomas Holmes, Program 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 mobility, and physical education and recreation. It also complements many other graduate areas such as business, public administration, theology, nursing, medicine, and education.

The certificate program can help health and human service professionals gain new knowledge and skills to be more effective in their present professional roles or to prepare themselves for new job opportunities in a health care setting that emphasizes holistic approaches. The program is designed to provide opportunities and 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 various 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 holism and as essential basic instruction for persons wishing to apply for admission to the graduate specialty program in Holistic Health Care. Prerequisite: Senior undergraduate or graduate status.

HOL 532 Holistic Approaches to Relationships
3 hrs.
The purpose of this course is to provide an understanding of relationship development. In order to do this students will acquire knowledge in self-concept formation, social
 systems theory, values development, and communication models. A major emphasis in the course will be on how to assist people in establishing and maintaining healthy relationships.

HOL 533 Holism and Community 3 hrs. This course is designed to help students better understand the dynamics of community and the relationship between stress and health through the investment of self in a common and purposeful experience with others.

HOL 534 Holistic Health and Spirituality 3 hrs. This course helps students better understand the spiritual dimensions of each individual and the relationship of spirituality to the meaning of health. Various spiritual traditions, philosophies, and practices will be explored with the primary emphasis on the implications of these teachings for everyday living. The course will address the role of spirituality in the therapeutic process for health care professionals and will be available for practitioners and educators. The format for this course will include lecture, discussion, experiential activities, and audiovisual presentations.

HOL 535 Holistic Approaches to Stress 3 hrs. This course will focus on the nature, sources, and symptoms of stress, and provide a holistic approach for the management of stress. The relationship between stress and personality, lifestyle, health, illness, work, and academic performance will be explored. In addition, the reasons for and management of professional and organizational "burnout" will be presented.

HOL 536 Counseling Skills for Health Professionals 3 hrs. This course is an introduction to basic counseling approaches for students and professionals working in the health and human services fields. This course is designed to provide basic information on the counseling process and techniques as they apply to health care settings. This course is designed for health care professionals in allied health professions and not for majors in Counselor Education and Counseling Psychology or in Social Work.

HOL 570 Field Education in Holistic Health 1-6 hrs. This registration 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 their professional skills with the guidance and assistance of those professionals currently working in the health and human service area. Graded on a Credit/No Credit basis. Prerequisite: Admission to the graduate certificate program and permission of instructor.

HOL 598 Readings in Holistic Health 1-4 hrs. This course provides individualized, independent study and reading under guidance of a faculty member. Initiative for planning 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 students to discuss ways to integrate holistic models and modalities into a health care 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, emotion, and body. Prerequisites: HOL 531, 650, 651.

**OCCUPATIONAL THERAPY**

Dr. James Leja, Associate Dean and Interim Chair
Main Office: 454 Hoekje Hall
Telephone: 387-3850
FAX: 387-3845

Professor Mary Ann Bush; Associate Professors Richard Cooper, Sandra Edwards, Barbara Hemphill, Cindee Peterson; Assistant Professor Debra Hazel.

The Department of Occupational Therapy offers two graduate programs which lead to the Master of Science: The graduate professional program (entry level) for non-therapists, 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 Hippotherapy.

Master of Science in Occupational Therapy

Advisor: Janice Wilson
Room B-118, Henry Hall

**THE GRADUATE-PROFESSIONAL PROGRAM**

This entry-level program for non-therapists is designed to prepare the student to treat clients with various disabilities, and to be eligible for certification as an occupational therapist after successful completion of the Master of Science. This twenty-eight month program of combined academic and clinical education is intended for the student who has a baccalaureate degree in an area of study other than occupational therapy. It consists of seventy-nine semester credit hours with forty-nine semester hours in professional undergraduate courses and thirty semester hours of graduate courses. The program is accredited by the American Council for Occupational Therapy Education, A.O.T.A. Accreditation Department, 4720 Montgomery Lane, P.O. Box 31220, Bethesda, MD 20824-1220, 301-652-2682. Graduates are eligible to take the National Board for Certification in Occupational Therapy and are eligible to apply for licensure/registration in those states regulating the practice of occupational therapy.

The Professional Curriculum

The professional curriculum uses a holistic and integrative approach in developing these characteristics for the graduated student. Essential to the educational philosophy of the department is the developmental sequencing of content and learning experiences related to professionalism, personal environment, and the occupational therapy process. The implementation of this philosophy into course design results in the inclusion of most learning objectives into several courses in a simple to complex pattern. The department believes that this design maximizes the development of clinical reasoning skills.

**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. Scores on the Graduate Record Examination - General (GRE) Test

Because admission is considered competitive, the academic criteria listed above should be considered as minimum standards.

Prerequisite Course Work

The following courses (with the WMU equivalent noted in parentheses) are required prerequisites for enrollment in the professional occupational therapy courses; some prerequisites may be elected as self-instructional courses (*):

1. Human Growth and Development through the Life Span (OT 225*)
2. Abnormal Psychology (PSY 250*)
3. Human Physiology with lab (BIOS 240)
4. Human Anatomy or Mammalian Anatomy with lab (BIOS 211*)
5. Physics with lab (PHYS 109)
6. General Chemistry with lab (CHEM 102 or CHEM 103)
7. A course in medical terminology (MDSC 301*)
8. A course in, or demonstration of, basic computer literacy skills (CS 105 or BIS 102)
9. A course in orientation to occupational therapy (OT 222*)

**Admission Procedure**

To apply, the applicant must complete both the university application for admission, the departmental application, and submit scores from the general aptitude test of the G.R.E. The official consideration date (deadline) for receiving all applications is March 1 of each year. Full-time study commences in the fall semester. Selection is based upon an equal
weighting combination of cumulative grade point average and Graduate Record Examination scores.

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 610 Professional Issues . . . .3 hours
   b. OT 633 Administration in Occupational Therapy . . . .3 hours
   c. OT 640 Theory in Occupational Therapy . . . .3 hours
   d. OT 660 Research in Occupational Therapy . . . .3 hours
   e. OT 685 Graduate Seminar . . . .3 hours
   f. OT 700 Master's Thesis . . . .6 hours
   g. or OT 710 Independent Research . . . .6 hours
   h. Electives . . . .3 hours

3. The student must manifest emotional and behavioral characteristics which, in the judgment of the department faculty, will not jeopardize his/her professional competence.

It is expected that students will complete their 710/700 projects by the end of the winter semester for which they enrolled. To assure that graduate students have completed all course work prior to making application for the NBCOT examination, the following Graduate Advisory Committee policy governs the removal of an Incomplete grade ("I") held in OT 700 or OT 710:

- All graduate students must complete all department and Graduate College requirements for OT 700, Master's Thesis, or for OT 710, Independent Research, by October 1 for the March exam and by April 1 for the September exam. Completion of all requirements for OT 700 is defined as having received signatures of completion by all readers and the submission of a grade change of grade form signed by the first reader. Completion of all requirements for OT 700 is defined as having received signatures of completion by all committee members, submission of a grade or change of grade form by the first reader, and notification of acceptance of the thesis from The Graduate College. Students who do not complete the requirements given above by the due dates will have their names removed from the department list of students eligible for the NBCOT examination.

- An overall grade point average of at least 3.0 (A=4.0) is required in the graduate program. No undergraduate credit is computed into the graduate grade point average. Honor point deficiencies acquired in credits earned at Western Michigan University cannot be made up by credits earned at another university.

Course Sequence
Courses in the professional program are completed in a sequential pattern toward developing complex clinical problem solving skills. The courses are not designed to stand alone, but to build upon the knowledge base from previous semesters. The prerequisite and pre-professional courses build a solid knowledge base in the biological and behavioral sciences. The first semester centers on human function, pathology, dysfunction and activity analysis. Students also learn the history of the profession and current practice roles of therapists. The second semester students learn theory and techniques for evaluation and treatment. The third semester centers on additional treatment techniques used in therapy, and a clinical treatment experience with clients. The fourth semester of the professional program centers on a clinical treatment experience with clients in clinical programs in the Kalamazoo area and a graduate research course to develop research and writing skills as applied to occupational therapy.

The final fall and winter semesters are devoted fully to the graduate component designed to enhance growth in professional leadership. Students enroll in OT 490 and OT 491 for the required six months, full-time fieldwork experience as a student therapist in two clinical practice sites (one being a medical model site and one being a community model site). Western Michigan University utilizes fieldwork sites primarily in 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.

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 required pre-professional or professional course will be placed on departmental probation following the grade lower than "C" is received. The departmental probation will not be permitted to continue in the program.

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 in the curriculum if at any time it is deemed by a review committee that the student will not be able to perform at a professional level.

Fieldwork Remediation and Continuance Policy

1. Successful completion of OT 443 is a prerequisite for OT 453.

2. Students who receive a failing grade in fieldwork level I (OT 443, OT 453) or level II (OT 490, OT 491) are subject to the academic policy for remediation and continuance and will be withdrawn from the experience in a similar setting.

3. Successful completion of OT 453 and all professional and prerequisite course work is required for OT 490.

4. Successful completion of all undergraduate course work required for graduation is required for OT 491.

5. Students and 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 and practice, professional issue identification and resolution, and research.

Admission requirements
To be eligible for regular admission to this program, each applicant must present evidence of the following criteria:

1. A bachelor's degree from an accredited college or university

2. A cumulative grade point average of 3.0 or better (By policy of The Graduate College, students admitted with less than a 3.0 GPA are not admitted to the program.)

3. Scores from the Graduate Record Examination - General Aptitude Test.

4. Certified as an occupational therapist

Because admission is considered competitive, the academic criteria listed above should be considered minimum standards.

Admission Procedure
To apply, the applicant must complete both the university application for admission, including the GRE scores and official transcripts, and the departmental application. The equal consideration date (deadline) for receiving all applications is March 1 of each year. Full-time study commences in the summer semester.

Program Requirements
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:

OT 610 Professional Issues (3 hours)
OT 633 Administration in Occupational Therapy (3 hours)
OT 640 Theory in Occupational Therapy (3 hours)
OT 660 Research in Occupational Therapy (3 hours)
OT 685 Graduate Seminar (3 hours)
OT 700 Master's Thesis (6 hours)
OT 710 Independent Research (6 hours)

- Electives (3 hours)

Cognates in OT or related fields, with advisor consent (6 hours)

It is expected that students will complete their 710/700 projects by the end of the winter semester for which they enrolled. To assure that graduate students have completed all course work prior to making application for the NBCOT examination, the following Graduate Advisory Committee policy governs the removal of an Incomplete grade ("I") held in OT 700 or OT 710:

- All graduate students must complete all department and Graduate College requirements for OT 700, Master's Thesis, or for OT 710, Independent Research, by October 1 for the March exam and by April 1 for the September exam. Completion of all requirements for OT 700 is defined as having received signatures of completion by all readers and the submission of a grade change of grade form signed by the first reader. Completion of all requirements for OT 700 is defined as having received signatures of completion by all committee members, submission of a grade or change of grade form by the first reader, and notification of acceptance of the thesis from The Graduate College. Students who do not complete the requirements given above by the due dates will have their names removed from the department list of students eligible for the NBCOT examination.

- An overall grade point average of at least 3.0 (A=4.0) is required in the graduate program. No undergraduate credit is computed into the grade point average. Honor point deficiencies acquired in credits earned at Western Michigan University cannot be made up by credits earned at another university.

Course Sequence
Courses in the professional program are completed in a sequential pattern toward...
department list of students eligible for the NBCCOT examination. An overall grade point average of at least 3.0 (A=4.0) is required for graduation from the graduate program. Students will complete all required coursework in a timely manner. Western Michigan University cannot be used by any credits earned at another university. Please read the WMU Graduate College Catalog for information on other requirements for the completion of a master’s degree.

Course Sequence
The thirty hour graduate program requires twenty-one hours of graduate course work which has been designed to build skills in program development, administration and consultation (OT 633), advanced treatment therapy (OT 640), research (OT 650 and OT 710 or OT 700), and professionalism (OT 610, OT 666). The nine hours of required cognate courses allow the student to develop advanced skills in occupational therapy or related fields, or areas of special interest. The program may be completed on either a full-time or part-time basis. The full-time student may complete required courses in 10 months with courses beginning in the summer session. Part-time enrollment is possible.

Certificate Program in Hippotherapy
Advisor: James Leja, Room 454, Hoekje Hall
Western Michigan University offers a program for the training of certified/licensed/registered occupational and physical therapists through the Graduate Certificate Program in Hippotherapy. The program is offered by the faculty of the Department of Occupational Therapy in conjunction with the Chief Center located in Augusta, Michigan.

Students receive training in the use of the horse as a therapeutic modality in the treatment of individuals with handicapping conditions. Hippotherapy is a valuable therapeutic treatment modality for a physical or occupational therapist working with patients having such movement dysfunction as cerebral palsy, cerebral vascular accidents (strokes), multiple sclerosis, traumatic brain injury, and spinal curvatures. Desired treatment outcomes of hippotherapy are improved vestibular reactions, increased sensory integration and normalization of muscle tone, coordinated movement, improved vertical head-to-toe neurological connections, and fine motor control. Improvements in postural control and trunk equilibrium reactions can be achieved more often and more often than in the clinic. Occupational therapists and physical therapists who successfully complete the program will receive a certificate of completion.

Admissions requirements
Prerequisites for admission will include a baccalaureate degree and certification or licensing as an occupational or physical therapist. Other characteristics considered for admission include clinical and therapeutic riding experience. Selection will be based on grade point average (GPA), personal/professional resume, interview, application materials, and completion of equine skills through riding instructor certification awarded by NARHA. Selection will be completed by the hippotherapy faculty members. Admission materials may be obtained from the Office of Admissions and Orientation, Graduate Admissions.

Program requirements
The graduate specialty program in Hippotherapy consists of five courses totaling 16 hours and is designed to provide graduate education in hippotherapy theory, and treatment techniques, screening, selecting, and evaluating appropriate clients for hippotherapy, selecting and training horses for hippotherapy, developing a hippotherapy program and management plan. A supervised fieldwork experience will follow the on-campus academic courses. Western Michigan University faculty and staff will provide at least 720 hours of the program (HT 602, HT 656, and HT 712). The Chief Center will provide three hours of the program (HT 603). Western Michigan University and the Chief Center will both provide facilities for three hours of the program (HT 603).

