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1984

## Bulletin Western Michigan University: The Graduate Catalog 1984-1986

Western Michigan University

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BULLETIN  
WESTERN  
MICHIGAN  
UNIVERSITY

1984-86  
THE  
GRADUATE  
COLLEGE



Supplement to

# Bulletin Western Michigan University



**The Graduate College Catalog  
1984 • 1986  
Kalamazoo, Michigan**

Supplement (June 1985) to  
*Bulletin—Western Michigan University*  
(USPS 078-980)  
Vol. 79, No. 4, June 1984

## DEPARTMENT NAMES

Since the last printing of *The Graduate College Catalog, 1984-1986*, two academic departments have changed their names and the corresponding prefix for their departmental courses. One school has closed. The changes are listed below.

**Biology and Biomedical Sciences (BIOL/BMED)** replaces the names of two departments which have merged: Biology and Biomedical Sciences.

**Engineering Technology (ET)** replaces the names of two departments which have merged: Transportation Technology and Industrial Technology and Education.

**School of Library and Information Science (LIB)** has closed and no longer offers courses or programs.

## PROGRAMS

Since the last printing of *The Graduate College Catalog, 1984-1986*, two programs have been modified and five deleted. These program changes are listed below. For more complete information about the programs, consult the adviser in the appropriate department.

## Library and Information Science

Master of Science in Librarianship (deleted)

Master of Science in Information Science (deleted)

Master of Library Administration (deleted)

## Mathematics

Master of Arts in Mathematics Education (replaces the program Master of Arts in Teaching of Mathematics and offers new program requirements)

## Music

Master of Music in Performance (replaces the program name, Master of Music in Applied Music)

Master of Music in Music Theory (deleted)

Master of Music in Musicology (deleted)

## COURSES

Since the last printing of *The Graduate College Catalog, 1984-1986*, a number of graduate level courses have been added, modified, or deleted. These courses are listed below, under the major heading of their respective college and in alphabetical order by department name. The listing includes, at minimum, the department prefix, the course number, the course title, and an indication (in parentheses) whether the course is "new," "modified," or "deleted." For more complete information, consult the graduate adviser in the appropriate department.

## College of Arts and Sciences

### Biology (BIOL)

530 Environmental Education (deleted)

562 Vertebrate Zoology (deleted)

### Chemistry (CHEM)

612 Topics in Inorganic Chemistry (deleted)

629 Topics in Analytical Chemistry (deleted)

639 Topics in Advanced Physical Chemistry (deleted)

659 Topics in Biochemistry (deleted)

669 Topics in Organic Chemistry (deleted)

### Communication Arts and Sciences (CAS)

510 Studies in Oral Interpretation: Variable Topics (deleted)

### Computer Science (CS)

506 Scientific Programming (modified)

581 Compiler Design, 3 hrs. (new)

595 Advanced Topics in Computer and Information Science, 1-3 hrs. (new)

### Economics (ECON)

508 Institutional Economics (deleted)

526 The Urban Economy (deleted)

612 Labor Union Structure and Practice (deleted)

### English (ENGL)

676 Early English (deleted)

### Geography (GEOG)

514 U.S.S.R. and Eastern Europe (deleted)

515 Southeast Asia (deleted)

516 Middle East and North Africa (deleted)

517 Middle and South Africa (deleted)

568 Quantitative Methodology (modified)

### Geology (GEOL)

505 Regional Geomorphology of the United States (deleted)

## History (HIST)

500 Studies in History (modified)

505 Local and Regional History (modified)

521 Era of American Revolution, 1763-1789 (modified)

522 The Age of Democracy and Expansion, 1789-1848 (modified)

523 The Ancient West (modified)

524 The Civil War and Reconstruction (modified)

559 The French Revolution and Napoleon (modified)

560 Nineteenth Century Europe (modified)

562 Hitler's Europe, 1914-1945 (modified)

563 Europe Since 1945 (modified)

591 Topics in Theory and Practice (modified)

599 Internship (modified)

## Languages and Linguistics

### French (FREN)

550 Independent Study in French (modified)

### German (GER)

528 Survey of German Literature (modified)

529 Survey of German Literature (modified)

550 Independent Study in German (modified)

560 Studies in German Literature (modified)

### Latin (LAT)

550 Independent Study in Latin (modified)

557 Teaching of Latin (modified)

### Latvian (LATV)

550 Independent Study in Latvian (modified)

### Linguistics (LING)

515 Methods of Teaching Critical Languages (modified)

598 Readings in Linguistics (modified)

### Russian (RUSS)

552 Advanced Russian Composition and Conversation (deleted)

560 Studies in Russian Literature (deleted)

### Spanish (SPAN)

550 Independent Study in Spanish (modified)

## Mathematics (MATH)

551 Participation in Teaching Secondary Mathematics (deleted)

674 Theory of Ordinary Differential Equations (deleted)

## Philosophy (PHIL)

510 Professional Ethics, 4 hrs. (new)

570 Philosophical Topics, 1-4 hrs. (new)

## Psychology (PSY)

530 Statistics for the Behavioral and Health Sciences (modified)

614 Motivation and Emotion (deleted)

732 Doctoral Clinical Internship, 1-4 hrs. (new)

## Sociology (SOC)

- 525 Social Psychology of Education (deleted)
- 532 Introduction to Comparative Sociology (deleted)
- 553 Urban Sociology (deleted)
- 577 Sociology of Learning (deleted)
- 595 Sociology Enterprises (deleted)

## College of Business

### Finance and Commercial Law (FCL)

- 609 Law and the Administration of Higher Educational Institutions (deleted)
- 660 Legal Problems Affecting the Health Care System, 3 hrs. (new)

## Management (MGMT)

- 630 Systems Design and Evaluation (deleted)

## College of Education

### Counseling and Personnel (C-P)

- 732 Doctoral Clinical Internship, 1-4 hrs. (new)

### Education and Professional Development (ED)

- 508 Parent Education (modified)
- 517 Reading in the Content Area: Social Studies (deleted)
- 518 Reading in the Content Area: Science, Mathematics, Industrial Arts, etc. (deleted)
- 520 Implications of Piaget's Research for Curriculum Design (deleted)
- 530 Introduction to Career Education (deleted)
- 535 Introduction to Teaching the Disadvantaged (deleted)
- 610 Guiding Child Development in the Elementary School (deleted)
- 613 Early Childhood Problems and the Teacher (deleted)
- 644 School Media Specialist Seminar (deleted)
- 649 Problems of College and Adult Reading (deleted)
- 669 Strategies in Teaching: Variable Topics (deleted)
- 688 Diagnosis and Treatment of Secondary Reading Problems (deleted)

### Health, Physical Education, and Recreation (PEGR)

- 610 Health Education in the Community (deleted)
- 631 Advanced Treatment of Athletic Injuries (deleted)
- 640 Rhythms in Elementary Education (deleted)
- 680 Advanced Studies in Athletic Training (modified)

## Special Education (SPED)

- 502 Educational Provisions for the Learning Disabled (deleted)
- 527 Exceptional Learners in Regular Elementary Programs, 3 hrs. (new)
- 529 Exceptional Learners in Regular Secondary Programs, 3 hrs. (new)

## College of Engineering and Applied Sciences

### Consumer Resources and Technology (CRT)

- 590 Project/Problems in Home Economics (modified)
- 608 Seminar in Textiles and Clothing (deleted)
- 612 Seminar in Foods and Nutrition (deleted)
- 618 Teaching of Specific Subjects in Home Economics (modified)
- 640 Supervision of Home Economics (deleted)
- 644 Curriculum Planning and Evaluation in Home Economics (deleted)
- 662 Seminar in Family Relationships (deleted)

### Electrical Engineering (EE)

- 561 Electromagnetic Fields (deleted)

### Industrial Engineering (IEGM)

- 502 Industrial Supervision (deleted)

### Industrial Technology and Education (ITE)

- 500 Furniture Production (modified)
- 502 Wood Technology (modified)
- 505 Problems in Woodworking (modified)
- 520 Architectural Graphics (modified)
- 522 Laboratory Practices in Drafting (modified)
- 523 Advanced Drafting Practice (deleted)
- 524 Commercial Architectural Design (modified)
- 525 Architectural Perspective and Rendering (deleted)
- 530 Research in Machine Shop Practices (deleted)
- 538 Problems in Metalworking (deleted)
- 547 Modern Technological Practices (modified)
- 551 Halftone Photo Processes (modified)
- 552 Estimating (modified)
- 553 Printing Production Management (modified)
- 560 Problems in Electricity/Electronics (deleted)
- 561 Industrial Practices in Electricity/Electronics (deleted)
- 570 Arts and Crafts Techniques (deleted)
- 572 Metric Conversion (deleted)
- 573 Mechanics and Conditioning of Equipment (modified)
- 575 General Industrial Arts Laboratory Organization (deleted)
- 578 Plastics Technology (modified)
- 582 Applied Fluid Power (deleted)
- 593 Arts and Crafts (deleted)
- 612 Studies in Technology (modified)

- 616 Occupational Selection and Training (modified)
- 646 Teaching Problems in Industrial Education (modified)
- 650 Advanced Problems in Graphic Arts (deleted)

## Mechanical Engineering (ME)

- 521 Welding Design Analysis (modified)
- 533 Industrial Ventilation (deleted)
- 584 Casting Design (modified)
- 630 Advanced Fluid Dynamics (deleted)

## College of Fine Arts

### Art (ART)

- 510 Drawing (modified)
- 530 Ceramics (modified)
- 531 Sculpture (modified)
- 534 Textiles (modified)
- 535 Multi-Media Art (modified)
- 538 Jewelry (modified)
- 539 Metalsmithing (deleted)
- 540 Painting IV (modified)
- 541 Printmaking Workshop (modified)
- 542 Watercolor (modified)
- 548 Photography (modified)
- 594 History of Afro-American Art (deleted)
- 659 Advanced Art Education (deleted)
- 660 Related Arts (deleted)

## Music (MUS)

- 519 Vocal Chamber Ensemble (deleted)
- 556 Advanced Jazz Arranging (modified)
- 559 Advanced Jazz Improvisation II (modified)
- 565 Jazz Arranging (deleted)
- 569 Jazz Improvisation (deleted)
- 583 Jazz History and Literature (modified)
- 585 Medieval Music, 2 hrs. (new)
- 586 Renaissance Music, 2 hrs. (new)
- 660 Advanced Counterpoint (deleted)
- 661 Modal Counterpoint (deleted)
- 665 Band Arranging (deleted)
- 667 Advanced Orchestration (deleted)
- 672 Medieval Music (deleted)
- 673 Renaissance Music (deleted)

## College of Health and Human Services

### Occupational Therapy (OT)

- 597 Studies in Occupational Therapy (modified)

## Social Work (SWRK)

- 638 Psychopathology for Social Work Practice (modified)
- 676 Field Education in Social Treatment (modified)
- 678 Advanced Field Education in Social Treatment (modified)

## The Graduate College

### Graduate Studies (GRAD)

- 732 Doctoral Clinical Internship, 1-4 hrs. (new)



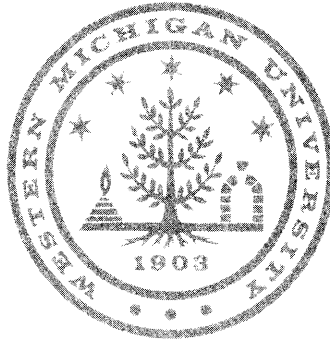
# Bulletin Western Michigan University

1984 • 1986

**The Graduate College**

**Kalamazoo, Michigan 49008**

**Telephone: 616/383-1660**



Western Michigan University is located in Kalamazoo, midway between Chicago and Detroit. Three major highways and numerous bus routes connect the city with other midwestern cities. The population of Kalamazoo is 79,802 and of Kalamazoo County is 211,921.

The provisions of this catalog are not an irrevocable contract between the student and the University. The University reserves the right to change any provision or requirement at any time within the student's attendance. The University further reserves the right to ask the student to withdraw for cause at any time.

It is the policy of Western Michigan University not to discriminate on the basis of race, sex, age, color, national origin, religion, or handicap in its educational programs, activities, admissions, or employment policies as required by Title IX of the 1972 Education Amendments, Executive Order 11246 and Executive Order 11375, and Section 504 of the Rehabilitation Act of 1973.

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

The cover artwork is a "computerized" treatment from a black and white photograph of Sprau Tower. The background is a scaled, mirror image that was also reduced in the vertical direction and tinted. The foreground image is a rectangularly deresolutionized digitization of the same black and white photograph. The work was completed on the in-house computer graphics system of Digital Image Corporation of Grand Rapids, Michigan. Phototypesetting was completed by J-M Graphics of Grand Rapids, Michigan, as produced on and telecommunicated from a word processing system in the Office of University Publications. Printing and finishing work was produced by Speaker-Hines & Thomas, Inc. of Lansing, Michigan. Cover and text format for this catalog was designed by the Office of University Publications, David H. Smith, Director.

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## Board of Trustees

*Appointment expiration date*

Robert D. Caine,  
Kalamazoo  
*Term Expires December 31, 1984*

Gayl F. Werme,  
Portage  
*Term Expires December 31, 1984*

Fred W. Adams,  
Grosse Pointe  
*Term Expires December 31, 1986*

Charles H. Ludlow,  
Kalamazoo  
*Term Expires December 31, 1986*

Alfred L. Edwards,  
Ann Arbor  
*Term Expires December 31, 1988*

Maury E. Parfet,  
Hickory Corners  
*Term Expires December 31, 1988*

Carol Waszekiewicz,  
Kalamazoo  
*Term Expires December 31, 1990*

Geneva Jones Williams,  
Detroit  
*Term Expires December 31, 1990*

John T. Bernhard,  
University President  
*Ex-Officio*

## Officers

Alfred L. Edwards, Chairman

Charles H. Ludlow, Vice Chairman

Chauncey J. Brinn, Secretary

Robert B. Wetnight, Treasurer  
and Assistant Secretary

Robert M. Beam, Assistant Treasurer

## Administrative Officers

John T. Bernhard, President

Philip S. Denenfeld, Vice President for  
Academic Affairs

L. Michael Moskovis, Associate President for  
Academic Affairs

Susan B. Hannah, Assistant Vice President  
for Academic Affairs

Robert B. Wetnight, Vice President for  
Finance

Thomas E. Coyne, Vice President for Student  
Services

Chauncey Brinn, Vice President for University  
Relations

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University Relations and Executive  
Assistant to the President

Russel Gabier, Assistant Vice President for  
University Relations

Kenneth M. Smythe, University Attorney

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Director of Auxiliary Enterprises

William J. Kowalski, Assistant Vice President  
(Facilities Engineering)

A. Bruce Clarke, Dean, College of Arts and  
Sciences

Darrell G. Jones, Dean, College of Business

Richard T. Burke, Dean, Division of  
Continuing Education

John E. Sandberg, Dean, College of  
Education

James B. Matthews, Dean, College of  
Engineering and Applied Sciences

Robert H. Luscombe, Dean, College of Fine  
Arts

Norman C. Greenberg, Dean, College of  
General Studies

Laurel A. Grotzinger, Dean/Chief Research  
Officer, The Graduate College

William A. Burian, Dean, College of Health  
and Human Services

## The Graduate College

Laurel A. Grotzinger, Dean and Chief  
Research Officer

Rollin Douma, Associate Dean for Program  
Development

Sid Dykstra, Associate Dean for Student  
Services

Conrad Katzenmeyer, Associate Dean for  
Research and Sponsored Programs

Lorene Farrand, Administrative Assistant to  
the Dean

Billie Donoghue, Administrative Assistant for  
Program Development and Director,  
Admissions and Records

# Calendar of Events

## Spring Session

Final Registration  
Classes Begin  
Final Day to Add Classes  
Final Day to Drop Classes  
Applications for Admission to The Graduate College Due for the Summer Session  
Diploma Applications Due for August Commencement  
Memorial Day Recess  
Session Ends  
Approved Theses, Projects, and Dissertations Due in the Graduate College for Summer Commencement

## Summer Session

Final Registration  
Classes Begin  
Applications for Admission to The Graduate College Due for Fall Semester  
Final Day to Add Classes  
Final Day to Drop Classes  
Independence Day Recess  
Approved Theses, Projects, and Dissertations Due in The Graduate College for Summer Commencement  
Sessions Ends  
Commencement (6 P.M.)

## Fall Semester

Advising Day  
Final Registration  
Classes Begin  
Labor Day Recess  
Final Day to Add Classes  
Final Day to Drop Classes  
Diploma Applications Due for December Commencement  
Classes Dismissed 2 P.M. Friday Only (Labs excepted)  
Homecoming (Saturday classes will meet)  
Applications for Admission to The Graduate College Due for Winter Semester  
Thanksgiving Day Recess Begins at 12 Noon  
Classes Resume  
Approved Theses, Projects, and Dissertations Due in The Graduate College for Fall Commencement  
Final Exam Week  
Semester Ends  
Commencement (2 P.M.)

## Winter Semester

Final Registration  
Classes Begin  
Final Day to Add Classes  
Final Day to Drop Classes  
Diploma Applications Due for April Commencement  
Applications for Fellowships and Associateships  
Applications for Admission to The Graduate College Due for Spring Session  
Semester Recess  
Classes Resume  
Recess (all day)  
Classes Resume  
Approved Theses, Projects, and Dissertations Due in The Graduate College for Winter Commencement  
Final Exam Week  
Semester Ends  
Commencement (2 P.M.)

## 1984

April 28, 1984  
April 30, 1984  
See Class Schedule  
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May 1, 1984  
June 1, 1984  
May 28, 1984  
June 20, 1984

August 3, 1984

## 1984

June 26, 1984  
June 27, 1984

July 1, 1984  
See Class Schedule  
See Class Schedule  
July 4, 1984

August 3, 1984  
August 17, 1984  
August 17, 1984

## 1984

August 27, 1984  
August 28, 1984  
August 29, 1984  
September 3, 1984  
See Class Schedule  
See Class Schedule  
October 1, 1984  
October 5, 1984  
October 6, 1984

November 1, 1984  
November 21, 1984  
November 26, 1984

November 30, 1984  
December 10-14, 1984  
December 15, 1984  
December 15, 1984

## 1985

January 5, 1985  
January 7, 1985  
See Class Schedule  
See Class Schedule  
February 1, 1985  
February 15, 1985

March 1, 1985  
March 4, 1985  
March 11, 1985  
April 5, 1985  
April 8, 1985

April 12, 1985  
April 22-26, 1985  
April 27, 1985  
April 27, 1985

## 1985

May 4, 1985  
May 6, 1985  
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See Class Schedule

May 1, 1985  
June 1, 1985  
May 27, 1985  
June 26, 1985

August 9, 1985

## 1985

July 2, 1985  
July 3, 1985

July 1, 1985  
See Class Schedule  
See Class Schedule  
July 4, 1985

August 9, 1985  
August 23, 1985  
August 23, 1985

## 1985

September 3, 1985  
September 4, 1985  
September 5, 1985

See Class Schedule  
See Class Schedule  
October 1, 1985  
October 4, 1985  
October 5, 1985

November 1, 1985  
November 27, 1985  
December 2, 1985

December 6, 1985  
December 16-20, 1985  
December 21, 1985  
December 21, 1985

## 1986

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January 6, 1986  
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See Class Schedule  
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February 15, 1986

March 1, 1986  
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March 10, 1986  
March 28, 1986  
March 31, 1986

April 11, 1986  
April 21-25, 1986  
April 26, 1986  
April 26, 1986

## 1986

May 3, 1986  
May 5, 1986  
See Class Schedule  
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June 1, 1986  
May 26, 1986  
June 25, 1986

August 8, 1986

## 1986

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July 2, 1986

July 1, 1986  
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July 4, 1986

August 8, 1986  
August 22, 1986  
August 22, 1986

## 1986

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September 3, 1986  
September 4, 1986

See Class Schedule  
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October 1, 1986  
October 17, 1986  
October 18, 1986

November 1, 1986  
November 26, 1986  
December 1, 1986

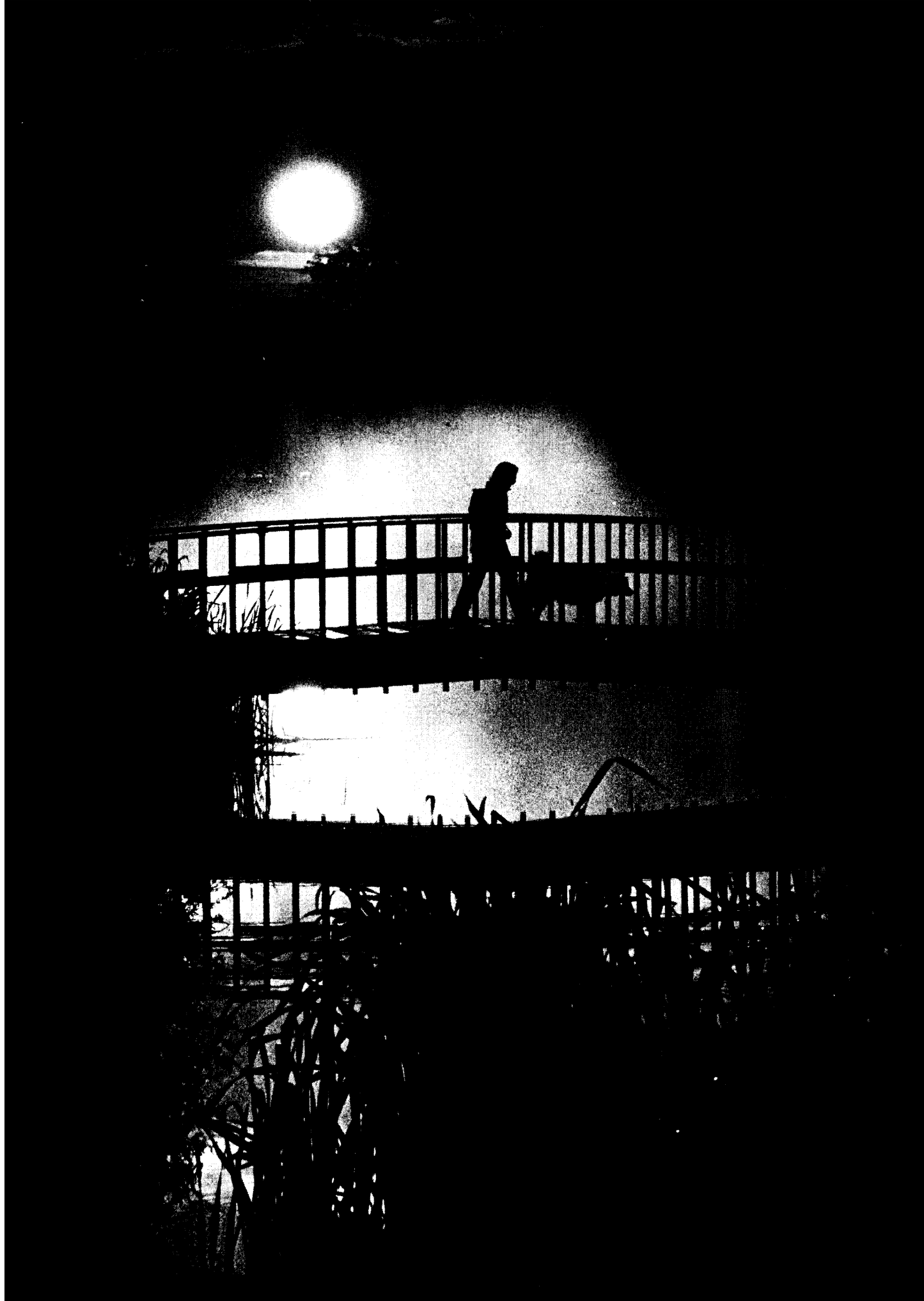
December 5, 1986  
December 15-19, 1986  
December 20, 1986  
December 20, 1986

## 1987

January 3, 1987  
January 5, 1987  
See Class Schedule  
See Class Schedule  
February 1, 1987  
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April 20, 1987

April 10, 1987  
April 20-24, 1987  
April 25, 1987  
April 25, 1987



# The University and Graduate Education

Western Michigan University was established by the State Legislature in 1903. Although the University has continued to meet its initial obligation, the preparation of teachers, the growing educational needs of the state have changed the role of the institution to that of a multi-purpose university. Students today may enroll in graduate programs in the Colleges of Arts and Sciences, Business, Education, Engineering and Applied Sciences, Fine Arts, and Health and Human Services, as well as in the School of Library and Information Science. The University's enrollment for Fall 1983, was 18,542, with 3,211 enrolled in seventy graduate programs.

Graduate programs were first offered in 1938 in cooperation with the University of Michigan. This cooperative program continued until 1952, when the State Board of Education authorized Western to grant its own master's degree. With rapidly increasing enrollments, new master's degree programs were initiated. Today Western Michigan University has sixty master's degree programs. Master of Arts degrees are awarded in sixteen programs in the following general categories within the College of Education: Counseling and Personnel, Curricula in Teaching, Early Childhood Education, Educational Leadership, Physical Education, Reading, Special Education, Teaching in the Community College, Teaching the Economically and Educationally Disadvantaged, Teaching in the Elementary School, and Teaching in the Middle or Junior High School. Eighteen other graduate programs at Western also lead to the Master of Arts degree: Anthropology, Art, Biology, Blind Rehabilitation, Chemistry, Communication Arts and Sciences, Economics, English, Geography, History, Home Economics, Mathematics, Medieval Studies, Physics, Political Science, Psychology, Sociology, and Speech Pathology and Audiology. The University also offers the Master of Science degree in Accountancy, Applied Mathematics, Biomedical Sciences, Biostatistics, Business, Computer Science, Earth Science, Geology, Information Science, Occupational Therapy, Librarianship, Manufacturing Administration, Operations Research, Paper Science and Engineering, and Statistics, as well as the Master of Business Administration, Master of Development Administration, Master of Fine Arts, Master of Library Administration, Master of Music, Master of Public Administration, and Master of Social Work degrees.

In 1960 programs leading to the Specialist in Education degree were introduced. This degree is offered in Educational Leadership and School Psychology.

Doctoral programs were initiated in 1966 and were fully accredited by the North Central Association in 1971. Western Michigan University offers doctoral programs in eight areas. The Doctor of Education degree is offered in Counseling and Personnel, Educational Leadership, and Special Education; the Doctor of Philosophy degree is offered in Mathematics, Psychology, Science Education, and Sociology. The newest doctoral program, initiated in 1980, is the Doctor of Public Administration.

## Section I General Policies and Procedures

### Admission Dates

Admission to The Graduate College is required of each student planning to secure a degree beyond the baccalaureate. Applications for admission should be submitted by the following dates:

Fall Semester July 1  
Winter Semester November 1  
Spring Session March 1  
Summer Session May 1

A foreign student must apply for admission by March 15 for the Fall Semester, and September 15 for the Winter Semester.

Since applications are considered on a first-come, first-served basis, it is advisable to apply well before these deadlines because admission to some programs closes early as openings are filled. Also, some programs require the results of entrance examinations which are scheduled in advance of these deadlines.

A graduate student retains active admission status for one year from the time of admission, as well as one year from the date of last enrollment in The Graduate College.

A graduate student who no longer has active admission status may request it by submitting a re-entry application to The Graduate College at least one month before registering for classes.

### Admission Application Fee

A non-refundable application fee of \$15 must accompany each application for admission to The Graduate College.

### Admission Procedures

Admission to The Graduate College is secured through the following steps:

1. Request an "Application for Admission" from The Graduate College.
2. Determine from *The Graduate College Bulletin* the degree sought and the curriculum to be studied.
3. Return the "Application for Admission" and the \$15 application fee before the published admission dates.
4. Request the Registrar of each college previously attended, except Western Michigan University, to send an official transcript of credits to The Graduate College. The transcripts are due in The Graduate College prior to the published admission dates.

### Types of Admission

The admission of students to all graduate programs is a two-step process. The first step involves admission to The Graduate College; the second involves admission into a program by a department or unit. Both

steps must be taken before admission is granted; one step alone does not lead to admission. The process is followed by a student acquiring either regular degree admission or probationary non-degree admission.

#### Regular admission—Degree status

1. Admission is granted to the student who has a bachelor's degree with an acceptable academic record, who has passed the required entrance examinations, and who has met the admission requirements of the program the student plans to pursue. Acceptance to a definite program of study leading to a degree is dependent upon the approval of the department or unit in which the student plans to study. For further information see the admission requirements of that graduate program.
2. Admission with reservation is granted to the student with a bachelor's degree who has fulfilled the general requirements for admission but may not have fulfilled the specific requirements of a particular program. Such admission is also granted to the student during the final semester or session of enrollment in an undergraduate program if the academic record is satisfactory.
3. Dual enrollment admission is granted to the senior at Western Michigan University who has an acceptable academic record, who has applied for graduation, and who has no more than six 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, to encompass a full academic program. Such dual enrollment is permitted for one semester only. Graduate credit thus earned may not be used to meet undergraduate requirements. A student must request dual enrollee status on the application for regular admission to a degree program.

#### Probationary admission— Non-degree status

Probationary admission on non-degree status is granted to the student with a bachelor's degree and a somewhat less than satisfactory academic record or anyone having a bachelor's degree from a non-accredited college. A point hour ratio of at least 2.3 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 non-degree status may establish eligibility for regular admission to a degree program by completing the specified departmental prerequisites, by securing grades of "B" or better in the first six graduate credits, by passing the English Qualifying Examination, and by securing departmental approval.

### Permission To Take Classes

A student with a bachelor's degree who wishes to enroll in courses, but does not plan to pursue a program leading to a graduate degree, or is not eligible for admission, may enroll in certain classes with Permission to Take Classes (PTC) status. This status also is granted to a student enrolled in a certificate program and to a guest or visiting student from another university. PTC status does not constitute admission to The Graduate College, and the courses taken under this status might not apply to a particular degree program. For the student eligible for admission, a

maximum of nine credits taken under PTC status may be considered in any degree program if the student should later decide to apply for admission to a program of study leading to a graduate degree. PTC status is not available to students with dual enrollment.

### Admission of Foreign Students

A foreign student with a degree from an institution in the United States will be expected to meet the same academic standards required of U.S. citizens for degree admission. Additionally, all foreign applicants must establish that they have the financial capacity to cover the educational and living expenses which are incurred by a typical non-resident graduate student. Foreign student applicants who present educational backgrounds which have been acquired in another country must also meet the minimum admission standards established by The Graduate College as determined by the Office of International Student Services (OISS). And, when the first or primary language of a foreign applicant is other than English, the applicant will be required to demonstrate competence in English. Those non-native speakers of English who have successfully completed at least one year of full-time academic study at another accredited U.S. institution will be presumed adequately proficient in English to undertake full-time graduate study at Western. Other non-native speakers must demonstrate their English competence by submitting the results of a recognized English proficiency test. The University generally accepts scores from the Test of English as a Foreign Language (TOEFL) and the Michigan Test of English Language Proficiency (MTELP) as a basis for determining English language competence (see section on Office of International Student Services for specific score requirements).

The applications of prospective foreign graduate students whose qualifications meet the minimum admission standards of The Graduate College and the OISS will be referred for consideration to the academic department in which the student hopes to study. Foreign students wishing to apply for admission to Western may secure an application from the OISS.

### Senior Citizen Status

A special status for persons sixty-two years of age or older has been approved by the Board of Trustees providing senior citizens with special privileges and opportunities for study at Western Michigan University. Individuals qualifying should seek Permission to Take Classes status prior to the final day of registration. The permit to register for those requesting this status will be labeled "Senior Citizen" and will enable the student to enroll in courses without charge on the final day of registration.

Such students will be issued an ID entitling them to the use of libraries and other academic facilities. The ID, however, does not make available to the student the use of non-academic facilities such as Health Services.

### Eligibility Of Faculty For Graduate Study

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

### Michigan Intercollegiate Graduate Studies (MIGS)

The Michigan Intercollegiate Graduate Studies (MIGS) program 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. 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 a departmental officer and MIGS liaison officer 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 adviser or the MIGS liaison officer in The Graduate College.

### Registration

Registration will be held according to the schedule and procedures given in the *Schedule of Classes*, which is published prior to each semester and session. This *Schedule* will be sent upon request and should be consulted for details regarding the time and place of graduate classes. A student is encouraged to register as early as possible to secure the classes of choice. Students are encouraged to register during the advance registration period whenever possible, since classes with low enrollment may be cancelled in order to reassign staff to areas of heavier student demand.

Any changes in a student's schedule must be made in accordance with the procedures announced in the *Schedule of Classes*. A student may not withdraw from graduate courses beyond the midpoint of each semester or session.

### Student Load

The maximum number of semester hours that may be elected by a full-time graduate student is fifteen in a semester and eight in a session. Any enrollment in excess of these maximums must be made with the written approval of the student's graduate adviser and be reviewed by The Graduate College. The normal full-time load for a graduate stu-

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dent during the Fall and Winter semesters is three or four courses (9-13 hrs.) with at least nine hours needed to be classified as a full-time student. During the Spring and Summer sessions, the normal full-time load is two courses (5-8 hrs.) with at least five hours needed to be classified as a full-time student. The normal load for a student with a Graduate Assistantship or Associateship is two or three courses (6-9 hrs.) An employed student should reduce the course load accordingly. The normal load for a student employed full time is one course per semester or session.