Occupational Therapy Courses (OT)
Open to Upperclass and Graduate Students
OT 530 Sensory Integration and the Child 3 hrs.
Study of theoretical principles and their application to evaluation and treatment of the child with sensory 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.
Examines selected topics within the field of Occupational Therapy. Topics considered will vary from semester to semester. May be repeated for credit. Prerequisites: Advanced O.T major or departmental permission.
Open to Graduate Students Only
OT 602 Function and Treatment of the Upper Extremity 3 hrs.
This lecture/lab course provides advanced study of function, dysfunction, and treatment of the upper extremities. Topics include the gross anatomy, neuroanatomy, neuropsychology, and kinesiology of the upper extremities, clinical conditions affecting upper extremity function, and current treatment methods and modalities used by occupational therapists.
OT 610 Professional Issues 3 hrs.
Current and emerging professional issues will be discussed. Students will take an active part in community, state, or national organizations and/or legislative processes related to the resolution of a specific issue. Students' potential for future professional leadership will be emphasized. Prerequisite: All required undergraduate coursework except Fieldwork II (OT 453 may be taken concurrently).
OT 620 Introduction to Neurodevelopmental Treatment for Pediatrics 3 hrs.
Foundations of neuropsychology 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 management problems of children with neuromotor disorders. Prerequisite: OTR, RPT, or consent.
OT 621 Introduction to Neurodevelopmental Treatment for Adults 3 hrs.
Foundations of neuropsychology and motor development are discussed. Opportunity is provided for application of the therapy and the role of the therapy practitioner in the treatment of individuals with hemiplegia. Prerequisites: OT 443, OT 453, OTR, or RPT or consent of instructor.
OT 622 Application of Biofeedback in Occupational Therapy 3 hrs.
Basic principles of biofeedback and their application in occupational therapy. Students will design biofeedback programs for selected client problems. Prerequisites: OT 443, OT 453, OTR or RPT or consent of instructor.
OT 633 Administration of Occupational Therapy 3 hrs.
This course utilizes the basic skills of administration (planning, organizing, directing, coordinating, and controlling) in the development of a model of practice for occupational therapy services. These skills 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 coursework 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 coursework except Fieldwork II (OT 453 may be taken concurrently).
OT 660 Research in Occupational Therapy 3 hrs.
The purpose of this course is to explore research in occupational therapy and related fields and develop each student's research and writing skills as applied to occupational therapy. It will include review and critique of occupational therapy research, recognition and application of ethical practices, identification of researchable questions, principles of research design, participation in research and statistical analysis. Prerequisites: All required undergraduate coursework except Fieldwork I and II.
OT 686 Graduate Seminar 3 hrs.
This course examines topics relevant to new developments in environmental adaptations, treatment techniques, and/or innovations in the delivery of occupational therapy services. Prerequisites: All required undergraduate coursework except Fieldwork II (OT 453 may be taken concurrently).
OT 697 Investigations in Occupational Therapy 1-3 hrs.
Independent study provided for the qualified occupational therapy student under the guidance of a departmental faculty member. Prerequisite: Consent of graduate coordinator and proposed faculty supervisor. May be repeated for credit.
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 Equine Therapeutic Evaluation and Procedures
3 hrs.
This course is an introduction to the medical use of the horse with respect to the fields of occupational and physical therapy. Emphasis will be on screening, selecting, and evaluating appropriate clients for hippotherapy; planning client treatment; selection of appropriate equipment; documentation and communication. Prerequisite: Admission to Hippotherapy program; concurrent with HT 604.

HT 603 OT/PT Application and Theory
3 hrs.
This course will focus on integrating rehabilitative theories and equine assisted techniques in a practicum setting. Special attention will be directed toward coordination of a hippotherapy team and safety procedures. Prerequisites: HT 602 and HT 604; concurrent with HT 605.

HT 604 Advanced Equine Treatment Skills
3 hrs.
This course will provide students with a more advanced approach to the understanding and training of the hippotherapy horse. Emphasis will be on dressage theory and skills, lunging, long reining, and backing. Prerequisite: Admission to Hippotherapy program; concurrent with HT 602.

HT 605 Education and Administration
3 hrs.
This course will develop the leadership skills necessary to direct a hippotherapy team. Students will develop and conduct in-service training as well as assess and videotape treatment sessions. Emphasis will also be on program administration including personnel, marketing, reimbursement, and record keeping systems. Prerequisites: HT 602 and HT 604; concurrent with HT 603.

HT 607 Independent Study
2-4 hrs.
Independent study provided for the qualified student in the Hippotherapy Program under the guidance of a program faculty member. Prerequisites: Consent and HT 603 or concurrent with HT 603.

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

HT 710 Independent Research
2-6 hrs.
Designed for highly qualified advanced graduate students, or small groups, who wish to pursue individual studies or projects under the direction of a member of the graduate faculty. A Permission to Elect form, signed by the student's advisor and the faculty supervisor, must be submitted to the Graduate College prior to registration. Prerequisites: OT 660 or equivalent, HT 602 and HT 603 or concurrent.

HT 712 Professional Field Experience
4 hrs.
A prospective hippotherapist will participate in a six-week professional experience in a riding program designed for persons with handicapping conditions. The riding program will include hippotherapy and at least four weeks will be directly related to hippotherapy. Students will be supervised by a hippotherapist. Course coordinated by Western Michigan University. Prerequisites: Consent and HT 605.

PHYSICIAN ASSISTANT
Mr. James VanRhee, Chair
Main Office: A309 Ellsworth Hall
Telephone: 387-5314
FAX: 387-3348
Associate Professors Stephen Bartholomew, William Ferrin, James VanRhee.

Master of Science in Medicine
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. This program is solely intended as a full-time professional education curriculum, accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). Allowing graduates to sit for the Physician Assistant National Certifying Examination, required by most states for licensure to practice.

Admission requirements
To be eligible to apply for admission, prospective applicants must present evidence of the following:
1. Earned baccalaureate degree from an accredited institution, with a grade point average of 3.0 or better in the most recent 60 hours.
2. Completion of four undergraduate behavioral science courses, which must include 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 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 departmental application package. Applications must be completed and received not later than December 1 of each year for the full-time class beginning the following fall. Selected candidates will be invited for a personal interview. Admission decisions will be based on weighted scoring of academic history, healthcare experience, and information gleaned from references, letters of recommendation, and interviews, and will be limited by available space.

Program requirements
The graduate professional program consists of 86 semester hours taken in prescribed sequence over a continuous 24-month time period. The first year consists of 45 hours of primarily classroom education, while the second year consists of 41 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.

Physician Assistant Courses (MDSC)

Open to Graduate Students Only

MDSC 611 The Diagnostic Process I
2 hrs.
This is the second in a series of three courses designed to develop the knowledge, attitudes and skills required for medical history taking, physical examination, clinical problem solving, diagnostic assessment, treatment implementation, and for counseling and educating patients. Learning methods include lecture format, skills performance, clinical decision making, role playing, individual research, and case problem solving to integrate and synthesize these competencies. 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 of patients, as well as written and performance evaluation of these modalities, are included among the learning methodologies. Emphasis is placed on interviewing and physical examination, but more so on information gathering and synthesis to accomplish problem-oriented patient care. Students will refine skills in eliciting and recording a complete patient data base, as well as formulation of differential diagnoses. Prerequisite: Successful completion of prior semester PA 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 the 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 competence in prevention strategies, and recording and communicating information in a medical team model. Prerequisite: Successful completion of prior semester PA course work or departmental permission.

MDSC 621 Medical Pathophysiology I
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 622 Medical Pathophysiology II 1 hr.
This is the second in a three part course 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 series of courses 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: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 632 Primary Care Medicine II 7 hrs.
The second of three primary care medicine courses. This course is a continuation of the primary care medicine I course. This series of courses introduces the P.A. student to the practice of medicine. The course will cover disease states and issues 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: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 633 Primary Care Medicine III 5 hrs.
The third of three primary care medicine courses. This course is a continuation of the primary care medicine II course. This series of courses introduces the P.A. student to the practice of medicine. The course will cover disease states and issues 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: 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 in a series of two courses presented sequentially throughout the preclinical year of training. This course will focus on the knowledge, skills and attitudes requisite for counseling and educating patients. The course 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. 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 in a series of two courses presented sequentially throughout the preclinical year of training. This course will continue to focus on the knowledge, skills and attitudes requisite for counseling and educating patients. The course will continue to develop expertise in educating patients in wellness and disease prevention. Prerequisite: Successful completion of prior semester P.A. course work or departmental permission.

MDSC 655 Professional Issues for Physician Assistants 1 hr.
This course examines the role of the physician assistant and the place and relationships of the PA profession in society. It also examines the legal aspects of the practice of medicine, 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 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: Admission to the Physician Assistant Program 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 PA course work or departmental permission.

MDSC 671 Advanced Clinical Anatomy I

2 hrs.
This is the first in a two-semester, human anatomy sequence designed to parallel and support the clinical science courses in the Physician Assistant curriculum. Emphasis will be on achieving an understanding of anatomical concepts and complex regional relationships as they pertain to clinical problem solving and physical diagnosis. Prerequisite: Admission to the Physician Assistant program or departmental permission.

MDSC 672 Advanced Clinical Anatomy II

1 hr.
This is the second in a two semester human anatomy sequence designed to parallel and support clinical science courses in the Physician Assistant curriculum. Emphasis will be on achieving and understanding of anatomical concepts and complex regional relationships as they pertain to clinical problem solving and physical diagnosis. Prerequisite: Successful completion of prior semester PA course work or departmental permission.

MDSC 660 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 include: 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 PA 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 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. 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. 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 surgery 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. 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. Prerequisite: Completion of the preclinical year of the Physician Assistant program or departmental permission.

MDSC 686 Professional Field Experience - Family Medicine

8 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. Prerequisite: Completion of the preclinical year of the Physician Assistant program or departmental permission.

MDSC 687 Professional Field Experience - Internal Medicine

4 hrs.
This course will place the student in a structured clinical internal medicine rotation under the direct supervision of a qualified preceptor. Students will be expected to become proficient with a variety of clinical presentations and procedures, subject to site limitations, and will develop competence in diagnosing, evaluating, monitoring, treating, educating and/or referring patients. Selected readings will also be assigned to the students. These readings will change frequently to reflect current medical literature. Prerequisite: Completion of the preclinical year of the Physician Assistant program or departmental permission.

MDSC 691 Clinical Practice Issues I

1 hr.
This is the first course of a three-course seminar series designed to present and discuss various topics relevant to current clinical practice. The topics will be generated by the challenges the students will encounter in the practice of medicine. The course will also address the evolutionary trends in the healthcare arena and will facilitate the student’s transition to professional practice. Prerequisite: Successful completion of MDSC 661 and concurrently enrolled in a professional field experience course or departmental permission.

MDSC 692 Clinical Practice Issues II

1 hr.
This is the second course of a three-course seminar series designed to present and discuss various topics relevant to current clinical practice. The topics will be generated by the challenges the students will encounter in the practice of medicine. The course will also address the evolutionary trends in the healthcare arena and will facilitate the student’s transition to professional practice. Prerequisite: Successfully completed MDSC 691 and concurrently enrolled in a professional field experience course or departmental permission.

MDSC 693 Clinical Practice Issues III

1 hr.
This is the third course of a three-course seminar series designed to present and discuss various topics relevant to current clinical practice. The topics will be generated by the challenges the students will encounter in the practice of medicine. The course will also address the evolutionary trends in the healthcare arena and will facilitate the student’s transition to professional practice. Prerequisite: Successful completion of MDSC 692 and concurrently enrolled in a professional field experience course or departmental permission.

Open to graduate students only—please refer to the graduate college section for complete course descriptions.

MDSC 710 Research Project/Professional Experience

6 hrs.
This course will ensure that students are qualified in applying the lessons learned in MDSC 680 in a practical clinical manner. This is the culmination course of the master’s curriculum, and requires a paper of publishable quality and presentation of the same. Several permutations are possible, including research under faculty supervision, clinical elective field experience focus on a research topic, clinical case investigation, and others. Prerequisite: Completion of the preclinical year and at least one MDSC 712 or departmental permission.

SOcial Work

Dr. Philip Popple, Director
Main Office: 421 Moore Hall
Telephone: 387-3171
FAX: 387-3183

Professors Peter Judd, Gary Mathews, Edward Pawlik, Philip Popple, Linda Reisser, Kenneth Reid, Robert Werthun; Associate Professors Donald Cooney, Frederick MacDonald; Assistant Professors Linwood Cousins, Janice DeLange, James Henry, Tracey Mabrey, Karen Neuman, Susan Weinger, Danielle Wozniak.
contribute to adjusting the distribution of opportunities and resources.

In addition, the School of Social Work recognizes the need to adapt and develop in response to societal changes and needs. It supports students in their personal synthesis of these paradigms and values. In addition, the School stresses the development and dissemination of social work knowledge and 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 of concentrations in the graduate program: Interpersonal Practice and 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 social treatment. 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 specialty programs. Included are Alcohol and Drug Abuse (SPADA), Gerontology, and Holistic Health Care.

Admission requirements

Applicants for graduate study in social work must complete two applications—one for the Office of Admissions and Orientation (the Graduate Self-Managed Application) and one for the School of Social Work. Both applications can be obtained either from the Office of Admissions and Orientation or the School of Social Work. Admission is granted for the appropriate term 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 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 science profession, social work related knowledge and experience, personal maturity, and leadership ability.

3. For those with a Bachelor of Social Work earned in an accredited B.S.W. program, an Advanced Standing Program is available for a selected number of qualified applicants. Such applicants, in addition to meeting the admission criteria above, will need to have earned, minimally, an overall grade point average of 3.5 (A = 4.0) in social work courses with no individual social work grade below a 3.0, including all work required in the social work major, as well as an overall grade point average of 3.0 in the final sixty hours of the undergraduate degree program. Moreover, the applicant to the Advanced Standing Program must provide written evidence of having the time and financial resources necessary to complete the advanced standing program within its twelve-month schedule. Applicants with post-B.S.W. practice experience, and the year of the applicant’s completion of the B.S.W., are factors taken into consideration in selecting students for the Advanced Standing Program.

Program requirements

1. The successful completion of sixty hours of credit is required for the conventional master’s degree in social work. The degree program includes the following course credits:
   - Required Foundation Courses in the School of Social Work (21 hours)
   - Required Core Concentration Courses in the School of Social Work (15 hours)
   - Elective Courses in Social Work or in other University departments (6 to 9 hours)
   - Field Education (12 hours – 6 in the Foundation, and 6 in the Concentration)
   - Advanced Social Work Research (SWRK 640-3 hours or SWRK 680-6 hours)

2. Proficiency exams are available in SWRK 610, 630, 631, and 640. Students have the option of receiving full credit for those courses in which proficiency exams are passed.

3. Students admitted to the M.S.W. Advanced Standing Program may waive up to twenty-four hours of required graduate courses, not to include field work courses. Students admitted to the Advanced Standing Program will be informed of their eligibility for waivers at the time of their admission.

4. Up to 12 hours of graduate credit from another institution or another program at WMU may be accepted for transfer to the M.S.W. program. Transfer credit requests are processed after admission.

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.

6. Students may take up to 9 hours of PTG (Permission to Take Graduate Classes) credit before admission is offered. An additional 3 hours of PTG credit (up to a maximum total of 12 PTG hours) may be taken and transferred in after the student receives an offer of admission. Please contact the Director of Social Work Admissions and Student Services for information regarding available PTG classes.

In addition to the conventional two-year, full-time program and the twelve-month Advanced Standing Program, the School of Social Work offers an extended-study program on campus in Kalamazoo and an extended-study program off-campus in Grand Rapids. Persons interested in extended-study programming should contact the Director of Admissions and Student Services in the School of Social Work.

Financial aid is available to a limited number of qualified, full-time students. Information regarding the various types of available assistance may be obtained by writing to Director of Admissions and Student Services, School of Social Work, Room 402 Moore Hall.

Social Work Courses (SWRK)

Open to Underclass and Graduate Students

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 566 Social Services in Schools

3 hrs.

The role of the social worker in elementary and secondary schools and the necessary adaptations in the changing scene of the educational scene are examined and evaluated. Problem solving approaches are given special attention within the framework of organization of the social worker’s 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 intervention means are explored. Prerequisite: Consent of instructor.

Open to Graduate Students Only

SWRK 610 Foundations of Social Welfare Policy

3 hrs.

This is the first course in the graduate program offered in the social welfare policy course sequence of courses. Its general purpose is to introduce the student to the social welfare policy as a central concern of social work. The goals of the course are to identify existing social welfare policy frameworks in America, to gain understanding of the substance of particular social policy areas, and to learn to approach the study of social welfare policy within the context of analytic frameworks. While SWRK 610 places primary focus on the content of social welfare policy, other policy courses focus on specific subject areas or on the development of policy practice skills. Prerequisite: Consent of instructor.
SWRK 621 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, and work ethics.

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 interpersonal perspectives.

SWRK 630 Social Change and Community Analysis 3 hrs.
Social workers have a responsibility to promote social justice and to strive to abolish injustice. The course identifies and explores historical, theoretical, and ideological perspectives on social change issues. Social change is studied by analyzing the community at the local, national and international level and by exploring strategies for change at each level. Emphasis is placed on racism, sexism, and classism, and on social movements to alleviate these problems. Prerequisite: Consent of instructor.

SWRK 631 Human Behavior and the Social Environment 3 hrs.
This course provides students with a conceptual and theoretical framework for understanding human behavior as 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 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: Permission to the Advanced Standing Program.

SWRK 633 Implications of Race and Culture in Social Work Practice 3 hrs.
The 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 individual and collective reactions to those differences; and 3) discover ways in which those differences can be bridged within the context of social work practice. Prerequisite: Consent of instructor.

SWRK 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 interventions, and administrative structures in social work. Prerequisite: SWRK 662.

SWRK 638 Psychopathology for Social Work Practice 3 hrs.
This course provides students with knowledge of psychopathology as an aspect of human functioning and cultural labeling. Primary focus is on the interaction between physiological, developmental, emotional, and social aspects of adult and child psychopathology from both descriptive and psychodynamic points of view. General implications for social work intervention, ethical and value issues, and relevant research will receive some consideration. Emphasis of course sections may be adults, children, or adolescents. Prerequisite: SWRK 631 or consent of instructor.

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.

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 they are targeted for amelioration. The course is designed to help practitioners make informed judgments about the utility of different treatment modalities, and their import for service delivery design. Prerequisite: SWRK 640.

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 leadership of 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, evaluation, and the role of governing boards in nonprofit organizations. Prerequisite: SWRK 671 or consent of instructor.

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" frame 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.

SWRK 661 Social Work Practice: Individuals and Families 3 hrs.
This course focuses on foundational knowledge and skills necessary to help individuals and families. This includes engagement, assessment, contracting, problem-solving, and evaluation with attention to social work values, theories, knowledge, and practice conditions. Problem-solving in a biopsychosocial framework and facilitation of client coping, competency 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 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 multiple social work methods in different areas of practice. Specific topic will be announced each semester. May be repeated for credit up to a maximum of six hours. Prerequisite: Consent of instructor.

SWRK 665 Seminar in Substance Abuse II 3 hrs.
Continuation of SWRK 663. This course is cross-listed with ADA 632 and CECP 632.

SWRK 666 Social Work Practice with Individuals 3 hrs.
This course will introduce the student to social work practice with individuals. Content, psychological, economic, and biological stressors are considered as they impact on the...
This is the first of two field practice courses. This course is an integrative seminar in the development and implementation of social policy in program planning and executive positions in the human services environment. The course focuses on selection, development, supervision, and management of critical incidents in staff and tasks of program planning in the human services. Students will learn how to work as a team in planning a service program. The course addresses the models, stages, and tasks of program planning in the human services. Students will learn how to work as a team in planning a service program. Treatment.. Prerequisites: SWRK 636, 666, and concurrent enrollment in SWRK 676. SWRK 676 Field Education in Interpersonal Practice 3 hrs. Placement will be in an agency unit offering direct service experiences with some combination of individuals, families, and groups and additional experiences consistent with the student’s learning needs. Campus- or field-based seminars may supplement the field experiences. Prerequisites: SWRK 666, 672, and concurrent enrollment in SWRK 636, and/or SWRK 665, or consent of the instructor. Graded on a Credit/No Credit basis. SWRK 677 Field Education in Social Policy, Planning, and Administration 3 hrs. Field education in the Social Policy, Planning, and Administration concentration is intended to provide students with opportunities to develop and exercise practice skills for designing, maintaining, and changing social systems. Field placements in social welfare organizations and special programs are arranged in accordance with student interests and abilities. Graded on a Credit/No Credit basis. Prerequisite: SWRK 672 and concurrent enrollment in SWRK 676, or consent of 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 679 Advanced Field Education in Social Policy, Planning, and Administration 3 hrs. The advanced field education experience for students concentrating in social policy, planning, and administration builds on the work which the student began in SWRK 677 during the fall semester. Students remain in the same field work setting and work under the direction of the same field instructor. During the winter semester, the emphasis will be upon the development of skills in the implementation of change and administration activities. It is expected that students will be assigned increased responsibilities in accordance with their professional growth. Graded on a Credit/No Credit basis. Prerequisite: SWRK 677, concurrent with SWRK 669. SWRK 686 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 686 may replace SWRK 642 and one elective in the student’s plan of study. Graded on a Credit/No Credit basis. Prerequisites: SWRK 640, 672. 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 theory 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 669, and meets requirements for the advanced practice course in interpersonal practice. Prerequisites: SWRK 638 and 666. SWRK 692 Advanced Social Work Practice with Children 3 hrs. This course provides students in interpersonal practice with an opportunity to deepen their knowledge of advanced clinical social work practice with children and their families in a variety of practice settings: e.g., child guidance, mental health, child welfare, school, corrections, and medical settings. This course builds on the content of SWRK 666, SWRK 669, and SWRK 668, and meets the requirement for the advanced practice course in interpersonal practice. Prerequisites: SWRK 638, 666, 668. SWRK 693 Advanced Social Work Practice with Groups 3 hrs. This is an advanced course for social treatment students that prepares them for therapeutic intervention in group treatment. The course will examine interpersonal relationships, 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 treatment. Prerequisites: SWRK 636, 666. SWRK 694 Advanced Social Work Practice in Industry 3 hrs. Study of advanced treatment strategies and interventions to help individuals with vulnerabilities in self-esteem development, early structure formation, and ego development as manifested in the work context. Clinical strategies directed to client internal organization and identity formation are examined. Meets requirement for advanced practice course in social treatment. Prerequisites: SWRK 631, 666. SWRK 695 Advanced Social Work Practice in Industry with Supervision 3 hrs. This course explores processes, strategies, and problems in supervision. It prepares students for supervisory roles in social work agencies, highlighting the importance of this role in maintaining professional expertise, in developing professional social work practice models, and in linking organizational goals to service delivery. Direct supervisory skills are covered in detail. Student participation is essential. Meets requirement for advanced practice course in social treatment. Prerequisite: SWRK 661 or consent of instructor. SWRK 696 Advanced Social Work Practice with Families 3 hrs. This course provides students with the opportunity to broaden and deepen their knowledge of advanced clinical social work with families. Building on SWRK 668, it...
Special Seminars and Projects
Open to Upperclass and Graduate Students
SWRK 512 Social Policy and Service Delivery in Selected Problem Areas
3 hrs.
Intensive study in selected fields of service, specialization, and social problems. 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: Senior or graduate student standing.

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. Focus is on roles of social workers and matrons and their utilization in a range of social welfare areas. Specific topics will be announced. Prerequisite: Consent of instructor. Senior or graduate student standing.

Open to Graduate Students Only—Please refer to The Graduate College section for SWRK 598 Readings in Social Welfare and Social Work Practice
1-4 hrs.
The course focuses on the development of educational skills for social workers through faculty-directed participation in teaching activities. Specific learning objectives and expectations for apprentices are announced each semester. This course may be taken a second time for credit, or a maximum of 8 total toward degree) by a student who wishes to increase teaching skills through applied practice in another social work area. Prerequisite: Consent of instructor. Senior or graduate student standing.

SWRK 597 Teaching Apprenticeship in Selected Social Work Curriculum Areas
1-4 hrs.
The course acquaints the student with the roles of social workers and matrons in the development of social work practice in another social work area. Specific learning objectives and expectations for apprentices are announced each semester. This course may be taken a second time for credit, or a maximum of 8 total toward degree) by a student who wishes to increase teaching skills through applied practice in another social work area. Prerequisite: Consent of instructor. Senior or graduate student standing.

Open to Graduate Students Only—Please refer to The Graduate College section for course description.
SWRK 710 Independent Research
2-6 hrs.

SPEECH PATHOLOGY AND AUDIOLOGY
Dr. John Hanley, Chair
Main Office, Room 203, Speech and Hearing Center
Telephone: 387-8045
FAX: 387-6044


Master of Arts in Speech Pathology and Audiology
Advisors:
Harold L. Bate, Room 203, Speech and Hearing Center
Michael J. Clark, Room 202, Speech and Hearing Center
John M. Hanley, Room 235, Speech and Hearing Center
Gary D. Lawson, Room 224, Speech and Hearing Center

The Master of Arts in Speech Pathology and Audiology, which is accredited by the Educational Standards Board of the American Speech-Language-Hearing Association (ASHA), provides academic and practicum experiences leading to development of clinical competence in the evaluation and treatment of language, speech, and hearing disorders. Students may emphasize Speech-Language Pathology or Audiology or both during graduate study; and, in any case, are generally expected to meet the standards for certification of clinical competence by ASHA. The master’s degree program consists of a minimum of 350 hours (300 hours of speech-language pathology or fifty-seven (audiology) credit hours). Supervised clinical practice is required during every term of full-time registration and includes at least 150 hours away from off-campus practicum sites, in addition to regular evaluation and therapy responsibilities in the Charles Van Riper Language, Speech and Hearing Clinic.

Admission requirements
Students are admitted for full-time study beginning in the Fall semester. Admission decisions are announced on March 15, April 30, and July 15; applicants are advised to complete the application process as early as possible. Not all applicants who meet minimum admission requirements can be admitted; the department reserves discretion in admission of the most highly qualified applicants. Specific admission requirements are outlined below:

1. A grade point average of at least 3.0 in the last sixty credit hours of undergraduate study.
2. Completion of an undergraduate major or equivalent undergraduate course sequence, in Speech-Language Pathology and Audiology. The student who has not completed this requirement in Michigan (TSLI) in Michigan must demonstrate proficiency in this area.
3. 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 have completed these requirements as an undergraduate and wishes to pursue the master’s degree without qualifying for ASHA clinical certification; students interested in such an arrangement must consult with their graduate advisor.
4. The student must manifest emotional and behavioral characteristics which, in the judgment of the departmental faculty, will support development of higher professional competence. Behavior to the contrary may lead to dismissal from the program.
5. As an option, a Master’s thesis (six hours) or one or more independent research registrations may be applied toward degree requirements by students who demonstrate research aptitude and interest. Students anticipating study toward a doctoral degree are expected to evidence the ability to conduct a research project.
6. As an option, speech-language pathology students may wish to qualify for Michigan Teaching Certification in order to work as a Teacher of the Speech and Language Impaired (TSLI) in Michigan schools. Students desiring this credential should consult with departmental advisors and/or contact the Certification Office of the WMU College of Education.

Speech Pathology and Audiology Courses (SPPA)

Open to Upperclass and Graduate Students
SPPA 552 Communication Problems of the Aged
3 hrs.
This course acquaints the student with the receptive and expressive communication problems common to older adults. Emphasis is on the clinical management of age-related 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 351, 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's degree in Speech Pathology and Audiology.

SPPA 597 Topics in Speech Pathology and Audiology
1-4 hrs.
Selected topics in speech pathology and audiology are systematically explored through lectures, laboratory experiences, and student projects. Possible areas of study are instrumentation in audiology, manual communication, electrophysiologic audiometry, computer applications to speech pathology and audiology, augmentative communication, and contemporary professional issues.

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, physiology, psychology, and phonetics of human speech and 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 602 Advanced Hearing Science
2 hrs.
This course acquaints the student with 2 hrs. orientation to the clinical management of communication problems associated with auditory impairment. 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 electronic 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, physical and physiological analyses of normal speech and hearing are among the areas considered. Topics vary from semester to semester and are announced in advance. May be repeated. Prerequisite: Department approval.

SPPA 621 Diagnostic Audiology I
4 hrs.
This course, which is one of two courses devoted to diagnostic audiology, deals with audiological techniques for assessing peripheral hearing disorders to determine rehabilitative needs. Prerequisite: Department approval.