### Course Numbering System

Two levels of courses are offered in The Graduate College: (1) Those numbered 600 and above are open only to graduate students, and (2) those numbered 500 through 599 are open to both advanced undergraduate and graduate students. In all courses open to both undergraduates and graduates, a distinction is made between the work expected from graduate students and that from undergraduates. The work expected from graduates may be of higher quality or greater quantity or both.

No graduate credit is given for correspondence work.

### Repeated Courses

Any course in which a student may have been enrolled more than once is considered a repeated course. A grade must be presented for each course. With the program adviser's approval, the grade and credit earned in the repeated course may count toward curricular or degree requirements. All courses taken, even if they have been repeated, will be counted in grade point averages. Grade point averages will be adjusted for repeated courses, if necessary, only at the time of graduation. The first election is not removed from the student's record.

### Undergraduate Credit In A Graduate Program

In certain instances, an adviser 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 adviser and The Graduate College prior to registering for these courses and then earns a grade of "B" or better. Such courses are to be taken in cognate areas outside the student's department or as part of an interdisciplinary program. These courses earn undergraduate credit which is not computed into the graduate point-hour ratio. The rate of the tuition fee for these courses is the same as the rate for undergraduate credit.

### Graduate Credit By Examination

Each academic unit responsible for offering a graduate program may, with the approval of its Dean, establish a procedure for granting credit by examination for any course numbered 500 through 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 program and who have current enrollment.
6. Credit by examination earned at another university may transfer in accordance with the current policies of The Graduate College governing the transfer of credit.
7. Examination fees shall be assessed by the academic unit. It is expected that students will pay the examination fee in advance of taking the examination.

### Transfer Credit

**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 institutions accredited for graduate study and are of "B" grade or better. The student's average for all graduate work taken at another institution must also be "B" or better.
2. The Graduate College approves the credits for transfer.
3. The student's adviser verifies that the credits contribute to the student's program of study.
4. The credit is earned within a six year period prior to graduation.

**Second master's degree:** A student wishing to secure a second master's degree may include a maximum of ten credits from first graduate degree program. The second degree program must fulfill all the other usual requirements for a master's degree, except the English Qualifying Examination.

**Specialist degree:** 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 credits. A student without a master's degree who completes the credits for a specialist degree at Western Michigan University may transfer up to twelve credits.

### Residency

The following residency policy was adopted by the Board of Trustees of Western Michigan University on July 20, 1973:

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

2. The residence of a student who is a minor follows that of his or her parents or legal guardians, except that a minor student who comes to the institution from another state or country cannot be registered as a resident of this state on the basis of having a resident of this state as a guardian except on permission of the Board of Trustees.
3. No student 18 years of age, or older, shall be eligible for classification as a resident unless the student shall be domiciled in Michigan and has resided in Michigan continuously for not less than one year immediately preceding the first day of classes of the term for which classification is sought.
4. A student shall not be considered domiciled in Michigan unless the student is in continuous physical residence in this state for one year and intends to make Michigan his or her permanent home, not only while in attendance at the University but thereafter as well, and has no domicile elsewhere.
5. The residence of a student who otherwise would be classified as a non-resident will follow that of his or her spouse if the spouse would qualify as a resident for tuition purposes.
6. An alien lawfully permitted for permanent residence in the United States and who has obtained his/her permanent visa, his/her wife and minor children, who have met the other requirements herein for residence, may register as residents of this state.

### Student Fees

During 1983-1984, the following fee schedule was used for graduate study on campus:

**Resident**, \$61.50 per credit hour  
**Non-Resident**, \$149.75 per credit hour  
The above rates include \$2.75 per credit hour facility fee for all students.

The fee for graduate study in courses offered off campus through the Division of Continuing Education was \$71.50 per graduate credit hour for Michigan residents and \$150.75 for non-residents.

**Resident Study:** Any graduate student who has previously registered for and received a grade of "Incomplete" for Master's Thesis, Specialist Project, or Doctoral Dissertation and wishes to use the services of University staff and facilities to complete the work necessary to remove the "Incomplete" must, if not otherwise enrolled, pay a resident study fee of \$25.00 for the semester, or \$12.50 for a session.

**Graduate appointees:** Appointees are entitled to a charge privilege for tuition and related fees. However, installment payments must be made. An account is considered to be delinquent sixty days after the beginning of a semester and thirty days after the beginning of a session. At that time a one 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. For further information call The Graduate College (383-1660).

**Other fees:**

Admission application fee, \$15.00  
 English Qualifying Examination fee, \$2.00  
 Late Registration Fee, \$20.00  
 Graduation fee (assessed when the application for graduation is submitted to Bursar's office), \$15.00  
 Student government assessment, \$3.00 each semester

**Health Maintenance Fee—  
For Study on Campus**

Per Semester, 0-4 credit hours, \$16.75\*  
 Per Semester, 5 or more credit hours, \$36.00\*  
 Per Session, 0-2 credit hours, \$8.00\*  
 Per Session, 3 or more credit hours, \$16.75\*  
 \*Plus appropriate user fees or the option to pay the full fee.

Student fees are subject to change by Western Michigan University Board of Trustees at any time without notice.

## Refunds And Change Of Class Load

All changes in registration or complete withdrawal must be made in accordance with the procedures published in the *Schedule of Classes*. A student may not withdraw from graduate courses beyond the midpoint of each semester or session. A student who withdraws from the University or who reduces a credit hour load, resulting in lower fees, will be granted a partial refund of the total paid, subject to the following conditions:

- Changes in student credit hour load prior to the end of the final day for adding a course are considered to be reassessments, and a refund will be granted, in full, for any net reduction in such credit hour load. Alternatively, an increase in credit hour load will result in an upward adjustment of the fee assessment.
- Reductions in credit hour load after the final day to add a class are not subject to any refund.
- Complete withdrawal from all courses after the final day to add a course and up through the fifth week of classes in a semester or second week in a session will result in a 50% refund. The refund date is determined by the date the Registrar's Office receives a change in enrollment form from the student.

## 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.

Grade	Definition	Honor Points Per Credit Hour
A	Outstanding, Exceptional, Extraordinary	4.0
BA		3.5
B	Very good, High pass	3.0
CB		2.5
C	Satisfactory, Acceptable, Adequate	2.0
DC		1.5
D	Poor	1.0
E	Failing	0.0
X	Unofficial Withdrawal	0.0
I	Incomplete	
W	Withdrawal	
CR	Credit	
NC	No Credit	
AUD	Audit	

**E—Failure:** A student admitted to a degree program must secure three hours of "A" to offset each hour of "E" on the graduate record.

**X—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 a student's honor-point ratio as hours attempted with zero honor points.

**I—Incomplete:** This is a temporary grade given for work which is passing in quality but lacking in quantity to meet course objectives. It is assigned when an instructor, in consultation with a student, concludes that extenuating circumstances prevent the completion of course requirements. Incompletes, except those given in Master's Thesis 700, Specialist Project 720, and Doctoral Dissertation 730, and courses directly related to them, which are not removed within one calendar year will remain part of the student's permanent record.

**W—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 (A, BA, B = credit; CB, C, DC, D, E = no credit) is used in all 700-level courses, as well as some departmental courses approved by the Graduate Studies Council. The student's permanent record will indicate "CR" when the course is passed, "I/NC" when incomplete, and "NC" when failed.

**AUD—Audit:** The symbol "AUD" is used to indicate when a student has enrolled in a course as an auditor.

## 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 number of honor points per hour of credit corresponding to the letter grade received, as shown in the preceding table. For example, a grade of "B" in a four-hour course gives 4X3, or 12 honor points. Honor points are not involved in courses in which the credit/no credit grading system is used. Undergraduate credit is not computed into the graduate point-hour ratio.

**Graduated with Honors:** A student attaining a point-hour ratio of 4.0 at the conclusion of a master's program at Western Michigan University will be "Graduated with Honors."

All graduate courses completed, including those not specifically in the student's program, will be computed in the student's overall grade point average.

## Fellowships, Associateships, Assistantships

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. Students with appointments are required to pay regular tuition fees, but a tuition grant is often provided to non-resident students to supplement an appointment. Appointments are often renewable, except for Graduate College Fellowships and Thurgood Marshall Assistantships.

The following appointments are available:

- Graduate College Fellowships of \$5,000 for two semesters are offered to recruit 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. Awards are made on the basis of scholarship and leadership potential.
- Doctoral Associateships of \$6,000 for two semesters are offered to students enrolled in the following doctoral degree programs: Counseling and Personnel, Educational Leadership, Mathematics, Psychology, Science Education, Special Education, and Sociology.
- Thurgood Marshall Assistantships up to \$6,000 for three semesters are offered to students admitted to degree programs. They are awarded to students from minority groups on the basis of scholarship and financial need. Participation in the professional activities of a department is required.
- Dean's Research Assistantships of \$2,500 for one semester are offered to graduate students to assist graduate faculty members in their research projects. Assistants will be selected on the basis of their research skills and interests. (The deadlines for these assistantships are November 1 and June 1.)
- Teaching and Research Assistantships of up to \$6,000 for two semesters are available in many departments of the University. Inquiries should be sent to the chairperson of the department.

## Policies Governing Graduate Appointees

### 1. Definitions

A graduate appointee is a student enrolled in a program leading to a graduate degree and receiving a University-administered stipend or salary which is not less than one-third of the prevailing full amount set by the University for that particular type of appointment.

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—as payment for service (salary) or as a gift (stipend) to help the awardee achieve an educational goal. Although there may be some aspect of service connected with a Fellow's particular 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 in doing part of the work of the department.

More than one fractional appointment may be held simultaneously in the same department. However, in no case shall one person hold more than the equivalent of one full appointment at one time in the same department or hold more than one position. A student with a full appointment is not permitted to have other employment.

### 2. Types of Appointments

#### a. Assistantships

Graduate Assistants are apprentices in the profession. Although 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.

1) The service of Graduate Teaching Assistants (T.A.s) consists of activities directly related to students in the teaching enterprise.

2) The service of Graduate Research Assistants (R.A.s) consists of research activity under the supervision of a faculty member.

3) The service of Graduate Non-Teaching Assistants (N.T.A.s) includes all other work in the department not falling under the other categories but generally accepted as appropriate.

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

#### b. Fellowships

Fellows are students who have distinguished themselves by outstanding academic achievement or special abilities. Fellowships are provided by the University or by another donor with the approval of the University. The fellowship grant (stipend) is a gift to help the Fellow achieve an educational goal, rather than a payment for services.

### 3. Service Requirement

The kinds of service required of Graduate Assistants may vary among departments, each of which determines its own range of appropriate possibilities subject to administrative review. Whatever kinds of service are expected, however, a full assistantship in any department consists of twenty hours of service per week or its equivalent and precludes other employment. Equivalency is calculated on the basis of the value assigned by a department to the performance of each particular service.

### 4. Stipends and Salaries

The amount of the stipend is set by the donor with the concurrence of the Vice President for Academic Affairs.

Salaries for full-time Assistants in each type of appointment are determined at the vice-presidential level and shall be uniform throughout the University, except that a department with the approval of the appropriate Dean may elect to have a graduated scale (based on time in the program), no amount of which may differ by more than 10% from the University-stipulated amount.

Fractional awards are made for fractional appointments.

### 5. Affirmative Action

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

### 6. Professional Ethics

Graduate Assistants shall adhere to the same standards of professional ethics as those of the regular faculty. (*Western Michigan University Policy Handbook*, Statement of Professional Ethics)

### 7. Notification of Status

At the time of their appointment, graduate appointees shall be informed in writing of the specific conditions of the appointment. They should be informed that the offer of an appointment is contingent upon acceptance into a graduate degree program at the University, and continuance of the appointment depends in part on satisfactory progress in that program and satisfactory performance of assigned duties. The letter should also state the amount of the award, whether a remission of non-resident fees is involved, the probable assigned activities, the length of the appointment, and, if appropriate, the criteria for renewal. Any other conditions peculiar to an individual appointment shall be contained in the letter of appointment.

Each appointee shall be provided with information prepared by The Graduate College concerning current University-wide procedures, practices, privileges, and responsibilities that relate to graduate appointees. Each department is responsible for providing any supplemental information on these matters that is necessary and special.

### 8. Professional Development

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

### 9. Enrollment Status

A full appointment requires a minimum enrollment of six credits per semester or three credits per session.

### 10. Evidence of Status

For formal identification as a graduate appointee, the student should have a special validation sticker on the ID card. This validation must be secured in The Graduate College at the beginning of each term. Validation may be authorized during the spring and summer sessions for graduate appointees on academic year appointments even if the appointee is no longer receiving a stipend or salary.

### 11. Benefits

a. Tuition fees: Graduate appointees who are not residents of Michigan may, at the discretion of the University, be granted partial tuition remission for the non-resident portion of their tuition fees. The remitted tuition will be considered "in-kind" earnings and taxable income for students on appointments requiring service.

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).

c. Library: Graduate appointees will be accorded the same privileges and responsibilities as faculty members in the use of the library facilities. These are specified in the faculty handbook (*Western Michigan University Policy Handbook*).

d. Parking: Graduate appointees are exempt from paying the motor vehicle registration fee, but are required to register their motor vehicles. Application may be made to the Department of Public Safety for parking privileges in designated lots.

e. Campus Bookstore: Graduate appointees will be accorded discount privileges on purchases at the Western Michigan University Bookstore in the same manner and degree as faculty and staff members.

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

## Graduate Student Research Fund

The Graduate College has established a Graduate Student Research Fund to encourage research by currently enrolled graduate students and to assist them in presenting their findings to professional groups. Grants range to a maximum of \$500.

Two basic types of proposals are considered for support:

1. The extraordinary or unusual costs incurred in research projects.
2. Travel costs incurred in presenting study reports and research findings at professional meetings.

The typing of theses and dissertations and the purchase of supplies and equipment commonly provided by departments are not considered to be unusual expenses.

Early in the Fall Semester each year the Awards and Fellowships Committee establishes application deadlines and the required format for the proposals. Applications for research or travel grants may be secured from The Graduate College.



## Other Financial Assistance

### 1. Federal Financial Aid Programs

Western Michigan University participates in various federally funded financial aid programs to assist students who demonstrate the required criteria. The criteria are set by the U.S. Department of Education and are subject to periodic revision.

Application procedures for the College Work-Study Program and the National Direct Student Loan Program:

- Submit either a Financial Aid Form (FAF) or a Family Financial Statement (FFS) to the appropriate address on the statement. The FAF and FFS may be obtained from college financial aid offices or the Office of Student Financial Aid and Scholarships at Western Michigan University.
- Submit any additional information requested by the WMU Office of Student Financial Aid and Scholarships.

#### a. College Work-Study Program

(C W-S): This provides work opportunities for students who are in great need of financial assistance to attend or to continue college. Ordinarily they work between 10-15 hours per week while attending school and up to forty hours per week during vacation periods.

#### b. National Direct Student Loan (NDSL):

Through this program, formerly National Defense Student Loan, loans are available to graduate students who have demonstrated a financial need. A full-time graduate student may borrow up to a cumulative total of \$12,000, including loans received as an undergraduate. The actual amount borrowed may not exceed the student's demonstrated need. The interest rate of five percent and repayment start six months after leaving college. The minimum monthly repayment is \$30. Part or all of the loan is forgiven for those teaching in specified areas; under stated provisions partial cancellation is also provided for military service. Repayment may be deferred up to three years while in the Armed Forces, as an officer in the Commissioned Corps of the U.S. Public Health Service, as a volunteer under the Domestic Volunteer Service Act of 1973, as a full-time volunteer in an organization comparable to the Peace Corps or ACTION agency programs, or for a temporarily totally disabled person or one unable to work because of caring for a disabled spouse.

#### c. Federally Insured Student Loan Program (Guaranteed Student Loan—GSL):

The Federal government guarantees loans made by private lending institutions to graduate students who are enrolled as at least one-half time students. A cumulative maximum of \$25,000 may be borrowed including both undergraduate and graduate (maximum of \$5,000 per year) loans. The interest rate is seven percent for those borrowers who have a Guaranteed Loan outstanding prior to January 1, 1981, and an eight percent rate for those who do not have a Guaranteed Loan

outstanding. The student pays no interest on the loan while in school at half-time status or better nor for six months thereafter provided her/his adjusted family income is \$30,000 or less or the student can demonstrate need according to the criteria set by the U.S. Office of Education. A minimum monthly payment of \$50 may be required by the lender. Applications for this program must be obtained from a student's local lending institution, (Bank, Credit Union, or Savings and Loan Association). The names of participating lending institutions can be obtained from the Financial Aid Office at your present college or (for Michigan residents only) at the WMU Office of Student Financial Aid and Scholarships.

#### d. State Direct Student Loan (SDSL):

The Michigan Higher Education Student Loan Authority was created to provide a source of guaranteed loans (State Direct Loan Program) to legal residents of Michigan who are unable to secure guaranteed loans from private lending institutions. Students accepted for enrollment or enrolled in good standing at WMU may apply at the Office of Student Financial Aid and Scholarships for loans to help pay educational expenses.

Graduates may borrow up to a cumulative maximum of \$25,000 including loans as an undergraduate for graduate and professional study. The maximum loan for any academic year cannot exceed \$2,500 or the total cost of education less other financial aid received, or be more than 50% of the total educational costs for the year involved as determined by WMU, whichever is less. The Michigan Higher Education Student Loan Authority will determine the amount of each loan after consideration of WMU's recommendation. Contact WMU's Office of Student Financial Aid and Scholarships for further detail.

#### e. United Student Aid Fund Program

(USAF): Non-residents of Michigan unable to obtain a federally guaranteed loan in their own state should check with their local lending institution to learn if it participates in this program. The conditions of this program are the same as for the federally insured loan program. The names of participating institutions can be obtained from United Student Aid Funds, Inc., 6610 N. Gradeland Avenue, P.O. Box 50827, Indianapolis, Indiana 46250.

Students unable to obtain this loan through a lending institution in their own area should contact the WMU Office of Student Financial Aid and Scholarships for referral to a lender of last resort.

#### f. Auxiliary Loan to Assist Students

(ALAS): In Michigan it is called "The Michigan Auxiliary Student Loan." This program formerly was officially known as the *Parent Loan for Undergraduate Students* (PLUS). Graduate students can borrow up to \$3,000 per academic year up to a maximum aggregate of \$15,000. The interest rate is 12%. Repayment may be deferred until the borrower ceases to attend school at least half-time status. However, the borrower is responsible for payment of the interest

even while in school. Payment arrangements are determined by the lender. Students unable to obtain this loan through a lending institution in their own home area should contact the WMU Office of Student Financial Aid and Scholarships for referral to a lender of last resort. A borrower under this program must meet the lender's standard of creditworthiness.

- g. **Short-Term Loan:** The loan funds provide emergency assistance for enrolled full-time or part-time graduate students to meet educational expenses. These loan funds have been established by University friends, alumni, faculty, and staff. Many of these funds provide loans for a maximum of six months at interest of five percent. Some funds restrict loans to students in certain curricula, of various academic ranks, from a given geographical location, etc. Application for these loans must be made in person at the Office of Student Financial Aid and Scholarships.

### 2. Non-Federal Financial Aid Programs

#### a. Monthly Education Payment Plans:

Western Michigan University has approved a monthly payment program which provides parents with the opportunity to borrow from \$400 up to a maximum of the entire educational expense of their son or daughter. Inquires concerning this program should be directed to the following address:

The Tuition Plan

Concord, New Hampshire 03301

- b. **Off-Campus Employment:** Students may find work through numerous local employers in and around the city of Kalamazoo. Students looking for work can receive assistance through the Student Employment Referral Service in Ellsworth Hall. The Student Employment Referral Service actively seeks out employment opportunities for students within the Kalamazoo area. When arriving on campus, students seeking employment are encouraged to contact this office.

- c. **On-Campus Employment:** A large number of students are employed by the various areas and departments of the University. Each handles its own student employment program. Areas and departments are requested, but not required, to list job vacancies with the Student Employment Referral Service. These employment opportunities can best be secured by direct contact with the areas and departments.

### 3. Military Science Subsistence

**Allowance:** Students enrolled in the Advanced Course of the Military Science program are eligible to receive \$100 a month for up to ten months of each year for two years. Contact the Department of Military Science for further information.

## Student Employment Referral Service

Students may find employment through numerous local employers in and around the city of Kalamazoo and on campus. Students looking for work can receive assistance through the Student Employment Referral Service in Ellsworth Hall, Room A-100.

The Student Employment Referral Service actively recruits employment opportunities for students within the Kalamazoo area and on campus. On campus, each department handles its own student employment program, and these employment opportunities can best be secured by direct contact with departments. Departments are asked, but not required, to list job vacancies with the service. When arriving on campus, students actively seeking employment are encouraged to contact the Student Employment Referral Service.

## Veterans' Assistance

The Academic Records Office on the third floor of the Seibert Administration Building certifies veterans under the G.I. Bill and its extensions. Veterans may contact this office to initiate G.I. benefits.

The areas of assistance include, but are not limited to, veterans' educational benefits, vocational rehabilitation benefits, and tutorial assistance. If difficulties or questions arise in receiving benefits, the veteran should contact the Veterans Administration through the toll free number 344-0156.

Changes in enrollment or current address must be reported immediately to the Academic Records Office. Any change in dependents should be sent directly to the Veterans Administration. Forms may be obtained at the Academic Records Office. Students who receive benefits from the Veterans Assistance Administration are advised of their additional rights and responsibilities.

1. All students have a grade report mailed to them shortly after the close of each semester or session. A complete record of all classes taken and grades received is maintained in the Academic Records Office. A student copy of this record is available upon request with proper identification. Student copies picked up are free; there is a \$2.00 charge for mailed copies.
2. A 3.00 grade point average is required of master's degree students at all times for continued certification. A 3.25 grade point average is required of specialist and doctoral degree students at all times for continued certification. Students who fall below these standards must seek the appropriate counseling from the Director of Records before re-certification can be made.
3. Even though incomplete grades in graduate courses remain on transcripts after the one year time limitation, incomplete grades more than one year old will be counted as "E" grades in considering eligibility for certification to the VA.
4. Students are certified on the basis of attendance and academic progress toward degree goals. Serious overpayment problems can be eliminated by prompt notification to the Academic Records Office of changes in these areas.

Each student receiving benefits is required to sign a statement once a year outlining plans for enrollment for the coming year and declaring personal responsibility for regular attendance during that year.

## The Family Educational Rights and Privacy Act

The Family Educational Rights and Privacy Act of 1974 is a Federal law which states (a) that a written institutional policy must be established and (b) that a statement of adopted 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 who are declared independent. 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 a judicial order, and to persons in an emergency in order to protect the health or safety of students or other persons. All these exceptions are permitted under the Act.

Within the Western Michigan University community, only those members, individually or collectively, acting in the students' educational interest are allowed access to student education records. These members include faculty, administration, clerical and professional employees, and other persons who manage student record information (e.g., Office of the Registrar, Academic Records 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, dates of attendance, degrees and awards received, the most recent previous educational agency or institution attended by the student, participation in officially recognized activities and sports, and weight and height of members of athletic teams. Students may withhold *Directory* information by notifying the Academic Records Office in writing within the official drop-add period of each semester or session.

The law provides students with the right to inspect and review information contained in their education records, to challenge the contents of their education records, to have a hearing if the outcome of the challenge is unsatisfactory, and to submit explanatory statements for inclusion in their files if they feel the decisions of the hearing panels to be unacceptable. The Registrar at Western Michigan University has been designated by the institution to coordinate the inspection and review procedures for student education records, which include admissions, personal, academic, financial files, cooperative education, and placement records. Students wishing to review their education records must make written requests to the Registrar. Only records covered by the Act will be made available within forty-five days of the request. Students may have copies made of their records with certain exceptions, (e.g., a transcript of an original or source document which exists elsewhere). These copies would be made at the students' expense at the prevailing rate of ten cents per page. Education records do not include records of instructional, administrative, and educational personnel

which are the sole possession of the maker and are not accessible or revealed to any individual except a temporary substitute, records of the law enforcement unit, student health records, employment records or alumni records. Health records, however, may be reviewed by physicians of the students' choosing.

Students may not inspect and review the following as outlined by the Act: financial information submitted by their parents; confidential letters and recommendations associated with admissions, employment or job placement, or honors to which they have waived their rights of inspection and review; or education records containing information about more than one student, in which case the institution will permit access only to that part of the record which pertains to the inquiring student. The institution is not required to permit students to inspect and review confidential letters and recommendations placed in their files prior to January 1, 1975, provided those letters were collected under established policies of confidentiality and were used only for the purposes for which they were collected.

Students who believe that their education records contain information that is inaccurate or misleading, or is otherwise in violation of their privacy or other right may discuss their problems informally with the person in charge of the records involved. If the decisions are in agreement with the students' requests, the appropriate records will be amended. If not, the students will be notified within a reasonable period of time that the records will not be amended and will also be informed of their right to a formal hearing by the Registrar. Students may then request a formal hearing which must be made in writing to the Registrar who, within ten days after receiving such requests, will inform students of the date, place, and the time of the hearing. Students may present evidence relevant to the issues raised and may be assisted or represented at the hearings by one or more persons of their choice, including attorneys, at the students' expense. The hearing officer who will adjudicate such challenges will be the Registrar, or a person designated by the Registrar, who does not have a direct interest in the outcome of the hearing.

Decisions of the hearing officer will be final, will be based solely on the evidence presented at the hearing, and will consist of written statements summarizing the evidence and stating the reasons for the decisions, and will be delivered to all parties concerned. The education records will be corrected or amended in accordance with the decisions of the hearing officer, if the decisions are in favor of the students. If the decisions are unsatisfactory to the students, the students may place with the education records statements commenting on the information in the records, or statements setting forth any reasons for disagreeing with the decisions of the hearing officer. The statements will be placed in the education records, maintained as part of the students' records, and released whenever the records in question are disclosed.

Revisions and clarifications will be published as experience with the law and the institution's policy warrants.

## Student Academic Rights

### 1. Introduction

The University endorses as a guideline for policy the following section from the Joint Statement on Rights and Freedoms of Students.

#### a. In the Classroom

The professor in the classroom and in conference should encourage full discussion, inquiry, and expression. Student performance should be evaluated solely on an academic basis, not on opinions or conduct in matters unrelated to academic standards.

#### b. Protection Against Improper Academic Evaluation

Students should have protection through orderly procedures against prejudiced or capricious academic evaluation. At the same time they are responsible for maintaining standards of academic performances established for each course in which they are enrolled.

#### c. Protection of Freedom of Expression

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

### 2. Policies and Procedures

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

#### b. Procedures for Reviewing Student Grievances Related to Grading

1) Students have the right to have all their examinations and other written, graded material made available to them with an explanation of the grading criteria. Faculty should retain all such material not returned to the student for at least one full semester after the course was given. Faculty are not required to return such material to the student but must provide reasonable access to it.

2) Whenever a student believes he/she has a grievance regarding a grade, he/she should first arrange a meeting with the instructor who may be able to explain the reasons for the grade or recommend a change if warranted.

3) If the student believes that he/she has not received a satisfactory resolution of the grievance from the instructor, he/she should then go to the department chairperson or head, who may effect a satisfactory resolution.

4) If the student is still dissatisfied after seeing the department chairperson or head, the student should next see the University Ombudsman. The function of the Ombudsman in this situation is to collect information from both the student and the faculty member and then to make a decision that (a) the student's grievance is unwarranted, and should not be considered further, or (b) there is sufficient evidence that the situation be considered by the Graduate Committee on Academic Fairness.

5) The Graduate Committee on Academic Fairness consists of three faculty and three graduate students.

6) When a case is presented to the Committee, the Committee shall investigate it, making sure that all interested parties have a full opportunity to present their position. The Committee will be able to recommend (a) no grade change, (b) a change of letter grade, (c) credit/no credit, or (d) any other grade used by the Records Office.

7) If the Committee decides that there should be no change of grade, they will so inform the student, the faculty member, the department chairperson or head, and the Ombudsman. If the Committee decides to recommend 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 do so by notifying the University Registrar.

8) To protect all parties involved in any case, the strictest privacy consistent with the Committee's task will be maintained.

9) Occasions do occur when faculty or an administrative official may wish to question a grade or grade change. In such instances, these procedures, beginning with review by the Ombudsman, shall be available to them.

#### c. Policies and Procedures Regarding Requirements

1) All students who seek advice on academic requirements will be provided written copies of their academic advisers' recommendations, and students will not be held responsible for errors made by their advisers. This section is not to be interpreted to mean that the student is relieved of the responsibility of meeting the total graduation requirements stated in the catalog in force at the time he/she was admitted, or in a later catalog if he/she chooses to meet its graduation requirements.

2) The student shall not be held responsible for meeting curricular requirements that are not listed or not applicable under the catalog governing the work he/she is taking.

3) Every department shall provide systematic procedures for students to express their views on matters of program and curriculum.

4) University policy and implementation of such policy should not be determined and enforced according to the needs of computer programming or records. Special care should be taken to insure that no individual is treated unfairly because of computer problems.

5) The University Ombudsman will have the authority to investigate complaints and recommend or negotiate fair solutions on behalf of the student.

## University Ombudsman

The Ombudsman is a presidential appointee chosen with the active participation of students, faculty, and staff and confirmed by the Board of Trustees. The position of University Ombudsman was created to investigate and mediate grievances and to provide justice for all members of the University community. Simple and rapid procedures have been established for the hearing of requests, complaints, and grievances. The Ombudsman investigates such matters, and where he/she discovers a malfunction in the administrative process or an abuse of power, he/she assists the individual in accomplishing a quick and fair resolution of his/her problem. The Ombudsman can remedy some problems alone, but when appropriate, refers persons to other University members and/or offices. The Ombudsman is authorized to make thorough investigations and has prompt access to all University offices and relevant records. No person shall suffer any penalty because of seeking assistance from the Ombudsman. All information presented to that office by persons seeking assistance shall be considered confidential. The Ombudsman is alert especially to the chief causes for student concerns and makes recommendations for the elimination of these causes consistent with the fundamental purpose of the University.

## University Libraries

The University Libraries consist of the Main Library (Dwight B. Waldo Library) and five branches: the Business Library, the Music Library, the Physical Sciences Library, the Education Library, and the Cistercian Studies Library. The University Libraries are organized and maintained for the purpose of providing materials and services necessary to the instruction and research carried on at the University. The collection numbers over 2,000,000 items including books, bound periodicals, music scores, recordings, maps, documents, and materials in microform. Nearly 10,000 periodical and serial titles are currently received. The Library system is a depository for Michigan and United States government documents and receives the microprint edition of the United Nations documents as well as monographs and reports of the major associated organizations.

**Dwight B. Waldo Library** (which is named for the first President of the University) houses the main collection. Built in 1959, it was enlarged in 1967 to almost double its original size.

Through the use of various approval and gathering plans as a part of the acquisitions program, the Library places an emphasis on building a strong collection of current imprints in the fields of study at the University.

Special collections housed with the regular collection include:

1. The Ann Kercher Memorial Collection on Africa is an extensive collection of materials on Africa south of the Sahara. Started more than a decade ago, it has grown rapidly to become a noteworthy addition to library resources.
2. The South Asia Collection is another area of special strength. Together with the Kercher African collection it helps support the University's commitment to area studies.
3. The Randall Frazier Memorial Collection, honoring a notable alumnus, has a wealth of material on the history and culture of Black America.

## 14 GENERAL POLICIES AND PROCEDURES

Special collections which are housed separately:

1. The Regional History Collection is a unique group of items on the thirteen counties of Southwest Michigan. In addition to books, this collection contains manuscripts of early residents of this area.
2. The C. C. Adams Ecological Collection consists of the personal collection and papers of the pioneer American ecologist, Charles C. Adams.
3. The microfilm collection of over 600,000 contains such items as the Human Relations Area File, the American Periodical Series, the Newsbank Urban Affairs Library, Early American Newspapers of the 18th and 19th centuries, the U.S. National Archives, books printed in Great Britain from 1475-1640, and ERIC documents (documents in educational research published by the Educational Resources Information Center)
4. The Map Library, a unit of Reference Services, holds some 165,00 items which include Army and U.S. Geological Survey maps, some antique maps of special historical interest, and various domestic and foreign maps which are cataloged and available for use. In addition to maps, the Map Library also possesses over 850 atlases.

**The Business Library**, located in North Hall, has a collection of some 62,000 books, supplemented by special microfilm collections, and business-oriented periodical and newspaper titles.

**The Music Library** is located in the new Dorothy U. Dalton Center. In addition to a collection of some 25,000 books and scores and 75 periodical subscriptions, this branch contains a collection of 10,000 phonograph records and extensive listening facilities.

**The Physical Sciences Library** contains some 58,000 volumes in the fields of Mathematics, Astronomy, Physics, and Geology. This branch is located on the third floor of Rood Hall.

**The Education Library** in Sangren Hall comprises over 400,000 bibliographic items and receives over 600 periodical titles.

**The Cistercian Studies Library** located in Hillside West is a collection of books in the areas of monastic history, spirituality, and general church history which supports the research and programs of the Institute of Cistercian Studies and the area of medieval studies at the University. The collection includes rare books, manuscripts, and incunabula, most of which are on an indefinite loan to Western from the Abbey of Gethsemane. Over 400 of the some 6,000 volumes in the library are rare items of interest to medieval scholars from all over the world.

Holdings in all of the University Libraries are recorded in the public card catalog in the Main (Waldo) Library; each branch maintains a special card catalog of its own holdings.