SPPA 622 Hearing Aids
3 hrs.
Components, characteristics, evaluation, selection, use and maintenance of hearing aids are studied in detail. Prerequisite: Department approval.

SPPA 623 Pediatric Audiology
3 hrs.
This course deals with the identification, measurement, and management of hearing impairment in infants and young children. Prerequisite: Department approval.

SPPA 624 Educational Audiology
3 hrs.
This course deals with educational, psychological, and vocational needs of the hearing impaired child and the parameters of educational programming. Prerequisite: Department approval.

SPPA 625 Industrial and Public Health Audiology
2 hrs.
A study of hearing conservation programs in industry, including noise measurement, damage-risk criteria, hearing measurement, and medicolegal problems; noise as a public health hazard; and hearing screening and deafness prevention programs. Prerequisite: Department approval.

SPPA 631 Diagnostic Audiology II
4 hrs.
A course dealing with electrophysiologic and other advanced audiological and medical techniques for assessing peripheral and central auditory and vestibular disorders to determine rehabilitative needs. Prerequisite: SPPA 621.

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 apraxia 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)

Dr. Shirley Clay Scott, Dean
Main Office: 2310 Seibert Administration Building
Telephone: 387-3570
Fax: 387-3546
URL: http://www.wmich.edu/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 registering for 700, Master’s Thesis, a Permission to Elect form (available in all departments) must be completed and the student must meet with the Dissertation Assistant 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.

A master’s thesis is six credit hours. It may be registered for in increments of one (1) to six (6) hours. Following a student’s first enrollment in 700, the student will enroll in 700 in each semester/session continuously 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 degree. 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. A Permission to Elect form, signed by the student’s graduate adviser 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 50 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 superior graduate students who wish to pursue internships or apprenticeships in off-campus activities in industries or institutions.

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 coursework and any other requirements that should precede the 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.

Permission to elect 712 can be granted only when the graduate advisor, director, and/or department chairperson deem that the project is integral to the student's program of study. Graded on a Credit/No Credit basis.

**GRAD 713 Practicum in Teaching in the Discipline**

3 hrs.

A practicum in teaching within the discipline will be done as 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 registering for 720, a specialist project, a Permission to Elect form (available in all departments) must be completed and the student must meet with the Dissertation Assistant 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.

A specialist project is six credit hours. It may be registered for in increments of one (1) to six (6) hours. Following a student's first enrollment in 720, the student will enroll in 720 in each semester/session continuously 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 degree. 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 this 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 registering for 730, a Doctoral Dissertation, a Permission to Elect form (available in all departments) must be completed and the student must meet with the Dissertation Assistant 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.

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. GRAD 730 may be registered for in increments of one (1) or more hours. Following a student's first enrollment in 730, the student will enroll in 730 in each semester/session continuously until all dissertation requirements are completed satisfactorily and approved by the appropriate bodies. A student unable to complete the dissertation within the number of hours stipulated in the student's approved program of study will be required to continue to enroll in 730; however, only those hours stipulated in the student's approved program of study will count toward meeting the program requirements for the degree. 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 University Microfilms Inc. 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.

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.

**GRAD 735 Graduate Research**

2-10 hrs.

Permission of instructor is required. Graded on a Credit/No Credit basis.

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 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 continuing education activities have been expanded to include courses for both undergraduate and graduate credit; 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 business, community, educational, and industrial leaders and other interested adults. Course and program offerings in Western Michigan University’s Division of Continuing Education are planned collaboratively with representatives from academic units and continuing education professionals who continuously analyze student’s needs and interests. Inservice educational programs are planned with business, civic, educational, and professional groups.

Western Michigan University’s on-campus adult, part-time, and evening students are served by the Division’s central offices located in Elsworth Hall. The Division’s central office and the Office of Admissions and Orientation will provide admission and registration assistance.

Kalamazoo Off-Campus and Weekend Programs

Kalamazoo Off-Campus and Weekend 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 (616) 387-4195.

Distance Education

The Department of Distance Education 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 complete the entire Master of Business Administration through compressed video interactive television (CVIT) and videotape/group discussion, as well as enroll in other courses from the School of Public Affairs and Administration, the College of Engineering and Applied Sciences, the College of 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 (616) 387-4156.

Professional Programs and Conferences

The Office of Professional Programs and Conferences develops and manages conferences, seminars, and non-credit professional development and training programs in cooperation with university departments, professional groups, and community organizations. For more information, call (616) 387-4174.

Academic Programs and Courses

A listing of the University’s graduate degree programs and courses offered in each of the Regional Centers is available in the current Off-Campus Class Schedule, which may be obtained at any Regional Center office, the main office of the Division of Continuing Education in Kalamazoo (616-387-4160), or on the World Wide Web at the following address (http://www.wmich.edu/conted). Admission and registration information is also contained in the Off-Campus Class Schedule. The Off-Campus Class Schedule is published for each semester and session and is available well in advance of the registration period.
Section IV

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 (3.25 for specialist and doctoral students) to maintain "good standing." A "warning" will be issued to a student whose GPA falls below a 3.0 (or 3.25) in any semester or session even though the overall GPA is 3.0 (or 3.25) or better. A student will be placed on "probation" if the overall GPA falls below 3.0 (or 3.25), and will receive a "dismissal" notice if the overall GPA is not raised to or above 3.0 (or 3.25) at the end of a semester or session on "probation."

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

Assistantship
A University administered salary (payment for service) and stipend (gift) awarded by an academic or service unit to an appointed graduate student who is enrolled in a program leading to a graduate degree. Assistants are apprentices in the profession and assist in doing part of the work of the department, teaching or research service.

Associateship
A specially designated assistantship awarded to an appointed doctoral student.

Audit
A registration category in which a student registers for and attends class(es) irregularly 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 instructor that the role as auditor has been satisfactory. See also Graduation audit below.

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.

CELCIS
The Career English Language Center for International Students (CELCIS) 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) 387-4806.

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 license, accreditation, or certification to render professional services; rather, it signifies that a student has satisfactorily completed an approved graduate certificate program curriculum.

Class or credit hour load
The total number of credit hours for which a student registers during a semester or session. The normal full-time load for a graduate student for the fall and winter semesters is 9-13 credit hours; for the spring and summer sessions, 5-8 credit hours. The normal full-time load for graduate students with a full-time University assistantship or associateship is 6 credit hours in a semester, 3 credit hours in a session. The University, fellowships, and some assistantships and associateships, require different loads for full-time status; the student's letter of appointment to the assistantship associateship, or fellowship will specify the credit hour requirement. Full-time load requirements for the health fee assessment and for financial assistance are not necessarily the same as that described above. See the appropriate section of this catalog or call the appropriate office for these specific requirements.

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.

Concurrent study
A specially approved program which allows students to pursue simultaneously an undergraduate and a graduate degree. In most cases, the student would be permitted to take two or three graduate courses during the senior year, which would count toward completion of both the baccalaureate and master's degree. All such programs are approved through the regular curriculum review process and appear in this catalog, when approved, under the appropriate department program listing.

Continuing education courses and programs
Graduate courses and programs offered through the Division of Continuing Education in the Regional Centers of Battle Creek, Benton Harbor/St. Joseph, Grand Rapids, Lansing, and Muskegon, or elsewhere away from the Kalamazoo campus.

Continuous enrollment
Following a student's first enrollment in 700 (Master's Thesis) or 720 (Specialist Project) or 730 (Dissertation), the student will enroll in that same course in each subsequent semester and session continuously until all thesis or project or dissertation requirements are completed satisfactorily and approved by the appropriate bodies.

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 589 are for upperclass and graduate students. Graduate students register for graduate credit in 500-level courses, 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.

Graduate credit may not be 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 "CR" or CR below, "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, advanced professional, or doctoral 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 committee shall indicate in writing the specific responsibilities that individual members of that committee have.

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 the 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.

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 is provided by an advisor 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 repayment for services.

Field experience, practicum, work experience, co-op
Field experiences, practical 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 and 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 employment, conducted in connection with a course of study, where the students spend a part of their time on an actual job in a school, business, or industry.

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 average (GPA)
A scholastic average computed by dividing total honor points by total credit hours attempted. See also Honor points below.

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 committees. Only members of the graduate faculty may serve on thesis, dissertation, and dissertation committees.

Graduate Research and Creative Scholars Award
The Graduate Studies Council and The Graduate College annually present two categories of recognition awards to graduate students: the Graduate College Research and Creative Scholars Award and the University Graduate Research and Creative Scholars Award. These awards acknowledge graduate students' contributions to the scholarly and artistic productivity of Western Michigan University. Each department with a graduate program may nominate one graduate student for each level of degree offered by the department. By virtue of this nomination, the student will be designated as a Department Graduate Research and Creative Scholar. From among the Department award winners, 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 services and needs of graduate students, makes recommendations to appropriate officials and offices; recommends graduate students for appointments to University councils and committees; and serves as liaison between departmental graduate student organizations, the Graduate Studies Council, and the deans of The Graduate College.

Graduate Student Permanent Program of Study
A Graduate Student Permanent Program of Study is a document composed by a graduate student's program advisor, listing all course and other requirements necessary for completion of the degree program to which the student was admitted. The program of study is approved by the program advisor and the graduate dean, filed in the student's academic folder in the Records Office, and used to audit the student's eligibility for the degree at the time the student applies for graduation.

Graduate Studies Council
The Graduate Studies Council of the Faculty Senate reviews, develops, and recommends policy regarding graduate education at Western Michigan University.

Graduate audit
A formal, required evaluation of the student's academic record and progress necessary 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 need to 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 a new application for graduation.
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 and on sale in the WMU Bookstore.

Hold
A restraint placed on a student’s ability to register for classes as a result of an unfulfilled monetary obligation or other action by the University.

Honor points
A numerical value of the letter grade and credit earned in a course, determined by multiplying the grade point earned in the course by the number of credit hours for the course. See also Grade point above.

HSIRB
Human Subjects Institutional Review Board of Western Michigan University. All research involving contact with human research subjects requires prior approval by this Board. No research involving human subjects is exempt from review by the this Board. For more information, telephone the Office of the Vice President for Research, 387-8298.

IACUC
Institutional Animal Care and Use Committee of Western Michigan University. The use of any vertebrate animals in research, testing, or instruction is subject to prior approval by this Committee. For more information, telephone the Office of the Vice President for Research, 387-8298.

IBC
Institutional Biosafety Committee of Western Michigan University. 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 this Committee. For more information, telephone the Office of the Vice President for Research, 387-8298.

Incomplete
A temporary course grade ("I") granted by an instructor when illness, necessary absence, or other reasons beyond the control of the student prevent completion of course requirements by the end of the semester or session. A student must be passing the course to be eligible for an "I." An "I" is not given as a substitute for a failing or low grade. Incomplete grades will convert to an "X" if not removed within one calendar year, or sooner if so stipulated by the instructor.

The instructor assigning the grade of "I" will complete an official 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 obtain the experience of to complete the research on a specific topic.

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.

Michigan Intercollegiate Graduate Studies (MIGS) Program
An admittance category for guest graduate students from all Michigan institutions offering graduate degree programs to take advantage of unique educational opportunities on the campuses of other institutions. Western Michigan University participates in this program. Information is available from The Graduate College.

Michigan residence requirements
The requirements for identifying or establishing permanent residence in Michigan for tuition assessment purposes.

Multiple topic or umbrella course
A variable topic, variable credit course that focuses on a current or a special interest in a specific field or academic area. The course may be repeated for credit with different topics.

Nondegree student
A student who has been admitted to a nondegree category (usually to a certificate program only or to PTG status) and is not otherwise pursuing a master’s, specialist, or doctoral degree.

Part-time student
A graduate student who takes fewer than nine hours during a semester (fall and winter) or fewer than five hours during a summer session. See also Class or credit hour load above.

Permission to Take Graduate Classes (PTG)
Permission to Take Classes (PTG status) is a limited admission status for a student with a baccalaureate degree to enable enrollment in graduate courses without pursuing a graduate degree. This status is also granted to a guest student from another university. Permission to Take Graduate Classes does not constitute admission to a graduate degree program, and departments may exclude students with this status from taking courses or may limit the transfer of PTG hours to a degree program should the student later be admitted to a degree program.

Portfolio
A collection of work (e.g., paintings, writings, etc.) which may be used to demonstrate competency in an academic area.

Practicum
See Field experience, practicum, work experience, co-op above.

Prerequisite
A requirement, often the completion of a prescribed course, which must be met before a student may register for a specific course. See also Corequisite 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 Types” 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 (3.25 for specialist and doctoral students). 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 student, and approved by the graduate dean as meeting all University guidelines. The Graduate Student Permanent Program is used to conduct the graduate audit, and therefore must be filed well in advance of the student’s application for graduation.

Project committee
A specialist project committee shall be appointed for each student undertaking a project as partial fulfillment of the requirements for a specialist degree. The purpose of the project committee is to: a) 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 the project or the development of a specialist project topic; b) review and approve a proposal for the specialist project; c) provide consultation regarding progress on the project; d) evaluate the final document; and e) in those departments requiring an oral defense, evaluate the oral defense of the project.

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

Each project committee shall consist of a minimum of three members or associate members of the graduate faculty of Western Michigan University. Two of the committee members must be from the department or academic program in which the student is pursuing the specialist degree. The appointment of a specialist committee is a three-stage process: 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 project involving a specialist degree in which the project is either required or optional may approve and disseminate additional guidelines concerning specialist project 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.

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 15 weeks long, in the academic calendar of an institution. Western Michigan University uses the semester calendar. See also Semester hour below.

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 appropriately 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 methodology, 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 faculty program's admission body in order for the student to register. See also Academic standards above.

Re-entry
An enrollment procedure followed by a student who was previously enrolled in good standing at Western Michigan University but whose active admission status was canceled. See also Active admission status above.

Registration
The process of enrolling in and paying tuition and fees for courses each semester or session. For a full explanation of the registration procedures and regulations, consult the Schedule of Classes available in the Registrar's Office.

Repeated course
Any course in which a student may have been enrolled more than once is considered a repeated course, with the exception of multiple topic or umbrella courses. A grade is presented in each course and included on the student's transcript. With the adviser's and graduate dean's approval, a higher grade earned in a repeated course may count toward curricular or degree requirements at the time of graduation.

Research tool
An ability that serves in the manner of a tool students are expected to acquire the ability to use two research tools, at minimum, lists all courses taken and credit hours in the student's transcript. With the adviser's and consultation of the Graduate dean's approval, a higher grade load above.

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.

Semester
A unit of time, 15 weeks long, in the academic calendar of Western Michigan University. The semesters occur in the fall and the winter. See also Session below.

Senior citizen, SCOPE admission status
A special admission status for persons sixty-two years of age or older that provides special privileges and opportunities for enrollment at Western Michigan University. The Schedule of Classes should be consulted for eligibility and registration information.

Session
A unit of time, 7½ weeks long, in the academic calendar of Western Michigan University. The sessions occur in the spring and the summer. See also Semester above.

Time limit for completion of a degree
Master's and specialist students must elect and complete all work for the degree, including transfer work, within six years preceding the date on which the graduate degree is conferred, doctoral students, within seven years following admission to the doctoral program.

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. In the case 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 evaluate the thesis. 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 development of a master's thesis topic, b) review and approve a proposal for the master's thesis, c) provide consultation regarding progress on the thesis, d) evaluate the final document, and e) in those departments requiring an oral defense, evaluate the oral defense of the thesis.

In addition to the previously described responsibilities that are generic to all thesis committee members, the chairperson of the committee assumes the following additional responsibilities: a) in those 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) act as all 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.

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 courses 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.

University Microfilms, Inc. (UMI)
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 UMI microfilm the dissertation and have it published and available to a public audience for dwellers and researchers around the world.

Variable credit course
Some courses list a range of credit hours (e.g., 1-4 hrs.) for which the course may be elected and as such are called "variable credit" courses. Students will determine, in prior consultation with the course instructor or the program advisor, the specific number of course credit hours to elect during the registration period.

Withdrawal
An official procedure for withdrawing from a course or from the University. Deadlines for
withdrawing from a course without academic penalty are noted each semester or session in the Schedule of Classes. Students who do not follow the official procedure or meet the appropriate deadlines when withdrawing from a course will earn the grade of "X" for that course; the "X" grade carries no honor points and affects the grade point average in the same manner as an "E" grade.

"X" grade
The symbol "X" on a student's transcript indicates that the student has never attended the class or has discontinued attendance and does not qualify for any other grade, including an "I" grade. The "X" will be computed into the student's grade point average as hours attempted with zero honor points.
Baskiaynr, Sanjeev, 1996. Assistant Professor of Electrical and Computer Engineering. B.S., St. Xavier's College (Ranchi); B.E., Indian Institute of Science (Bangalore); M.S., Ph.D., Minnesota.

Batt-Ami, Miriam, 1989. Associate Professor of English B.A., Hebrew (Jerusalem); M.A., California State; Ph.D., Pittsburgh.


Bate, Harold L., 1964. Professor of Speech Pathology and Audiology A.B., Butler; M.A., Florida; Ph.D. Wisconsin.

Beam, Henry H., 1975. Professor of Management B.S.E., Princeton; M.A., Michigan; Ph.D., Michigan.

Bedrosian, Jan L., 1993. Professor of Speech Pathology and Audiology A.B., California State; Cal Poly McGeorge, Santa Barbara; Ph.D., Wisconsin (Madison).

Bejoek, Bruce E., 1996. Assistant Professor of Biological Sciences A.B., B.S., Michigan State; M.A., Northern Michigan; Ph.D., St. Louis.


Bensley, Robert J., 1993. Associate Professor of Health, Physical Education and Recreation B.S., B.S., Michigan State; M.A., Central Michigan; Ph.D., Utah.

Benson, John William, 1974. Professor of Spanish and Chair, Department of Foreign Languages and Literatures A.B., Willamette; M.A., Ph.D. Wisconsin.

Berker, Ennis A., 1989. Adjunct Assistant Professor of Psychology A.B., M.A., Chicago; Ph.D., Michigan.

Berkey, Debra S., 1985. Professor and Chair, Department of Health, Physical Education and Recreation A.B., Slippery Rock; M.S., West Virginia.

Berrah, Nora, 1994. Associate Professor of Education A.B., Virginia (Richmond); M.A., Indiana; Ph.D., Indiana.

Bertman, Steven B., 1994. Assistant Professor of Chemistry B.A., Utah; Ph.D. California.


Beveridge, Leonard J., 1970. Professor and Chair, Department of Biological Sciences A.B., A.M., California (Berkeley).

Bhatnagar, Bipul, 1994. Adjunct Professor of Biological Sciences A.B., B.A., Indiana; M.S., Indiana; Ph.D., Washington.

Bhatnagar, Bipul, 1994. Adjunct Professor of Biological Sciences A.B., B.A., Indiana; M.S., Indiana; Ph.D., Washington.


Boelens, Susan K., 1974. Associate Professor of Speech Pathology and Audiology A.B., B.S., Northern Illinois; M.A., Michigan State.


Communication

Borish, Linda J., 1991, Associate Professor of History
B.A. Skidmore; M.A., Ph.D., Manhattan (College Park)

Bosco, James J., 1985, Professor of Education and Professional Development
B.Ed. Duquesne; M.Ed., Pittsburgh; Ed.D., Columbia

Bowman, Joel, 1995, 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

Brehm, Linda, 1977, Professor of Psychology
B.A. Tribe (Virginia); Ph.D., Michigan

Brody, Michael, 1996, Professor of Philosophy
B.A., M.A., Ph.D. Notre Dame

Breyer, Sanford R., 1989, Assistant Professor of History
B.A. Loyola; M.A., Ph.D., Harvard

Brinkerhoff, Robert O., 1978, Professor of Counseling Education and Counseling Psychology
B.A. Carroll; M.A., Ed.D., Virginia

Brinkley, Eilen, 1967, Associate Professor of English
B.A. Teachers College, M.A., Western Michigan

Brogowiec, Andrew A., 1997, Professor and Chair, Department of Marketing
B.S.B.A., M.B.A., Wayne State; Ph.D., Michigan

Brotherton, Barbara H., 1995, Assistant Professor of Art
B.A. California (Santa Cruz); M.A., California (Davis); Ph.D., Washington

Brown, Annette N., 1996, Assistant Professor of Economics
B.A., M.A., Ph.D., Michigan

Browning, Christine A., 1988, Associate Professor of Mathematics and Statistics
B.S. M.A., Ph.D., Ohio State

Brush, Paula S., 1996, Assistant Professor of Sociology
B.A., M.A., M.S., Ph.D., Michigan

Brzinsky, Jody A., 1991, Associate Professor of History
B.A. Missouri; M.A., Ohio State; Ph.D., Pennsylvania State

Byrd, Christine A., 1996, Assistant Professor of Education
B.A., M.Ed., D.Ed., Western Michigan

Campbell, Anna Kay, 1974, Assistant Professor of Psychology
B.S., Indiana; M.A., Columbia; Ph.D., Michigan

Carey, Thomas A., 1974, Professor of Management
B.B.A. Notre Dame, M.B.A., Ph.D., Western Michigan

Carey-Webb, Allen, 1992, Associate Professor of English
B.A. Swarthmore; M.A.T. Lewis and Clark, M.A., Ph.D., Oregon

Carrinella-MacDonald, Susan, 1984, Professor of Sociology
B.A., M.A., Ph.D., Western Michigan

Carroll, Andrew R., 1990, Adjunct Associate Professor of Psychology
B.A., M.A., Western Michigan; Ph.D., Michigan

Carlson, Lewis H., 1966, Professor of History
B.A., M.A., Michigan; Ph.D., Michigan State

Carlson, Norman E., 1963, Associate Professor of English
B.A., Carleton; M.A., Ph.D., Rutgers

Carson, Susan M., 1993, Associate Professor of Sociology
B.A., Central Florida; M.S., Ph.D., Florida State

Carney, John M., 1966, Professor of Business

Caruso, Phillip P., 1967, Assistant Professor of Economics
B.A., Ph.D., Michigan State

Cassidy, Daniel P., 1989, Professor of Philosophy
B.A., Philosophy; M.A., Indiana; Ph.D. Notre Dame

Caulfield, Susan L., 1990, Assistant Professor of Sociology
B.A., M.C.J., South Carolina; M.A., Ph.D., SUNY-Albany

Cha, Ellen, 1996, Professor, University Libraries
B.A. Korea; M.A., Bucknell; M.A.S., Michigan

Chandler, Ralph C., 1976, Professor and Director, School of Public Affairs and Administration
B.A., Stebon; M.A., Rutgers; B.D., Union Theological Seminary, Th. M., Princeton Theological Seminary; Ph.D., Columbia

Channell, Dwayne E., 1979, Professor of Mathematics and Statistics
B.S., M.A., Ph.D., Ohio State

Chapel, Joe R., 1965, Associate Professor of Education and Professional Development
B.A., Western Michigan; M.A., Michigan State

Chartrand, Gary, 1964, Professor of Mathematics and Statistics
B.S., M.S., Ph.D., Michigan State

Chase, Ronald B., 1973, Professor of Geology
B.A. DiPauro; M.S., Ph.D., Montana

Chateauneuf, John E., 1996, Assistant Professor of Chemistry
B.S. Salem State; Ph.D., Tufts

Chiappara, Michael J., 1996, Assistant Professor of History
B.A. Ursinus; M.A., Ph.D., Pennsylvania

Christo, Christopher J., 1997, Assistant Professor of Mechanical and Aeronautical Engineering
B.S.M.E., B.S., M.S., Ph.D., SUNY-Albany

Chung, Sung-G., 1986, Professor of Physics
B.E., Tokyo Institute of Technology, M.S., Ph.D., Tokyo

Church, Jeanne, 1977, Adjunct Professor of Child Rehabilitation
B.A. Michigan State; M.A., Western Michigan

Clark, Michael J., 1971, Associate Professor of Speech Pathology and Audiology
B.A., M.A., Ph.D., Michigan

Clark-Lee, Marcy, 1995, Adjunct Assistant Professor of Community Health Services
B.A. Ball State; M.A., Indiana; M.A., Western Michigan

Clemens, Paul, 1996, Assistant Professor of Political Science
B.A., Harvard; M.A., Ph.D., Princeton

Clifton, James A., 1990, Adjunct Professor and Visiting Scholar of Anthropology
Ph.B., Chicago; M.A., San Francisco State; Ph.D., Oregon

Cobb, Trudy D., 1991, Assistant Professor of Dance
B.S., Eastern Michigan, M.F.A., Michigan; Dance and Theater Arts

Coburn, William, 1997, Associate Professor of Education and Professional Development
B.A. Columbia, M.A., San Diego State; Ph.D., Colorado

Cockrell, Barbara Joy, 1990, Adjunct Professor of Biological Sciences
B.A. York (U.K.); J.D., Ph.D., Oxford

Code, David Lobberg, 1992, Associate Professor of Music
B.S., M.M., Illinois, Ph.D., Maryland

Connelly, Robert, 1989, Adjunct Assistant Professor of Finance and Commercial Law
B.A., Western Michigan; J.D., Wayne State

Cool, Ray T., 1989, Assistant Professor of Health, Physical Education and Recreation
B.S., Fairmont State; M.S., Ed.D., West Virginia

Cooley, John R., 1968, Professor of English
B.A., M.A., Syracuse; Ph.D., Michigan State

Cooley, Van, 1996, Associate Professor of Educational Leadership
B.S., M.A., Ed.D., Dal State

Cooney, Donald F., 1977, Associate Professor of Social Work
B.A., M.Div., Mary Immaculate, M.A., Fordham, Ph.D., B.S.N., Mary Baldwin

Cooley, B. J., 1974, Professor of Management
B.A. St. Lawrence, M.S., Syracuse; Ph.D., Colorado (Boulder)

Coontz, George E., 1996, Associate Professor of Business
B.S.W., M.S.W., Virginia Commonwealth, M.A., Ph.D., Michigan

Cowen, David J., 1996, Assistant Professor of Educational Leadership
B.S., M.S., South Dakota Northern State; Ed.D., South Dakota

Crane, Loren D., 1965, Associate Professor of Communication
B.A. Brigham Young; M.A., Ph.D., Ohio State

Crawford II, Charles E., 1995, Assistant Professor of Sociology
B.S. Florida; M.S., Ph.D., Florida State

Cremin, William M., 1975, Professor of Anthropology
B.S., M.A. Northern Illinois; Ph.D. Southern Illinois

Crotchet, Cat, 1996, Assistant Professor of Art
B.F.A., Illinois; M.F.A. Bowling Green State

Croteau, James, 1990, Associate Professor of Counseling Education and Counseling Psychology
B.A. Loyola (New Orleans); M.A., Ph.D., Southern Illinois

Crow, Lowell E., 1974, Professor of Marketing
B.S., Purdue; M.B.A., Indiana

Crowell, Ronald A., 1966, Associate Professor of Education and Professional Development
B.A. Michigan State; M.A., Toledio; Ph.D., Michigan State

Culp, Sylvia, 1992, Associate Professor of Philosophy
B.S., M.A., Virginia; Ph.D., California (San Diego)

Curtis-Smith, Curtis, 1968, Professor of Music
B.M., B.M., Northwestern

Cutrim, Ellen M. C., 1993, Assistant Professor of Geography
B.A., Pontifical Catholic (Rio de Janiero); M.S., Utah; Ph.D., Michigan

D'Mello, James, 1987, Associate Professor of Finance and Commercial Law
B.Comm. Bombay (India); B.A. Kent State; B.A. Kent State

Dahlberg, Kenneth A., 1966, Professor of Political Science
B.A. Northwestern, M.A., Stanford; Ph.D., Colorado

Dalay, Donald, 1996, Adjunct Assistant Professor of Physican Assistant
B.S. Detroit Mercy; A.S. Oakland Community

Dannison, James R., 1987, Professor of Theatre
B.A. Emporia State; M.F.A., Kansas (Kansas City); M.F.A., Florida State/Asko Conservatory

Dannison, Charles R., 1984, Adjunct Associate Professor of Family and Consumer Sciences
B.A., Western Michigan, M.S., Ph.D., Kansas State; J.D., Thomas Cooley Law School

Dannison, Linde L., 1981, Professor and Chair, Department of Family and Consumer Sciences
B.S., Western Michigan; M.S., Ph.D., Kansas State

Datta-Sandhu, Suhashini, 1971, Associate Professor of Political Science
B.A. M.A., Western Michigan; Ph.D., Narbci (Keny)

Davidson, Clifford O., 1965, Professor of English
B.S., St. Cloud State; M.A., Ph.D., Wayne State
Landerca, Robert, 1969, Associate Professor of Management
B.S., Pepperdine; Ph.D., Michigan State

Lane, Paul M., 1985, Associate Professor of Marketing
B.A., Eastern Michigan; M.B.A., Stetson University; Ph.D., Michigan State

Langsam, Sheldon, 1986, Associate Professor of Accounting
B.S., Ohio; M.S., SUNY-Albany; Ph.D., Arkasas; C.P.A., Michigan and New York

Larsen, Bill, 1992, Assistant Professor of English
B.A., Macalester; Ph.D., Indiana

Lasker, Joanne, 1997, Assistant Professor of Speech Pathology and Audiology
B.S., Michigan Technological; M.S., Western Michigan; Ph.D., Michigan State; CQE

Mabrey, Tracey, 1994, Assistant Professor of Social Work
B.A., Texas; M.S.W., D.S.W., Howard

MacDonald, Frederick R., 1966, Associate Professor of Social Work
B.S.M., Mannes College; M.S.W., Ph.D., Tennessee

MacDonald, Richard R., 1967, Assistant Professor of Sociology
B.A., Michigan State; M.A., Ph.D., Missouri

Mackey, Nielouf, 1994, Assistant Professor of Mathematics and Statistics
B.S., M.S., SUNY (Buffalo)

MacQueen, C. Bruce, 1965, Associate Professor, Counseling and Testing Center
B.S., M.A., Western Michigan; Ph.D., Indiana

Maier, Paul L., 1959, Professor of History
B.A., B.D., Concordia Seminary; M.A., Harvard; Ph.D., B. S. in Administration

Majin, Shohreh, 1997, Assistant Professor of Economics
B.A., National (Iran); M.A., Wayne State; Ph. D., Wisconsin (Milwaukee)

Majumdar, Krishnakali, 1997, Assistant Professor of Anthropology
B.S., M.S., M.Phil., Delhi (India); Ph.D., Michigan State

Malcolm, Stephen B., 1991, Assistant Professor of Biological Sciences
B.S., M.S., M.S., Rhodes (S. Africa); Ph.D., Oxford (U.K.)