General and specialized reference service is provided at the main **Reference Desk**, the **Science Reference Desk**, and in the **Documents and Maps Department** in Waldo Library. Reference collections of indexes, abstracts, dictionaries, handbooks, bibliographies, etc. are maintained in each of the University Libraries, and reference librarians offer personal assistance in finding the books, information, and other resources you may need for class or research related problems. In addition, the reference staff offers a credit course, Library Resources, in the General Studies curriculum. The course is designed to introduce the student to the use of our library system and especially to the

bibliographic tools and methods necessary to find information in the various subject fields.

An on-line automated retrieval system (OARS) offered by the Library accesses some 150 data bases in nearly every subject. The computerized operation allows users to shorten significantly time spent on literature searches for research projects. It is available to faculty, staff, and students on a cost retrieval basis. Inquiries about this service may be made at the Reference Desk in the Main Library and at all branch libraries.

The Library also provides library service to students enrolled in off-campus classes, usually through arrangements with libraries or schools in the locality where the classes are taught.

Research materials which are not in our collections and are not available or not suitable for purchase can usually be obtained through interlibrary loan. Requests for loans may be initiated at public service desks in all libraries, as well as at the Interlibrary Loan Office located in Waldo Library.

The University Libraries hold membership in the Center for Research Libraries, a three and a half million volume collection located in Chicago. The Center operates as a cooperative library for less-used but important research materials such as Asian trade statistics, domestic and foreign newspapers, microfilm copies of French books published before 1601, corporation and insurance company reports, foreign dissertations, etc. Loan copies of the Center's Handbook, describing the contents of the collection are available in our Interlibrary Loan Center and from our Acquisitions Department.

Self-service photocopy machines are located throughout the library system. An attendant-operated copying service is located at the Waldo Library Circulation Desk. Microform copiers are available at the Waldo Circulation Desk and at the Business Library and the Education Library.

Graduate students engaged in projects requiring extensive use of library resources may apply in writing to the Circulation Office of Waldo Library for assignment of a special locker or locked carrel in Waldo Library.

## Housing

All students enrolled at Western Michigan University are permitted to live in housing of their own choosing. However, students are encouraged to give consideration to the financial, educational, and social benefits of living in a residence hall or a campus apartment as well as the convenience of being close to their classes and other University activities.

### Residence Halls

Each year hundreds of WMU students discover more about the world they live in, their colleagues, and themselves through the involvement of living in a residence hall. Opportunities for group participation and leadership development await those interested. Any currently enrolled WMU student, regardless of the number of semester hours he or she is enrolled, may reside in a hall. Newly admitted undergraduate students are automatically sent information (Fall—month of May; Winter—November; Spring—February; and Summer—March) detailing the residence hall offerings available for the semester or session they anticipate coming to the University. Individuals returning to the University as re-entries, and newly admitted graduate students, will receive information by return mail upon requesting details from the Manager of Residence Hall Facilities, Faunce Student Services Building.

Admission to the University does not guarantee that a residence hall assignment will be available. Likewise, receiving a contract and submitting a residence hall assignment request does not guarantee space will be available. Assignments are made on a first-come, first-served basis up to the space available. Any requests received after all halls have been filled to capacity will be placed on a waiting list.

Eighteen residence halls offering a variety of services are located around the campus. Some halls provide room-only accommodations, with the individuals purchasing their meals off-campus or in the University Student Center. One non-food service hall is available for continuous housing throughout the year. Residents of this hall are permitted to remain during vacation periods. Since all other residence halls close for the periods between semesters and sessions, residents of these halls who choose to remain must make their own alternate housing arrangements during this period. Residents are permitted to remain in their assigned rooms during the Thanksgiving and March recess periods.

Most of the residence halls furnish twenty meals per week (Sunday evening excluded), with the dining rooms open from 7:00 a.m. to 6:15 p.m., six days a week, and from 8:00 a.m. until 1:00 p.m. on Sunday (Serving hours subject to change at the University's discretion.) The food service enjoys an excellent reputation with an extensive menu developed in consultation with residents and professional dietitians. Food service residence halls are available during the Fall and Winter Semesters and the Spring Session. During these periods, meals usually begin the day classes start and stop the last day of classes. Meals are not served during the Thanksgiving period.

Different assignment patterns are used in the various residence halls. Some halls are reserved exclusively for men, others for women; in other locations, residents are assigned by sex to alternate floors or alternate suites. In locations where co-ed assignments exist, separate bath and toilet facilities are provided for each sex.

The residence hall offerings at Western attract over 5,000 students each Fall/Winter Semester. The residents assigned to the halls represent individuals from all walks of life and academic interests. In addition to the majority of the students who are from the fifty states, many foreign countries are represented. Such a diverse group of individuals provides a stimulating atmosphere for the individual interested in learning about others.

Both undergraduate and graduate students are welcome in halls. Students most often prefer a specific hall because of location or assignment pattern (co-ed). During the Fall and Winter Semesters graduate and older students find Davis Hall, a co-ed, full-food service hall, of special interest. Students must be twenty-one or older to live in Davis. No hall is reserved for the exclusive use of graduate students. Telephone: 383-6100.

### Apartment Housing

The WMU Campus Apartments provide convenient, inexpensive housing for many graduate students. One and two bedroom style apartments are available to rent by single graduate students as well as graduate student families.

Approximately 1,500 students, spouses, children, faculty and staff live in the nearly 600 apartments on a year round basis. It is our experience that residents have similar

circumstances, making for pleasant relationships among neighbors, and often, forming friendships which exist long after leaving campus. New residents are quick to find their niche in the apartment community.

Assignments are based on the date of application; therefore, the earlier a person applies the better the chances are for receiving an assignment. Applications may be submitted even before official admission to the University or a Department is received. Priority is given to students with Graduate Assistantships.

Early application is encouraged. All inquiries should be made directly to the WMU Campus Apartments Office in the Faunce Student Services Building. The telephone number is (616) 383-4970.

### Off-Campus Housing

Approximately seventy percent of Western's student enrollment lives off-campus in privately owned housing. Thus, a unique service is provided to assist them in locating a place to live. It registers approximately 2,500 rental units ranging from modest sleeping rooms to luxurious apartment complexes. Rental listings of apartments, houses, and sleeping rooms are maintained and printed for distribution. Listings of students in need of roommates, as well as those available as roommates, are updated regularly and used extensively by the thousands of students who live off-campus and share their housing costs. 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 tenant counseling and educational programs, as well as tenant/landlord services. For additional information regarding off-campus housing, contact the Office of Commuter Student Services, Room 3510, Faunce Student Services Building.

## University Health Center

The Western Michigan University Health Center is a student-oriented medical facility which exists to support and promote optimal health for University students. Health and wellness are an integral part of a student's capacity to benefit fully from all learning experiences offered during college years. The University Health Center offers health care which facilitates recovery from illness, and opportunities for health decisions and information which contribute to disease prevention and wellness.

### University Health Center Services and the Student Health Fee

The University Health Center provides students with all examinations, treatments, and minor surgical procedures which would be expected in a physician's office, as well as laboratory testing, x-ray, and pharmacy facilities, and health education opportunities.

Payment for all services rendered within the University Health Center, except for pharmaceuticals, is covered by a Student Health Fee (SHF) assessed in full at the beginning of each semester or session to students carrying 5 or more hours a semester or 3 or more hours a session. Students carrying less than 5 hours a semester or 3 hours a session are assessed a lesser fee. This fee entitles them to routine physician visits at no further

charge, but all other Health Center services are rendered on a "fee for service" basis. These students may, however, choose to pay the difference between the lesser assessed fee and the full Student Health Fee and utilize Health Center services at no further charge (with the exception of pharmaceuticals).

Any student who carries eligible to enroll status may use the Health Center on a "fee for service" basis, or can elect to buy-in as a full SHF member at the current rate. Recently graduated students may use the Health Center for one semester (or two sessions) after graduation in order to allow time to establish a permanent source of medical care. Spouses of students may also use the Health Center on a "fee for service" basis or may pay the Student Health Fee and be eligible for full services at no further charge (with the exception of pharmaceuticals).

All students wishing to buy-into the SHF must do so within the first three weeks of a semester or the first week and a half of a session. Payment must be made at the University Health Center. The Student Health Fee, assessed in full at the beginning of each semester or session, covers all of the following services, when rendered by University Health Center staff, no matter how many times services are required.

- Office visits
- Physical exams and health maintenance visits
- Medical specialties
- Minor office surgical procedures
- Physical Therapy
- Laboratory studies
- X-rays
- Casts
- Medical supplies
- Allergy injections
- TB testing
- Immunizations
- Prescriptions at Reduced Rates
- Health Promotion programs and materials

### University Health Center Hours

#### Fall and Winter Semester

##### Clinic Hours

Monday through Friday  
7:45 a.m. - 11:30 a.m.  
1:00 p.m. - 4:45 p.m.

##### Urgent Care Hours

#### (For Sudden illness or injury)

Monday through Friday  
7:45 p.m. - 10:00 p.m.  
Saturday  
9:00 a.m. - 11:30 a.m.

#### Spring and Summer Sessions

##### Clinic Hours

Monday through Friday  
7:30 a.m. - 11:30 a.m.  
1:00 p.m. - 4:15 p.m.

##### Saturday

9:00 - 11:30 a.m. (Spring Session only)

Note: Hours are subject to change on holidays and during semester breaks.

### How to Use University Health Center Services

During clinic hours, physicians and physician assistants are available to see students for office visits. During clinic hours, the Health Center staff are also available to see students with urgent care problems who do not have appointments. Students without appointments are seen when time between scheduled appointments is available. This may mean waiting.

The presentation of a student I.D. card and insurance identification card will help the Health Center provide a user with more efficient service.

All University Health Center Records are absolutely confidential. No information will be released, either orally or in writing, without the user's written permission.

### Hospital/Medical and Surgical Expense Insurance

All students enrolled at Western Michigan University are urged to carry some form of medical and accident insurance which covers medical, surgical, and hospitalization expenses not included in the Student Health Fee. Some insurance companies offer coverage for expenses only when hospitalized. Other companies pay for diagnostic procedures performed by specialists outside the University Health Center as well as hospitalization. Students not presently covered by a medical/surgical insurance program should consider the hospitalization and accident insurance plan offered through Western Michigan University. This plan is provided for students and their dependents at reduced rates and may be applied for when a student is admitted to the University.

Citizens of other nations who are studying or conducting research as foreign students on a temporary U.S. visa, e.g., F-1, J-1, are required to maintain adequate health and accident insurance coverage while they are enrolled. This University policy is supervised by the Office of International Student Services. Foreign students who have adequate insurance in effect at the time they register should notify the Office of University Judicials of their existing coverage. Those who do not present proof of existing coverage will be automatically enrolled in the University's Student Hospital/Medical and Surgical Expense Insurance Plan. Information on other acceptable insurance programs for foreign students is available from the Office of International Student Services.

### University Health Center Board of Directors

The Health Center Board of Directors, composed of students and staff, exists to provide continuous review of Health Center operations and to make recommendations to the administration on policies or services which will enhance University health care. Board membership is open to any interested student. For further information regarding application for a board position, call the University Health Center Director, Mr. Donald T. McNally, phone 383-6007.

### Location

The Health Center is located on the west side of Gilkison Drive, north of Michigan Avenue. The Urgent Care Entrance is on the south side of the building, just west of the main entrance. Appointments and information: 383-6005. Pharmacy: 383-6037.

## University Placement Services

Assistance in total job search planning is offered free of charge by the University Placement Services to graduate students and alumni of Western Michigan University. Placement services include job counseling, a career information library, on-campus interviewing, weekly job opportunities bulletin and vacancy postings, direct referrals to employers, maintenance and distribution of credentials, assistance with job search correspondence such as resumes and letters of

application, interviewing videotapes, special graduate workshops and seminars, summer job information, and referral to specialized campus agencies providing career planning services

## Counseling Center

The services of the University Counseling Center are offered to all graduate students and spouses and their children. Among the major services offered are:

1. **Individual counseling** to provide students with an opportunity to discuss various concerns, including career exploration, academic counseling, educational goals, and personal or emotional difficulties.
2. **Career Exploration and Media Center** to disseminate a wide variety of information concerning careers as well as a substantial number of catalogs and bulletins from other American colleges and universities.
3. **Career Development Program** to assist students in the exploration of individual career possibilities and increase skills necessary for decision making and future planning.
4. **Training and Internship Programs** to provide training opportunities for graduate students and interns from Counseling and Personnel, Psychology, Social Work, and related programs.

The Counseling Center is accredited by the International Association of Counseling Services and is staffed with professionally trained counselors and psychologists. All students using the counseling service are assured of complete confidentiality.

Appointments may be made by telephone or by stopping at the Counseling Center reception desk between 7:45 a.m. and 4:45 p.m., Monday through Friday. Graduate students unable to use Counseling Center services during regular hours may make arrangements for evening appointments by calling 383-1850.

## Testing And Evaluation Services

The services of the Testing and Evaluation Department are open to all graduate students. The department offers career counseling, utilizing their own career guidance inventory, which is available to all WMU students, staff, and faculty for a small fee. The test includes a personality, vocational interest, and occupational value questionnaire plus a diagnostic/achievement quiz. Information and applications for most of The Graduate College tests are also available in the Testing office. This department serves as the regional office for the Miller Analogy Test, which is given by appointment only.

Testing and Evaluation Services has the largest selection of test files in southwestern Michigan. These tests can be obtained at the Testing office for use by students and faculty members for informational purposes, class projects, research purposes, or most any other valid reason.

If the student is working on a research project, survey, or collecting data for any valid reason, the same test sheets used by faculty members are available at no charge. Testing staff members will assist in the planning of the project wherever possible.

Testing and Evaluation Services is located in Hillside West, Room, D-4, and the phone number is 383-0955. The department hours are 7:45 a.m.-4:45 p.m., Monday through Friday.

## English Language Center For International Students

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. Students in the CELCIS program must be enrolled full-time: twenty (20) hours of classroom instruction per week. Part-time study is not permitted.

Classes at the various levels include: Speaking and Listening Comprehension, Grammar, Reading and Vocabulary, Writing, Research Paper Writing, and work in the Language Laboratory.

There are six CELCIS terms per year, each approximately seven and a half (7-1/2) weeks in duration. The Michigan Test of English Language Proficiency (MTELP) is given to CELCIS students at the end of each session. The Certificate of Eligibility for visa (Form 1-20 AB or DSP-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.

For further information and application forms, contact Career English Language Center For International Students, Western Michigan University, Kalamazoo, Michigan 49008. Telephone (616) 383-8024. Telex 6877099 WEST MICH UNIV

## Office Of International Student Services

Western Michigan University has long recognized the value of international educational interchange. Over the years, hundreds of students from other nations have entered the University to pursue their educational objectives. Conversely, many U.S. students have sought to broaden their educational background by undertaking a period of study and/or travel in foreign countries. This educational interchange has given the University an international atmosphere which has fostered both formal and informal cross-cultural contacts and the development of positive interpersonal relationships on the campus as well as in the community. The Office of International Student Services was established to assist students involved with the interchange process.

### Foreign Student Services

The Office of International Student Services deals with the special needs and circumstances of foreign students such as processing of applications for admission, conducting an orientation program for new foreign students prior to each enrollment period, assisting with housing arrangements, coordinating community programs involving foreign students, providing advisement on matters related to each student's immigration status, serving as a liaison between the student and his/her sponsor, and offering personal and social counseling on a wide variety of concerns. While at the University, foreign students are encouraged to participate in academic and social activities as their interests and time allow.

Any foreign student interested in seeking admission to Western should contact the Office of International Student Services for an application form and instructions. To qualify for admission, a foreign student must demonstrate to the University that he/she is academically, financially, and linguistically

capable of undertaking the academic program being proposed, generally on a full-time basis. Before a prospective student can be admitted and the Certificate of Eligibility for visa (Form 1-20 AB or DSP-66) issued, educational records documenting all previous secondary and post-secondary schooling must be on file along with a financial statement, signed and returned from a sponsor showing that adequate money will be available to cover the student's educational and living expenses for the duration of anticipated enrollment. Regarding linguistic capability, those prospective students from non-English speaking countries who have not successfully completed at least two years of full-time academic study at another U.S. accredited institution must submit the results (scores) of a recognized English language proficiency examination prior to initial registration. The two examinations preferred by the University are the Test of English as a Foreign Language (TOEFL) and the Michigan Test of English Language Proficiency (MTELP). To qualify for unrestricted full-time enrollment, a prospective student must present a TOEFL "total score" of at least 550 or a MTELP "adjusted score" of at least 85%. Prospective students who are subject to the English proficiency test requirement but who have not submitted test scores prior to the time they report for orientation and enrollment will be required to sit for an on-campus administration of a University prescribed English proficiency examination. Students whose scores on this examination indicate a need for further training in English will be advised accordingly. Within certain limits, a prospective student who has achieved less than the minimum score required for unrestricted enrollment will be allowed to register for courses on a restricted basis. The limits and the restrictions to be observed will be established and applied by the Office of International Student Services.

### Foreign Study Services:

Students who are interested in or who are planning to study and/or travel in a foreign country are encouraged to utilize the services of the OISS. The Foreign Study Coordinator maintains an extensive library of materials on overseas programs. Students who are undecided can receive advice and counsel which will help them to decide on the appropriateness of a foreign study/travel experience and which of the numerous opportunities would be best designed to suit their circumstances and purposes. Information regarding financial aid possibilities is also obtainable as is information on the International Student Identification Card, the Youth Hostel Pass, and other discount travel documents.

## Motor Vehicle Registration

All motor vehicles parked on campus by faculty, staff, and students must be registered with the University.

Drivers must obtain application forms and pay the appropriate registration fee to the Department of Public Safety.

All Vehicles must be registered within seven calendar days after the beginning of classes. After this time vehicles must not be parked on campus until registered.

## Section II

### Master's Degree Programs and Requirements

#### General Requirements For A Master's Degree

##### 1. Admission

See Calendar of Events for application deadline.

- a. Bachelor's degree from an accredited institution, indicated on an official transcript.
- b. Transcripts of all courses taken beyond high school.
- c. A point hour ratio of at least 2.6 (A = 4.0) in the last two years of undergraduate work.
- d. Acceptance by both The Graduate College and a unit for a definite program of study.
- e. Meet any additional admission requirements as stated in the individual program descriptions.

##### 2. Candidacy

- a. A Graduate Student Permanent Program which will constitute an application for admission to candidacy must be submitted to The Graduate College during the first semester or session of enrollment.
- b. Reservations indicated on the Certificate of Admission and/or the Graduate Student Permanent Program must be removed before candidacy will be approved. These reservations include the attainment of a satisfactory score on the English Qualifying Examination.
- c. A point-hour ratio of at least 3.0 (A = 4.0) is required. Honor point deficiencies acquired in credits earned at Western Michigan University cannot be made up by credits earned at another university.
- d. A thirty-hour program may include a maximum of four hours of credit in 598 readings courses.

##### 3. Graduation

See Calendar of Events for application deadline.

- a. *Diploma Application*: A diploma application must be submitted by October 1 for the December Commencement, by February 1 for the April Commencement, and by June 1 for the August Commencement.
- b. *Minimum Credit Hours*: Completion of a minimum of thirty hours of accepted credit in a program of study approved by an adviser. Normally only courses numbered 500 and above are acceptable. One-half of the credits earned must be in courses numbered 600 or above. Each course included in the program must be completed by the day of graduation.

- c. *Point-hour Ratio*: An overall point-hour ratio of 3.0 (A = 4) is required. No undergraduate credit is computed in the graduate point-hour ratio.
- d. *Hours After Candidacy*: The election and completion of at least six hours is required after being approved for Candidacy.
- e. *Transfer Credit*: Six semester hours (three and four quarter or term hours) of graduate credit may be transferred from other schools provided:
  1. The credits were earned in institutions accredited for graduate study and are of "B" grade or better. The student's average for all graduate work taken at another institution must also be "B" or better.
  2. The Graduate College approves the credits for transfer.
  3. The student's adviser verifies that the credits contribute to the student's program of study.
- f. *Time Limit*: All work accepted for the degree program must be elected within six years preceding the date on which the graduate degree is conferred.
- g. *Master's Thesis*: A student who intends to register for the Master's Thesis (6 hrs.) is required to meet with the Administrative Assistant for Graduate Programs in The Graduate College before registering for the class in order that the student is informed about the regulations pertaining to the preparation of the manuscript.

#### General Requirements For A Second Master's Degree

A student wishing to secure a second master's degree may include a maximum of ten credits from the first graduate degree program. The second degree program must fulfill all of the other usual requirements for a master's degree, except the English Qualifying Examination.

#### General Requirements For A Graduate Specialty Program

A Graduate Specialty Program is a fifteen to twenty hour, normally, aggregate of cohesive, topical graduate level courses and, as a unit, independent of any single degree program. Students who wish to pursue a Graduate Specialty Program must have already completed, or be currently enrolled in, a graduate degree program.

There may be some overlap in courses between a student's program of study for a Graduate Specialty Program and the program of study for a graduate degree. However, since a Graduate Specialty Program is distinct from the student's degree program, the entire aggregate of courses in a student's Graduate Specialty Program cannot be applied to the degree program. To signify that a student has satisfactorily completed an approved curriculum in a Graduate Specialty Program, a certificate is awarded; however, the certificate is not an award of license, accreditation, or certification to render professional services. The certificate is to be awarded at the completion of the Graduate Specialty Program for those students who have already received their graduate degree. For those students concurrently enrolled in a graduate degree program, the certificate will be awarded at the same time the graduate degree is awarded.

Regular admission to The Graduate College and to the unit offering the Graduate Specialty Program is required. A student must complete the requirements of the Graduate Specialty Program with a "B" or better average within a six-year period. The Graduate Specialty Programs offered by Western Michigan University are described on pages 38 and 39.

## Programs Leading To The Master's Degree

In order to earn a degree, students are required to complete a program of study. Degree candidates must choose a graduate program that is compatible with their objectives. The programs listed on the following pages have been developed to provide students with the basic experiences that implement these objectives. The programs are, however, sufficiently flexible to allow for the differing needs of individual students.

Through the counseling process, graduate advisers will help the students choose courses to meet their individual needs. Courses and experiences should be chosen so that the graduate student becomes a person with greater professional skill, increased ability to analyze and interpret life situations, and greater insight into problems involved in professional leadership.

### Accountancy

#### Advisers:

**Gale E. Newell,  
Fred W. Schaeberle,  
John D. Sheppard,  
William R. Welke,  
Room 150, East Hall**

The Master of Science in Accountancy is a thirty-hour graduate program of which at least fifteen hours are in accounting. The program prepares the student for professional careers in industry, commerce, finance, government, and public accounting. The degree meets the Michigan educational experience requirement to sit for the uniform examination for Certified Public Accountant (C.P.A.).

Knowledge and understanding of the theory, literature, controversial concepts, and professional practice of accounting are developed. The student's understanding of the relationship of accounting to other fields in business and to other disciplines is also stressed. Course work will be selected from the areas of Financial Accounting, Cost and Managerial Accounting, Auditing, Taxation, Not-for-Profit, Systems, and Accounting Theory.

#### Admission requirements

Admission to the program is obtained through the Admissions Committee of the Department of Accountancy. The following criteria are used in the evaluation of applications:

The applicant must have attained a satisfactory score on the English Qualifying Examination.

The applicant must have an undergraduate degree and an acceptable academic record as evidenced by official transcripts from all colleges and universities attended. Attention is given to overall grade averages, especially to grade trends and areas of scholastic strength.

The applicant must have received a satisfactory score on the Graduate Management Admission Test.

#### Prerequisites

Undergraduate prerequisites are Principles of Accounting, Income Tax Accounting, Management, Marketing, Statistics, Finance, Business Law, and a course in Computer Usage.

#### Program requirements

Each individual program must include twenty-one graduate credits earned in courses numbered 600 and above and must have prior approval of a department adviser. In addition to the Accountancy major requirements, the student must elect a minimum of six graduate hours outside the Department of Accountancy.

### Anthropology

#### Adviser:

**Robert Jack Smith  
Room 102, Moore Hall**

The Master of Arts in Anthropology is intended to provide the student with a sound understanding of the discipline as a whole. In addition it requires a concentration, appropriate to its academic level, in one of the major branches of Anthropology. These may be identified as archeology, socio-cultural anthropology (including ethnology), physical anthropology, and linguistics (in cooperation with the Department of Linguistics). Research experience in archeology and ethnographic field schools is available.

#### Admission requirements

1. Students should have completed a minimum of fifteen semester hours in undergraduate work in Anthropology, or twenty-four hours in Anthropology and related disciplines, such as Geology, Zoology, and the Social Sciences, of which at least nine hours must be in Anthropology.
2. Accumulation of point-hour ratio of at least 3.0 during the final two years of undergraduate work.
3. Students are required to have completed at least three semester hours of statistics. This requirement can be satisfied by the student's undergraduate program.
4. If these requirements have not been met on the undergraduate level, the student may be admitted with the understanding that additional course work as specified by the department will be required to provide the necessary background.
5. 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 Adviser.

6. Each applicant must submit separately to the Department Chairperson a one-page statement of intent with respect to his or her interests in anthropology and the program at Western.

#### Program requirements

1. Complete at least thirty semester hours, selected in consultation with the student's major adviser. At least twenty of the hours must be in Anthropology. The remainder may be in Anthropology or in related disciplines as determined by the needs of the student.
2. ANTH 601, 602, and 603, or their equivalents, are required.
3. Complete an acceptable Master's Thesis (6 hrs.)
4. Pass a comprehensive written examination on the field of Anthropology.

### Art

#### Adviser:

**Deb Roseboom, Advising Coordinator  
Room 1406, Sangren Hall**

The Department of Art offers three graduate programs. The Master of Arts in Art is a one-year program for professional artists and art educators. This program with an emphasis on art education requires a minimum of thirty-six credit hours. With an emphasis on art practice, it requires thirty credit hours. The Master of Fine Arts is a two-year program with sixty credit hours required. The Master of Arts in the Teaching of Art is a thirty credit hour program for art educators. The following are the major areas of concentration in all programs: Ceramics, Graphic Design, Multi-Media, Painting, Photography, Printmaking, Sculpture, and Textile Design.

#### Admission requirements for all programs

1. Deadlines for application:  
For Spring, Summer, Fall semesters  
March 1  
For Winter semester October 1
2. An undergraduate degree with a major in art or its equivalent.
3. A portfolio of art works or slides must be submitted directly to the graduate adviser of the Department of Art. It should include twenty to thirty examples of work in the student's area of concentration and other related areas.
4. A statement indicating the reasons for seeking admission to a graduate program and the specific area of concentration.
5. Three letters of recommendation for admission or a graduate assistantship.
6. A current resume is recommended.



## Master Of Arts In Art

Art Education emphasis, minimum thirty-six credit hours, for students interested in advanced study in art practice and art education, essentially for furthering their skills as public school or junior college teachers. Art Practice emphasis, 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. A review of all art work by a graduate committee before the end of the first semester.
5. Two hours in ART 613, Graduating Presentation. This course includes a final exhibition and oral presentation which must be approved by a departmental committee before the M.A. degree is granted.

### Additional requirements for each emphasis

#### Art Education emphasis:

1. Nine hours in advanced art education courses.
2. Five additional hours in art practice or approved cognates.
3. A final paper or thesis.

#### Art Practice emphasis:

1. Five additional hours in art or art history.
2. Three hours in an approved cognate.

## Master of Fine Arts

The sixty-hour Master of Fine Arts degree 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. The Department of Art provides all graduate students with a studio and encourages them to work independently under the advice of one or more faculty members. An extensive schedule of exhibitions and visiting artists is an important part of the graduate program.

The Department of Art is a member of the National Association of Schools of Art. The M.F.A. program requirements meet or exceed the recommendations of the College Art Association of America.

### Program requirements

1. Twenty-four hours in the major area of concentration.
2. Nine hours in art history.
3. Fourteen hours in electives, of which nine must be in Art.
4. Three hours in ART 610, Advanced Drawing.
5. Two hours in ART 625, Graduate Seminar.
6. Six hours in courses outside the Department of Art.
7. Reviews of all art work by a graduate committee before the end of the first and third semesters.
8. Minimum of one year residence on campus.
9. Two hours in ART 613, Graduating Presentation. This course includes a final exhibition and oral presentation which must be approved by a graduate committee before the M.F.A. degree is granted.

## Master Of Arts In The Teaching Of Art

The thirty-hour Master of Arts in the Teaching of Art, in cooperation with the Department of Education and Professional Development, is specifically designed for the educational needs of public school art teachers and the course content provides advanced study in art and teaching.

### Program requirements

1. Fifteen hours in art credits to include art education.
2. Nine hours selected from four courses in the Department of Education and Professional Development:
  - a. ED 600, Fundamentals of Measurement and Evaluation in Education, or ED 601, Fundamentals of Educational Research
  - b. ED 602, School Curriculum
  - c. ED 603, Social and Philosophical Foundations
  - d. ED 604, Psychological Foundations of Education
3. Six hours of electives in major field of education

## Biology

**Adviser:  
Chairperson, Graduate and Research Committee  
Room 100, Wood Hall**

The Master of Arts in Biology is designed to enhance the student's ability to conduct research, including the presentation of findings, as well as to provide additional coursework in the area of Biology selected. Specialization is available in more areas of biology, but the areas of greatest strength in our department are Aquatic Biology, Botany, Ecology, Physiology (Plant and Environmental), and Zoology (especially Invertebrate and Ornithology). A minimum of thirty hours is required in the Master's Thesis option and thirty-six hours in the non-thesis option.

### Admission requirements

1. Application must be made to the Department, as well as to The Graduate College. Foreign students should also apply to the Office of International Student Services.
2. At least one course in each of the following: botany, zoology (or two semesters of general biology), ecology, genetics, and physiology.
3. Two semesters of mathematics, including some calculus.
4. A course in organic chemistry.
5. Two semesters of physics.
6. All sections of the Graduate Record Examination.

A limited number of deficiencies in these areas may be completed after the student has been admitted to the program but before approval for candidacy.

### Program requirements

Thesis and non-thesis options are available. Both programs are directed by the student's major adviser and Advisory Committee.

#### 1. Thesis Option

- a. At least twenty-four hours of graduate coursework in biology and approved related areas (no more than eight hours outside the Biology Department).
- b. BIOL 700, Master's Thesis (6 hours)

#### 2. Non-thesis Option

- a. At least thirty hours of graduate coursework in biology and related areas (no more than eight hours outside the Biology Department).
- b. BIOL 710, Independent Research (6 hours)
- c. The student shall satisfy the Advisory Committee of his or her ability to gather, analyze, interpret, and present research data.

## Biomedical Sciences

**Adviser:  
Gyula Ficsor,  
Room 5060, McCracken Hall**

The Master of Science in Biomedical Sciences is designed to develop the ability of the student to carry out research projects, including their design, application, and analysis. This experience is supported by substantive course work. This degree may serve as a foundation for continued graduate work or may lead to positions in a variety of occupations in industry, health services, and teaching. The major areas of training are in Genetics, Immunology, Microbiology, Morphology, and Physiology.

### Admission requirements

1. A bachelor's degree from an accredited college or university
2. Admission to The Graduate College
3. Application to the Biomedical Sciences Department (request application forms)
4. Course prerequisites:
  - a. Appropriate courses in biology
  - b. Chemistry through organic
  - c. Two courses in physics
  - d. Two courses in mathematics one of which is calculus, but excluding college algebra
  - e. Fulfillment of WMU's computer literacy requirement or equivalent
 

A limited number of deficiencies in coursework may be completed after admission to the program but before approval for candidacy.
5. GPA of 2.8 in Sciences and Mathematics
6. A combined score of 1,000 on the Verbal and Quantitative sections of the Graduate Record Examination. The Advanced Test in Biology is also required.
7. Availability of a major professor in the applicant's area of interest.

### Program requirements

Thesis and non-thesis options are available. Both programs are directed by the student's Major Adviser and Advisory Committee.

#### 1. Thesis Option

- a. Shall complete a minimum of 30 hours graduate credits, including 6 hours of thesis credit (BMED 700, Master's Thesis).
- b. Shall pass a comprehensive oral examination covering topics related to the student's course work and research project.
- c. Shall prepare a thesis and publicly defend it before the student's Advisory Committee.

#### 2. Non-Thesis Option

- a. Shall complete a minimum of 33 hours graduate credit, including 6 credit hours of BMED 710, Independent Research, and 3 credit hours of BMED 601 or 712 as an additional research experience or tool.

- b. Shall pass a comprehensive oral examination covering topics related to the student's course work and research project.
- c. Shall prepare a manuscript suitable for publication in a refereed journal. Suitability for publication will be determined by the student's Advisory Committee.
- d. Shall present a department seminar on the research.

## Biostatistics

### Adviser:

**Michael R. Stoline**  
**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, with the assistance of faculty in the Departments of Biology and Biomedical 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 biomedical sciences, or a major in biology or biomedical sciences and a minor in mathematics or statistics, or the equivalent. Most specifically the undergraduate program should have included the following (numbers refer to WMU courses that would be acceptable):

1. Biology or Biomedical Sciences: Courses in at least three of the following four areas—ecology (BIOL 301), genetics (BMED 250 or BIOL 302), physiology (BMED 350 or BIOL 317 or BIOL 527), microbiology (BMED 312); or sufficient undergraduate course work so that three 500-level biology courses or three 500-level biomedical sciences courses can be taken in the graduate program.
2. Mathematics and Computer Science: Multivariate calculus (MATH 272), differential equations (MATH 274), elementary linear algebra (MATH 230), probability (MATH 460 or MATH 560), intro. FORTRAN programming (CS 306).
3. Chemistry: Organic chemistry (CHEM 360 or 365), biochemistry (CHEM 450).
4. Physics: General physics (PHYS 210 and 211).

### Admission procedures

1. Applications for Admission to the program for the Fall Semester must be received by the preceding March 1.
2. The Biostatistics Admission Committee will admit candidates to the program based on the following criteria:
  - a. strength and breadth of the undergraduate course work,
  - b. availability of internships. (Admission to the program is limited by the number of internship opportunities available.)
3. A promising student may be admitted to the program with deficiencies in the Admission Requirements and be required to complete this work as extra program requirements.

4. Students are urged to submit scores received on the Graduate Record Exam (GRE).

### Program requirements

1. *Statistics Component* (14 credit hours): MATH 562 (Statistical Analysis), MATH 660 (Statistical Inference I), MATH 662 (Applied Linear Models), MATH 664 (Design of Experiments I).
2. *Computer Science Component* (3 credit hours): CS 506 (Scientific Programming).
3. *Biology or Biomedical Science Component* (6 credit hours): Two approved 500-level biomedical science courses. These courses are chosen to fit a student's individual interest.
4. *Elective Component* (3 credit hours): an approved 500-600 level course from Statistics, Biology, or Biomedical Science.
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 intern must have successfully passed a written comprehensive examination covering the material of MATH 562, 660, and 662.
7. *Final Report*: At the completion of the internship each candidate must submit a final report on the internship project.

### Financial Assistance

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships and Fellowships. During the internship phase of the Biostatistics program students normally receive a stipend contributed by the sponsoring agency. Individuals desiring further information about financial support, or about the graduate programs related to mathematics as a whole, should contact the Mathematics Department (Room 3319, Everett Tower).

## Blind Rehabilitation

Western Michigan University, in cooperation with the Special Education and Rehabilitation Services Department of Education, offers two graduate programs in challenging careers in the emerging field of Blind Rehabilitation. All applicants must have completed their bachelor's degree at an accredited college or university.

All Orientation and Mobility students must possess the ability to monitor consistently the environment and the persons whom they are teaching to ensure their safety. Adequate distance is required so that the monitoring does not influence the interaction of the learner with the public or the physical environment.

Students are admitted into the programs at the beginning of the Fall, Winter, and Spring sessions.

## Orientation And Mobility

### Adviser:

**Marvin Weessies,**  
**Room 3410, Sangren Hall**

An orientation and mobility instructor teaches visually impaired children and adults the conceptual and physical processes involved in moving independently, safely, and efficiently in their homes and communities. The instructor is employed by public or private schools and agencies.

The professional preparation for the orientation and mobility specialist requires twelve months of study, which includes academic work, simulated experiences, and practice. The equivalent of two semesters is spent in residence on campus, and the third semester is spent off-campus in a supervised clinical experience.

## Rehabilitation Teaching

### Adviser:

**Lynne Luxton,**  
**Room 3413, Sangren Hall**

The rehabilitation teacher offers individualized instruction to blind and visually impaired persons in the following skills of independent living: communications, personal management, home management, minor household repairs, and leisure time activities. The rehabilitation teacher is employed in public or private agencies.

The professional preparation for the rehabilitation teacher requires twelve months of study, which includes academic work, simulated experiences, and practice. The equivalent of two semesters is spent in residence on campus, and the third semester is spent off-campus in a supervised clinical experience.

## Business

**Darrell G. Jones, Dean**  
**Ronald C. DeYoung, Assistant Dean**  
**Michele M. Moe, Admissions Officer**  
**Room 250, North Hall**

## Master Of Business Administration

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 efficiently in administrative and other leadership roles. Under the guidance of the graduate staff of the College of Business, personal programming for the participant is provided.

### Admission requirements

MBA applicants must submit scores for the Graduate Management Admission Test (previously known as the Admission Test for Graduate Study in Business) prior to consideration for admission to the program. The Graduate College's English Qualifying Examination is required for all graduate students in the College of Business before admission to the program will be completed.

Students admitted on a Permission to Take Classes (PTC) status are not allowed to enroll in graduate business courses.

### Program requirements

The MBA degree program requires, in addition to the prerequisites, a minimum of thirty-three hours of coursework, or twenty-seven hours and a Master's Thesis (6 hrs.) in a program approved by the student's graduate

adviser. A minimum of thirty hours must be taken in 600 or higher level courses. The program consists of prerequisites, MBA core courses, and an area of concentration.

A 3.0 overall graduate grade point average is required for graduation. Additionally, a 3.0 average is required for all grades received in all courses required for the MBA degree.

1. **Prerequisites:** In order to provide students with the background of the common body of knowledge in business and administration required by the American Assembly of Collegiate Schools of Business, the following courses are required in Accountancy, Economics, Finance, Law, Management, Marketing, and Statistics. This requirement may be satisfied by waiver (in case of prior completion of appropriate undergraduate courses, the WMU BBA core courses, or the equivalent); by examination; or by taking Introduction to Information Processing 102; Principles of Accounting 210, 211; Principles of Economics 201, 202; Business Finance 320; Legal Environment 340; Management Fundamentals 300; Marketing 370; and Statistics 200. A minimum grade of "C" is required in all prerequisites.
2. **MBA Core:** The core consists of Applied Economics for Management 600, Computer Information Systems 602, Legal Controls 607, Accounting Control and Analysis 607, Financial Management 608, Marketing Management 607, and Policy Formulation and Administration 699. MBA students with undergraduate majors/minors in Business Administration areas will be advised about proper upper-level discipline substitutes for core courses with the prior approval of their area advisers.
3. **MBA Concentration:** An area of concentration may be selected from Economics, Finance, General Business, Management, Marketing, or Paper Science. Usually this consists of three to five courses in an area (in addition to the MBA core). However, at least fifteen hours of credit must be taken outside the area of concentration.

### Program requirements

1. **Prerequisites:** These include coursework or the equivalent in Accounting, Economics, Finance, Law, Management, Marketing, and Statistics. Additional prerequisites may be specified by the department depending on the particular program (e.g., preparation in mathematics, behavioral sciences, computer programming, etc.).
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.
3. A 3.0 overall graduate grade point average is required for graduation. Additionally, a 3.0 average is required for all grades received in all courses required for the MSB program.

## Chemistry

**Adviser:**  
**Lin Foote,**  
**Room 5180, 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. Entrance requirements include admission to The Graduate College and the passing of qualifying examinations covering the fields of Analytical, Organic, and Physical Chemistry.

The qualifying examinations are scheduled during the week preceding each semester or session. New students, unless entering with an acknowledged deficiency, are required to take all three examinations before they start classes. Students who fail a qualifying examination must repeat it when next regularly scheduled and normally are required to attend the corresponding undergraduate course, if available. Enrollment in a 600-level Chemistry course is not permitted unless the appropriate qualifying examination has been passed.

The student is required to elect twenty to twenty-four hours in the field of Chemistry, including the Master's Thesis. The remaining six to ten hours may be in a related field or fields. A final oral examination administered by the student's graduate committee must be passed. The course sequence will include (if not previously elected):

1. Nine hours of 600-level courses from at least three of the following divisions, including one course in the division of the Master's Thesis: Analytical, Biochemistry, Inorganic, Organic, and Physical,
2. CHEM 501. Chemical Communications.
3. CHEM 505. Chemical Literature.
4. CHEM 506. Chemical Laboratory Safety.
5. CHEM 520. Instrumental Methods in Chemistry and either CHEM 510, Inorganic Chemistry or CHEM 550, Biochemistry I, or CHEM 552, Biochemistry I with Laboratory.
6. CHEM 601. Graduate Seminar, (Attendance required every semester).
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.

## Communication Arts And Sciences

**Director, Graduate Program:**  
**Shirley A. Van Hoeven,**  
**312 Sprau Tower**

### Master of Arts In Communication Arts And Sciences

The Master of Arts in Communication Arts and Sciences has two options: Option A—General Communication, and Option B—Organizational Communication. The Option in General Communication provides for a highly flexible program designed to fit a wide variety of student needs in several areas of communication. The more specialized option in Organizational Communication is designed for those students whose vocational interests involve using communication in an organizational setting. Individual programs are designed in consultation with the graduate adviser based on a student's needs, interests, and vocational 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.

#### OPTION A—GENERAL COMMUNICATION

The general degree option in Communication Arts and Sciences will be of interest to students desiring a terminal program or those contemplating post-graduate study. Students currently may choose to pursue interests in one or more of the following areas: communication education, mass communication theory, communication theory, interpersonal communication, and organizational communication.

#### Program requirements

1. A minimum of thirty semester hours must be completed in Communication and cognate course work. Selection is to be made in consultation with the graduate adviser.
2. Each semester the student is enrolled, he/she must consult with the graduate adviser.
3. A Master's Thesis (6 hrs.) is optional.

#### 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.

## Master of Science In Business

The Master of Science program permits the student to specialize in a specific area of business such as Administrative Services, 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 (formerly known as the ATGSB) prior to consideration for admission to the program, successfully complete the English Qualifying Examination prior to admission to the program, and also meet undergraduate point-hour ratio requirements specified by the departments, which may be higher than The Graduate College's minimum requirements.

Students admitted to the University on a Permission to Take Classes (PTC) status are not allowed to enroll in graduate business courses.

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 projects such as action research programs; (2) coordinating diverse members and groups for organizational projects; (3) coordinating efforts to resolve conflicts among individuals and groups within the organization; and (4) implementing and regulating the flow of messages to and from the organization in its relations with other organizations.

Course work combines communication theory and social scientific methods in the exploration of how information is exchanged and relationships are developed and maintained in effective organizations.

### Program requirements

The option in organizational communication includes thirty hours of academic course work and six hours of an applied research project or internship. The thirty hours consist of a core of recommended courses in Communication Arts and Sciences which focus on specific organizational communication dimensions, selected cognate courses in other departments to provide greater depth and breadth in organizational theory, and additional selected courses in interpersonal, organizational or mass communication, depending on the student's needs and objectives. The six hour research project or internship is the application of the student's course work in communication and research in a specific organizational setting.

The program requirements are:

1. Completion of thirty-six semester hours of course work chosen in consultation with the student's Advisory Committee.
2. A recommended core of fifteen hours:
  - CAS 547, Organizational Uses of Radio and Television (3)
  - CAS 549, Public Relations and Organizations (3)
  - CAS 581, Communication in Organizations (3)
  - CAS 681, Group Communication Processes (3)
  - CAS 673, Conflict Management (3)
 Additional courses in CAS will be selected, based on student needs and vocational objectives.
3. A minimum of six hours of cognate course work in organizational theory selected from the following:
 

PSCI	534	Administrative Theory and Analysis
SOC	501	Social Systems Theory and Analysis
SOC	575	Industrial Sociology
SOC	576	Sociology of School Organization
SOC	673	Formal Organization
EDLD	661	Human Relations—Supervision
SWRK	630	Social Change Theory and Community Analysis
SWRK	632	Organizational Theory for Human Service Management
MGMT	651	Analysis of Administrative Behavior
MGMT	653	Behavioral Science Application for Managerial Effectiveness
MGMT	655	Organization Theory
MGMT	657	Behavior Analysis Application

4. Six semester hours of CAS 710, Independent Research, or CAS 712, Professional Field Experience, for a research project or practicum in organizational communication.

Exceptions to these requirements may be made on the basis of professional experience and the needs of the individual.

## Computer Science

**Advisers:**  
**Elise deDoncker-Kapenga,**  
**Dionysios Kountanis,**  
**Dalia Motzkin**

The Master of Science in Computer Science is primarily a professional program that emphasizes computer software development. It is designed to prepare students for positions in computer organization and systems development in industrial corporations, in government service or in computer services companies. Graduates will also be well prepared to teach computer courses in two-year colleges or to undertake more advanced training in Computer Science.

Students with a strong undergraduate background in Computer Science and Mathematics may be able to complete the program in eighteen months, but most students will probably require a longer period of time.

### Admission requirements

Candidates for admission to this curriculum must have satisfactorily completed an undergraduate program containing courses in both Mathematics and Computer Science. Candidates should have Mathematics courses including a calculus sequence and a course in abstract algebra or discrete structures. Students without this background will be asked to complete appropriate course work, such as MATH 122, 123, 230, and 310 as admission requirements. Candidates should have Computer Science course work including a thorough knowledge of a computer assembly language, computer organization, data structures, structured programming, and a course covering programming applications at an intermediate level. Students without this background will be asked to complete course work which will be approximately the equivalent of an undergraduate Computer Science minor. Applicants are urged to submit Graduate Record Examination aptitude scores and TOEFL scores, if appropriate.

Students entering the M.S. program who are not familiar with the DEC System-10 should attend the non-credit workshops on system Monitor Commands and editing languages offered early each semester by the WMU Academic Computer Center.

### Program requirements

Each student must complete an approved program consisting of at least 31 hours of graduate work including the following:

1. CS 542, 544, 554, 625, 631, and 691
2. Two approved courses from CS 632, 643, 655, 680, or 681
3. Additional approved electives from CS 527, 603, 632, 643, 655, 680, 681, 682, 710, 712, MATH 560, 567, 640, PHIL 520 or MGMT 564. Students who, with the approval of their adviser, elect the Thesis option will register for 6 credits of work in CS 700.

A final examination covering the basic courses of the student's program is required of all students who do not elect the Thesis option.

Prospective students should realize that the general requirements for a Master's degree include the attainment of a satisfactory score on the English Qualifying Examination.

Every graduate of this program, in addition to receiving a strong theoretical grounding, should also be a competent programmer and have practical experience in computer consultation and computer systems.

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 Research Assistantships are provided through the Computer Science Department. Certain other academic departments, particularly the Department of Mathematics, provide Assistantships to Computer Science students. In addition, many students are engaged in part-time employment with private businesses, educational institutions, or other areas of WMU. Individuals desiring further information on Fellowships or Assistantships should contact the Department Chairperson or a Program Adviser.

## Counseling And Personnel

### Advisers:

**Beverly Belson, Robert L. Betz, Kenneth Bulmer, William A. Carlson, John S. Gelsler, Robert F. Hopkins, Gilbert E. Mazer, Robert M. Oswald, Edward L. Trembley, Thelma Urbick. The Department office is located in Room 3312, Sangren Hall.**

The Master of Arts programs in Counseling and Personnel are offered in three areas of concentration with seven options:

1. Community Agency Counseling
  - a. Counseling in Community Agency Settings
  - b. Counseling in Clinical Mental Health Settings
2. Pupil Personnel Services, K-12
  - a. Counseling in Elementary Education
  - b. Counseling in Secondary Education
  - c. Career Development Specialist
3. Student Personnel Services, Post Secondary Education
  - a. Administration of Student Personnel Services
  - b. Counseling in Post-Secondary Education

These master's programs are designed to prepare individuals for entry level positions in counseling and personnel services in educational and non-educational settings. All programs require a minimum of forty-eight semester hours of course work. The program of study for each of the seven options includes six core courses of three semester hours credit each. Listings of all course requirements for the program options are available from advisers and the Department office. Students are expected to work closely with advisers to keep informed of policies, changes in policies, schedule of course offerings, course prerequisites, and applications required for some 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 program Counseling in Community Agency Settings provides great flexibility in designing a course of studies to meet the interests and needs of the student. In addition

to the regular theory and practice courses, students may, with approval of adviser, select courses for a special area of concentration related to counseling and therapy. Selection may be made from, but not limited to, such areas as gerontology, criminal justice, alcohol and drug abuse, marriage, family, and holistic health.

The Counseling in Clinical Mental Health Settings program provides focus on psychopathology, personality, individual counseling and therapy, assessment, ethics, counseling psychology, with advanced practicum experience.

Programs in Counseling in Elementary Education, Counseling in Secondary Education, and Career Development Specialist, cover counseling theory and practice, personality, ethics, testing, career development, psychoeducational consultation, and administration of pupil personnel services in elementary and/or secondary schools.

The Administration of Student Personnel Services program focuses on college student development, student services programs, legal and ethical issues, program evaluation, interviewing skills, and administration of student affairs in post-secondary education.

The program Counseling in Post-secondary Education accents college student development, individual and group counseling, personality, psychopathology, ethics, testing, counseling, and other student services in higher education.

Admission to a Master of Arts program in the Department presently is based upon undergraduate grade-point average, educational background, and counseling and personnel service related experience. Prior to consideration by the M.A. Admissions Committee, applicants are required to complete and return a questionnaire indicating, among other things, the program option desired. Interviews, letters of recommendation, test scores, and other material may be required also. Upon admission each student is assigned an adviser who will assist in preparing a Program of Study for submission to The Graduate College. The program of study, which also serves as the application for candidacy, should be completed during the first semester or session of enrollment.

## Development Administration

**Adviser:**  
**Claude Phillips,**  
**Room 3007, Friedmann Hall**

The graduate program in Development Administration is offered by the Department of Political Science and leads to the degree of Master of Development Administration (MDA). The program is designed for students who plan to pursue careers in public administration in Africa, Asia, the Middle East, Latin America, or other areas usually described as "developing." The objective of the program is to provide graduate students with professional training in public administration, with special attention given to the problems of countries attempting to develop economically, politically, and socially. In this context, public administration bears the exceptional burden of translating public policy into successful sequences of change. Public administration becomes the bridge between modernizing elites in politics and traditional masses in their struggle to survive. A major strength of this program is the highly qualified faculty specialists who have devoted

many years of research, residence, and travel in the developing areas and who apply their knowledge of these areas to the problems of public administration. By combining these faculty with appropriate courses, students will get a good grounding not only in public administration, but in techniques for analyzing and coping with the special problems of developing areas.

### Admission requirements

Applicants must satisfy the requirements for admission to The Graduate College in order to be considered for admission to this program. Actual admission to the program requires, of graduates of U.S. universities, a 3.0 average (on a 4.0 scale) in the social sciences. Graduates of foreign universities must show an overall grade level of "very good" and demonstrate English proficiency.

### Program requirements

The Master of Development Administration requires forty-two (42) semester hours of study. Full-time students will ordinarily take sixteen (16) to twenty (20) calendar months to complete the program. The basic requirements are as follows:

1. Prerequisites (non-credit): The following courses or their equivalents: PSCI 200, National Government; PSCI 330, Introduction to Public Administration; and ECON 201 or 202, Principles of Economics.
2. Core requirements: The core consists of thirty-three (33) hours of required courses, or a total of eleven (11) courses. These are selected so as to provide: (a) course work in administrative theory, personnel management and budgeting; (b) comparative public administration; (c) research methods and statistics; (d) skills in computer usage, supervision and office management; and (e) a research paper.
3. Electives: Nine (9) hours that concentrate on some topic of relevance to public administration in developing areas will be selected by the student with the approval of the Graduate Adviser.

## Earth Science

**Advisers:**  
**Richard N. Passero,**  
**Room 1125, Rood Hall**  
**W. Thomas Straw**  
**Room 1129, Rood Hall**

The Master of Science degree program in Earth Science is interdisciplinary with geology as a core. Two options are available.

## Earth Science Teaching

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

### Admission requirements

Students should have completed an undergraduate major in earth science or its equivalent and one semester each of college chemistry and physics. Deficiencies in undergraduate preparation must be completed before admission to candidacy (see general degree requirements). Students planning to teach in secondary schools should complete certification requirements.

### Program requirements

A minimum of thirty hours is required for the degree, including:

1. Regional Geomorphology of the United States, Marine Geology, Studies in Climatology and Meteorology, and Astronomy, as available.
2. All students are expected to attend Departmental seminars and are required to give one presentation in residence. 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. Electives in earth science or related disciplines with consent of graduate adviser.
6. Oral defense of the thesis or independent research will substitute for the comprehensive exam.

## Earth Science Environmental

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

### Program requirements

A minimum of thirty hours is required for the degree, including:

1. Thirty semester hours of graduate credit in the earth and related sciences. Students must have completed two of the following four courses: Surficial Processes and Groundwater Geology, Glacial Geology, Environmental Geology, Remote Sensing of the Environment or must complete two of these courses as remedial work.
2. A core of fifteen semester hours in geology is required, including the remaining two courses from the above four.
3. Satisfactory completion and oral defense of GEOL 700 (Master's Thesis) or GEOL 710 (Independent Research).
4. Pass a comprehensive oral examination. Failure of the final oral comprehensive examination may be followed by a second oral or written examination.

## Economics

### Adviser:

**Raymond E. Zelder**  
Room 5075, 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, pursuing the Ph.D. degree at other universities. Two tracks for the M.A. program are offered: an Applied Economics track and a Traditional/Research track. The M.A. degree program in Economics requires a minimum of thirty graduate hours of credit and provides the opportunity for concentration in the following fields: economic theory, banking and monetary theory, industrial organization and public policy, labor and industrial relations, international economics, economic systems, economic development, public finance, urban economics, econometrics and mathematical economics, managerial economics, and human resources.

### Admission requirements

1. Satisfactory completion of a minimum of twelve undergraduate hours in economics or in equivalents approved by the graduate adviser.
2. Satisfactory completion of intermediate level courses in microeconomic and macroeconomic theory. Students not meeting this requirement will be admitted with reservation and be required to complete satisfactorily ECON 303 and 306.

### 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 made in consultation with the graduate adviser.
2. At least an overall "B" average in the Economics courses that the student takes in an adviser-approved program of study.
3. ECON 603, Advanced Price Theory, and ECON 662, National Income Analysis, are required.
4. Pass written and oral comprehensive examination.

## Education

The College of Education offers Master of Arts degree programs in Counseling and Personnel, Early Childhood Education, Educational Leadership, Physical Education, Reading, Special Education, Teaching in the Community College, Teaching the Economically and Educationally Disadvantaged, and several Curricula in Teaching, including Teaching in the Elementary School and Teaching in the Middle or Junior High School. Descriptions of these programs can be found elsewhere in this section of the *Bulletin*. Several of these programs, including Teaching in the Community College and six of the Curricula in Teaching, are offered by the Department of Education and Professional Development in cooperation with departments in the College of Arts and Sciences and the College of Fine Arts.

The curricula are planned to provide professional preparation for students who are interested in teaching, administration, and certain specialized positions in elementary and secondary schools and community colleges. With the exceptions noted below, students applying for candidacy in the programs within the College of Education are expected to have completed a minimum of fifteen hours of undergraduate work in professional education. In some instances, students may present equivalent preparation which meets the minimum requirements for teacher certification, when such preparation is approved by the College of Education.

The exceptions are:

1. The fifteen hours of undergraduate preparation in professional education are not required of those interested in leadership positions in higher education and those who enter the Program Leadership curriculum in the Department of Educational Leadership.
2. The fifteen hours of undergraduate preparation in professional education are not required in the Counseling and Personnel curriculum chosen by individuals interested in the ministry, business counseling, and counseling positions and social services occupations.

## Education And Professional Development

**Office of Orientation and Advising for the College of Education**

### Advisers:

**Charles Comer**  
**William Kanzler**  
**Virginia Sorenson, Director**  
2305 Sangren Hall

Those seeking information on graduate programs within the College of Education may seek assistance in the Office of Orientation and Advising. Advisers will make referrals to other advisers or advising facilities, when appropriate. Students with a Bachelor's degree, seeking certification, are required to be counseled by the certification officer.

## Early Childhood Education

### Advisers:

**Dorothy Bladt, Bea Brenton, Mary Cain,**  
**Edsel Erickson, Rachel Inselberg**

The Master's degree program prepares professionals to work in early childhood education, parent education, and other programs involving the nurture and welfare of infants and young children from birth to nine years. The program includes academic qualifications for a ZA (Early Childhood) Endorsement on the Continuing Certificate. Individualized programs help to prepare candidates for their personal career goals in public schools or in a variety of other settings.

### Admission requirements

1. Make application directly to the early childhood faculty of the Department, as well as to The Graduate College. (Application forms are provided upon inquiry to Dr. Cain, 2430 Sangren Hall.)

2. Arrange and hold a personal interview with an early childhood faculty member. Students are admitted to begin the program each summer. Candidates wishing to begin their programs prior to the summer workshop may do so, providing their courses are approved by an early childhood adviser.
3. (a) Hold an Elementary Teaching Certificate, or present evidence that an approved program for the certificate will be completed,  
OR  
(b) Present an acceptable rationale for securing the degree without the certificate, and agree to compensate if necessary for deficiencies as part of the candidate's individual program.

### Program requirements

1. Each candidate's program will include a core of courses (ED 606, 607, 608, and 609), to be taken with the candidate's entering group, and to provide common understandings regarding the growth and nurture of young children and the effects of public policy on young children's lives. For some candidates, experiences in program administration and evaluation will also be expected.
2. Each candidate's program beyond the core will be individually designed in consultation with an adviser to provide courses, independent and research studies, and field experiences pointing toward the candidate's individual career goals. Flexibility is stressed in order to meet a variety of interests and objectives.

## Reading

### Advisers:

**Jim Burns, Joe Chapel, Ron Crowell, Ted Kilty, Bruce Lloyd, Dorothy McGinnis.** The Language in Education Center is located in Room 3514 Sangren Hall.

Graduate programs in reading at Western Michigan University prepare educators with further training and qualifications for advanced positions in education. The program provides a Master of Arts in Reading with a concentration in one of three types of preparation.

Elementary—designed to assist the elementary classroom teacher improve reading instruction for the classroom or to serve as an elementary school reading teacher.

Secondary—designed for secondary teachers, college instructors, and/or teachers of adults. The focus is to assist in the improvement of the reading abilities of secondary-aged, college, and adult readers.

Special Services—designed to help the prospective special reading teacher improve the reading achievement of students at all grade levels. The Special Services concentration particularly emphasizes diagnostic and therapeutic work.

### Admission requirements

In addition to meeting the regular admission standards of The Graduate College, students wishing to qualify for entrance into the master's program in reading must have completed at least one undergraduate course in the teaching of reading. Those desiring to teach in the field must have or seek appropriate elementary or secondary certification through College of Education programs.

**Program requirements**

Thirty-six hours of graduate work are required as a minimum for graduation. These may be selected from the following:

1. Nine hours selected from the following courses in the education core:
  - a. ED 601, Fundamentals of Educational Research or ED 600, Fundamentals of Measurement and Evaluation in Education
  - b. ED 602, School Curriculum
  - c. ED 603, Social and Philosophical Foundations of Education
  - d. ED 604, Psychological Foundations of Education
2. The Reading Concentration—Twenty-one hours  
 Twenty-one hours in reading, fifteen to eighteen of which must be in the candidate's selected concentration: elementary, secondary, or special services. Three to six hours may be selected from the various reading electives. All courses must be approved by the candidate's program adviser.
3. Related cognates—Six hours selected from courses outside the College of Education which have been approved by the adviser.

## Teaching In The Community College

**Advisers:**  
**William H. Kanzler,**  
**Room 2305, Sangren Hall**

The focus of this thirty-hour program, which leads to the Master of Arts degree, is the development of professional faculty for community colleges. The main concern of the program is that the academically able person can also become instructionally efficient.

**Admission requirements**

1. An undergraduate major in an academic field or concentration.
2. Evidence of a real interest in working with community college students of a very broad age range.

**Program requirements**

1. Seven hours made up of the following professional courses: ED 600, Fundamentals of Measurement and Evaluation in Education, or ED 601, Fundamentals of Educational Research, the choice to be made in consultation with the adviser  
 ED 650, Characteristics of the College Student  
 ED 690, The Community College
2. A minimum of sixteen hours in the student's major
3. A maximum of seven hours may be elected from the student's minor area for cognate courses related to the major field. In cases in which a student has had little or no teaching experience, an internship may be substituted for one or more courses at the discretion of the adviser.

## Teaching The Economically And Educationally Disadvantaged

**Advisers:**  
**Carol P. Smith,**  
**Room 2442, Sangren Hall**  
**Jess M. Walker,**  
**Room 2437, Sangren Hall**

The rapid urbanization of our population accompanied by profound changes in industrial technology has created a large group of economically underprivileged people living in environmental conditions and maintaining value systems significantly different from those of the traditional middle class. This disparity has created both a problem and a challenge for the education profession. This Master of Arts degree program is designed to prepare elementary and secondary teachers to work with economically and educationally disadvantaged children.

**Admission requirements**

Admission to The Graduate College. Demonstrated interest in teaching economically disadvantaged children.

**Program requirements**

1. Thirty hours of graduate credit, including the required ED 535, Introduction to Teaching the Disadvantaged; ED 601, Fundamentals of Educational Research; ED 659, Seminar: Methods and Techniques in Teaching the Disadvantaged; and ED 712, Professional Field Experience.
2. The remainder of the degree requirements may be satisfied by selecting courses in the student's major and minor fields of specialization, from related areas and from areas of special need, depending upon the background of the student, the educational level of children taught, and the vocational goal of the student. These courses are selected to provide depth and breadth in subject matter fields, as well as to improve understanding of the social, cultural, and educational problems of the disadvantaged children.

## Teaching In The Elementary School

**Advisers:**  
**Mary Cordier,**  
**George Miller,**  
**Room 2305, Sangren Hall**

The Master of Arts in Teaching in the Elementary School, one of the Curricula in Teaching, is intended to prepare teachers for superior classroom performance. The program will provide opportunities for candidates to explore their roles as teachers in a rapidly changing society and to continue to develop their skills in working with elementary school children. The program affords great flexibility and can be individualized, with the aid and consent of the candidate's adviser, to fit the needs and professional goals of each candidate. The degree requires a minimum of 30 graduate hours.

**Admission requirements**

Regular admission in The Graduate College.

**Program requirements**

1. Possess or be eligible for a valid elementary teaching certificate, or its equivalent, from the State of Michigan.
2. Nine hours selected from the following four courses:
  - a. ED 600, Fundamentals of Measurement and Evaluation in Education, or ED 601, Fundamentals of Educational Research
  - b. ED 602, School Curriculum
  - c. ED 603, Social and Philosophical Foundations of Education
  - d. ED 604, Psychological Foundations of Education
3. Electives, as necessary, to bring the total program credits to a minimum of thirty semester hours.

## Teaching In The Middle Or Junior High School

**Adviser:**  
**William H. Kanzler,**  
**Room 2305, Sangren Hall**

The thirty-hour Master of Arts in Teaching in the Middle or Junior High School is designed for teachers who teach (or plan to teach) in grades 4-9 and who wish to improve programs for children in these grades.

**Admission requirements**

Regular (not probationary or PTC status) admission to The Graduate College.

**Program requirements**

1. ED 622, Middle-Junior High School Curriculum
2. C-P 580, Principles and Philosophy of Guidance
3. At least 6 semester hours, selected from the following:
  - a. Either ED 600, Fundamentals of Measurement and Evaluation in Education, or ED 601, Fundamentals of Educational Research
  - b. ED 603, Social and Philosophical Foundations of Education
  - c. ED 604, Psychological Foundations of Education
  - d. A graduate level course in "the teaching of reading."
4. At least 6 semester hours in the major and/or minor area(s) of "subject matter" concentration with the approval of the adviser.
5. At least 6 semester hours (in addition to those being used by the student to satisfy Requirements 1, 2, 3, and 4 above) in professional education and/or the major/minor areas of concentration with the approval of the adviser.
6. Electives, as necessary, to bring the total credits in the program to at least the minimum of thirty semester hours.

## Curricula In Teaching

The following teaching curricula all have the same general requirements for completion of the thirty graduate hours for the Master of Arts degree. These requirements include:

1. Nine hours selected from the following courses in the Education core:
  - a. ED 600, Fundamentals of Measurement and Evaluation in Education, or ED 601, Fundamentals of Educational Research
  - b. ED 602, School Curriculum
  - c. ED 603, Social and Philosophical Foundations
  - d. ED 604, Psychological Foundations of Education

2. Fifteen hours in the major or related academic fields.
3. Six hours of electives, some or all of which may be in professional education or the major field.

The Curricula in Teaching graduate advisers and the prerequisites for admission, in addition to the fifteen hours of undergraduate work in professional education or the equivalent, are listed below:

#### Teaching of Art

Adviser: Deb Roseboom

Prerequisite: Portfolio required, request criteria from Art Department (general level of competency now required is equivalent to a major in Art).

#### Teaching of English

Adviser: Arnold Johnston

Prerequisite: Minor in English

#### Teaching of Geography

Advisers: Joseph Stoltman, George Vuicich

Prerequisite: None

#### Teaching of Mathematics

Adviser: Christian Hirsch

Prerequisite: Minor in Mathematics

#### Teaching of Music

Adviser: Mel Ivey

Prerequisite: Major in Music

#### Teaching of Vocational Education

Advisers: Jack Humbert, Charles Risher

Prerequisite: Minor in Industrial or Vocational Arts

## Educational Leadership

#### Advisers:

**Thomas F. Ryan, Chairperson; Robert O. Brinkerhoff, Mary Anne Bunda, David Cowden, Kenneth Dickie, Sidney Dykstra, James R. Sanders, Larry B. Schlack, Carol F. Sheffer, Uldis Smidchens, Charles C. Warfield.** Department office is located in Room 3312, Sangren Hall.

The Master of Arts is awarded in curricula intended to prepare personnel for positions as educational/organizational leaders, positions that are largely non-instructional in nature. MA degree recipients often elect to work toward additional advanced degrees. Therefore, students entering the MA curriculum should also consider advanced degree requirements.