Malick, Larry A., 1993, Associate Professor of Industrial and Manufacturing Engineering
B.S., Illinois (Urbana-Champaign); M.S., Ph.D., Virginia Polytechnic Institute and State

Malliot, Maria E., 1996, Adjunct Assistant Professor of Psychology
M.P.H., Wayne State; Ph.D., Psychology

Malott, Richard W., 1959, Professor of Psychology
B.A., Indiana; Ph.D., Columbia

Mangia, Inayat, 1985, Professor of Finance and Commercial Law
B.A., M.A., Ph.D., Chemistry

Manning, Anthony, 1994, Adjunct Professor of Biological Sciences
B.Sc., M.Sc., Ph.D., Otago

Marriage, Troy, 1995, Assistant Professor of Special Education
B.S., M.E., Illinois State; Ph.D., Indiana

Li, Ying Ping, 1997, Assistant Professor of Physics
B.S., Northern Illinois; Ph.D., Minnesota

Loferski, Erik, 1971, Edwin E. Meader Professor of Anthropology
B.A., Vienne; Ph.D., University of Mainz (Germany)

Loewe, Mary Anne, 1997, Assistant Professor of English
B.A., M.A., Ph.D., Michigan State

Lopez, Irma, 1994, Assistant Professor of Spanish
B.A., Wesley; M.A., Texas; Ph.D., Kansas

LoVerme, Charles, 1966, Assistant Professor of Art
B.F.A., School of Museum of Fine Arts (Boston); M.F.A., Corcoran; Ph.D., Stanford

Luqmani, Mustqal, 1977, Professor of Marketing
B.S., Karachi (Pakistan); B.S., Indiana Institute of Technology

Lucas, Robert H., 1997, Assistant Professor of Social Work
B.S.M., Mannes College; M.S.W., Ph.D., Tennessee

Lucas, Ronald, 1967, Assistant Professor of Sociology
B.A., Michigan State; M.A., Ph.D., Missouri

Lynde-Ricciha, Molly, 1993, Assistant Professor of French
B.A., California (Davis); M.A., Ph.D., Indiana

Lyons, David G., 1980, Professor of Psychology
B.A., Hamilton; Ph.D., Indiana

Lyn, David M., 1987, Professor of Industrial and Manufacturing Engineering
B.S., Michigan Technological; M.S., Western Michigan; Ph.D. Michigan State; CQE

Mccartney, Timothy J., 1995, Assistant Professor of Philosophy
B.A., M.A., Vanderbilt; Ph.D., Stanford

McGurn, Arthur R., 1980, Professor of Physics
B.A., Ph.D., California (Santa Barbara)

McIntyre, Barbara, 1996, Adjunct Assistant Professor of Community Health Services
B.S., Grand Valley State; Ph.D., Union Institute

McKean, Joseph W., 1979, Professor of Mathematics and Statistics
B.S., Geneva College; M.S., Arizona; Ph.D., Pennsylvania State

McKee, David H., 1971, Associate Professor, University Libraries
B.S., Bowling Green; M.S.L.S., Case Western Reserve; M.S.A., Western Michigan

Means, Jay C., 1997, Professor and Chair, Department of Chemistry
B.S., Illinois; M.A., Concordia Teacher's College; M.S., Ph.D., Illinois

Meil, Diane, 1996, Adjunct Assistant Professor of Community Health Services
B.A., Minnesota; M.A., Illinois

Meller, 1986, Professor and Chair, Department of Mechanical and Aeronautical Engineering
B.S., Abadan Institute of Technology (Iran); M.S., Illinois Institute of Technology; Ph.D., Illinois (Urbana-Champaign); PE

Merchant, Kalpana, 1994, Adjunct Assistant Professor of Biological Sciences
B.P., Bombay; Ph.D., India

Mergen, Paul S., 1965, Professor of Art
B.S., M.S., Wisconsin

Metwalli, Ali, 1985, Assistant Professor of Finance and Commercial Law
B.Comm., AIN Shams University (Egypt); M.B.A., Sena College; Ph.D., Delaware

Meyer, Bettina, 1978, Associate Professor and Assistant Dean for Library Resources, University Libraries
B.M., Capital (Columbus); M.L.S., Arizona

Meyers, Donald J., 1991, Associate Professor of Economics
B.A., M.S., American; Ph.D., Texas A & M

Meyer, Ruth, 1976, Professor of Mathematics and Statistics
B.S., St. Joseph, M.A., Illinois; Ph.D., Wisconsin

Michael, John L., 1967, Professor of Psychology
B.A., M.A., California

Michoud, Pierre, 1970, Professor of Geography
B.A., M.A., Washington

Mickle, Maureen, 1996, Adjunct Assistant Professor of Community Health Services
B.A., Kalamazoo College; M.A., Southern California; Ph.D., Northwestern (Evansville)

Middleton, David, 1996, Assistant Professor of Construction Engineering, Materials Engineering, and Industrial Design
B.S., Northwestern, M.F.A., Illinois (Chicago)

Mina, Daniel, 1986, Professor of Mathematics and Statistics
B.S., Bowling Green; M.S., Ph.D., Purdue

Miles, Arnold, 1994, Assistant Professor of Anthropology
B.A., Chicago; M.P.H., Columbia; Ph.D., Syracuse

Miller, David, 1997, Assistant Professor of Electronic and Computer Engineering
B.S., M.S., Ph.D., Louisiana

Miller, Dian, 1986, Assistant Professor, Counseling and Testing Center
B.S., Wisconsin (Stevens Point); M.A., Western Michigan

Milo, John B., 1995, Assistant Professor of Chemistry
B.A., Harvard; M.A., Ph.D., Princeton

Montoya, Rosano, 1997, Assistant Professor of Anthropology
B.A., M.A., Ph.D., Michigan

Moore, Judy, 1981, Associate Professor of Music
B.M., M.M., Indiana University

Morris, Joseph R., 1984, Professor and Chair, Department of Counseling and Counseling Psychology
B.A., Central State of Ohio; M.A., Ph.D., Michigan

Morris, William C., 1961, Associate Professor of Accounting
B.A., Western Michigan; M.B.A., Northwestern; C.P.A., Michigan and Illinois

Moss, Robert L., 1984, Assistant Professor of Health, Physical Education and Recreation
B.S.M., Western Michigan; Ph.D., Southern Illinois

Motzkin, Dalia, 1997, Professor of Computer Science

Mousavinzhad, Seyed Hosssein, 1982, Professor and Chair, Department of Electrical and Computer Engineering
B.S.E.E., National Taiwan University; M.S.E.E., Ph.D.E.E., Michigan State
<table>
<thead>
<tr>
<th>Name</th>
<th>Position and Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reck, Robert R.</td>
<td>178 GRADUATE FACULTY</td>
</tr>
<tr>
<td>Reeser, Linda</td>
<td>and Professor of French</td>
</tr>
<tr>
<td>Reish, Joseph G.</td>
<td>Rhodes, Steven C., English</td>
</tr>
<tr>
<td>Richardson, Mark</td>
<td>Mathematics and Statistics</td>
</tr>
<tr>
<td>Ring, Donna</td>
<td>Libraries</td>
</tr>
<tr>
<td>Rizzolo, Louis B.</td>
<td>1984, Associate Professor, University Libraries</td>
</tr>
<tr>
<td>Roche, George B.</td>
<td>1986, Associate Professor of Communication</td>
</tr>
<tr>
<td>Rogers, Chester B.</td>
<td>1966, Professor of Political Science</td>
</tr>
<tr>
<td>Rogers, G. D.</td>
<td>1978, Professor of Theatre</td>
</tr>
<tr>
<td>Romani, Stephen</td>
<td>1996, Assistant Adjunct Professor of Physician Assistant</td>
</tr>
<tr>
<td>Rooney, Pamela S.</td>
<td>1980, Assistant Professor of Business Information Systems</td>
</tr>
<tr>
<td>Rose, Wendy</td>
<td>1993, Associate Professor of Music</td>
</tr>
<tr>
<td>Rosenthal, Alvin</td>
<td>1984, Associate Professor of Physics</td>
</tr>
<tr>
<td>Ross, Mary E.</td>
<td>1979, Associate Professor, University Libraries</td>
</tr>
<tr>
<td>Rossi, Lucian</td>
<td>189, Professor of History</td>
</tr>
<tr>
<td>Rozelle, David L.</td>
<td>1970, Associate Professor of Accountancy</td>
</tr>
<tr>
<td>Ruhl, Jack M.</td>
<td>1993, Associate Professor and Chair, Department of Accountancy</td>
</tr>
<tr>
<td>Running-Johnson, Cynthia</td>
<td>1986, Professor of French</td>
</tr>
<tr>
<td>Reisch, Joseph G.</td>
<td>1982, Associate Professor of Social Work</td>
</tr>
<tr>
<td>Reeser, Linda</td>
<td>1984, Associate Professor, University Libraries</td>
</tr>
<tr>
<td>Reish, Joseph G.</td>
<td>1972, Dean, Dean of Honors College and Professor of French</td>
</tr>
<tr>
<td>Roche, George B.</td>
<td>1986, Associate Professor of Communication</td>
</tr>
<tr>
<td>Rogers, Chester B.</td>
<td>1966, Professor of Political Science</td>
</tr>
<tr>
<td>Roche, George B.</td>
<td>1986, Associate Professor of Communication</td>
</tr>
<tr>
<td>Rogers, G. D.</td>
<td>1978, Professor of Theatre</td>
</tr>
<tr>
<td>Romani, Stephen</td>
<td>1996, Assistant Adjunct Professor of Physician Assistant</td>
</tr>
<tr>
<td>Rooney, Pamela S.</td>
<td>1980, Assistant Professor of Business Information Systems</td>
</tr>
<tr>
<td>Rose, Wendy</td>
<td>1993, Associate Professor of Music</td>
</tr>
<tr>
<td>Rosenthal, Alvin</td>
<td>1984, Associate Professor of Physics</td>
</tr>
<tr>
<td>Ross, Mary E.</td>
<td>1979, Associate Professor, University Libraries</td>
</tr>
<tr>
<td>Rossi, Lucian</td>
<td>189, Professor of History</td>
</tr>
<tr>
<td>Rozelle, David L.</td>
<td>1970, Associate Professor of Accountancy</td>
</tr>
<tr>
<td>Ruoh, Jack M.</td>
<td>1993, Associate Professor and Chair, Department of Accountancy</td>
</tr>
<tr>
<td>Running-Johnson, Cynthia</td>
<td>1986, Professor of French</td>
</tr>
<tr>
<td>Reisch, Joseph G.</td>
<td>1982, Associate Professor of Social Work</td>
</tr>
<tr>
<td>Reeser, Linda</td>
<td>1984, Associate Professor, University Libraries</td>
</tr>
<tr>
<td>Reish, Joseph G.</td>
<td>1972, Dean, Dean of Honors College and Professor of French</td>
</tr>
<tr>
<td>Roche, George B.</td>
<td>1986, Associate Professor of Communication</td>
</tr>
<tr>
<td>Rogers, Chester B.</td>
<td>1966, Professor of Political Science</td>
</tr>
<tr>
<td>Rogers, G. D.</td>
<td>1978, Professor of Theatre</td>
</tr>
<tr>
<td>Romani, Stephen</td>
<td>1996, Assistant Adjunct Professor of Physician Assistant</td>
</tr>
<tr>
<td>Rooney, Pamela S.</td>
<td>1980, Assistant Professor of Business Information Systems</td>
</tr>
<tr>
<td>Rose, Wendy</td>
<td>1993, Associate Professor of Music</td>
</tr>
<tr>
<td>Rosenthal, Alvin</td>
<td>1984, Associate Professor of Physics</td>
</tr>
<tr>
<td>Ross, Mary E.</td>
<td>1979, Associate Professor, University Libraries</td>
</tr>
<tr>
<td>Rossi, Lucian</td>
<td>189, Professor of History</td>
</tr>
<tr>
<td>Rozelle, David L.</td>
<td>1970, Associate Professor of Accountancy</td>
</tr>
<tr>
<td>Ruoh, Jack M.</td>
<td>1993, Associate Professor and Chair, Department of Accountancy</td>
</tr>
<tr>
<td>Running-Johnson, Cynthia</td>
<td>1986, Professor of French</td>
</tr>
<tr>
<td>Reisch, Joseph G.</td>
<td>1982, Associate Professor of Social Work</td>
</tr>
<tr>
<td>Reeser, Linda</td>
<td>1984, Associate Professor, University Libraries</td>
</tr>
<tr>
<td>Reish, Joseph G.</td>
<td>1972, Dean, Dean of Honors College and Professor of French</td>
</tr>
<tr>
<td>Roche, George B.</td>
<td>1986, Associate Professor of Communication</td>
</tr>
<tr>
<td>Rogers, Chester B.</td>
<td>1966, Professor of Political Science</td>
</tr>
<tr>
<td>Rogers, G. D.</td>
<td>1978, Professor of Theatre</td>
</tr>
<tr>
<td>Romani, Stephen</td>
<td>1996, Assistant Adjunct Professor of Physician Assistant</td>
</tr>
<tr>
<td>Rooney, Pamela S.</td>
<td>1980, Assistant Professor of Business Information Systems</td>
</tr>
<tr>
<td>Rose, Wendy</td>
<td>1993, Associate Professor of Music</td>
</tr>
<tr>
<td>Rosenthal, Alvin</td>
<td>1984, Associate Professor of Physics</td>
</tr>
<tr>
<td>Ross, Mary E.</td>
<td>1979, Associate Professor, University Libraries</td>
</tr>
<tr>
<td>Rossi, Lucian</td>
<td>189, Professor of History</td>
</tr>
<tr>
<td>Rozelle, David L.</td>
<td>1970, Associate Professor of Accountancy</td>
</tr>
</tbody>
</table>
Williams, D. Terry, 1982, Professor and Chair, Department of Theatre
B.A., Grove City College; M.A., Bowling Green; Ph.D., Indiana