Upon notification of admission to the master's program by The Graduate College, each student will be assigned to a program adviser. Advisers are, whenever possible, selected on the basis of the student's professional interests and career goals. The adviser and student outline a program of study which is multidisciplinary in nature and organized in four focal areas:

8\* -13 hrs. in Administration  
8\* -11 hrs. in Human Relations  
6 - 9\* hrs. in Concept Formation  
At least 3 hrs. in Research  
0 - 3 hrs. in Independent Study

30 hrs. *minimum* Total

At least eight hours of the thirty-hour *minimum* must be outside the College of Education.

Curricula available within this degree program include:

*Line Administration*—prepares the student for a position as a central office administrator of a school district; as a principal and/or director in a school district; as a central administrator in a post-high school educational agency; or as a chief executive officer, vice-president, or administrator in institutions of higher education, government agencies, or private industry.

*Staff Administration*—offers preparation for a position as a coordinator, director, or supervisor in public or private schools, colleges, universities, or service or business agencies in areas such as finance, personnel, or a special service (for example, research).

*Program Leadership*—prepares the student for a position as a director of training and/or management development in the armed forces, business, government, industry, a professional association, or a trade union, or as a director or coordinator of educational programs in a social welfare agency.

*Human Resource Development*—A highly structured program intended for the entering HRD professional. Emphasis is placed on the acquisition of technical skills needed to develop, design, deliver, and manage projects of a training/educational nature.

\*Certain career goals within the program may alter the number of hours required in these areas. Curricula available within this degree include, but are not limited to: agriculture, community education, distributive education, early childhood, evaluation, home economics, industrial and technical education, media, training and development, and vocational education.

## English

#### Adviser:

**Arnold Johnston,  
Room 618, Sprau Tower**

### Master Of Arts In English

The Master of Arts in English provides at an advanced level a study of literary history, literary theory, and special literary problems. Those desiring to enter the program should present a thirty-hour undergraduate major with a grade-point average of 3.0. 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. Students should consult with the adviser at the earliest opportunity concerning their program of study.

Required courses in the program are ENGL 615, Literary Criticism; ENGL 630, Research and Writing; ENGL 640, The Nature of Poetry. All other courses in the student's program are selected by the student and the graduate adviser to complete a coherent thirty semester hour program. Other requirements are detailed in a general informational booklet titled "Graduate Programs Offered by the English Department at Western Michigan University," which is available from the Department of English or the English graduate adviser.

## Master Of Arts In Teaching Of English

The Master of Arts in the Teaching of English is jointly administered by the Department of English and the College of Education. The basic purpose of this degree program is to offer course work in English and teacher education to enhance the student's teaching abilities in general, and especially in the area of English. Those desiring to enter the program should present a minimum of an undergraduate English minor (twenty semester hours) with a grade-point average of 3.0. Where appropriate, dependent upon the student's background and experience, the Department may require more than twenty undergraduate English credit hours before a student is admitted to the Teaching of English program. Minimal requirements for the Master of Arts degree in the Teaching of English include the completion of nine semester hours of course work in the Department of Education and Professional Development. Three English courses are required: ENGL 615, Literary Criticism; ENGL 630, Research and Writing; and ENGL 640, The Nature of Poetry. All other courses in the student's program of study are selected by the student and the graduate adviser to complete a coherent thirty semester hours program. Normally the student will take eighteen hours of course work in the Department of English. Other requirements are detailed in a general informational booklet titled "Graduate Programs Offered by the English Department at Western Michigan University," which is available from the Department of English or the English graduate adviser.

## Master Of Arts In English With An Emphasis On Professional Writing

The Master of Arts in English with an Emphasis on Professional Writing is a degree program designed to meet the increasing demand for people with solid liberal arts educations who have skill in the writing of non-fictional prose. Those entering the program should have had either an undergraduate major in English or a substantial number of undergraduate English courses.

The program requires that students take four writing courses—ENGL 630, Research and Writing; ENGL 631, Essay Writing; ENGL 632, Article Writing; and ENGL 633, Professional Writing—several courses in a field other than English (8-12 hours), and sufficient graduate-level courses in English to bring their total to 38 hours. Students should consult with the adviser at the earliest opportunity concerning their individual program of study.

For more detailed information about the Professional Writing program see the pamphlet titled "Graduate Programs Offered by the English Department at Western Michigan University," which is available from the Department of English or the English graduate adviser.



## Master of Fine Arts In Creative Writing

The Master of Fine Arts in Creative Writing is a 48-hour degree program for students who wish to become professional writers of poetry, fiction, or drama; it qualifies them to teach the craft of writing at the college or university level. Those seeking to enter the program must have had an undergraduate major in English and must present a portfolio of writing they have done in the form in which they expect to specialize.

The program requires that the student take 12-18 hours in writing workshops; ENGL 640, The Nature of Poetry; either ENGL 642, Studies in Drama, or ENGL 644, Studies in the Novel; 6-8 hours in courses in modern literature; ENGL 699, M.F.A. Project; and sufficient other courses in English and cognate fields to bring the total to 48 hours. Applicants already holding a Master of Arts in English may expect that some but not all of the credits from that degree will count towards the M.F.A. degree.

For more detailed information about the requirements for the M.F.A. program and for the forms needed to apply for admission to it, write to the department's graduate adviser.

## Geography

**Adviser:**  
**Charles F. Heller,**  
**Room 332, Wood Hall**

## Master of Arts In Geography

The goals of the geography Master's program 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. Before the completion of ten graduate hours, all geography graduate students must meet the following requirements:

1. Successful completion ("B" grade or better) or enrollment in Principles of Cartography (GEOG 375) or approved equivalent;
2. The attainment of passing scores on the comprehensive qualifying examinations in physical and human geography.

### Program requirements

1. Completion of a minimum of three courses in *one* of the five following areas of concentration:
  - a. Community Development and Planning
  - b. Economic and Urban Geography
  - c. Environmental and Resource Analysis
  - d. Physical Geography
  - e. A Regional Concentration: Africa, Asia, Europe, or Latin America.

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 (Geography Research) and GEOG 567 (Computerized Geodata Handling and Mapping); GEOG 666 (Professional Development Seminar). GEOG 556a (Urban Planning and Zoning) also is required for the Community Development and Planning concentration.
4. Completion of 6 hours of GEOG 700 (Master's Thesis) or two to six hours of GEOG 710 (Independent Research). In addition, students may enroll in GEOG 712 (Professional Field Experience), and students with the Community Development and Planning concentration must complete a six-hour internship (enrolling in GEOG 712).

## Master Of Arts In Teaching Of Geography

**Advisers:**  
**George Vuicich, Room 322, Wood Hall**  
**Joseph Stoltman, Room 321, Wood Hall**

The 30-hour Master of Arts in the Teaching of Geography is designed to improve the classroom teacher's competencies. There are two major objectives: to provide elementary and secondary teachers with a graduate degree option which combines the content of geography and related disciplines with professional development, and to provide elementary and secondary teachers with the skills and knowledge necessary for providing educationally sound learning experiences for their students

### Admission requirements

There are no prerequisites for entry into the program. The prospective candidate should examine state teacher certification requirements if those have not been fulfilled in an undergraduate program. Prospective candidates are requested to take three diagnostic exams for advising purposes.

### Program requirements

The minimal requirements for the Master of Arts in the Teaching of Geography include the following:

1. At least twelve approved semester hours in geography courses offered for graduate credit.
2. Completion of nine approved semester hours of Education core courses, including either ED 600, Fundamentals of Measurement and Evaluation in Education, or ED 601, Fundamentals of Educational Research.
3. Completion of six hours of electives with consent of the Teaching of Geography adviser.
4. Capstone experience: Each student will culminate the degree program with an internship (GEOG 712) in the Teaching of Geography. In most instances this will be a specifically designed internship in the teacher's own classroom or school building in which elements of educational research and curriculum development instructional strategies are employed within an investigative context. Internships for full-time students will be arranged by the Department of Geography.

## Geology

**Adviser:**  
**Ron B. Chase,**  
**Room 0039, 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 adviser. Areas of specialization in the Geology Department include Sedimentary Geology-Paleontology, Structural Geology, Petrology-Mineralogy, Environmental and Surficial Geology, and Geophysics
2. All students are expected to attend Departmental seminars and are required to give one presentation in residence. Students may enroll for credit in GEOL 660 for seminar presentations.
3. A copy of the Graduate Record Examination score in Geology must be supplied to the department before the end of the first semester in residence.
4. Satisfactory completion of GEOL 700, Master's Thesis (6 hrs.)
5. Take an exploratory exam at the beginning of the first semester in residence.
6. Successful completion of an approved rock-oriented field course if not completed in the student's undergraduate program.
7. Pass an oral thesis defense examination. In the case of failure, one retake is possible.

## History

**Adviser:**  
**H. Nicholas Hamner,**  
**Room 4005, Friedmann Hall**

The Master of Arts in History is designed to amplify and augment the training of students who completed concentrations in history at the undergraduate level. The program qualifies students for further graduate work in History. It also helps prepare students for such fields as teaching, government, and administration of historic agencies.

### Admission requirements

An undergraduate major in History, or extensive preparation in the social sciences including at least fifteen hours of History. In the absence of such preparation, the departmental graduate committee may require appropriate remedial course work.

### Program requirements

1. Earn thirty hours of graduate credit in History including the Master's Thesis, or thirty-three hours of graduate credit in History if a non-Master's Thesis option is chosen.

2. Choose a major field of concentration in History in consultation with the Graduate Adviser. Complete satisfactorily a written and oral comprehensive examination covering the field of concentration and one of the following: the Master's Thesis, the Master's Essay, Public History area, or additional course work. The Department offers course work in most of the traditional areas of European and United States History as well as a limited number of courses for students with special interests.
3. Complete at least nine hours of course work in the field of concentration.
4. Choose one of the options listed below:
  - a. Write a Master's Thesis (6 hours) in the designated field of concentration.
  - b. Write a Master's Essay (4 hours) in the designated field of concentration.
  - c. Specialize in the Public History area.
  - d. Complete additional course work in History.
5. Complete: History 690, Historical Research Methods; History 691, Historical Sources; and History 692, Historiography. (In cases approved by the Graduate Adviser students may substitute History 695, Readings in Selected Fields, for History 691.)
6. Complete two seminars: History 693, Seminar in History.
7. The Department recommends that students acquire a reading knowledge of an appropriate foreign language.

## Home Economics

### Advisers:

**Sue Coates, Linda Dannison**  
**Department of Consumer Resources and Technology**  
**Room 3018, Kohrman Hall**

## Master Of Arts In Home Economics

Graduate programs in Home Economics, offered through the Department of Consumer Resources and Technology, are designed to provide either a comprehensive program of studies in Home Economics or an in depth program of studies for the person desiring to strengthen specialized interest areas.

The Master of Arts in Home Economics is designed for the person with a Bachelor of Science or Arts in Home Economics or Home Economics-related program of studies.

The degree may be used as a foundation for continued graduate work leading to a doctoral degree at another institution.

### Program requirements

1. All master's programs include a minimum of 30 semester hours, fifteen of which must be of 600-level or higher; at least two hours of seminar credit, and at least two hours of CRT 710, Independent Research.
2. Complete a total of twenty hours in Home Economics in graduate level courses in two or more areas, planned in consultation with departmental adviser.
3. Complete a minimum of ten hours at the graduate level in allied areas, planned in consultation with departmental graduate adviser.

## Library and Information Science

### Advisers:

**Hardy Carroll, Gordon Eriksen, William K. Smith**  
**Room 2080, Waldo Library**

The major emphasis of the School of Library and Information Science is the first professional degree, the Master of Science in Librarianship. A quality program has been designed to serve the professional needs of current and future library and information specialists primarily in western Michigan and contiguous areas; to initiate research which advances the knowledge of library and information science and promotes the application of new ideas and knowledge to libraries and library problems; and to provide leadership in the continuous enhancement of the quality of library and information service.

## Master of Science in Librarianship

The Master of Science in Librarianship (MSL) is awarded at the completion of thirty to thirty-six semester hours of graduate study. This program prepares students for careers in library and information professions. These careers are no longer only those in traditional institutional libraries, but also include various nontraditional information vocations. All instruction is designed with a multimedia approach and with emphasis on modern information technology.

Additional information and the School's application form are contained in the School of Librarianship's bulletin which may be requested from the School's office, 2080 Waldo Library.

### Admission requirements

In addition to the general admission requirements of The Graduate College, admission to the School of Librarianship requires a bachelor's degree with a minimum grade point average of 3.0 (B average) for courses taken in the last two years of undergraduate study. However, a person who cannot meet this requirement and has compensating qualifications may be given special consideration.

Applicants must also complete the admission form of the School of Librarianship, available from the School's office in Waldo Library. This application must include the names and addresses of three persons who are able to give information concerning the verbal facility, intellectual capacity, personal and professional promise, and motivation of the applicant. Applicants must also accompany their applications with a statement of their reasons for desiring to enter the field of librarianship. A personal interview may be required.

### Program requirements

1. Thirty to thirty-six hours of approved graduate courses, with a minimum of twenty hours in library science at the 600-level. A candidate without previous study in librarianship will be expected to elect LIB 510, 512, 530, 600, 622, and 629, unless he/she can pass comprehensive examinations in these courses. This student may elect courses in a field of special interest in librarianship to complete a program which will total thirty-six hours.

A student with approved undergraduate work in librarianship may be permitted to complete a thirty-hour program and to elect courses from other departments for a total of six to eight semester hours. Certain areas of specialization, however, may require more than the minimum thirty hours, regardless of the student's background.

2. Candidates preparing for school media center service must meet the teacher certification requirements of the state in which they wish to be employed.

## Master Of Science in Information Science

The Master of Science in Information Science has been planned for students who choose to pursue a graduate program of study more concentrated in computer and information science than would be possible in the Master of Science in Librarianship program. It is designed for librarians who wish to obtain competence in computer applications to library operations, or in library systems and design; students who expect to continue their study beyond the master's degree program to Ph.D.'s; and foreign students who consider this degree more useful than the MSL in their native countries.

### Admission requirements

Admission requirements for this degree are the same as those for the Master of Science in Librarianship.

### Program requirements

Since the needs of each applicant will differ, a 30 hour interdisciplinary program of information science courses is planned individually for each student. Information science courses offered by the School of Librarianship include:

- Introduction to Information Science and Technology (LIB 535)
- Library Automation (LIB 634)
- Information Storage and Retrieval (LIB 635)
- Indexing, Abstracting, and Automated Language Processing (LIB 636)
- On-Line Searching of Data Bases (LIB 637)

## Master Of Library Administration

The Master of Library Administration (MLA) is a second master's degree, planned for the experienced student with a master's degree in librarianship from an ALA accredited program who desires additional management skills. This interdisciplinary degree is administered by the School of Librarianship, with involvement of the Department of Management in advising, admission, and teaching. Cognate courses from other departments of the University may be included.

### Admission requirements

1. Master's degree from an ALA accredited library school program.
2. Minimum of one graduate course in management or administration.\*
3. Three years of library experience.\*
4. Professional goals, educational objectives, and needs appropriate to the program.

\*May be waived for certain applicants.

**Program requirements**

1. 18 hours chosen from three core areas: Managing the New Technology of Library and Information Science, Management, and Research.
2. 6-10 hours chosen from two of five elective groupings: Personnel and Labor Relations, Finance and Law, Structural Communications, Economic and Sociological Concerns, Advanced Administrative Topics.
3. Librarianship 650, Advanced Seminar in Librarianship.

**Manufacturing Administration**

**Roy W. Groulx, Chairperson of Advisers  
Room 2015, Kehrman Hall**

The objectives of the graduate program leading to a Master of Science in Manufacturing Administration are:

1. To augment the professional and technical skills of students in specific areas.
2. To develop the capabilities to deal appropriately with resources available in commerce and industry (i.e., people, time, and money).
3. To increase the breadth of understanding of the student's responsibilities as technically educated individuals through the development of analytical skills and knowledge in cognate areas.

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 or related field.
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 average of 2.5 in this area.
3. Where the student's background is deficient, foundation courses will be required in industrial engineering.

**Program requirements**

1. Complete a minimum of thirty hours of graduate work, including IEGM 697, Problems in Industrial Engineering, and IEGM 640, Introduction to Industrial Engineering.
2. The academic program consists of:
  - a. Professional -Technical: A minimum of twelve hours to be selected from specific graduate course offerings, depending on major emphasis.
  - b. Leadership and Resource Management: Twelve hours or equivalent selected from graduate studies concerned with leadership skills and techniques of resource management.
  - c. IEGM 697 will be developed around a significant topic resulting from graduate study interest and will be presented as a formal business report with emphasis on technical writing and communications. This report will be the basis of the candidate's oral presentation.

**Mathematics**

The Department of Mathematics offers graduate programs leading to the Master of Arts in Mathematics, the Master of Arts in the Teaching of Mathematics, 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, and the Doctor of Philosophy in Mathematics.

**Master Of Arts In Mathematics**

**Adviser:  
Anthony Gioia,  
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 a minimum of thirty hours of approved course work, with at least twenty-four hours in mathematics, including:
  - a. MATH 622, General Topology I, or have had the equivalent prior to entering the program;
  - b. MATH 530, Linear Algebra, or have had the equivalent prior to entering the program;
  - c. MATH 673, Real Analysis, or have had the equivalent prior to entering the program;
  - d. MATH 630, Abstract Algebra I;
  - e. One of the following: MATH 677, Measure and Integration; or MATH 676, Complex Analysis I;
  - f. An approved graduate level sequence.
2. Pass the Departmental Graduate Examination, which will cover the basic material in topology, algebra, and analysis. The algebra part includes topics from introductory modern algebra and MATH 530. The analysis part covers MATH 673, and the topology part covers MATH 622. This examination is to be taken as soon as possible after the student has covered the required material.

Students with a strong undergraduate background in mathematics may be able to complete this program in a twelve month year. However, most students will require more than one year.

The specific requirements for an M.A. in Mathematics with concentration in Statistics are listed under the master's degree program in Statistics. Students interested in a M.S. program in Applied Mathematics, Biostatistics, Statistics, Computer Science, or Operations Research, or the M.A. program

in the Teaching of Mathematics should consult the requirements listed under those headings.

**Financial assistance**

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships and Fellowships. Individuals desiring further information about such opportunities, or about the graduate program as a whole, should contact the Mathematics Department office (Room 3319, Everett Tower).

**Master Of Arts In Teaching Of Mathematics**

**Adviser:  
Christian Hirsch,  
Room 3319, Everett Tower**

The Master of Arts in the Teaching of Mathematics is offered cooperatively by the Mathematics and Education and Professional Development departments. It is intended to provide secondary school mathematics teachers with opportunities to prepare themselves for superior classroom performance. They can do this by developing a broader and deeper understanding of mathematics, educational processes, and their role as teachers in American educational systems.

**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 teaching minor in mathematics equivalent to the one offered at Western Michigan University and at least fifteen hours of undergraduate work in professional education or its equivalent.

**Program requirements**

1. At least fifteen approved semester hours in mathematics courses offered for graduate credit.
2. Nine semester hours selected from five, three-hour courses: ED 600, Fundamentals of Measurement and Evaluation in Education, or ED 601, Fundamentals of Educational Research; ED 602, School Curriculum; ED 603, Social and Philosophical Foundations; ED 604, Psychological Foundations of Education
3. Approval of the Teaching of Mathematics curriculum adviser.

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.

**Financial assistance**

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships and Fellowships. Individuals desiring further information about such opportunities, or about the graduate program as a whole, should contact the Mathematics Department Office (Room 3319, Everett Tower).

## Master of Science In Applied Mathematics

**Adviser:**  
**Yousef Alavi**  
**Room 3119, 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 modern algebra, a course in probability, a course in advanced calculus, a knowledge of basic FORTRAN programming, a knowledge of PASCAL programming language, 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), 330, 570, and CS 111, (112 or 306), and 331. The Department may admit with reservations a student with deficiencies in the admission requirements. The student would then be required to complete this work as extra program requirements.

### Program requirements

Program requirements include MATH 506, Scientific Programming; MATH 510, Multivariate Mathematical Methods; MATH 562, Statistical Analysis I; MATH 574, Ordinary Differential Equations; MATH 602, Mathematical Modeling I; MATH 608, Linear Programming or IEGM 610, Linear Programming for Engineers; one credit of MATH 690, Applied Math Seminar; ten hours of approved electives. Pass a written final examination over the program or successfully complete an approved project on an applied problem.

Courses that may be used as electives, with the approval of the adviser, include: MATH 507 (Numerical Analysis), 575 (Partial Differential Equations), 576 (Complex Analysis), 605 (Optimization), 609 (Studies in Applied Math), 667 (Introduction to Random Processes), 673 (Foundations of Analysis), 690 (Seminar in Applied Math), 699/712 (Reading and Research); Electrical Engineering 530 (Power Systems Analysis); Industrial Engineering 611 (Operations Research for Engineers); Management 564 (Simulation Models); Physics 520 (Analytical Mechanics), 540 and 541 (Electricity and Magnetism I & II).

### Financial assistance

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships and Fellowships. Individuals desiring further information about such opportunities, or about the graduate program as a whole, should contact the Mathematics Department Office (Room 3319, Everett Tower).

## Medieval Studies

**Adviser:**  
**Otto Gründler,**  
**The Medieval Institute**  
**Hillside West**

The Master of Arts in Medieval Studies is designed to provide students with a broad interdisciplinary background in medieval and Renaissance history, languages, literatures, philosophy, religion, the arts, and research methodology.

The degree may be pursued, either in preparation for further doctoral work (Option I), or as a terminal degree (Option II).

### Program requirements

The requirements for the degree are as follows:

#### Option I (pre-Ph.D. option)

1. A total of at least 30 hours of course work, including 14 hours of required core courses and 16 hours of electives, the latter to be chosen from the list of approved courses.
2. Preparation of an acceptable Master's Thesis (6 hours) under the direction of a thesis advisory committee.
3. Demonstrated reading proficiency in Latin, and in either French, German, Italian, or Spanish.
4. Oral examination in defense of Master's Thesis.

#### Option II (Terminal degree option)

1. A total of at least 36 hours of course work, including 14 hours of required core courses and 22 hours of electives, the latter to be chosen from the list of approved courses.
2. Demonstrated reading proficiency in Latin.
3. Oral examination in the student's area of concentration.  
(Note: Option II has no thesis requirement and no modern language requirement)

## Music

**Advisers:**  
**Mel Ivey,**  
**Room 2146, Dalton Center**  
**Brian Wilson,**  
**Room 2115, Dalton Center**

### Master of Music

The Master of Music is designed to enhance the student's teaching, performing, research, and creative abilities in music. The School of Music offers course work leading to a Master of Music degree in seven different areas of concentration: Applied Music, Composition, Conducting, Music Education, Musicology, Music Theory, 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 accreditation 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 graduate program does not imply that the student will be permitted to pursue a specific area of concentration (applied music, 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. Until that time the right is reserved to withhold the recommendation for degree candidacy if the student has not demonstrated sufficient maturation and musicianship.

Preliminary Examinations are administered upon entry to the graduate music program. Areas of examination include performance, music history, music theory, music therapy, functional piano, and conducting (including aural skills and instrument techniques). The areas in which the student will be tested are determined by the choice of area of concentration. Composition students must submit an original composition in one of the major forms for review by the faculty.

### Program requirements

The graduate student adviser in the School of Music works closely with each student in planning and implementing a degree program which will accommodate the student's professional needs and interests and, at the same time, will realize the full value and depth of the University's graduate offerings. The student's needs are determined by an evaluation of the results of Preliminary Examinations and a review of the first 6-10 semester hours of course work taken. After this evaluation and review the graduate adviser provides information to the student regarding probable success in the degree program and any time limitation that may apply to student's completion of degree requirements. Program of study in each of the seven areas of concentration are as follows:

#### APPLIED MUSIC (Minimum of 30 hrs.):

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: composition, music education, history, theory (9-12)
3. Electives

#### COMPOSITION (Minimum of 30 hrs.):

1. Required courses: MUS 610, Introduction to Research in Music (3); Music Composition 562, 563, 662 (6); MUS 700, Master's Thesis in Composition (6), including oral exam
2. Cognate music studies: applied music, music education, history, theory (9-12)
3. Electives to make a total of at least 30 semester hours
4. Proficiency in keyboard must be demonstrated, but course work may not apply to degree

#### CONDUCTING (Minimum of 30 hrs.):

1. Required courses: MUS 610, Introduction to Research in Music (3); Conducting 530, 531, 600 (8); MUS 664, Form in Music (2); MUS 690, Graduate Recital (2), including oral exam
2. Cognate music studies: applied music, composition, history/literature, music education (9-12)
3. Electives (not necessarily limited to music)
4. Special information: Regular and frequent experiences in conducting are a requirement in this program. These experiences will include conducting an approved public school ensemble (at the

student's own school) or an apprenticeship with a major University ensemble. Students who are selected as apprentices with a University ensemble must be full-time graduate students and participate in a major ensemble while in residence. Off-campus, Conducting 600 students must schedule frequent meetings on campus with the supervising teacher in addition to the site visitations by the instructor. The Graduate Recital (690) requires presentation of a complete public program, either with an approved school ensemble or with an ensemble of University students. At the direction of the student's committee, piano study may be required in the program of study.

**MUSIC EDUCATION**  
(Minimum of 30 hrs.):

1. Required courses: MUS 610, Introduction to Research in Music (3); MUS 642, Philosophy of Music Education (2); MUS 650, Seminar in Music Education (2); MUS 691\*, Special Project in Music Education, or MUS 681, Research in Musical Behavior\*, or MUS 700, Master's Thesis\*
2. Electives in music education (5-8)
3. Cognate music studies: applied music, composition, theory, history (9-12)
4. Electives

(\*Every student is required to register for one of these culminating projects, each of which includes an oral exam.)

**MUSIC THEORY** (Minimum of 30 hrs.):

1. Required courses: MUS 610, Introduction to Research in Music (3); Music 600-level courses in Counterpoint, Form, Orchestration, and the Teaching of Theory (6-8); MUS 700, Master's Thesis (6), including oral exam
2. Cognate music studies: applied music, composition, music education, history
3. Electives
4. Proficiency in keyboard must be demonstrated, but course work may not apply to degree.

**MUSICOLOGY** (minimum of 30 hrs.):

1. Required courses: MUS 610, Introduction to Research in Music (3); MUS 670-671, Seminar in Musicology (2); Electives in Music Literature, Medieval or Renaissance Music and/or Collegium Musicum (3-6); MUS 700, Master's Thesis (6), including oral exam
2. Cognate music studies: applied music, composition, music education, theory (or) non-music humanities area (9-12)
3. Electives
4. Proficiency in keyboard and in German must be demonstrated, but course work may not apply to degree.

**MUSIC THERAPY** (Minimum of 30 hrs.):

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 (2)\*
2. Elective music courses (6-9)
3. Non-music electives—selected from one of the following departments and including at least one course in statistics: Anthropology, Blind Rehabilitation and Mobility, Counseling and Personnel, Mathematics, 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 R.M.T. certification prior to enrolling in MUS 700, Master's Thesis, and MUS 712, Professional Field Experience.)

Students who have a Bachelor of Music degree but do not have a major in music therapy may complete R.M.T. certification requirements while the graduate program is in progress, but the equivalency requirements may not satisfy graduate program requirements. Equivalency requirements may be obtained from the Director of Music Therapy in the School of Music, Western Michigan University.

## Master Of Arts In Teaching Of Music

The School of Music and the Department of Education and Professional Development offer a Master of Arts degree program in the Teaching of Music. The purpose of the degree program is to offer course work in music and teacher education which will enhance the student's teaching abilities in general, and more especially in the area of music. This degree program is accredited by the National Association of Schools of Music. A minimum of thirty semester hours of credit are required to complete this degree.

**Admission requirements**

A Bachelor of Arts or Science degree, or equivalent, with a major in music and a teaching certificate, is 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. Until that time the right is reserved to withhold the recommendation for degree candidacy if the student has not demonstrated sufficient maturation and musicianship. Preliminary Examinations will be administered in the areas of music history and music theory.

**Program requirements**

The graduate student adviser in the School of Music works closely with each student in planning and implementing a degree program which will accommodate the student's professional needs and interests and, at the same time, will realize the full value and depth of the University's graduate offering. The student's needs are determined by an evaluation of the results of Preliminary Examinations and a review of the first 6-10 semester hours of course work taken. After this evaluation and review the graduate adviser 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 603, Sociological and Philosophical Foundations (3); ED 604, Psychological Foundations of Education (3)

2. Eleven hours of Music Education courses: MUS 610, Introduction to Research in Music (3); MUS 642, Philosophy of Music Education (2); MUS 650, Seminar in Music Education (2); Electives in Music Education (2); MUS 691, Special Project in Music Education (2), including oral exam or MUS 681, Research in Musical Behavior (2), including oral exam
3. Four hours in Applied Music, Music Theory, or Music History/Literature
4. Six hours of electives, selected in consultation with the graduate adviser.

## Occupational Therapy

**Adviser:**  
**Judith N. Powell,**  
**Room 169, Wood Hall**

The Occupational Therapy Department provides two graduate programs which lead to the Master of Science: The graduate-professional program for non-therapists and the graduate program for certified therapists.

## The Graduate-Professional Program

This program is designed to prepare the student for the profession of Occupational Therapy while also earning the Master of Science. This two and one-half calendar year program of combined academic and field education (approximately seventy-five semester hours) is intended for the student who has a baccalaureate degree in a major other than Occupational Therapy. This program is accredited by the American Occupational Therapy Association and the American Medical Association. Graduates are qualified to take the American Occupational Therapy Certification Exam.

**Admission requirements**

To be eligible for the program, each applicant must present evidence of the following admissions criteria:

1. An earned Bachelor's degree from an accredited college or university.
2. A grade point average of 2.8 or better (A = 4.0) in the last two years of undergraduate work.
3. Scores on the Graduate Record Examination -General (Aptitude) Test
4. Completion of these prerequisite courses:  
Human Growth and Development  
Abnormal Psychology  
Human Physiology with lab  
Human Anatomy or Mammalian Anatomy with lab

Because admission to the Occupational Therapy Program is competitive, the academic criteria listed above should be considered as minimum standards.

To apply, the applicant must complete both The Graduate College application and the departmental application.

**Program requirements**

1. Completion of approximately seventy-five semester hours in the following areas:
  - a. Forty-five hours of professional occupational therapy education
  - b. Thirty hours of graduate courses which include the following:
    - 1) Occupational Therapy (21 hours):  
OT 610, Professional Issues  
OT 633, Administration in Occupational Therapy  
OT 640, Theory in Occupational Therapy  
OT 660, Research in Occupational Therapy  
OT 686, Integration Seminar  
OT 700 or OT 710 or OT 712 (6 hours)
    - 2) Cognates in occupational therapy or related fields selected with advice and consent of the graduate adviser (6 hours)
    - 3) Electives (3 hours)
2. The student must manifest emotional and behavioral characteristics which, in the judgment of the department faculty, will not jeopardize his/her professional competence.

## The Graduate Program

The graduate program is designed for the certified therapist who desires growth in professional skills while developing leadership potential. The graduate program represents thirty semester hours of graduate studies.

**Admission requirements**

To be eligible for the program, each applicant must present evidence of the following admissions criteria:

1. An earned Bachelor's degree from an accredited college or university.
2. A grade point average of 2.8 or better (A = 4.0) in the last two years of undergraduate work.
3. Scores on the Graduate Record Examination -General (Aptitude) Test.
4. Be a registered occupational therapist.

Because admission to the Occupational Therapy Program is competitive, the criteria listed above should be considered as minimum academic standards.

To apply the applicant must complete both The Graduate College application and the departmental application. For full-time study, initial enrollment may be scheduled for fall semester.

**Program requirements**

Completion of thirty semester hours of graduate courses which include the following:

1. Occupational Therapy (21 hours)  
OT 610, Professional Issues  
OT 633, Administration of Occupational Therapy  
OT 640, Theory in Occupational Therapy  
OT 660, Research in Occupational Therapy  
OT 686, Integration Seminar  
OT 700 or OT 710 or OT 712 (6 hours)
2. Cognates in occupational therapy, related fields, or areas of specific interest selected with the advice and consent of the graduate adviser (6 hours)
3. Electives (3 hours)

## Operations Research

**Program Director:**

**Franklin K. Wolf,  
Room 2007, 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. Participating are the Departments of Economics, Industrial Engineering, Management, and Mathematics. The purpose of the program 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 and the ability to apply such to his or her particular discipline.

The entering student is assumed to have an undergraduate degree in Economics, Industrial Engineering, Management, or Mathematics, but students with degrees in other areas will be considered. A student's program will be designed with consideration of his or her prior experience, both formal and practical, and his or her career goals, and must be approved by the Program Director and the adviser for the Operations Research program in the department from which the student received his or her undergraduate degree. An approved program must meet the following requirements:

1. A minimum total of thirty semester hours.
2. MATH 560 and 562 are required.
3. A minimum of twelve semester hours from courses on the approved list of operations research related courses.
4. A maximum of eight semester hours of courses cognate to the student's undergraduate degree.
5. A three-semester-hour project.

Certification for graduation shall include the preparation of an oral presentation of his or her project and an examination covering the basic areas in which he or she has studied.

## Paper Science And Engineering

**Adviser:**

**Richard B. Valley,  
Room 2650, McCracken Hall**

The Master of Science degree program in Paper Science and Engineering is designed to provide theoretical, laboratory, and pilot-plant experiences which are basic to the development of professional competence in pulp and paper science and engineering. The department is internationally recognized in the fields of paper coating and fiber recycling, for its outstanding semicommercial-sized papermaking and coating machines, and for a complete recycled fiber pilot plant installation. Its laboratories and equipment are the most complete of any similar academic institution.

**Admission requirements**

Applicants with widely diversified science and engineering backgrounds may qualify for admission based upon demonstrated competence in an accredited college or university degree program.

In all cases the applicant's academic credentials and professional experience will be reviewed by the graduate adviser to determine whether any background courses are necessary. These may be taken concurrently with the graduate courses.

Applicants are encouraged to submit results of the Graduate Record Examination as a supplemental credential for admission.

The following gives the general guidelines of prerequisites for four classes of applicants.

1. Graduates from four year pulp and paper science programs will generally have the necessary prerequisites in Pulp and Paper Technology but may need one or two background courses in Process Engineering, Mathematics, or Chemistry.
2. Chemical Engineering graduates will generally satisfy the Science, Engineering, and Mathematics requirements but will be required to take three pulp and paper systems graduate level courses within the normal graduate program.
3. Chemistry degree graduates will generally be required to complete two background undergraduate courses in process engineering and three pulp and paper systems graduate courses within the normal graduate program.
4. Graduates of other science, engineering, or technology programs may be required to take background undergraduate courses in Process Engineering, Mathematics, Chemistry, or Physics, depending on the particular credentials of the applicant. Also, three graduate courses in pulp and paper systems will be required within the normal graduate program.

In some instances, it may be recommended that the applicant register for one or more semesters of undergraduate course work in order to satisfy particular academic areas prior to applying for graduate school admission. Many students have found it desirable to obtain a second bachelor's degree in Paper Science or Engineering. This approach is useful to those applicants having non-conventional academic backgrounds and who desire to establish their credentials for graduate study.

**Program requirements**

1. A minimum of fifteen hours of paper science selected from these eighteen hours of offerings: Surface and Colloid Chemistry 600; Paper, Printing, and Inks 620; Coating Rheology and Film Formation 640; Mechanics and Optics of Paper and Fibers 660; High Polymer Topics 680 or Paper Industry Control Systems 696. Graduates without previous pulp and paper background must take, in addition, Pulp and Paper Operations I 690 and Pulp and Paper Operations II 691. PAPER 696 must also be taken as part of the required 15 credits.
2. Satisfactory completion of a Master's Thesis (6 hrs.) based on either an experimental or theoretical topic, under the guidance of a Committee selected by the department.
3. A minimum of nine additional hours of graduate courses from the chemistry, physics, mathematics, industrial engineering, or mechanical engineering departments, selected with the consent of the graduate adviser. Suggested courses include: Chemistry 520, 530, 550, 560, 610, 624, 626, 630, 653, 661; Physics 520, 563; Mathematics 506, 507, 510, 530, 560, 562, 563, 566, 567, 568; Industrial Engineering 508, 518, 606, 608, 610, 611; Mechanical Engineering 560, 573, 632.

## Physical Education

**Advisers:**  
**Billye Ann Cheatum,**  
**238 Gary Center**  
**George G. Dales,**  
**Room B-321 Ellsworth**  
**Mary Dawson,**  
**3220 Health Center**  
**Harold Ray, Room B-320,**  
**Ellsworth Hall**  
**William Schreiber,**  
**B-318 Ellsworth Hall**  
**Roger Zabik, Room 204,**  
**Gary Center**

The Department of Health, Physical Education, and Recreation offers a Master of Arts degree program which prepares teachers, coaches, supervisors, and administrators to assume leadership roles in the following: Administration, Coaching and Sports Studies, Exercise Science, Motor Development, Athletic Training, Physical Education, and Special Physical Education for Handicapped Children.

### 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 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 at least three professional areas: research, socio-cultural, curriculum or psychological foundations. Such competence will normally be provided through seven to nine graduate semester hours of course work in the following: (1) PEGR 690 (ED 601) and PEGR 650 (ED 603) required and (2) one course from PEGR 645 (ED 602), or PEGR 691 (ED 604). The Master of Arts degree in the Department of Health, Physical Education, and Recreation 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, Coaching and Sports Studies, Exercise Science, Motor Development, Physical Education, or Athletic Training.

Master's degree candidates are required to complete a comprehensive, integrated capstone experience which can be met through (1) PEGR 700, Thesis; (2) Advanced Seminars PEGR 648, 668, 680, 698; (3) PEGR 710, Independent Research; or (4) PEGR 712, Professional Field Experience. Graduate students in the Athletic Training emphasis area seeking certification must meet the National Athletic Trainers' Association standards.

## Physics

**Adviser:**  
**L.D. Oppliger,**  
**Room 1131, Everett Tower**

The Department of Physics offers a graduate program leading to the Master of Arts in Physics. Thirty semester hours of graduate credit are required. 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. Participation in research is an important part of the program and occurs in any of three major fields:

1. Theoretical physics—for example, classical liquids, nuclear structure, nuclear reactions, classical fields, and solid state.
2. Experimental physics—for example, atomic physics, optics, optical spectroscopy, nuclear physics, and materials analysis with accelerated ions. Equipment available for experimental research includes a vacuum ultraviolet spectrometer, and a 12 MeV tandem Van de Graaff accelerator.
3. Computer and instrumentation physics, including the use of PDP-110, 11, and 15 computers and assorted microprocessor-based microcomputers.
4. Or any combination of these, or some interdisciplinary areas.

### Admission requirements

Students entering this program are expected to have acquired a Bachelor's degree in physics or at least an equivalent amount of experience and training (including training in mathematics at the appropriate level). The departmental graduate adviser 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. Thirteen hours of required courses in physics, namely: Research Seminar 610, Quantum Mechanics I 622, Statistical Mechanics 624, Classical Mechanics 630, and Electricity and Magnetism 662. Substitutions for these courses may be made only with the approval of the graduate adviser.
2. Eleven additional hours from Physics, Mathematics, or other departments chosen with the consent of the graduate adviser.
3. Satisfactory completion of a Master's Thesis (6 hrs. of PHYS 700).

The thesis may be either theoretical or experimental in nature and is accomplished under the guidance of a committee of the graduate faculty in physics. The topic of the thesis may be based on one of the research areas noted above, or it may be based on some other area of physics chosen by the student and approved by the thesis committee. The committee may require an oral defense of the thesis before approving it for submission to The Graduate College.

Graduate students are required to attend the Physics Research Lectures, which constitute a program for graduate students and Physics staff members, presented by members of the WMU Physics staff and visitors from other institutions on topics related to their research specialties. Graduate students are also expected to attend the Physics Public Lectures, a series of talks on topics of general interest in Physics and related fields.

The Physics courses available for graduate study are listed elsewhere in this catalog.

## Political Science

**Adviser:**  
**Claude Phillips,**  
**Room 3007, Friedmann Hall**

The Master of Arts degree program in Political Science seeks to prepare the student to function effectively as a citizen, and it offers the student a variety of options to prepare him/her for various career goals: (1) positions in the public service and quasipublic agencies; (2) further professional training in Political Science and related professions, such as law; (3) teaching positions in high schools and community colleges; and (4) general positions in the business world.

### Admission requirements

In addition to meeting the general admission requirements of The Graduate College, a student must have completed at least twenty-four hours of work in the social sciences with a 3.0 record (on a 4.0 scale) or have equivalent preparation acceptable to the department. The department may require the student to make up deficiencies in undergraduate preparation and/or require the Graduate Record Examination.

### Program requirements

In order to qualify for the Master of Arts in Political Science, the student, in addition to satisfying the general requirements of The Graduate College, may choose between the thesis and non-thesis options.

Requirements in the two options may not be interchanged.

### Requirements for the thesis option

1. Thirty hours of graduate credit in Political Science. With the written approval of the graduate adviser, a student may substitute up to two courses with a maximum of eight hours of cognate work appropriate to his/her program.
2. PSCI 610, American Political Institutions; PSCI, 645 National Political Systems and International Politics; and PSCI, 661 Principles of Politics.
3. PSCI 700, Master's Thesis (six hours).
4. Pass an oral examination on the thesis and on the student's political science program.

### Requirements for the non-thesis option

1. Thirty hours of graduate credit in Political Science. With written approval of the graduate adviser, a student may substitute up to two courses with a maximum of eight hours of cognate work appropriate to his/her program.
2. PSCI 610, American Political Institutions; PSCI 645, National Political Systems and International Politics; PSCI 661, Principles of Politics.
3. Pass written and oral field examinations on the student's political science program.

## Psychology

**David O. Lyon,**  
**Department Chairperson**  
**Arlene Lewis, Program Secretary**  
**Room 255, Wood Hall**

The Psychology Department offers course work leading to a Master of Arts in five areas of concentration: Applied Behavior Analysis, Clinical Psychology, Experimental Psychology, Industrial/Organizational Psychology, and School Psychology. While much of the course work is eclectic, the Department has a strong behavioral orientation, which tends to influence all of the Department's programs. The master's program is designed primarily for the student with a bachelor's degree in psychology or related discipline to prepare the individual to assume a professional role in business and industry, a variety of mental health services, or to pursue doctoral training. A research-oriented degree in experimental psychology is also offered for a limited number of students.

Graduate students receive a personal appointment to a faculty member in an apprenticeship role. These arrangements facilitate the development of a personal program to accommodate the academic and professional interests of the student and to utilize the full range of research and practicum facilities within the University. The student is encouraged to participate in the daily conduct of the Department's academic program and research activities.

### Admission requirements

Applications are reviewed in terms of five sources of information, although the performance measures of any one criterion is not sufficient to guarantee admission or to dictate denial of the application. 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.

Applicants to the master's degree program in experimental or applied behavior analysis must have completed a minimum of eight hours of basic experimental laboratory courses including experimental analysis and experimental design. Equivalent courses at Western Michigan University are PSY 252/258 and PSY 362/368 and PSY 330.

Applicants to the master's degree program in applied behavior analysis are expected to show evidence of some professional experience. Applicants without any experience may be required to complete an additional three hours of practicum following matriculation.

The application procedure includes submission of:

1. A transcript showing the completion of a major or minor in psychology
2. Graduate Record Examination (verbal and quantitative aptitude test) or Miller Analogies test scores
3. Three letters of recommendation
4. An autobiography describing academic interests and professional goals.

Individuals applying for Fall admission and requesting financial assistance should apply by February 15. Applicants should apply directly to The Graduate College and the Department of Psychology.

**Advisers:**  
**M.K. Malott—**  
**Experimental**  
**Wayne Fuqua—**  
**Applied Behavior Analysis**  
**Malcolm Robertson—**  
**Clinical**  
**Dale Brethower—**  
**Industrial/Organizational**  
**Howard Farris—**  
**School Psychology**

### Program requirements

*Experimental Psychology:* The experimental program requires a minimum of thirty hours of credit including PSY 700, Masters Thesis (6 hrs.), history of psychology (3 hrs.), and twenty-one credit hours in basic behavioral processes, laboratory techniques, and data analysis including PSY 634, Advanced Statistics. Research areas may include animal learning, operant behavior, physiological psychology and perceptual processes. This program is designed to prepare students for doctoral training in experimental psychology.

*Applied Behavior Analysis:* The applied behavior analysis program requires a minimum of thirty-six hours of credit including PSY 700, Masters Thesis (6 hrs.), practicum activity (3 hrs.), and twenty-seven credit hours of Psychology. These twenty-seven hours include one hour of PSY 601, Introduction to Issues in Behavioral Assessment; one hour of PSY 602, An Introduction to the Theoretical Analysis of Behavior; and one hour of PSY 603, An Introduction to Professional Issues in Applied Behavior Analysis; three hours of PSY 634, Advanced Statistics; three hours of PSY 608, Current Research in Applied Behavior Analysis; three hours of PSY 572, Behavioral Systems Analysis; three hours in learning; and twelve hours of credit in Applied Behavior Analysis from selected courses in behavior theory, technology, and applications. This program is designed to prepare the student for doctoral study or a professional position in one or more areas of psychological service.

*Clinical Psychology:* The clinical program requires a minimum of forty-eight hours including three hours of clinical practicum, nine hours of statistics and research methods, and three hours of electives from psychology or a related discipline, and thirty-three hours of course work in psychology. These thirty-three hours consist of selected areas of study which include a general core curriculum (12 hrs.), behavior assessment and diagnosis (6 hrs.), methods of behavior change (9 hrs.), and behavior theory and applications (6 hrs.). These areas of specialization may encompass a broad spectrum of clinical theory and application, or the theory and techniques of behavior modification. An appropriate substitute for the thesis included in the research methods may be arranged with the adviser. The clinical program is designed to prepare the student to pursue doctoral study or to obtain a professional position in mental health services and is intended to meet the requirements of the Michigan Licensure Law for Psychologists.

*Industrial/Organizational Psychology:* This program requires a minimum of thirty-six credit hours, including nine hours in personnel selection, training, and development; learning and motivation (3 hrs.); statistical analysis (6 hrs.); and industrial/organizational research applications (6 hrs.). Six elective hours may be selected from within psychology or from a discipline related to the student's program emphasis. 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, will be established after consultation with the adviser for the industrial/organizational psychology program.

*School Psychology:* Applicants are admitted to the School Psychology Specialist degree program and receive the Master of Arts degree within that sequence. The master's degree program requires a minimum of thirty-five credit hours, including six hours of electives from one or more fields related to School Psychology, as well as written validation of the required School Psychology competencies, or coursework including PSY 517, 519, 601, 602, 603, 608, 634, 655, 683, 686, and 668, Behavior Assessment and Counseling. Multiple practicum and other school setting experiences are required within the apprenticeship training model of the program. Apprentices at this degree level master basic educational, behavior analysis and research skills, and the methods for applying them directly with clients within educational settings. Study is focused on learning characteristics of mainstream and exceptional children, as well as careful analyses of the educational environments in which these children are required to perform. Educational and behavioral techniques focus on constructing educational environments to maximize each child's personal set of learning characteristics. The master's program is considered to be an integral part of the Specialist in School Psychology, and basic preparation for doctoral training in School Psychology.

## Public Administration

**Adviser:**  
**F.J. Mortimore,**  
**Center for Public**  
**Administration Programs**  
**B-1, Hillside Building-East**

The multi-disciplinary graduate program in Public Administration, leading to a Master of Public Administration (MPA) degree, is designed to provide advanced professional training for in-career public employees and pre-professional preparation for recent college graduates. While the program content emphasizes administration of local, regional, and state government agencies, it is sufficiently flexible to meet the need for training in a wide variety of career positions with public and voluntary agencies at the national level also. This program allows the student to utilize fully and develop further his or her special talents, skills, and experience while acquiring the knowledge appropriate for administrative leadership positions in public and public-related agencies.

Reflecting the multi-disciplinary nature of this professional field, the Center for Public Administration Programs draws upon the diverse talents of highly qualified faculty specialists in several colleges and numerous departments throughout Western Michigan University. By this means the Center finds it possible to offer those enrolled in the MPA program a comprehensive grounding in public administration principles and practice while also permitting a substantial degree of specialization within a principal sub-area of this field.



### Admission requirements

Anyone who possesses the minimum qualifications for degree status admission to The Graduate College (a 2.6 grade point average during the last two years of undergraduate study) is eligible to be considered for admission to the MPA program regardless of the academic discipline in which previous study has been undertaken. Actual acceptance into the program, however, is competitive; previous academic accomplishments, a history of professional success in increasingly responsible positions for in-career students, career aspirations, and other factors indicating seriousness of purpose will all be considered when those to be admitted are selected from among those who have applied for admission.

### Program requirements

The Master of Public Administration degree requires between thirty-nine (39) and forty-five (45) semester hours of study for completion; this credit hour requirement can be reduced in certain cases by the Graduate Adviser when, through previous academic study, the degree candidate has acquired skills deemed essential to the professional administrator. Full-time graduate students should find it possible to complete MPA requirements in four semesters while part-time and mid-career degree candidates should find it possible to complete requirements for the MPA in approximately 24-36 months. Ordinarily, pre-career candidates (recent college graduates) will be required to complete all of the following program components, while in-career candidates (those with some previous professional experience) will be required to complete only the first three components listed below:

1. A *professional core* consisting of five courses: PSCI 631 (3), The Foundations of Public Administration; PSCI 633 (3), The Political Environment of Public Administration; PSCI 634 (3), Seminar: Professional Issues in Public Administration; PSCI 635 (3), Pro-Seminar in Agency Administration; and a course in organization theory.
2. A *technical core* providing skills in fund accounting, budgeting, public finance, statistics, administrative law, public personnel administration, and electronic data processing.
3. An area of *specialization or concentration* which provides each candidate an opportunity to develop an in depth understanding of some particular type of government activity, such as land use planning, natural resource management, delivery of social services, personnel administration, budgeting, or urban administration.
4. *Professional practice*, consisting of a three-four month internship experience for pre-career students with some agency of city, county, regional, state, or federal government.

## Science Education

**Adviser:**  
**Robert Poel,**  
**Room 313, Moore Hall**

The science departments (Biology, Biomedical Sciences, Chemistry, Geology, Physics, and selected courses from Geography and Psychology) of the College of Arts and Sciences and the Department of Education and Professional Development offer a graduate

program leading to the Master of Arts in Science Education. The program is designed for both elementary and secondary school science teachers who wish to expand their preparation in the sciences and to enhance their teaching abilities. In addition, the program can meet the needs of teachers for a "planned program" necessary for continuing certification to teach in Michigan schools. It is possible to specialize in any of the above science areas or to take courses from more than one of the sciences, providing the proper prerequisites have been met.

### Admission requirements

The minimum admission requirements to this degree program are: (1) an undergraduate minor in one of the science departments listed above, and (2) fifteen hours of undergraduate work in professional education. These requirements are in addition to the general admission requirements of The Graduate College.

### Program requirements

Each student's program is planned in consultation with the adviser and consists of the following:

1. Nine hours from the following education core courses:
  - a. ED 600, Fundamentals of Measurement and Evaluation in Education, or ED 601, Fundamentals of Educational Research
  - b. ED 602, School Curriculum
  - c. ED 603, Social and Philosophical Foundations
  - d. ED 604, Psychological Foundations of Education
2. Fifteen hours of graduate work selected from the regular course offerings of one or more of the science departments.
3. Six hours from either professional education or the sciences or both.

## Social Work

**Director of Admissions**  
**Room 402, Moore Hall**

An M.S.W. degree program in professional social work is designed to prepare students for direct service and leadership positions in the field of social welfare. The curriculum is structured as an integrated and sequential set of conceptual and practicum type educational experiences. These are focused around alternative approaches to the solution and amelioration of contemporary social problems. Social Work practice is examined as a problem-solving response to emerging and extant social conditions which have negative consequences for individuals, the family, special groups, the local community, and the society at large.

In addition to the core curriculum, students elect a concentration in either of the areas of Social Treatment or Social Policy, Planning, and Administration. There are five major content areas in the curriculum: Social Policy; Social and Behavioral Theory; Social Welfare Research and Technology; Social Work Practice (Social Treatment Concentration, and Social Welfare Policy, Planning, and Administration Concentration); and Field Education.

In conjunction with the basic M.S.W. program, students may pursue areas of individual special interest such as Community Organization, Criminal Justice-Corrections, Family and Child Welfare, Industrial Social Work, Minority Issues, Rural Mental Health, School

Social Work, Social Work in Health Care, Social Work Licensing and Regulation, and Women's Issues. Advisers will assist students with selection of appropriate courses within the School and University which relate to the area of interest being pursued. In addition, the school offers opportunity for participation in an interdisciplinary Graduate Specialty Program in Alcohol and Drug Abuse (SPADA), a multidisciplinary Graduate Specialty Program in Gerontology, and a Graduate Specialty Program in Holistic Health Care.

### Admission requirements

Applicants for graduate study in social work must complete two applications—one for The Graduate College and one for admission to the School of Social Work. Both applications can be obtained from the School of Social Work. Admission is granted for the Fall Semester only. Deadline for filing applications is May 1st of each year. In addition to The Graduate College's requirements for admission to a master's degree program, the following criteria will be considered:

1. Evidence of adequate academic preparation for graduate study in social work. This includes consideration of both undergraduate performance and area of study. (Undergraduate preparation in the social and behavioral sciences and social work/social welfare is given particular attention.)
2. Evidence of personal qualifications considered desirable for successful social work practice. These include motivation for a human service profession, personal maturity, and leadership ability.

### Program requirements

1. The successful completion of sixty hours of credit is required for the master's degree in Social Work. This will include the following course credits: Semester Courses in the School of Social Work (33-36 hours) Elective Semester Courses in Social Work or in other University departments (6-9 hours) Semester Field Education (12 hours) Field Studies in Research and Practice (6 hours)
2. Proficiency exams are available in SWRK 610, 630, 631, and 640. Students have the option of receiving full credit or a waiver with no credit for those courses in which proficiency exams are passed.
3. Waiver of up to twelve semester hours of required courses, except field work courses, may be arranged upon verification of successful completion of course work covering the same content. Credit hours for all courses thus waived must be substituted for with an equal number of graduate credit hours from transfer credit and/or enrollment in courses. (While undergraduate course work may be basis for waiver, approved graduate courses must be completed to achieve the M.S.W. degree requirement of 60 hours.) Waivers are arranged on a course-by-course basis through advisers. Students who have successfully completed the first year of an M.S.W. program from an accredited school of social work may enter the second year of W.M.U.'s M.S.W. program.
4. One academic year of residence is required for all students in the M.S.W. degree program. An academic year of residence is defined as a fall semester followed by a winter semester of full-time work. Nine semester hours, including Field Education, will be considered to be full-time.

In addition to the regular two-year, full-time program, the School offers a planned part-time program on campus and a part-time, off-campus degree program located in Grand Rapids in cooperation with the Division of Continuing Education. Persons interested in part-time programming should contact the Director of Admissions.

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, School of Social Work, Room 402 Moore Hall.

## Sociology

### Director, Graduate Studies:

**Gerald E. Markle, 2512D, Sangren Hall**

### Adviser:

**Ronald C. Kramer,  
2402 Sangren Hall**

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 adviser.

### Admission requirements

1. Twenty-four semester hours in undergraduate social sciences, with at least fifteen semester hours in sociology, including courses in theory and research methods.
2. Grade-point average of 3.0 or better in undergraduate sociology courses.
3. If these requirements have not been met, the student may be required to complete additional course work as a condition of admission.
4. Applicants must request three letters of recommendation from academic and/or professional sources to be sent to: Graduate Admissions Committee, Department of Sociology.

### Program requirements

1. Complete at least thirty graduate credit hours, selected in consultation with the departmental master's adviser. At least twenty hours, including thesis or essay, must be in sociology; up to ten hours may be in an approved cognate area. SOC 581 and 683 are required of all master's students.
2. Maintain a grade-point average of 3.0 or better in all course work.
3. Complete an original thesis or essay, using approved methods for investigation of a sociological topic. The thesis is recommended for students planning doctoral studies, since a master's degree with essay is considered a terminal degree in this department. Six hours of credit are given for the thesis, two hours for the essay.
4. Pass an oral examination on the thesis or the essay.

### Financial support

A number of departmental, University, and governmental assistantships, fellowships, and associateships are available to qualified students. Training opportunities and part-time employment may be available through

the facilities of the Center for Social Research. Faculty associated with the Center have conducted 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 chair.

## Special Education

### Advisers:

**Joseph Eisenbach, Alonzo Hannaford, Barbara Harris, Dona Icabone, Abraham Nicolaou, Elizabeth Patterson, Donald Sellin. Department office is located in Room 3506, Sangren Hall.**

The Master of Arts is awarded in three programs provided by the Department of Special Education. These programs are individually designed to prepare graduates to work effectively with certain types of typical children and/or qualify for supervisory or leadership roles in special education.

### Prerequisites

1. Michigan Teaching Certificate or equivalent.
2. A minimum of one year of successful teaching experience for the Master Clinical Teacher and the leadership personnel degree program.
3. A point-hour ratio of at least 2.6 during the last sixty semester hours of undergraduate study and 3.0 in the special education major.

The Master of Arts in Special Education is designed for the following:

1. Certified regular classroom teachers interested in obtaining approval to teach mentally handicapped, emotionally disturbed, or crippled or homebound persons can qualify for the Master of Arts degree by completing a major in a categorical area. Prerequisite coursework may be determined by the Department of Special Education.
2. The Master Clinical Teacher program is specifically designed to accommodate experienced special education personnel who qualify for a Michigan endorsement in Special Education and are desirous of acquiring advanced knowledge, skill, and experience in working with exceptional persons. Prerequisite courses or equivalents to be completed prior to admission to this degree program include the following:
 

ED	312	Teaching of Reading
SPED	530	Education of Exceptional Persons
SPED	533	Diagnostic and Prescriptive Techniques in Special Education
SPED	534	Curricular and Instruction Provisions for Exceptional Children and Youth
SPED	588	Behavior Disorders in School-Aged Learners
3. Special Education personnel who wish to obtain professional preparation which will enable them to serve in leadership roles are expected to have earned an undergraduate degree in one of the categorical areas of exceptional children and have special class teaching experience. Major emphasis in this program will be placed on research, supervision, and administration in special education.

### Program requirements

All students who receive a master's degree in the field of Special Education must complete the following requirements:

1. A minimum of thirty hours of graduate level work, 15-18 of which must be in Special Education.
2. Twelve hours of credit in courses offered by departments outside the Department of Special Education.
3. A comprehensive written examination administered after the student has completed a minimum of twenty semester hours. Responsibility for scheduling this examination is to be assumed by the graduate student after consulting with the program adviser. Upon the receipt of the written request from the graduate student to the program adviser or department head, arrangements for the comprehensive examination will be made.

## Speech Pathology And Audiology

### Advisers:

**Michael J. Clark, Room 205, Speech and Hearing Center**

**Robert L. Erickson, Room 235, Speech and Hearing Center**

**John M. Hanley, Room 240, Speech and Hearing Center**

**Gary D. Lawson, Room 240, Speech and Hearing Center**

The Master of Arts in Speech Pathology and Audiology, which is accredited by the Boards of Examiners in Speech Pathology and Audiology, provides academic and practicum experiences basic to the development of clinical competence in the management of language, speech, and hearing disorders. Students may emphasize Speech-Language Pathology or Audiology or both during graduate study and, in any case, are expected to complete the academic and practicum requirements for certification of clinical competence by the American Speech-Language-Hearing Association. The master's degree program consists of a minimum of thirty-five academic credit hours and 150 hours of supervised clinical practicum. Supervised clinical practice is required during every term of registration. It includes regular case work responsibilities in the Language, Speech, and Hearing Clinic, as well as an assignment, for at least one term, to an off-campus practicum site.

### Admission requirements

All eligible applicants for the master's degree program will be considered, but admission will be granted only to those who most satisfactorily meet the requirements described below. The number of new admissions for each term will be governed by the number of available openings in the program. Students will be admitted for full-time study beginning only in the Fall or Winter term of each year. Admission decisions for the Fall term will be announced on March 15, April 30, and July 15. Admission decisions for the Winter term will be announced on September 15, October 15, and November 15. Applicants are advised to complete the application process as early as possible. Specific admission requirements are outlined below:

1. A point-hour ratio of at least 2.6 during the last sixty hours of undergraduate study.

2. Completion of an undergraduate major, or equivalent undergraduate course sequence, in Speech Pathology and Audiology. The student who has not completed these requirements as an undergraduate will need to do so prior to enrollment in department graduate courses.
  - a. Undergraduate preparation must include at least ten semester hours in courses that provide fundamental information on the normal development and use of speech, hearing, and language. Among these ten hours should be at least one course in phonetics, one course in anatomy and physiology of the speech and hearing mechanisms, one course in speech and language development, and one course dealing with the science of speech and hearing. Course work in linguistics, biology, mathematics, and physics is highly recommended.
  - b. Undergraduate preparation also must include a minimum of twelve semester hours in courses which provide basic information on the evaluation and treatment of language problems, articulation disorders, stuttering, and impaired hearing.
3. A point-hour ratio of at least 3.00 in all undergraduate speech pathology and audiology coursework.
4. Submission of scores on the General Aptitude Section of the Graduate Record Examination.
5. Evidence of personal and professional qualifications considered necessary for successful professional practice as reflected in:
  - a. Three letters of recommendation from individuals able to judge the applicant's academic and practicum achievements and potential for successful completion of graduate work.
  - b. Responses to a detailed departmental questionnaire-application.

**Program requirements**

Two options are available in the degree program. The student who elects to complete a Master's Thesis (6 hrs.) must complete at least twenty-nine hours of course work plus the thesis. The student who elects the non-thesis option must complete at least thirty-five hours of course work. Students who desire Michigan Teaching Certification should contact the Certification Office, College of Education, Sangren Hall. Specific program requirements are as follows:

1. Completion of a core of departmental graduate speech and language pathology and audiology courses specified by the department.
2. Completion of at least one departmental graduate topical seminar registration.
3. Completion of at least 300 hours of supervised clinical practicum, at least 150 of them at the graduate level. This experience must include work with a variety of specified disorders in children and adults.
4. Evidence of emotional and behavioral characteristics which, in the judgment of the departmental staff, will not jeopardize the student's professional competence.

A Master's Thesis (6 hrs.) or one or more independent research registrations may be applied toward degree requirements by students who demonstrate research aptitude and interest. Students who anticipate further study toward a doctoral degree are expected to evidence the ability to formulate and conduct a research project.

The academic and practicum requirements can usually be satisfied in one calendar year plus one semester (five consecutive terms of enrollment). Students who enter with very few practicum hours may anticipate the possibility of some extension in the length of their programs. For students who have considerable undergraduate clinical experience and who are able to carry a heavier academic schedule, an accelerated course sequence lasting one calendar year (four terms of enrollment) is possible.

Information regarding the various forms of financial assistance available to graduate students may be obtained by writing to the Department.

**Statistics**

**Advisers:**  
**Paul Lin, Joseph McKean,**  
**Room 3319, Everett Tower**

The master's program in Statistics is offered through the Department of Mathematics. Two types of programs are available in this area:

**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 proceed into 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, 665, and three of the following: 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. This program includes an internship experience where it is expected that students will collaborate with professional statisticians in an actual work environment with real problems. The internship placement will be with an area industry or with the statistical laboratory in the department. A minimum of thirty-one 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, and a

course in computer programming. A complete undergraduate mathematics major is not required since the requirements in pure mathematics are not as extensive as in Option I.

**Program requirements**

This option requires at least thirty-one hours of approved courses from the following groups:

1. MATH 506, 510, 562, 660, 662, and 664.
2. Three of the following: MATH 563, 566, 661, 663, 665, 666, 667, 669.
3. Two hours of MATH 691 and/or 696.
4. Three credit hours of MATH 698 or 712.
5. Pass the Department Graduate Exams in Statistics covering material in MATH 562, 660, and 662.

**Financial assistance**

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships and Fellowships. Individuals desiring further information about such opportunities, or about the graduate program as a whole, should contact the Mathematics Department Office (Room 3319, Everett Tower).

**Vocational Education**

**Advisers:**  
**Jack T. Humbert,**  
**Room 1009, Distributive Education**  
**Building**  
**Charles G. Risher,**  
**Room 2035, Kohrman Hall**

The Departments of Education and Professional Development, Industrial Technology and Education, and Consumer Resources and Technology offer the Master of Arts in the Teaching of Vocational Education.

This thirty-hour degree program offers advanced course work in the practical arts and vocational education to improve teaching capabilities in general, and teaching competencies specifically. The program is flexible to provide advanced techniques for teachers, and career preparation for administrators, supervisors, coordinators, and for any other specialized positions in the vocational education areas of distributive education, home economics, and industrial education.

**Admission requirements**

An undergraduate minor of twenty hours in distributive education, home economics, industrial arts, industrial education, or vocational-industrial education, plus professional preparation in teacher education, including directed or supervised student teaching.

**Program requirements**

1. Completion of nine approved semester hours of Education Core courses.
2. Completion of course work in the Professional Vocational Education block:
  - a. VE 645, Laboratory Planning and Organization (2 hrs.)
  - b. VE 614, Administration and Supervision of Vocational Education (2 hrs.)
  - c. VE 643, Measurement and Evaluation in Vocational Education (2 hrs.)
  - d. VE 617, Seminar in Vocational Education (2-6 hrs.)
3. Technical Content courses (5 hrs.)
4. Electives (4-8 hrs.)

## Programs Leading To A Graduate Specialty

The following Graduate Specialty Programs are offered by Western Michigan University. Students interested should consult the adviser about the complete admission and program requirements.

### Alcohol And Drug Abuse

**Adviser:**  
**Dennis Simpson,**  
**Room B-315, Ellsworth Hall**

Western Michigan University offers a program for the training of substance abuse specialists through the Graduate Specialty Program in Alcohol and Drug Abuse (SPADA). The departments of Biology, Counseling and Personnel, Psychology, Public Administration, Sociology, and the School of Social Work provide the multidisciplinary and interdisciplinary bases to the Specialty. Courses are planned and taught by faculty from the contributing disciplines.

Students receive training for dealing with varied aspects of substance abuse including prevention, community education, treatment and rehabilitation, program management and evaluation. Program graduates are employed by many public and private organizations including social agencies, psychological clinics, family counseling services, alcohol and drug councils, hospitals, schools, and industries. Students receive their master's degree in their respective disciplines and upon completion of the eighteen hour SPADA program requirements receive a certificate of Speciality in Alcohol and Drug Abuse.