Williams, Kenneth L., 1973, Professor of Computer Science
B.S., Michigan State; M.A., Western Michigan; Ph.D., Michigan State

Williams, Molly W., 1973, Associate Dean, College of Engineering and Applied Sciences and Professor of Mechanical and Aeronautical Engineering
B.S., Northwestern; M.S., Ph.D., California (Berkeley); PE

Wilson, Benjamin C., 1975, Professor of Black Americana Studies
B.A., St. Benedict; M.A., Ph.D., Michigan State

Wilson, Brian C., 1996, Assistant Professor of Comparative Religion
B.S., Stanford; M.A., Montery Institute of International Studies; M.A., Ph.D., California (Santa Barbara)

Wilson, Brian L., 1996, Assistant Professor of Comparative Religion
B.A., M.A., Florida State

Wilson, Paul T., 1986, Associate Professor of Education and Professional Development
B.A., M.A., Ed.D., Virginia

Winter, Ronald J., 1969, Associate Professor of Health, Physical Education and Recreation
B.S., M.A., Michigan State

Wolfinbarger, Stephen M., 1986, Associate Professor of Music
B.M.Ed., Evangel College; M.M., North Texas

Wolford, Robert, 1996, Adjunct Assistant Professor of Physician Assistant
B.A., Linfield; M.D., Oregon Health Systems

Woloszyk, Carl A., 1987, Professor of Family and Consumer Sciences
B.A., Ph.D., Michigan State; M.B.E., Eastern Michigan; Ed.S., Michigan

Wong, Bradley, 1983, Professor of Music
B.M., M.M., Michigan

Wouch, Gerald, 1995, Associate Professor of Paper and Printing Science and Engineering
B.S., Drexel; M.A., Temple; Ph.D., Drexel

Wozniak, Danielle F., 1997, Assistant Professor of Social Work
B.A., Miami (Ohio); M.S.W., Fordham, Ph.D., Connecticut

Wright, Jr., Lester W., 1996, Assistant Professor of Psychology
B.S., Florida International; M.S., Ph.D., Georgia

Wright, Richard A., 1993, Associate Vice President for Academic Affairs and Professor of Philosophy
B.A., Baylor; M.A., Ph.D., Illinois (Urbana-Champaign)

Wygant, Robert M., 1977, Professor of Industrial and Manufacturing Engineering
B.S., Ohio State; M.B.A., Western Michigan; M.S.I.E., Michigan, Ph.D., Houston; CME

Xiong, Victor C., 1989, Associate Professor of History
B.A., Beijing, M.S., Chinese Academy of Social Sciences; Ph.D., Australian National

Yang, Kung-Wei, 1969, Professor of Mathematics and Statistics
B.S., National Taiwan; Ph.D., Indiana

Yelesma, Paul, 1975, Professor of Communication
B.A., M.A., Denver; Ph.D., Michigan

Young, Allison, 1997, Assistant Professor of Education and Professional Development
B.A., Swarthmore; A.M., Ph.D., Michigan

Zabik, Roger M., 1967, Professor of Health, Physical Education and Recreation
B.S., Ball State; M.S., P.E.D., Indiana

Zagarell, Allen, 1987, Associate Professor of Anthropology
B.A., City College of New York; Ph.D., Free University of West Berlin

Zegree, Stephen, 1978, Professor of Music
B.S., M.M., M.M., Indiana; D.M.A., Missouri

Ziebarth, Steven, 1997, Assistant Professor of Mathematics and Statistics
Ph.D., Iowa

Zhang, Jiabei, 1997, Assistant Professor of Health, Physical Education and Recreation
B.S., M.Ed., Wuhen Institute of PE (China); M.S., Wisconsin (La Crosse); Ed.D., Georgia

Zhang, Ping, 1996, Assistant Professor of Mathematics and Statistics
B.S., Wuhan; M.S., Jordan; Ph.D., Michigan State

Zhou, Huizhong, 1990, Associate Professor of Economics
B.A., Fudan (China); M.S., Ph.D., Northwestern
Section VI
University Officials

BOARD OF TRUSTEES
Richard G. Haworth
Holland
Term Expires December 31, 1998
Lori Belden Waddles
Detroit
Term Expires December 31, 1998
George A. Franklin
Kalamazoo
Term Expires December 31, 2000
Joan H. Krause
Belmont
Term Expires December 31, 2000
Richard F. Chormann
Kalamazoo
Term Expires December 31, 2002
Richard Y. St. John
Kalamazoo
Term Expires December 31, 2002
William Carmody
Shelter Bay
Term Expires December 31, 2004
Birgit Klohs
Grand Rapids
Term Expires December 31, 2004
Elson Floyd
University President
Ex-Officio

UNIVERSITY
ADMINISTRATIVE
OFFICERS
Elson Floyd, President
Timothy Light, Provost and Vice President for
Academic Affairs
Carol L. Stamm, Associate Vice President for
Academic Affairs
Richard A. Wright, Associate Vice President for
Academic Affairs
Robert M. Beam, Vice President for Business
and Finance
Theresa A. Powell, Vice President for Student
Affairs
Keith A. Pretty, Vice President for External
Affairs and General Counsel
Donald E. Thompson, Vice President for
Research
Jan W. Lydon, Director, Planning and
Institutional Research
Howard J. Dooley, Executive Director of
International Affairs
Elise Jorgens, Dean, College of Arts and
Sciences
Leonard Lamberson, Dean, College of
Engineering and Applied Sciences
Robert H. Luscombe, Dean, College of Fine
Arts
Janet I. Pisaneschi, Dean, College of Health
and Human Services
Lance Query, Dean, University Libraries
Frank Rapley, Dean, College of Education and
Acting Dean, Division of Continuing
Education
Joseph G. Reish, Dean, Lee Honors College
James Schmotter, Dean, Haworth College of
Business
Shirley Clay Scott, Dean, The Graduate
College
THE INDEX

Academic appeal procedure, 21
Academic calendar, inside front cover
Academic conduct, 21
Academic evaluation, 19
Academic honesty, 20
Academic policy and status, 21
Academic regulations, 10
Academic standards, 10, 166
Grade change, 10
Grade point average, 10
Grade change, 10
Graduate credit by examination, 11
Honor points, 10
Transfer credit, 11
Repeat course, 11
Admission Procedures, 6
Admission requirements, 7
Admission with reservation, 8
Dual Enrollment admission, 8
Graduation Procedures, 8
Degree Program Applicant, U.S. Citizen, 6
Degree Program Applicant, Non-U.S. Citizen, 6
Nondegree Applicant, Graduate Certificate Program, 7
Nondegree Applicant, Permission to Take Graduate Classes (PTG), 7
WMU Faculty Applicant, 7
Admission requirements, 7
Doctoral program applicant, 7
Graduate certificate program applicant, 8
Master's program applicant, 7
Permission to Take Graduate Classes (PTG) applicant, 7
Senior citizen-SCOPE program applicant, 8
Special student applicant, 7
Admission Types, Degree Status, 8
Active admission status, 8
Admission with reservation, 9
Dual enrollment admission, 8
Regular admission, 8
Probationary admission, 8
Admission Types, Nondegree Status, 8
Michigan Intercollegiate Graduate Studies (MIGS), 8
Permission to Take Graduate Classes (PTG), 8
Senior Citizens-SCOPE Program, 8
Alcohol and Drug Abuse, Certificate Program in, 147
Alcohol and Drug Abuse Courses, 148
Anthropology, Department of, 31
Anthropology, Master of Arts in, 31
Anthropology Courses, 32
Apartment housing, 25
Appeals procedure, Academic, 21
Academic standards, 11
Discrimination, 23

Grades, 21
Thesis/Project/Dissertation, 22
Application procedures, admission, 6
Application procedures, graduation, 12, 13
Applied Economics, Doctor of Philosophy in, 45
Applied Economics, Master of Arts in, 46
Applied Mathematics, Master of Science in, 62
Art, Department of, 138
Art, Master of Arts in, 138
Art, Master of Fine Arts in, 138
Art Courses, 139
Arts and Sciences, College of, 31
Arts and Sciences Courses, 33
Asian and Middle Eastern Languages, Department of, 33
Chinese Courses, 33
Japanese Courses, 33
Assistantships, 16
Associateships, 16
Amphic Training, 119
Auditing graduate courses, 10, 166
Automobile registration, 30

Biological Sciences, Department of, 33
Biological Sciences, Doctor of Philosophy in, 34
Biological Sciences, Master of Science in, 33
Biological Sciences Courses, 35
Biostatistics, Master of Science in, 63
Black Americana Studies Program, 7
Black Americana Studies Courses, 36
Blind Rehabilitation, Department of, 145
Orientation and Mobility, Master of Arts in, 145
Rehabilitation Counseling/Teaching, Master of Arts in, 146
Rehabilitation Teaching, Master of Arts in, 145
Teaching Children who are Visually Impaired, Master of Arts in, 146
Blind Rehabilitation Courses, 146
Board of Trustees, 181
Business, Haworth College of, 94
Business Administration, Master of, 94
Business Courses, 97
Business Information Systems, Department of, 97
Business Information Systems Courses, 97

Calendar, Academic, inside front cover
Candidacy in doctoral program, 6
Career and Technical Education, Master of Arts in, 117
Career and Technical Education Courses, 117
Career English Language Center for International Students, 25
Career Services, Office of, 24
Certificate Programs, Graduate, 7, 8, 13, 15, 166
Alcohol and Drug Abuse, 147
Electroencephalography, 108
Electron Microscopy, 33
Gerontology, 149
Health Care Administration, 83
Hippotherapy, 153
Holistic Health Care, 150
Nonprofit Leadership and Administration, 84
Change of class load, 9

Change of student name, 10
Chemistry, Department of, 36
Chemistry, Doctor of Philosophy in, 37
Chemistry, Master of Arts in, 36
Chemistry Courses, 38
Children's Place Day Care Center, 24
Chinese Courses, 33
Clinical Psychology, concentration in, 78, 79
College, The Graduate, 163
College of Arts and Sciences, 31
College of Business, Haworth, 94
College of Education, 102
College of Engineering and Applied Sciences, 125
College of Fine Arts, 138
College of Health and Human Services, 145
Communication, Department of, 39
Communication, Master of Arts in, 39
Communication Courses, 40
Community Health Services, School of, 147
Alcohol and Drug Abuse, 147
Gerontology, 149
Health and Human Services, 149
Holistic Health Care, 150
Community Health Services Courses, 149
Comparative Religion, Department of, 42
Comparative Religion, Doctor of Philosophy in, 42
Comparative Religion, Master of Arts in, 42
Comparative Religion Courses, 42
Computational Mathematics, Master of Science in, 63
Computer Engineering, Master of Science in Engineering in, 127
Computer Science, Department of, 43
Computer Science, Doctor of Philosophy in, 43
Computer Science, Master of Science in, 43
Computer Science Courses, 44
Computing Services, University, 28
Conduct in research, 20
Construction Engineering, Materials Engineering, and Industrial Design, Department of, 125
Construction Management, Master of Science in, 125
Materials Science and Engineering, Master of Science in, 126
Construction Engineering, Materials Engineering, and Industrial Design Courses, 126
Construction Management, Master of Science in, 125
Continuing Education, Division of, 165
Continuous enrollment, 10, 13, 14, 15, 166
Counseling Psychology, Doctor of Philosophy in, 103
Counseling Psychology, Master of Arts in, 102
Counselor Education, Doctor of Philosophy in, 103
Counselor Education, Master of Arts in, 102
Counselor Education and Counseling Psychology, Department of, 102
Counselor Education and Counseling Psychology Courses, 104
Counseling and Testing Center, University, 28
Course numbering system, 9, 166
Creative Writing, Master of Fine Arts in, 49
Credit/No Credit grading system, 10, 167
Credit by examination, 11
Dance, Department of, 140
Dance Courses, 140
Degree programs, inside back cover
Development Administration, Master of, 74
Disabled Student Resources and Services, Office of, 24
Discrimination: Complaints and Grievance Procedure, 23
Dissertation, 164
Dissertation committee composition and role, 102, 167
División de Continuación Educación, 165
Doctoral degree,
Admission requirements, general, 7
Graduation requirements, general, 14
Drop/Add course, 9
Drug Abuse, Alcohol and, Certificate Program in, 147
Drug Abuse Courses, Alcohol and, 148
Dual enrollment, 8