#### Admission requirements

Students must be accepted by The Graduate College and admitted to a master's, specialist, or doctoral degree program. Persons who have previously completed a graduate degree or an acceptable equivalent (e.g., B.D. or L.I.B. from an accredited institution) may apply for admission to the SPADA Program.

#### Program requirements

In addition to satisfactory completion of the requirements of the individual department or school, each student will satisfactorily complete a program consisting of nine semester hours of courses related to substance abuse, three hours from a list of approved electives outside the participant's discipline, and a six hour field placement in one or more agencies dealing with some phase of substance abuse. Credit for the field placement will be elected from the courses designed for such activities in the department or school in which the student earns his or her graduate degree. The hours taken for the academic and seminar components of the Graduate Speciality Program are in addition to the de-

gree requirements of the department or school in which the student is enrolled. In some of these units 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 hours field training experience, the following courses are required in the Graduate Speciality Program in Alcohol and Drug Abuse:

BIOL 507—The Biology of Addictive Drugs (3 hrs.)  
SOC 617—The Etiologies of Substance Abuse (3 hrs.)

BIOL 603, C-P 631, SOC 618, or SWRK 663—Seminar in Substance Abuse (3 hrs.)\*

\*These courses are cross-listed in the departments and school indicated and graded on a Credit/No Credit basis.

SPADA participants must elect one of the following courses outside their department or discipline:

PSY 526 Human Drug Use and Abuse (3 hrs.)

PSY 663 Behavior Change: Marital Therapy Methods (3 hrs.)

SOC 616 Social Epidemiology (3 hrs.)

SOC 687 Evaluation Research I (3 hrs.)

SWRK 636 Theory and Practice of Group Treatment (3 hrs.)

SWRK 667 Seminar I in Social Planning and Administration (3 hrs.)

HHS 530 Clinical Theory for Health and Human Services (variable topics course) (3 hrs.):

Women and Substance Abuse Treatment  
Legal and Illegal Drugs  
The Family and Addiction  
Drugs and the Elderly

HHS 560 Applied Alcoholism Recovery Techniques (3 hrs.)

### Electron Microscopy

**Adviser:**  
**Gyula Ficsor,**  
**Room 5060, McCracken Hall**

The Graduate Specialty Program certificate will be awarded to those candidates who have completed a minimum of 16 credit hours of prescribed course and laboratory work beyond a Master of Science degree. The candidate must demonstrate to the satisfaction of a committee composed of three members (2 of which must be Biomedical Sciences Faculty) competence in preparation of specimens, operation and maintenance (reasonable and required) of equipment, and photographic processing and printing. The

evaluation of competence will be by an oral or written examination and 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 will be balanced 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.

#### Requirements for entry

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

#### General Course requirements

The candidate *must* complete 632, 710, 712, and a course in histology.

List of required courses:

BMED 632	Advanced Techniques in Electron Microscopy, 4 hrs.
*BMED 710	Independent Research—Varied Topics in Applied Electron Microscopy, 3 hrs.
**BMED 712	Professional Field Experience—Working experience in a professional electron microscope laboratory, 6 hrs. (Fall or Winter)
BMED 537	Histology, 3 hrs. (Winter) or
BMED 554	Histological Techniques, 3 hrs. (Spring) or
BMED 574	Embryology, 3 hrs. (Winter)

\*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 Laboratories. 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.)

## Gerontology

**Adviser:**  
Ellen K. Page-Robin,  
B108 Henry Hall

Western Michigan University offers a multi-disciplinary Graduate Specialty Program in Gerontology. This program, designed for graduate students in master's or doctoral programs who wish to add Gerontology to their degree programs, consists of 20 hours of course work, field experience, and/or thesis/dissertation credit. Ordinarily the specialization will require some work beyond that required for most master's or doctoral degrees. A certificate of completion of the Graduate Specialty Program in Gerontology will be awarded at the completion of the course study.

### Admission requirements

Students must be admitted to The Graduate College and to a regular master's, specialist, or doctoral degree program in the University and must apply for admission to the Graduate Specialty Program through the Gerontology Program Office and to The Graduate College.

### Program requirements

In addition to completing the requirements of the degree program, persons seeking the Graduate Specialty Program in Gerontology must complete a course of study totaling 20 semester hours. Some required courses for the specialization may be integrated with regular degree requirements. Three courses are required: Blind Rehabilitation 599, Gerontology, 2 credit hours; Health and Human Services 680, Multidisciplinary Seminar in Gerontology, 3 credit hours; and Health and Human Services 662, Program Planning and Development in Gerontology, 3 credit hours. Up to six hours of thesis/dissertation or field experience from the student's graduate department may also be counted, provided the thesis/dissertation topic or the field placement is certified as relevant to gerontology by the Gerontology Adviser.

The remainder of the 20-hour requirement will be acquired through elective courses chosen from a list of approved courses available through the Gerontology Program Office.

## Holistic Health Care

**Adviser:**  
Doris Greene,  
Henry Hall

The Graduate Specialty Program in Holistic Health Care is designed to provide education and experience in holistic approaches to health. It is an eighteen semester hour graduate program that can be taken by itself by those persons who already hold appropriate graduate degrees or in parallel with studies toward a graduate degree. It is available both for persons who are already practicing in an educational or health care area and for those wishing to enter into practice. Persons who wish to become holistic health care practitioners are encouraged to obtain primary credentials in an established professional area.

### Admission requirements

All persons wishing to apply for admission to the Graduate Specialty Program in Holistic Health Care either must already hold an appropriate graduate degree or must pursue the program in conjunction with a related graduate degree program at Western Michigan University. Candidates must also be admitted or obtain permission to take classes by The Graduate College.

Successful completion of HHS 531, Introduction to Holistic Health Care, is a prerequisite to admission. Admission forms are available through the College of Health and Human Services.

### Program requirements

The academic core and clinical program consists of fifteen semester hours, distributed in the following manner:

HHS 650 Holistic Methods, Part I (3 hrs.)

HHS 651 Holistic Methods, Part II (3 hrs.)

HHS 712 Field Experience in Holistic Health Care (3 hrs.)

Cognates in Holistic Health (6 hrs.)

## Policy, Planning, And Administration

**Adviser:**  
Director of Admissions, School of Social Work  
Room 402, Moore Hall

The Graduate Specialty Program in Policy, Planning, and Administration, offered by the School of Social Work, provides experienced social work practitioners who have shifted or

who plan to shift to administrative roles with opportunities to develop competencies in policy, planning, and administration.

While the Policy, Planning, and Administration program is intended only for experienced social workers who have a Master of Social Work, its design is to build on the practitioner's development, service delivery experience, career aspirations, and his/her understanding of social services. Students will develop learning contracts with course instructors that require identification, analysis, and solution of significant policy, planning, and administrative problems. Assignments will be developed that have a problem-solving or developmental character and that have relevance for the individual's organization.

### Admission requirements

Students must be admitted by The Graduate College and the School of Social Work, present evidence of a master's degree in social work with a major in social treatment, have completed a research and statistics course, be or have been employed in a health or human service organization, and complete an interview as conditions of acceptance.

### Program requirements

Completion of a minimum of eighteen hours of graduate courses. A minimum of twelve hours must be completed within the policy, planning, and administration concentration in the School of Social Work, and six hours of electives must be completed from the list approved by the policy, planning, and administration faculty.



## Section III

### Specialist Degree Programs and Requirements

The program for the **Specialist in Education** degree normally includes fourteen hours of core courses, twenty hours of cognate courses, fourteen hours in a Specialist Project, and six hours or more of electives.

#### General Requirements For A Specialist Degree

##### Admission

See Calendar of Events for application deadline.

1. See specific program description to determine the minimal entrance requirements.
2. Official transcripts of all courses taken beyond high school showing the degrees earned.
3. A point-hour ratio of at least 2.6 ( $A = 4.0$ ) in the last two years of undergraduate work for all programs permitting entrance with a bachelor's degree. A point hour ratio of at least 3.25 for all graduate work undertaken beyond the bachelor's degree.
4. Attainment of satisfactory scores on standardized tests approved for each program by the Graduate Studies Council. A satisfactory score usually is considered to be one that is at the fiftieth percentile or better.
5. Acceptance by The Graduate College and a unit for a definite program of study.

##### Candidacy

1. A Graduate Student Permanent Program which will constitute an application for admission to candidacy must be submitted during the first semester or session of enrollment.
2. Reservations indicated on the Certificate of Admission and/or the Graduate Student Permanent Program must be removed before candidacy will be approved.
3. A point-hour ratio of at least 3.25 must be secured in all graduate work taken.

##### Graduation

See Calendar of Events for application deadline.

1. Diploma Application: A diploma application must be submitted by October 1 for the December Commencement, by February 1 for the April Commencement, and by June 1 for the August Commencement.
2. Minimum Credit Hours: Completion of a minimum of sixty hours of accepted graduate credit in a program of study approved by an adviser.
3. Residence Requirement: 1) One semester (Fall, Winter, or Spring-Summer) of full-time enrollment at Western Michigan University, or 2) enrollment in two sessions in consecutive years and the intervening semesters.

4. Point-hour Ratio: A point-hour ratio of at least 3.25 is required for all work taken for the degree.
5. Hours After Candidacy: The election and completion of at least six hours is required after being approved for Candidacy.
6. 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 credits. A student without a master's degree who completes the credits for a specialist degree at Western Michigan University may transfer up to twelve credits.
7. Time Limit: A student who has a master's degree is required to complete a specialist degree program in five years; a student admitted without a master's degree is required to complete the specialist degree program in six years.
8. Specialist Project: A student who intends to register for the Specialist Project (6 Hrs.) is required to meet with the Administrative Assistant for Graduate Programs in The Graduate College before registering for the class in order that the student is informed about the regulations pertaining to the preparation of the manuscript.

#### Educational Leadership

##### Advisers:

**Thomas F. Ryan, Chairperson; Robert O. Brinkerhoff, Mary Anne Bunda, David Cowden, Kenneth Dickie, Sidney Dykstra, James R. Sanders, Larry B. Schlack, Carol F. Sheffer, Uldis Smidchens, Charles C. Warfield. Department office is located in Room 3312, Sangren Hall.**

The degree of Specialist in Education is awarded in curricula intended to prepare personnel for positions as educational/organizational leaders, positions that are largely non/instructional in nature. The Ed.S. is intended to be a terminal, academic degree. Students choosing the Ed.S. should be fairly definite as to professional goals and aspirations.

Admission to the Specialist degree program is contingent upon application and admission to The Graduate College, completion of the Graduate Record Examination, and an interview with a department admission committee. Each student accepted will work with the Chairperson of the Department until a permanent adviser is identified. The adviser and the student will outline an individualized multidisciplinary program of study organized in the following focal areas:

11 hrs.\* in Administration  
12 hrs.\* in Human Relations  
12 hrs.\* in Concept Formation  
3 hrs.\* in Research  
6 hrs.\* in Independent Study (Internship or Field Project)  
16 hrs. Electives

60 hrs. *minimum* Total

At least twelve hours of the sixty hour minimum must be taken outside the College of Education. Whether credits earned in another degree program will be allowed will be determined by the adviser on an individual basis.

Curricula available within this degree program include:

*Line Administration*—prepares the student for a position as a central office administrator of a school district; as a central administrator in a post-high school educational agency; or a chief executive officer, vice-president, or administrator in institutions of higher education, government agencies, or private industry.

*Staff Administration*—offers preparation for a position as a coordinator, director, or supervisor in public or private schools, colleges, universities, or service or business agencies in areas such as finance, personnel, or a special service (for example, research).

*Program Leadership*—prepares the student for a position as a director of training and/or management development in the armed forces, business, government, industry, a professional association or a trade union, or as a director or coordinator of programs in a social welfare agency.

\*Certain career goals within the degree program may alter the number of hours required in these areas. Curricula available within this degree include, but are not limited to: agriculture, community education, distributive education, early childhood, evaluation, home economics, industrial and technical education, media and technology, training and development, and vocational education.

#### School Psychology

**Howard Farris, Program Coordinator  
Arlene Lewis, Program Secretary  
Room 255, Wood Hall**

The Specialist in Education in School Psychology is a competency based program designed to prepare persons for careers in 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 adviser 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 professionals and parents.

The program emphasizes the learning characteristics of mainstream and exceptional children as well as a careful analysis of the various educational environments in which these children are required to perform. The student masters educational and behavioral techniques which focus on constructing educational environments to maximize each child's personal set of learning characteristics.

Completion of the specialist degree is required for recommendation for temporary approval. After one year of successful practice as a school psychologist, the graduate is eligible to be recommended for full approval as a Michigan School Psychologist. Applicants must apply directly to both The Graduate College and the Department of Psychology. Those applying for Fall admission should submit all materials by February 15, while those applying for Winter admission (January) should submit materials by October 15.

#### Admission requirements

1. Completion of a major or broad minor in Psychology.
2. Graduate Record Examination: Verbal and Quantitative Aptitude Test scores.
3. Miller Analogies Test scores.
4. Three letters of recommendation.
5. Vita and/or Autobiography.

Experiences with children and educational staff in school settings, course work in education, or teaching certificate are considered but not required for admission.

#### Program requirements

Upon successful completion of a program of 65 graduate credit hours, both a Master of Arts in Psychology and a Specialist in Education in School Psychology are awarded. This is a competency based program approved by the Michigan State Board of Education. Degree requirements may be satisfied by written validation of a specified set of skill competencies or by completion of designated courses, or both. Responsibility to ensure proper experiences for competency validation or course work completion is placed on the student and the faculty training committee. The training sequence will include:

1. Up to nine credit hours of prerequisite course work may be required of an entering student who does not have sufficient undergraduate training in behavior analysis or who fails to pass an exam in basic applied behavior analysis concepts. The need for such prerequisites and the specific courses will be decided by the major adviser, and these hours will not be included in the 65 credit hours required in the program.
2. Competency validation and/or course work in Psychology 517, 519, 601, 602, 603, 608, 634, 655, 668, 683, and 686. PSY 570 is recommended but not required.
3. Practicum experiences in at least two settings.
4. Six hours of course work outside of Psychology.
5. Completion of a 600 clock hour (12 credit hour) internship experience, half of which must be in a school setting under supervision of a fully approved school psychologist or consultant and a WMU faculty member.
6. Specialization in one or more topical areas, which may include: (a) educational assessment and planning; (b) educational technology; (c) behavior analysis and modification; (d) curriculum design, programming, and coordination; (e) teacher consultation techniques; (f) parent and child counseling; (g) work with deaf, blind, speech, or orthopedically impaired; (h) American sign language and braille; (i) work with general and/or specific social and academic behavior adjustment problems; (j) mainstreaming procedure and models; (k) research methods; (l) administration and program management; (m) interdisciplinary teaming approaches; (n) criterion referenced behavioral assessment techniques; (o) professional ethics and legal issues; and (p) educational system analysis, synthesis, and evaluation.
7. Completion of a six-credit-hour Specialist Project.

In addition to preparation for full approval as a Michigan School Psychologist, the Specialist degree program is considered as basic preparation for doctoral training in School Psychology.



## Section IV

### Doctoral Degree Programs and Requirements

Western Michigan University offers doctoral programs in eight areas. The Doctor of Education is offered in Educational Leadership, Counseling and Personnel, and Special Education; the Doctor of Philosophy is offered in Mathematics, Sociology, Science Education, and Psychology. The Doctor of Public Administration is also offered. Each program involves approximately three calendar years of study of which at least an academic year of two consecutive semesters must be spent in full-time study.

Each student's program will be planned by a committee selected in consultation between the student and the graduate adviser of the program in which the student wishes to study. A student will be expected to register for at least ninety hours of graduate level work while completing his or her program. The exact distribution of the ninety hours among courses, seminars, and research will depend upon the program and will vary from one student to another. Each program, however, will contain a significant amount of research, and each student will be required to register for and prepare a dissertation for fifteen hours of graduate credit.

A student will be expected to select two appropriate research tools. The decision regarding the specific research tools must be made by the student's doctoral committee. If the committee wishes to recommend research tools other than languages, computer programming, or statistics, the recommendation and standard of proficiency expected must be approved by the Graduate Studies Council. Appropriate competency in language, statistics, and computer programming has been established for each program and approved by the Graduate Studies Council.

A student will be allowed a period of seven years from the date of admission to complete all the requirements for the degree. Under extenuating circumstances, additional time may be granted by The Graduate College.

A student will be expected to pass those examinations established by the unit in which he or she is studying. In all cases these examinations will include comprehensive examinations of the subject matter areas included in the student's program of study and a final oral examination.

### General Requirements For A Doctoral Degree

#### Admission

See Calendar of Events for application deadline.

1. See specific program description to determine the minimal entrance requirements.
2. Official transcripts of all courses taken beyond high school showing the degrees earned.

3. For students who have completed at least twenty hours of graduate work, a point-hour ratio 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 3.0 point-hour ratio in undergraduate work and at least a 3.25 for all completed graduate work.
4. Names and addresses of three references who may be consulted.
5. Evidence of appropriate background, objectives, and communication skills demonstrated in an autobiographical statement.
6. Attainment of satisfactory scores on standardized tests approved for each program by the Graduate Studies Council. Graduate Record Examination scores on the Aptitude Test are required for each doctoral program except the program in Special Education which requires the Miller Analogies Test. The Miller Analogies Test is also required for the doctoral program in Psychology. A satisfactory score usually is considered to be one that is at the fiftieth percentile or better.
7. Attainment of a satisfactory score on the English Qualifying Examination. A non-credit English course must be passed by students failing the English Qualifying Examination. This requirement is waived for a student with an advanced degree.
8. Admission by both The Graduate College and the unit offering the doctoral program.

#### 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 should present this request to the adviser who will submit a recommendation to The Graduate College.
2. A student admitted with more than twenty hours of graduate study must request status as an applicant after completing one full semester of graduate work at Western Michigan University or forty semester hours of graduate work, whichever comes first.
3. Criteria for being awarded status as an applicant include:
  - a. An overall point-hour ratio of 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.

#### Candidacy

A student who is an official applicant for a doctoral degree must seek candidacy no later than the end of the second calendar year or its equivalent and meet the following requirements:

1. An overall point-hour ratio of 3.25 in all graduate work completed.
2. Completion of all basic course requirements.
3. Completion of the research tool and/or language requirements.
4. Successful completion of the comprehensive examinations established for the program.
5. Endorsement by the Doctoral Dissertation Committee of the plan for the student's dissertation.

#### Graduation

See Calendar of Events for Application deadline.

1. Completion of a minimum of ninety hours of courses, seminars, research, and other requirements including fifteen hours of dissertation with an overall point-hour ratio of 3.25.
2. Three years of study of which at least an academic year of two consecutive semesters must be spent in full-time study.
3. Students will be allowed a period of seven years from the date of admission to complete all the requirements for the degree. Under extenuating circumstances, additional time may be allowed by The Graduate College.
4. Consultation with the Administrative Assistant for Graduate Programs in The Graduate College before registering for Doctoral Dissertation (15 hrs.) in order to be informed about the regulations pertaining to the preparation of the manuscript.
5. Approval of the dissertation by the Doctoral Dissertation Committee, composed of at least two members of the Graduate Faculty from within the major department or unit and one member of the Graduate Faculty from outside the major department or unit. The dissertation must be in a form acceptable to the unit and The Graduate College.
6. Satisfactory performance on the doctoral examination.



# Programs Leading To A Doctoral Degree

## Counseling and Personnel

### Advisers:

**Beverly Belson, Robert L. Betz, Kenneth Bullmer, William A. Carlson, John S. Geisler, Robert F. Hopkins, Gilbert E. Mazer, Robert M. Oswald, Edward L. Trembley, Thelma M. Urbick.** The Department office is located in Room 3312, Sangren Hall.

Five doctoral program options are offered through the Counseling and Personnel Department. These options, leading to a Doctor of Education degree, are governed by two training committees comprised of Department faculty. The Counseling Psychology Training Committee is responsible for the Counseling Psychology options, and The Counseling and Related Educational Program Training Committee is responsible for all other options: Community Agency Counseling, Counselor Education and Supervision, Pupil Personnel Services in Schools, and Student Personnel Services in Higher Education.

The Training committees have two broad responsibilities: 1) recommending policies and 2) implementing approved policies.

### Admission

Admission to a doctoral program option is a two-step process. Applicants first must be admitted to The Graduate College. All graduate programs are under the jurisdiction of The Graduate College. Persons admitted by the Graduate College then may be considered for admission by the Counseling and Personnel Department.

Persons are admitted to doctoral program options to begin in the fall semester. The deadline date for completed applications is February 15. Because dates and procedures may be changed, applicants should request current information from The Graduate College and the Department.

Each student, upon admission to a doctoral program option, is assigned a temporary doctoral adviser. Later, as outlined in policies and procedures handbooks, a student must select and request appointment of a permanent doctoral committee and committee chair. The doctoral committee has many duties, including the responsibility and authority to develop and approve a student's program of studies.

A student admitted to a specific doctoral program option is expected to follow the policies, procedures, and course requirements for that option. One may not change to another option without formal approval. A person desiring to select a different option should petition the Department chairperson.

### Counseling Psychology

This doctoral program option is designed to prepare highly skilled psychological practitioners who may work in a wide variety of settings in which counseling and therapeutic

services are delivered. The Counseling Psychology Training Committee is cognizant of the continuing need for psychological practitioners who are eligible for appropriate state licensure/certification. To this end, this doctoral program in Counseling Psychology will enable students to pursue a combination of courses, essentially psychological in content, typically expected for licensure/certification.

Graduates of this option are expected to complete successfully a carefully developed program of studies including a balance of core courses in counseling and therapy, advanced psychological studies, research, 2,000 hours of supervised internship, and a dissertation that is psychologically based.

### Community Agency Counseling

The significant growth in the number of community counseling and mental health agencies has created a need for professionals who possess excellent counseling skills and sound leadership qualifications. Upon completion of this specialization, graduates will be prepared to assume leadership, administrative, and supervisory roles in community and county mental health centers, substance abuse agencies, family counseling services, juvenile homes, consultation centers, rehabilitation clinics, outpatient and after-care services, and other human services agencies which provide psychological and educative services for the clientele.

This doctoral option has been developed to enhance significantly the skills, attitudes, and competencies students bring into the program. The program is designed to ensure that the student develops (1) an advanced understanding of human behavior, (2) demonstrable counseling expertise with a wide variety of clients in a variety of agency settings, (3) a working knowledge of the full spectrum of the counseling, consultation, and other human support services in the community, (4) administrative and leadership competencies relevant to the design, funding, organization, implementation, and evaluation of community counseling service delivery systems and related programs.

### Counselor Education and Supervision

The Department recognizes its responsibilities to educate persons who will become the counselor educators of the future and in this way contribute to the further development and enhancement of the counseling profession. Doctoral students pursuing this specialization are expected to demonstrate (1) a wide range of individual and group counseling skills, (2) a sound theoretical foundation in counseling, (3) teaching and supervision competencies, (4) understanding of academic program development and administration, (5) research competencies, and (6) competencies associated with being an educational leader. Students are expected to involve themselves in appropriate activities of the Department, College, University, and

of relevant professional associations. Graduates of the program are prepared to function productively and effectively as counselor educators and supervisors.

### Pupil Personnel Services

This specialization is designed for experienced school counselors and guidance specialists who wish to prepare for major administrative and leadership positions in 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, accountability, evaluation, and research; (4) competency in public relations; (5) competency in career development; (6) competency in program delivery systems; (7) competencies in planning, goal setting, role development, and coordination; and (8) competencies commensurate with being a professional educator by taking leadership roles in professional organizations. These objectives can be met by carefully planning a student's program of studies to include courses, seminars, internships, supervision, and research.

### Student Personnel in Higher Education

The specialization in student personnel work in higher education has been developed to prepare personnel trained to perform both direct service and leadership roles in college and university student personnel programs. Students may focus their studies on one or more student personnel functions such as: admissions; housing and residence life; student development; academic and special advisement; career development, planning and placement, financial aids, records and registration; international student advisement and counseling; and student activities and organizations. Students wanting to prepare for both counseling and student personnel leadership roles may do so by carefully planning their programs. Doctoral students are expected to extend their programs of studies to prepare for the assumption of leadership and major administrative roles in student affairs programs and services as well as to achieve the highest level of expertise in one or more of the student personnel functions.

Through a combination of courses, internships, individual study and research, the doctoral graduate student is expected to develop: (1) a broad understanding of the history, philosophy, current practices, and future prospects for the student personnel profession; (2) competencies in the conceptualization, implementation, and evaluation of student personnel programs; (3) a working knowledge of strategies applicable to program and personnel budgeting and justifications; (4) competencies in staff recruitment, hiring, utilization support, evaluation,

and professional development; (5) an understanding of unions and institutional personnel programs and practices; (6) a set of strategies for designing, and implementing, of accountability systems; (7) an understanding of and the development of influencing strategies relevant to institutional decision-making processes and political realities. Program graduates will be prepared for employment as senior staff members and/or as administrators in student affairs programs.

## Educational Leadership

### Advisers:

**Thomas F. Ryan, Chairperson; Robert O. Brinkerhoff, Mary Anne Bunda, David Cowden, Kenneth Dickle, Sidney Dykstra, James R. Sanders, Larry B. Schlack, Carol F. Sheffer, Uldis Smidchens, Charles C. Warfield. Department office is located in Room 3312, Sangren Hall.**

The College of Education offers a doctorate in Educational Leadership. The Department of Educational Leadership is charged with the administration of the program. The Doctor of Education is designed to prepare leaders of personal and professional stature who are knowledgeable and competent to exercise leadership in organizations.

The doctoral program is an integrated program of courses, seminars, internship experience, and dissertation production designed to meet the developing needs and career goals of each student. In this program, educational leadership is conceived as a cognitive professional activity which demands an appropriate knowledge of the leadership process in agencies of our society and a high degree of competence in human relations. Experiences are arranged to educate qualified students in the technical, conceptual, and human skills required of all educational/organizational leaders and administrators without regard for their particular assignment.

Admission to the doctoral program is contingent upon application, including submission of Graduate Record Examination scores and admission to The Graduate College, an interview with the Admissions Committee, and approval by the faculty of the Department of Educational Leadership. Upon admission a faculty adviser will be identified to assist the student to design an individualized multidisciplinary program of study. The program will be organized around four focal areas: Administration, Human Relations, Concept Formation, and Research.

14 hrs.\* in Administration  
15 hrs.\* in Human Relations  
20 hrs.\* in Concept Formation  
27 hrs.\* in Research  
9 hrs. in Independent Study (Internships)  
5 hrs. of Electives

90 hrs. *minimum* Total

At least fifteen hours of the ninety hours *minimum* must be taken outside the College of Education. Whether credits earned in another degree program will be allowed will be determined by the adviser on an individual basis.

Curricula available within this degree program include:

*Line Administration*—prepares the student for a position as a central office administrator of a school district; as a principal and/or director in a school district; as a central administrator in a post-high school educational agency; or as a chief executive officer, vice-president, or administrator in institutions of higher education, government agencies, or private industry.

*Staff Administration*—offers preparation for a position as a coordinator, director, or supervisor in public or private schools, colleges, universities, or service or business agencies in areas such as finance, personnel, or a special service (for example, research).

*Program Leadership*—prepares the student for a position as a director of training and/or management development in the armed forces, business, government, industry, a professional association or a trade union, or as a director or coordinator of educational programs in a social welfare agency.

*Human Resource Development* (Designated Concentration)—a highly structured program intended for the mid-career HRD professional seeking acquisition of technical skills needed to develop, design, deliver, and manage projects of a training/educational nature.

\*Certain career goals within the program may alter the number of hours required in these areas. Curricula available within this degree include, but are not limited to: agriculture, community education, distributive education, early childhood, evaluation, home economics, industrial and technical education, media and technology, training and development, and vocational education.

## Mathematics

**Joseph McKean, Chairperson of Advisers  
Room 3319, Everett Tower**

The Doctor of Philosophy in Mathematics is designed to give the student a broad but intensive background in a variety of fields of mathematics, with special emphasis on some selected area in which the student will be prepared for, and participate in, creative mathematical research. In this Department doctoral work in mathematics can be in pure mathematics, applied mathematics, and mathematics education. More specifically, the area of specialization may be chosen from among algebra, college mathematics teaching, complex analysis, differential equations, graph theory, group theory, optimization theory, and topological graph theory. Alternately, a student may pursue a Ph.D. in Mathematics with Concentration in Graph Theory and Computer Science or with Concentration in Statistics. These two programs are described below.

### Admission requirements

A student may enter this program with a master's degree or directly upon completion of a bachelor's program. In addition to satisfying the general admission requirements of The Graduate College, the student must have acquired a sufficient level of mathematical training with satisfactory grades as determined by the Department Doctoral Committee. Upon entrance to the program the student is assigned an adviser who assists him/her in planning his/her program until he/she reaches the stage of having a Dissertation Adviser appointed.

### Program requirements

A minimum of ninety hours is required in the program.

As early as possible in his/her program the student must pass the Departmental Graduate Examinations in Algebra (introductory modern algebra and Math 530), Real Analysis (Math 673) and General Topology (Math 622). In addition, each student must complete the following basic course requirements: (1) two-semester graduate sequences

in Algebra, Real Analysis, and Topology, and a semester course in Complex Analysis; (2) an approved graduate sequence in some area other than those specified in (1); (3) one approved graduate course in Applied Mathematics, Probability, or Statistics. The balance of his/her program will consist of advanced courses, seminars, and research leading ultimately to a dissertation constituting a significant contribution to some field of mathematics.

Each student must pass the Departmental Preliminary Examination. For a student concentrating in Algebra, Analysis, or Topology, the Preliminary Examination will consist of a three-hour written examination in each of these three areas; for a student concentrating in some other area, the Preliminary Examination will consist of three-hour examinations in his/her specialty, in Analysis, and in either Algebra or Topology (the choice being subject to the approval of the Department Doctoral Committee); for a student concentrating in mathematics education, the Preliminary Examination will consist of a three-hour examination in mathematics education, and two three-hour examinations in mathematics to be selected from Algebra, Analysis, and Topology. A student must take each Preliminary Examination the first time it is offered following his/her completion of the required course work in that field. If the student fails an examination, he/she may be permitted to take a second examination in that area at a time designated by the Committee. A student may not take any part of the Preliminary Examination more than twice. A second failure in any area results in dismissal from the doctoral program. After successfully completing this examination the student is assigned a Dissertation Adviser and a Dissertation Committee who supervise his/her final research and dissertation.

In accordance with the requirements of The Graduate College, each student is required to attain competency in two research tools. Normally these will consist of two foreign languages selected from French, German, and Russian. One of these may be replaced by demonstrated competence in computer usage, subject to approval of the Doctoral Committee. Students in mathematics education may meet the research tools requirement by demonstrating competence in computer usage and statistics.

Many mathematics Ph.D.'s will eventually take a position which involves some teaching commitment. Thus, as part of his/her training, each applicant will instruct a sophomore or junior level college mathematics course (under the guidance of a faculty member), and will participate in faculty discussions on college mathematics teaching and curricula.

A student who completes all basic course requirements, the Preliminary Examination, and otherwise satisfies the requirements of The Graduate College is designated as a candidate for the doctoral degree. Shortly after attaining the status of candidate, the student, with the approval of the Doctoral Committee, is expected to select and be accepted by a Dissertation Adviser.

With the approval of the Doctoral Committee, the candidate and Dissertation Adviser select a Dissertation Committee for the candidate. The Dissertation Committee consists of at least five members, with the Dissertation Adviser serving as Chairperson. At the time of selection, one member (not the Dissertation Adviser) is appointed as Second Reader. Each Dissertation Committee must also contain an individual who is not a member of the Mathematics Department of Western Michigan University; this individual is designated as the Outside Member.

At least seven days prior to the final dissertation defense, the Doctoral Committee is to receive written reports (including recommendations) on the candidate's dissertation from each of the Dissertation Adviser, the Second Reader, and the Outside Member. Each member of the Dissertation Committee is to receive copies of all these reports prior to the dissertation defense.

Under the direction of the Dissertation Adviser, the candidate is required to do creative research, and, in general, further his/her knowledge in some area of mathematics. The findings of the candidate must be compiled in scholarly form in a dissertation, which will be read and judged by the Dissertation Committee. The candidate's final dissertation oral defense, chaired by the Dissertation Adviser, normally consists of a colloquium talk presented to the Department of Mathematics, after which an oral examination on the candidate's dissertation is conducted by the Dissertation Committee. Immediately following the defense and examination, the Dissertation Committee meets to consider whether the dissertation should be approved and whether the candidate has passed the examination. These two recommendations are made to the Doctoral Committee.

#### Financial assistance

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships, University Fellowships and Associateships, and other Fellowships. Individuals desiring further information about such opportunities, or about the program as a whole should contact the Mathematics Department Office (3319 Everett Tower).

## Concentration In Graph Theory and Computer Science

#### Advisers:

**Gary Chartrand,  
Room 3319, Everett Tower,  
Dionysios Kountanis,  
Room 4045, Friedmann Hall**

Courses in this program emphasize a strong cross-section of discrete mathematics and computer science. Increasing demand for employees in business, industry, and academic settings with background in computer science and in applied mathematics ensures that graduates from this new doctoral option will be particularly attractive to employers.