Early Childhood Education, 107
Early Childhood Education, Master of Science in, 56
Earth Science (Teaching), Master of Science in, 56
Economics, Department of, 46
Economics, Master of Arts in, 46
Economics, Applied, Doctor of Philosophy in, 46
Economics, Applied, Master of Arts in, 46
Economics Courses, 47
Education, College of, 102
Education and Professional Development, Department of, 107
Education and Professional Development, Master of Arts in, 107
Early Childhood Education, 107
Elementary School Learning and Teaching, 107
Human Resources Development, 107
Reading, 108
Socio-Cultural Foundations and Educational Thought, 108
Teaching in the Middle School, 108
Education and Professional Development Courses, 109
Educational Evaluation, Measurement, and Research Design, Doctor of Philosophy in, 115
Educational Evaluation, Measurement, and Research Design, Master of Arts in, 114
Educational Leadership, Department of, 113
Educational Evaluation, Measurement, and Research Design, Doctor of Philosophy in, 115
Educational Evaluation, Measurement, and Research Design, Master of Arts in, 114
Educational Leadership, Doctor of Education in, 115
Educational Leadership, Master of Arts in, 113
Educational Leadership, Specialist in Education in, 114
Educational Leadership Courses, 115
Electrical and Computer Engineering, Department of, 127
Computer Engineering, Master of Science in Engineering in, 127
Electrical Engineering, Master of Science in Engineering in, 127
Electrical and Computer Engineering Courses, 128
Electrical Engineering, Master of Science in Engineering in, 127
Electromicroscopy, Certificate Program in, 33
Elementary School Learning and Teaching, 107
Engineering and Applied Sciences, College of, 125
Engineering Management, Master of Science in, 129
English, Department of, 48
English, Doctor of Philosophy in, 49
English, Master of Arts in, 49
English, Master of Fine Arts in, 49
English (Professional Writing), Master of Arts in, 49
English (Teaching), Master of Arts in, 49
English Courses, 50
Exercise Science, 119

Faculty, Graduate, 171
Faculty eligibility for graduate study, 7
Faith and Spiritual Development, Office of, 24
Family and Consumer Sciences, Department of, 117
Career and Technical Services, Master of Arts in, 117
Career and Technical Services Courses, 117
Family and Consumer Sciences, Master of Arts in, 117
Family and Consumer Sciences Courses, 118
Family Educational Rights and Privacy Act, 22
Fees, 9
Admission application, 6, 7
Graduation application, 12
Registration, 9
Student Health fee, 27
Fellowships, 16
Finance and Commercial Law, Department of, 98
Finance and Commercial Law Courses, 98
Finance Area, 98
General Area, 99
Law Area, 98
Financial Aid, Office of, 18
Financial assistance, 16
Assistantships, associateships, fellowships, 16
Dissertation Fellowship, 16
Financial aid and scholarships, types of, 18
Graduate College Fellowship, 16
Graduate Student Research and Travel Fund, 17
Historically Underrepresented Groups Program, 17
International Affairs Exchange Scholarships, 19
King/Chavez/Parks Future Faculty Fellowship, 16
Thurgood Marshall Assistantship, 16
Thurgood Marshall Professional Tuition Grant, 17
Fine Arts, College of, 138
Fine Arts, Master of, 138
Art, 138
Creative Writing, 49
Foreign Languages and Literatures, Department of, 51
French Courses, 52
German Courses, 52
Language Courses, 52
Latin Courses, 52
Latvian Courses, 52
Russian Courses, 53
Spanish, Master of Arts in, 53
Spanish Courses, 53
Foreign students, admission of, 6
French Courses, 52

dd

Geography, Department of, 54
Geography, Master of Arts in, 54
Geography, Teaching of, Master of Arts in, 54
Geography Courses, 54
Geology, Department of, 56
Earth Science, Master of Science in, 56
Earth Science (Teaching), Master of Science in, 56
Geology, Doctor of Philosophy in, 57
Geology, Master of Science in, 56
Geology Courses, 56
German Courses, 52
Gerontology, Certificate Program in, 149
Gerontology Courses, 149
Glossary of Terms, 168
Grade appeal procedure, 21
Grade change, 10
Grade point average, 10, 167
Grading system, 10
Graduate assistantships, policies governing, 16
Graduate Certificate Program, 166
Admission requirements, general, 8
Completion requirements, general, 13, 15

Graduate Certificate Programs, 7, 8, 13, 15, 166
Alcohol and Drug Abuse, 147
Educational Technology, 108
Electron Microscopy, 53
Gerontology, 149
Health Care Administration, 83
Hipotherapy, 163
Holistic Health Care, 150
Nonprofit Leadership and Administration, 84
Graduate College, The, 163
Graduate Studies Courses, 163
Graduate College Fellowship, 16
Graduate student permanent program of study, 10, 167
Graduate Student Research and Travel Fund, 17
Graduate Studies Courses, 163
Graduation procedures, 12
Degree program, 12
Nondegree Graduate Certificate Program, 13
Graduation requirements, degree program, 13
Doctoral, 14
Masters, 13
Second masters, 13
Specialist, 13

Haworth College of Business, 94
Health and Human Services, College of, 145
Health and Human Sciences Courses, 149
Health Care Administration, Certificate Program in, 83
Health Center, Sindieuse, 26
Health, Physical Education, and Recreation, Department of, 119
Physical Education, Master of Arts in, 119
Health, Physical Education, and Recreation Courses, 119
Hipotherapy, Certificate Program in, 153
Hipotherapy Courses, 154
History, Department of, 59
History, Doctor of Philosophy in, 60
History, Master of Arts in, 59
History Courses, 60
Holistic Health Care, Certificate Program in, 150
Holistic Health Care Courses, 150
Honor points, 10, 168
Housing, 24
Human Resources Development, 74, 107
Identification (ID) Card, 10
Industrial and Manufacturing Engineering, Department of, 128
Industrial Engineering, Doctor of Philosophy in, 130
Industrial Engineering, Master of Science in Engineering in, 128
Engineering Management, Master of Science in, 129
Manufacturing Engineering, Master of Science in, 129
Operations Research, Master of Science in, 129
Industrial and Manufacturing Engineering Courses, 130
Industrial/Organizational Psychology, concentration in, 78
International Affairs, Office of, 25
International Student Services, Office of, 25
Japanese Courses, 33
King/Chavez/Parks Future Faculty Fellowship, 16

Language Courses, 52
Latin Courses, 52
Latvian Courses, 52
Law Area Courses, 98
Libraries, University, 29
Management, Department of, 39
Management Courses, 99
University Computing Services, 28
University Counseling and Testing Services, 28
University Libraries, 29
University Mission, 5
University Officials, 181
University Ombudsman, 29

Vehicle registration, 30
Veterans' Assistance, 30

WMU Apartments, 25
WMU Residence Halls, 24
Women's Resources and Services, 30
Women's Studies, Center for, 93
Women's Studies Courses, 93
<table>
<thead>
<tr>
<th>Major</th>
<th>Degree</th>
<th>Emphasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountancy</td>
<td>M.S.A.</td>
<td>English, Creative Writing</td>
</tr>
<tr>
<td>Anthropology</td>
<td>M.A.</td>
<td>English Language</td>
</tr>
<tr>
<td>Applied Mathematics</td>
<td>M.S.</td>
<td>Literature</td>
</tr>
<tr>
<td>Art</td>
<td>M.A. F.A.</td>
<td>Pedagogy</td>
</tr>
<tr>
<td>Ceramics</td>
<td></td>
<td>Family and Consumer Sciences</td>
</tr>
<tr>
<td>Graphic Design</td>
<td></td>
<td>Dietetics and Human Nutrition</td>
</tr>
<tr>
<td>Painting/ Watercolor</td>
<td></td>
<td>Family Life Education</td>
</tr>
<tr>
<td>Photography</td>
<td></td>
<td>Textile and Apparel Technology</td>
</tr>
<tr>
<td>Printmaking</td>
<td></td>
<td>Geography</td>
</tr>
<tr>
<td>Sculpture</td>
<td></td>
<td>Geology</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>M.S. Ph.D.</td>
<td>Environmental and Surficial Geology</td>
</tr>
<tr>
<td>Biostatistics</td>
<td>M.S.</td>
<td>Geophysics</td>
</tr>
<tr>
<td>Business</td>
<td>M.S.</td>
<td>Hydrogeology</td>
</tr>
<tr>
<td>Business Administration</td>
<td>M.A.</td>
<td>Petrology-Mineralogy</td>
</tr>
<tr>
<td>Computer Information Systems</td>
<td></td>
<td>Sedimentary Geology-Paleontology</td>
</tr>
<tr>
<td>Economics</td>
<td></td>
<td>Structural Geology</td>
</tr>
<tr>
<td>Finance</td>
<td></td>
<td>Geology</td>
</tr>
<tr>
<td>General Business</td>
<td></td>
<td>History</td>
</tr>
<tr>
<td>International Business</td>
<td></td>
<td>General Option</td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td>Thesis Option</td>
</tr>
<tr>
<td>Marketing</td>
<td></td>
<td>Public History</td>
</tr>
<tr>
<td>Paper and Imaging Science</td>
<td></td>
<td>History</td>
</tr>
<tr>
<td>Career and Technical Education</td>
<td>Ph.D.</td>
<td>Industrial Engineering</td>
</tr>
<tr>
<td>Chemistry</td>
<td>M.A. Ph.D.</td>
<td>Manufacturing Engineering</td>
</tr>
<tr>
<td>Communication</td>
<td>M.A.</td>
<td>Materials Science and Engineering</td>
</tr>
<tr>
<td>Interpersonal Communication</td>
<td></td>
<td>Mathematics</td>
</tr>
<tr>
<td>Organizational Communication</td>
<td></td>
<td>Algebra</td>
</tr>
<tr>
<td>Telecommunication</td>
<td></td>
<td>Applied Mathematics</td>
</tr>
<tr>
<td>Comparative Religion</td>
<td>M.A. Ph.D.</td>
<td>Combinatorics</td>
</tr>
<tr>
<td>Computational Mathematics</td>
<td>M.S.</td>
<td>Geometry</td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>M.S.E.</td>
<td>Number Theory</td>
</tr>
<tr>
<td>Computer Science</td>
<td>M.S. Ph.D.</td>
<td>Real and Complex Analysis</td>
</tr>
<tr>
<td>Construction Management</td>
<td>M.S.</td>
<td>Statistics</td>
</tr>
<tr>
<td>Counseling Psychology</td>
<td>M.A. Ph.D.</td>
<td>Topology</td>
</tr>
<tr>
<td>Counseling Education</td>
<td>Ph.D.</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Community Counseling</td>
<td></td>
<td>Algebra</td>
</tr>
<tr>
<td>School Counseling</td>
<td></td>
<td>Approximation Theory</td>
</tr>
<tr>
<td>Rehabilitation Counseling</td>
<td></td>
<td>College Mathematics Teaching</td>
</tr>
<tr>
<td>Student Affairs in Higher Education</td>
<td>Ph.D.</td>
<td>Complex Analysis</td>
</tr>
<tr>
<td>Creative Writing</td>
<td>M.F.A.</td>
<td>Differential Equations</td>
</tr>
<tr>
<td>Development Administration</td>
<td>M.D.A.</td>
<td>Graph Theory</td>
</tr>
<tr>
<td>Earth Science</td>
<td>M.S.</td>
<td>Group Theory</td>
</tr>
<tr>
<td>Earth Science (Teaching)</td>
<td></td>
<td>Optimization Theory</td>
</tr>
<tr>
<td>Economics</td>
<td>M.A. Ph.D.</td>
<td>Statistics</td>
</tr>
<tr>
<td>Applied Economics</td>
<td></td>
<td>(See also Statistics, below)</td>
</tr>
<tr>
<td>Traditional/Research</td>
<td></td>
<td>Topological Graph Theory</td>
</tr>
<tr>
<td>Education and Professional Development</td>
<td></td>
<td>Mathematics Education</td>
</tr>
<tr>
<td>Early Childhood Education</td>
<td>M.A.</td>
<td>M.A. Ph.D.</td>
</tr>
<tr>
<td>Elementary School Learning and Teaching</td>
<td></td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>Human Resources Development</td>
<td></td>
<td>M.S.E. Ph.D.</td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td>Medicine</td>
</tr>
<tr>
<td>Socio-Cultural Foundations and Ed. Thought</td>
<td></td>
<td>Physician Assistant</td>
</tr>
<tr>
<td>Teaching in the Middle School</td>
<td></td>
<td>Medieval Studies</td>
</tr>
<tr>
<td>Educational Leadership</td>
<td>M.A.</td>
<td>Music</td>
</tr>
<tr>
<td>Central Office Administrator</td>
<td></td>
<td>Composition</td>
</tr>
<tr>
<td>Chief School Business Official</td>
<td></td>
<td>Conducting</td>
</tr>
<tr>
<td>Educational Evaluation, Measurement, and Research Design</td>
<td></td>
<td>Music Education</td>
</tr>
<tr>
<td>Elementary/Secondary Principal General</td>
<td></td>
<td>Music Therapy</td>
</tr>
<tr>
<td>Educational Leadership Ed.S. Ed.D.</td>
<td></td>
<td>Performance</td>
</tr>
<tr>
<td>Central Office Administrator</td>
<td></td>
<td>Occupational Therapy</td>
</tr>
<tr>
<td>General Superintendent</td>
<td></td>
<td>Operations Research</td>
</tr>
<tr>
<td>Educational Leadership Ph.D.</td>
<td></td>
<td>Orientation &amp; Mobility</td>
</tr>
<tr>
<td>Educational Evaluation, Measurement, and Research Design</td>
<td></td>
<td>For Children Who are Visually Impaired</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>M.S.E.</td>
<td>Gerontology</td>
</tr>
<tr>
<td>Engineering Management</td>
<td>M.S.</td>
<td>Low Vision</td>
</tr>
<tr>
<td>English</td>
<td>M.A.</td>
<td>Standard Program</td>
</tr>
<tr>
<td>Emphasis on Professional Writing</td>
<td></td>
<td>Paper and Imaging Science</td>
</tr>
<tr>
<td>Emphasis on Teaching</td>
<td></td>
<td>and Engineering</td>
</tr>
<tr>
<td>Literature</td>
<td></td>
<td>Philosophy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physical Education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Athletic Training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exercise Science</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pedagogy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Special Physical Education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sports Studies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Theoretical</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Experimental</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Computer and Instrumentation</td>
</tr>
</tbody>
</table>

**GRADUATE CERTIFICATE PROGRAMS**

- Alcohol and Drug Abuse
- Educational Technology
- Electron Microscopy
- Gerontology
- Health Care Administration
- Hypnotherapy
- Holistic Health Care
- Nonprofit Leadership and Administration