#### Admission requirements

A student may enter the doctoral program, Graph Theory and Computer Science option, with a master's degree or directly upon completion of a bachelor's degree. In addition to satisfying the general admission requirements of The Graduate College and the Mathematics Department, the student must have acquired a sufficient level of training in mathematics, as well as a knowledge of a high level programming language (preferably both PASCAL and FORTRAN), an assembly language and data structures. Three letters of recommendation are required.

#### Advising

Upon entrance into the doctoral program, Graph Theory and Computer Science Option, the student will be assigned a program adviser who will help the student plan his or her program until the student has a dissertation adviser.

#### Program requirements

1. Departmental Graduate Examinations: As early as possible a student must pass Departmental Graduate Examinations in:
  - a. Linear Algebra (530),
  - b. Topology (622), and
  - c. Real Analysis (673).
2. Coursework and Dissertation (minimum of 90 hours):
  - a. Approved two-semester graduate sequences in each of: graph theory, algebra, and probability and/or statistics;
  - b. An approved graduate course in each of: combinatorics, measure and integration, scientific programming, advanced data structures, analysis of computer algorithms, and mathematical theory of formal languages;
  - c. An approved seminar discussing relationships between graph theory and computer science;
  - d. Approved additional graduate courses, reading courses, and seminars; and
  - e. Research and dissertation (normally 15 hours) which may be in graph theory and/or computer science.
3. Departmental Preliminary Examinations: Each student in the doctoral program, Graph Theory and Computer Science Option, must pass Departmental Preliminary Examinations in three areas: Graph Theory, Computer Science, and Algebra.
4. Research tools: For students in the doctoral program, Graph Theory and Computer Science Option, this will consist of competence in applied mathematics (two approved graduate courses) and an approved foreign language, or two approved foreign languages.

#### Administration

The doctoral program, Graph Theory and Computer Science Option, is jointly administered by the Department Doctoral Committee and the Graph Theory and Computer Science Program Committee.

#### Financial assistance

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships, University Fellowships and Associateships, and other Fellowships. Individuals desiring further information about such opportunities, or about the program as a whole should contact the Mathematics Department Office (3319 Everett Tower).

## Concentration In Statistics

#### Adviser:

**Gerald Sievers,  
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 usual admission requirements of The Graduate College and the Mathematics Department must be met. In addition, applicants should have completed (or be completing) a master's degree in statistics 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 adviser by the Statistics Doctoral Subcommittee and the Department Doctoral Committee for planning the student's program until (s)he reaches the status of candidate. During the semester in which the student attains the status of candidacy, with the approval and advice of the Departmental Doctoral Committee and the Statistics Doctoral Subcommittee, (s)he will be assigned a dissertation adviser. The candidate and the dissertation adviser will select with the approval of these Committees a Dissertation Committee for the candidate. In each of the above situations final appointment is subject to the approval of the Chairperson of the Department and The Graduate College.

During the first semester, the student must have a plan of study written by the Statistics Doctoral Subcommittee and approved by the Departmental Doctoral Committee. The selection of preliminary exams shall be included.

#### Program requirements

1. Departmental Graduate Examinations: As early as possible, a student must pass Departmental Graduate Examinations in:
  - a. Linear Algebra (530),
  - b. Real Analysis (673), and
  - c. Statistics

The Statistics 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 560, 562, 660, and 662. The Statistics DGE will normally be given twice a year. A student should usually take this DGE at the end of the first year of graduate study.
2. Coursework 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. Additional approved graduate courses and seminars; and
  - f. Research and dissertation (normally 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—analysis, algebra, or statistical inference (the choice being subject to approval).

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

#### Administration

This program will be jointly administered by the Departmental Doctoral Committee and the Statistics Doctoral Subcommittee.

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. Grades, performance on preliminary exams, the schedule of completed classes, general progress towards completion, etc. will be considered in this decision.

#### Financial assistance

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships, University Fellowships and Associateships, and other Fellowships. Individuals desiring further information about such opportunities, or about the program as a whole should contact the Mathematics Department Office (3319 Everett Tower).

## Psychology

**Howard Farris,**  
**Program Committee Chairperson**  
**Arlene Lewis, Program Secretary**  
**Room 255, Wood Hall**

The Doctor of Philosophy in Psychology is designed to provide intensive training in Experimental Analysis of Behavior, Applied Behavior Analysis, Clinical Psychology, or School Psychology. The Ph.D. degree is a research degree for persons intending to assume leadership roles in teaching, research, and service in a variety of professional and academic institutions.

In addition to meeting the entrance requirements of The Graduate College, applicants are expected to show evidence of interest in and aptitude for conducting research.

Graduate students receive a personal appointment to a doctoral chairperson and two faculty sponsors in an apprenticeship role to facilitate the full development of the student's academic interests within the research programs of the Department and the University. The program is arranged to encourage active participation in the daily conduct of the Department's academic program and research activities.

The credit hour requirements of the Ph.D. program are arranged to prepare students for teaching and research. The coursework includes:

#### Applied Behavior Analysis (90 hrs.)

1. Experimental analysis of behavior (6 hrs.)
2. Statistics and experimental design (6 hrs.)
3. Behavior modification: Areas of research and application (15-18 hrs.)
4. Systems analysis (6 hrs.)
5. Practicum in applied behavior analysis (12 hrs.)
6. College teaching experience (6 hrs.)
7. Professional problems and ethics (3 hrs.)
8. Electives and cognate courses (12-15 hrs.)

#### Experimental Analysis (90 hrs.)

1. Experimental analysis of behavior (6 hrs.)
2. Statistics and experimental design (6 hrs.)
3. Experimental Analysis: Areas of research and application (15 hrs.)
4. History and systems (9 hrs.)
5. Apprentice research (6 hrs.)
6. College teaching (6 hrs.)
7. Professional problems (3 hrs.)
8. Electives and cognate courses (18 hrs.)

#### School Psychology (95 hrs.)

1. School Psychology Foundations (19-20 hrs.)
2. Learning Applications (22 hrs.)
3. Behavior and Systems Analysis (6 hrs.)
4. Research Methods (6 hrs.)
5. College Teaching (6 hrs.)
6. Professional Problems (3 hrs.)
7. Practicum (4-6 hrs.)
8. Internship (12 hrs.)
9. Specialist Project (6 hrs.)
10. Dissertation (15 hrs.)

#### Clinical Psychology (90 hrs.)

1. Clinical Foundations in Psychology (18 hrs.)
2. Methodology (6 hrs.)
3. Clinical Psychology (21 hrs.)
4. Clinical Practicum (6 hrs.)
5. College Teaching (3 hrs.)
6. Professional Core (6 hrs.)
7. Thesis (6 hrs.)
8. Dissertation (15 hrs.)
9. Pre-doctoral Internship (3 hrs.)
10. Behavior Theory and Applications (6 hrs.)

The research activity of the doctoral student is continuous and is encouraged through participation in the apprentice research program, completion of a six credit hour Master's Thesis, the completion of approved practicum, and completion of a fifteen credit hour dissertation. In addition to the required hours of formal course work, research activity, and professional experience, the student is required to demonstrate competence in two research tools selected from foreign languages, American sign language, computer usage, or advanced statistics. The doctoral candidate will also show evidence of an ability to interpret, integrate, and discuss research data by the satisfactory completion of comprehensive examinations in two areas of concentration and the preparation of a review paper of publishable quality.

The program is arranged to provide formal evaluations of the student as he/she progresses from baccalaureate apprentice to doctoral applicant with the completion of the Master's Thesis and to doctoral degree candidate with completion of the comprehensive examinations and the review paper. 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, submission of an approved review paper and two area examinations, 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.

## Public Administration

#### Adviser:

**Peter Kobrak,**  
**Center for Public Administration Programs**  
**B-1, Hillside Building-East**

The Doctoral program in Public Administration is designed for those who have several years of experience in administrative staff positions and wish to develop managerial and analytic skills which will enable them to assume positions of greater responsibility and authority. Courses in the DPA program focus on the analysis, evaluation, and implementation of public policy. The program is structured to provide decision-makers with a more sophisticated understanding of the total governing process. Completion of the DPA will provide candidates the background to analyze a wider range of alternative policies and to weigh competing choices in the decision-making process.

Courses will be taught by graduate faculty members drawn from several departments and colleges at Western Michigan University. The program is offered only in Lansing and is administered by the Center for Public Administration Programs through the WMU Lansing Study Center. Although the program is primarily intended for upper-level state employees, others are welcome to apply.

Admission and other program requirements for the DPA include those applicable to doctoral study at WMU contained in *The Graduate College Bulletin*, plus those outlined below:

#### Admission Requirements

1. Master's degree in Public Administration or related area. Prerequisites in several areas of course work are also required.
2. At least four years of experience in a supervisory or administrative staff position.
3. Two letters of recommendation from persons acquainted with applicant's professional work.
4. A career resume.

#### Program requirements

1. Sixty semester hours of course work beyond the master's
2. Satisfactory performance on qualifying examinations in Policy Analysis, Policy Formulation, and Policy Implementation.

The sixty hours of course work are divided into four modules which contain the following courses:

**POLICY ANALYSIS MODULE**

PADM	673	Quantitative Public Policy Analysis (3 hrs.)
PADM	678	Program Evaluation (3 hrs.)
PADM	681	Designing Policy and Policy Systems (3 hrs.)
PADM	691	Statistics for Public Administrators (3 hrs.)
PADM	693	Action Research Project (to be elected twice) (3 hrs.)

**POLICY FORMULATION MODULE**

PADM	671	The Public Good (3 hrs.)
PADM	672	Historical and Comparative Analysis of Public Policy (3 hrs.)
PADM	675	Advanced Administrative Theory (3 hrs.)

**POLICY IMPLEMENTATION MODULE**

PADM	674	Human Behavior in Public Organizations (3 hrs.)
PADM	676	Cases in Public Policy Implementation (3 hrs.)
PADM	677	The Public Administrator (3 hrs.)
PADM	682	Administrative Decision Making (3 hrs.)

**DISSERTATION MODULE**

PADM	698	Studies in Selected Policy Areas (3 hrs.)
PADM	695	Research Design (3 hrs.)
PADM	730	Doctoral Dissertation (15 hrs.)

The first three years of the program involve course work with classes meeting evenings. The fourth year will be devoted to the dissertation. This work involves a review of the literature in a policy area and then research the interpretation of the findings in that policy area.

The course schedule will entail two courses or their equivalent each semester. Advising will be done at the WMU Lansing Study Center.

## Science Education

**Adviser:**  
**Robert H. Poel,**  
**Room 313, Moore Hall**

The Doctor of Philosophy in Science Education is a broad science program requiring graduate work in more than one science for a total of ninety hours of graduate work.

In Option I of this program, graduate work in three sciences, selected from Biology, Biomedical Sciences, Chemistry, Geology, and Physics, is required. This option is designed to provide more depth in one science area and a breadth in other science areas in order to prepare graduates of the program to be (1) science supervisors, directors of science instruction, or heads of science departments in large school systems or in state departments of education or (2) college instructors who are likely to teach science education methods courses, science courses for science teachers who need remedial or refresher courses in the sciences, and general education interdisciplinary science courses or (3) college teachers of science methods courses and supervisors of student teachers of science or (4) teachers of college science courses or (5) researchers in the area of Science Education. There are, of course, other

career opportunities which consist of combinations of some of the above, such as, a college teacher of science methods courses and a researcher in Science Education.

A second option is available which provides an emphasis in environmental science. Option II requires graduate work in two sciences and additional work in appropriate courses dealing with environmental issues offered in such departments as: Geography, Economics, Political Science, and Sociology. This option is designed to prepare graduates to be, in addition to those career possibilities stated above, (1) developers, teachers, and/or administrators of academic environmental science programs or (2) consultants in environmental education or (3) advisers to developing nature centers and other environmental education centers or (4) supervisors of student teachers in conservation and environmental science courses or (5) supervisors of elementary and secondary school environmental science programs or (6) environmental managers, including individuals with expertise in the areas of management of energy and material resources.

**Admission requirements**

The minimum admission requirements to this degree program are an undergraduate major in one science (Biology, Biomedical Sciences, Chemistry, Earth Science, Geology, or Physics) and an undergraduate minor in a second science. Students electing Option I should have a minor in a third science and a minimum of one year of undergraduate work in a fourth science. It is expected that all students in the program will have some undergraduate preparation in each of the four sciences: Biology, Chemistry, Geology, and Physics. Students entering with less than these requirements will be expected to complete them at the undergraduate level. Undergraduate deficiencies may be made up after admission to the doctoral program. In addition, all students are expected to meet the regular admission requirements established by The Graduate College.

**Program requirements**

Individual programs are planned by the adviser (Coordinator of Graduate Science Education) and the student in consultation with faculty representatives from the various science departments and the College of Education. The ninety-hour program consists of the following:

1. Science and related areas:
  - Option I: Twenty hours of graduate credit in one of the following sciences: Biology, Biomedical Sciences, Chemistry, Geology (Earth Science), or Physics. Twenty hours of graduate credit in two other sciences (ten hours in each).
  - Option II: Twenty hours of graduate work in one of the following sciences: Biology, Biomedical Sciences, Chemistry, Geology (Earth Science), or Physics and ten hours of graduate work in a second science. Ten hours of courses dealing with environmental issues offered in such departments as Geography, Political Science, etc.
2. Professional Education: Twenty to twenty-one hours of graduate credit.
3. Research tools: Six to nine hours. The two research tools generally elected are statistics and computer programming. Students are required to demonstrate competency in the two research tools, and this is usually done by completing satisfactorily one or two courses in each research tool area.

4. Science Education Seminar: Four to six hours.
5. Dissertation: Fifteen hours.
6. Electives: Zero-five hours to make a total of ninety hours and to include additional courses from science, education, research, or other appropriate areas.

At approximately the end of the second year of full-time graduate study or at the time most of the course work is completed, the student will take the Comprehensive Examination. The examination consists of two parts, one of which is written and the other oral. The written part of the examination consists of two sections, one over the science areas studied and the other over the area of Science Education. Each of these is a about an eight-hour examination. The oral examination consists of the presentation and defense of an original research proposal other than the dissertation research.

The research and dissertation are completed under the direction of a major adviser and a committee. The major adviser is selected by the student, and the committee members are selected by the student in consultation with the major adviser. About one-third of the program is devoted to research, and students are encouraged to begin their research as early in their program as possible. The research problem generally is formulated by the student and is in an area of Science Education, Environmental Science, or a science topic approved by the student's Doctoral Advising Committee.

The residency requirement for this degree program is one calendar year of full-time study on the campus.

To be admitted to candidacy for the doctoral degree, the student will be expected to have completed the course work, the research tools, the comprehensive examination, and also two years of successful teaching experience in addition to the other requirements of all doctoral degree programs. Exceptions to the teaching requirement may be made for students in Option II on an individual basis.

## Sociology

**Director, Graduate Studies:**  
**Gerald E. Markle, 2512-D Sangren Hall**  
**Adviser:**  
**Stanley Robin, 2512-A, Sangren Hall**

The Ph.D. program in Sociology is designed to prepare students for careers in sociological research and teaching. Broad training in sociology is provided through a wide variety of courses and research experiences, with each student's program individually guided by a doctoral committee.

A basic feature is the core training in general sociology, theory, research methods, and social psychology. Specialization is required in three areas of sociology. Two are selected by the student from the departmental areas of concentration: Criminology, medical sociology, applied sociology, social psychology, sociology of social problems. A third area of individual specialization is chosen by the student with the approval of the student's doctoral committee. The areas of concentration are important and active ones in the field, and thus provide students with valuable specialties to augment the doctoral training in the discipline as a whole.

**Admission requirements**

1. Master's degree in sociology.
2. Grade-point average of 3.25 in all graduate work.
3. Applicants who hold a master's degree in a related field may be admitted to the program but will be required to make up deficiencies as a condition of admission.
4. Applicants must request three letters of recommendation from academic and/or professional sources to be sent to: Graduate Admissions Committee, Department of Sociology.

**Program requirements**

1. Complete, beyond the master's degree, at least sixty hours of course and dissertation credits; courses in addition to the required core courses are selected in consultation with the student's doctoral committee.
2. Demonstrate competence in two research tools selected from a foreign language other than English, research methodology, statistics, and computer programming.
3. Pass examinations in two departmental areas of concentration and in one individual area of specialization.
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 departments' Graduate Manual.

**Financial support**

A number of departmental, University, and governmental assistantships, fellowships, and associateships are available to qualified students. Training opportunities and part-time employment may be available through the facilities of the Center for Social Research. Faculty associated with the Center have conducted 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 chair.

**Special Education****Advisers:**

**Joseph J. Eisenbach,  
Alonzo E. Hannaford,  
Donald F. Sellin,  
Office: 3506 Sangren Hall**

The Doctor of Education in Special Education is designed to prepare an individual to serve as a college teacher in a Department of Special Education and as an administrator of educational programs for the handicapped.

Application for admission to the Ed D program must be made to The Graduate College. Prospective students are expected to satisfy all requirements for admission to doctoral programs specified by The Graduate College. They must also have acquired a minimum of two years of successful professional experience in serving the handicapped. Admission to the program is contingent upon a satisfactory score on the Miller Analogies Test and the successful completion of a personal interview with a committee comprised of graduate faculty of the Department of Special Education.

Upon acceptance to the Department, a Program Adviser will be designated to work

with the student in developing the student's overall program. A preliminary diagnostic and planning examination will be completed during the first month of the first semester. Examination results will be used by the Program Adviser in designing the student's formal program of study. In addition to the prescribed coursework, 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 adviser and a dissertation committee who will guide the student in the development of a dissertation. Following the completion of the dissertation, the student will be required to complete successfully an oral defense of the dissertation to be conducted by the dissertation adviser, the dissertation committee, and an additional reader selected by the student and the dissertation adviser from the graduate faculty outside the Department of Special Education.



# Section V

## Description of Graduate Courses

### COLLEGE OF ARTS AND SCIENCES

A. Bruce Clarke,  
Dean

Clare R. Goldfarb,  
Associate Dean

#### Graduate Offerings:

Anthropology  
Arts and Sciences  
Biology  
Biomedical Sciences  
Black Americana Studies  
Chemistry  
Communication Arts and Sciences  
Computer Science  
Economics  
English  
Geography  
Geology  
History  
Languages and Linguistics  
Mathematics  
Medieval Studies  
Philosophy  
Physics  
Political Science  
Psychology  
Public Administration  
Religion  
Science Division  
Social Science Division  
Sociology

The College of Arts and Sciences offers a variety of subjects that familiarize the graduate student with the world of ideas and deepen his/her understanding of our cultural heritage. Graduate programs are offered in Anthropology, Biology, Biomedical Sciences, Biostatistics, Chemistry, Communication Arts and Sciences, Computer Science, Development Administration, Earth Science, Economics, English, Geography, Geology, History, Mathematics, Medieval Studies, Physics, Political Science, Psychology, Public Administration, School Psychology, Science Education, Sociology, and Statistics.

The College of Arts and Sciences cooperates with the College of Education in offering the following teaching education programs: Teaching of English, Teaching of Geography, and Teaching of Mathematics.

## Anthropology (ANTH)

R.J. Smith, Chairperson; Professors E. Garland, W. Garland, Greenberg, Jacobs, R. Loeffler, Maher, Sundick; Associate Professors Cremin, E. Loeffler.

### Open to Upperclass and Graduate Students

#### 500 Topics in Archeology 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. Prerequisite: Varies with topic.

#### 501 The Rise of Civilization 3 hrs.

The archeological science 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, 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: ANTH 210, or consent of instructor.

#### 502 The Origins of Agriculture 3 hrs.

An intensive study of the human transition from hunting-gathering to cultivation during the post-Pleistocene period. Topics to be treated include: both archeological and botanical models to explain these processes; the comparison of agricultural systems in various parts of the world; the geographic distribution and biosystematics of selected cultivars; and the cultural systems which have arisen from the economic foundation of plant domestication. Prerequisite: ANTH 210, or consent of instructor.

#### 510 Field Methods in Archeology I 3 hrs.

Instruction in the archeology of a particular area (e.g., the Great Lakes, Midwest Riverine area) with emphasis on cultural processes and ecological relationships as these emerge during the course of field work on the specific problems chosen for investigation in a given field season. May be repeated for credit. Prerequisites: Consent of instructor.

#### 511 Field Methods in Archeology II 3 hrs.

Implementation of the field research strategy. Instruction in the basic skills of site excavation, mapping, and retrieval and recording of data; also laboratory analysis, including classification and cataloging of artifacts. Depending upon the problem orientation in a

given field season, instruction may include site location survey, site sampling techniques, and paleoenvironmental reconstruction. To be taken concurrently with ANTH 510. May be repeated for credit. Prerequisite: Consent of instructor.

#### 520 History of Ethnological Theory 3 hrs.

A systematic examination of the evolution of the significant theoretical problems and contributions in anthropology over the last two centuries. Developments are examined in relation to the prominent figures in the discipline and their times. Prerequisites: ANTH 220, 240, or consent of instructor.

#### 522 Methodology in Ethnographic Research 3 hrs.

Emphasis is on quantitative and qualitative research materials as the basis for successful description and hypothesis testing in cultural anthropology. Considers the importance of research design and operations in generating more accurate observations on which theory building and testing rest. Includes introduction to ethnographic research techniques: e.g., participant-observation, structured and semi-structured interviews, questionnaires, sampling, technical equipment, etc. Prerequisite: ANTH 220, 240, or consent of instructor.

#### 523 Ethnographic Field Session 3-6 hrs.

Supervised field examination of human communities in respect to specific ethnographic questions, analysis of field data, and report writing. May be repeated for credit up to a total of six hours. Prerequisite: Consent of instructor.

#### 531 Medical Anthropology 3 hrs.

An examination of anthropological research relating to cross-cultural beliefs and practices about health and illness and the relationship between folk and scientific medical care systems. Included is analysis of public health programs in Western and developing societies, the effect of institutional/bureaucratic social structure on the adequacy of health care systems, and patients' right in this age of extraordinary medical technology. Prerequisites: ANTH 220, 240, or consent of instructor.

#### 532 Culture and Personality 3 hrs.

An investigation of the interaction of culture and personality with particular attention to the role of culture as a force in the development of the individual. Prerequisites: ANTH 220, 240, or consent of instructor.

**536 Cultural Evolution****3 hrs.**

An inquiry into the dynamics of culture through a study of selected theories of cultural change and their application to concrete situations such as the rise of complex civilizations and the reactions of non-Western societies to contact with the West. Prerequisites: ANTH 220, 240, or consent of instructor.

**538 Legal Anthropology****3 Hrs.**

A study of law through the theory and method of comparative legal dynamics. The relation of law to the whole of culture; the function of law as revealed in the comparative study of societies ranging from simple to complex. Prerequisites: ANTH 220, 240, or consent of instructor.

**540 Social Impact Assessment****3 hrs.**

The application of anthropological knowledge to assess and evaluate the sociocultural effects of proposed developmental policy, programs, or projects as they relate to environmental impact assessment while in the planning stage, to improve project design, and mitigate undesired secondary effects.

**545 Topics in Ethnology****3 hrs.**

An intensive study of the cultures of an area of the world (e.g., Japan, Philippines, Caribbean, East Africa) or selected problems (e.g., kinship systems, millenarian movements). Topic will be announced each semester. May be repeated for credit. Prerequisites: ANTH 220, or 240, or consent of instructor.

**551 Human Osteology****3 hrs.**

A study of the human skeleton. Emphasis will be on morphological and metrical variation, odontology, palaeopathology, and reconstruction of the individual and the population. Prerequisite: ANTH 250, or consent of instructor.

**555 Topics in Physical Anthropology****3 hrs.**

A consideration of the biological relationships of specific population groups of general problems in human biology (e.g., human genetics, human growth and constitution, palaeopathology, dental anthropology). Topic will be announced each semester. May be repeated for credit with different topics. Prerequisite: ANTH 250.

**598 Readings in Anthropology****1-4 hrs.**

Independent study arranged in consultation with an instructor. Intended for advanced students with good academic records. One to two hours credit per semester, cumulative to four hours. Prerequisite: Consent of instructor.

**Open to Graduate Students Only****601 Seminar in Cultural Anthropology****3-4 hrs.**

Intensive study of the 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.

**602 Seminar in Archeology****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.

**603 Seminar in Physical Anthropology****3-4 hrs.**

Advanced instruction and research in the principal problem areas in physical 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.

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis****6 hrs.****710 Independent Research****2-6 hrs.****Arts and Sciences (A-S)****Open to Upperclass and Graduate Students****American Studies****A-S 501 Studies in American Culture****1-4 hrs.**

An interdisciplinary study of perennial issues in American life. The materials for this course are drawn from literature, the arts, the social sciences, philosophy, and religion. This course must be approved by the American Studies Program Adviser.

**Environmental Studies****EVS 550 Contemporary Environmental Projects****1-4 hrs.**

Contemporary Environmental Projects is designed for students who wish to carry on advanced interdisciplinary work in Environmental Studies under the direction of a faculty member. Work will be geared to a single project in which there is outside investigation, research, field experiences, and/or workshop experiences. Students selecting this course will work on projects especially designed for their programs. The goal of this course is to identify a problem, outline the approach to study, and to consider paths to solving the problem. The course is repeatable for up to eight hours of academic credit. Prerequisite: Consent of instructor and approval of the Director of the Environmental Studies Program.

**Foreign Studies Seminars**

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

**A-S 504 Foreign Studies Seminar****1-6 hrs.**

Seminars in the Social Sciences conducted outside the U.S. Students who complete such a seminar may receive credit in the departments of Anthropology, Economics, Geography, History, Political Science, or Sociology if the credit is approved by the chairperson of the department prior to registering for the seminar. May be repeated for credit.

**A-S 505 Foreign Studies Seminar****1-6 hrs.**

Seminars in the Humanities conducted outside the U.S. Students completing such a seminar may receive credit in the departments of Communication Arts and Sciences, English, Languages and Linguistics, Philosophy, Religion, and the departments of the College of Fine Arts if the credit is approved by the chairperson of the department prior to registering for the seminar. May be repeated for credit.

**Biology (BIOL)**

Pippen, Chairperson; Professors Brewer, Engemann, Fowler, VanderBeek; Associate Professor Inselberg; Assistant Professor Cowan.

**Open to Upperclass and Graduate Students****501 Ecological Adaptations of Organisms****3 hrs.**

An investigation of the many environmental factors (light, temperature, time, magnetism, and others) that influence the life and behavior of organisms. A study will be made of the strategies used by organisms to adapt to these factors. Adaptation will be considered as adjustments in both behavior and physiology. Ecological interactions between the environment and the organisms at the molecular, cell, and organ levels will be studied. Plants, animals, and micro-organisms will be used as examples. Prerequisites: BIOL 101, 102.

**502.Human Ecology****3 hrs.**

A study of the various aspects of the ecology of humans, including pollution, population, land use, and nutrition. One student project and required field trips. Prerequisite: Eight hours of Biology or consent of instructor.

**505 Quantitative Biology****3 hrs.**

The use of the computer and statistics to perform analyses of biological concern. Emphasis will be placed on ecological and physiological analyses. Lectures and regularly assigned homework exercises. Previous computer programming experience is desirable. Prerequisites: BIOL 201 and a basic statistics course or consent of instructor.

**507 The Biology of Addictive Drugs****3 hrs.**

The principles of pharmacology (mode of action and effects of drugs) are related to abuse drugs, such as marijuana, alcohol, heroin, methadone, LSD, amphetamines (Speed), and cocaine. The course is designed primarily for non-science majors to give them an understanding of the objective and subjective effects of drug use. Legal and social implications of illegal drug use are discussed. No prerequisites.

**509 Evolution****3 hrs.**

A consideration of the theory of evolution by natural selection, including discussions of the mechanisms of evolution and predictions generated by the theory. Genetic principles needed for an understanding of evolution are covered. Prerequisites: BIOL 101, 102, and a course in genetics, or consent of instructor.



**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. Prerequisites: Eight hours of Biology.

**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 a discussion of plant composition and some of the important processes involved in plant growth, the course will investigate the botanical characteristics of each plant, the areas where it is grown, and 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: BIOL 102, CHEM 101, or equivalent courses.

**517 Advanced Cell Physiology**  
**3 hrs.**

Concerned with the details of structure and functioning of cells, both animal and plant. The current status of major problems in the field is considered. Prerequisite: BIOL 317 or consent of instructor.

**520 Systematic Botany**  
**3 hrs.**

Principles and techniques of plant classification, nomenclature, and biosystematics are presented in lectures and field, and laboratory experiences using vascular plants as examples. Evolutionary trends, family characteristics and experimental systematics of vascular plants are emphasized. Students will be expected to learn to recognize 100-150 plant species by common and scientific name. Prerequisite: BIOL 102 or equivalent.

**523 Heredity and Plant Breeding**  
**3 hrs.**

Principles of plant breeding. Quantitative genetics, population genetics, systems of mating, heterosis, and the genetics of pathogenic organisms are discussed. The basic unity of methods used in breeding self-pollinated and cross-pollinated species is considered. Prerequisite: Eight hours of Biology.

**525 Biological Constituents**  
**3 hrs.**

The chemical elements in plants and animals, as well as the synthesis, characterization, and degradation products of the more important compounds. Prerequisites: Twelve hours of Biology and one year of Chemistry or consent of instructor.

**526 Plant Disease**  
**3 hrs.**

Considers plant disease as one complex of phenomena within the much larger complex of the biological sciences. Rather than being a catalog of diseases, their causes, characteristics and control, it portrays plant pathology in terms of general biological concepts. Prerequisite: Eight hours of Biology.

**528 Biology of Non-Vascular Plants**  
**3 hrs.**

A detailed comparative study of the structure, reproductive cycles, and ecology of the various groups of algae, fungi, and bryophytes. Laboratory study will be complemented by field investigations. An independent project may be required. Prerequisite: BIOL 102.

**529 Biology of Vascular Plants**  
**3 hrs.**

A detailed comparative study of the structure, reproductive cycles, and phylogeny of vascular plants. Laboratory study will be complemented by field trips. An independent project may be required. Prerequisite: BIOL 102.

**530 Environmental Education**  
**3 hrs.**

A review of ecological principles basic to understanding environmental problems. A survey of environmental problems through readings, discussions, and field experiences. The goal of this survey is to define problems and consider paths to solutions. Students are expected to plan and, if possible, to initiate environmental education programs in their own professional areas.

**533 Neuroendocrinology**  
**3 hrs.**

Neuroendocrinology is designed to acquaint the student with the interrelationships of the environment and the organism, as mediated by the neuroendocrine system. The physiology and morphology of the neuroendocrine system will be studied, as well as the chemical structure of the neurohormones. Regulation of cellular chemistry by the neuroendocrine products will be emphasized. Prerequisites: A course in physiology, organic chemistry, or consent of instructor.

**535 Plant Nutrition**  
**3 hrs.**

The elements essential for plant growth and development, their uptake, and their main functions in plant are examined. Some important relationships of plant nutrition to human nutrition will be pointed out. Throughout the course, a balance between theory and application will be maintained. The cycling of elements in nature provides insights into ecological aspects of plant nutrition. Several demonstrations and lab experiences serve to enrich the course; for example, students cooperate in making up nutrient solutions, growing various plants in them, and observing the effects of nutrient deficiencies. Prerequisites: BIOL 102, CHEM 101, and a course in physiology.

**538 Field Natural History**  
**3 hrs.**

A study of biological communities, with particular emphasis on those accessible for use by public schools (e.g., school grounds, vacant lots, roadsides, parks, and undeveloped areas). Primarily for teachers. Prerequisite: At least twelve hours of Biology or consent of instructor.

**539 Animal Behavior**  
**3 hrs.**

Animal behavior with emphasis on evolution and ecology. Includes an introduction to the ethological point of view. One student project. Prerequisite: Eight hours of Biology or consent of instructor.

**541 Invertebrate Zoology**  
**3 hrs.**

A study of the anatomy, physiology, embryology, and life history of representatives of the major groups of invertebrate animals. Prerequisite: Twelve hours of Biology, including BIOL 101.

**542 Entomology**  
**3 hrs.**

A general study of insects, their structure, classification, life histories, ecological relationships, and economic importance. Collection and identification of local species is included. Prerequisite: Eight hours of Biology, including BIOL 101.

**547 Ornithology**  
**3 hrs.**

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

**548 Animal Ecology**  
**3 hrs.**

Principles of animal populations and communities, inter-relations of life history features (such as habitat selection and reproductive patterns) and population traits; competition and predation and their role in the evolution of community structure; and the roles of animals in the functioning of ecosystems. Methods of determining abundance are studied. Prerequisite: BIOL 201, or equivalent.

**549 Ecology of Southwestern Michigan**  
**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 workings of ecosystems are integrated. Field ecological methods are emphasized. Prerequisite: A course in ecology.

**550 Plant Anatomy**  
**3 hrs.**

An embryological and histological approach to the study of morphogenesis in seed bearing plants. Primary emphasis will be placed on monocots and dicots. Prerequisite: BIOL 102.

**551 Parasitology**  
**3 hrs.**

A study of parasites and host-parasite relationships illustrated by representatives of the major parasite groups. Special attention is given to the parasites of man. Prerequisite: Twelve hours of Biology, including BIOL 101.

**552 Plant Ecology**  
**3 hrs.**

A detailed study of the growth, distribution, survival, and environmental interactions of plants. Ecological plant analysis methods will be given strong emphasis. There will be laboratory and field investigations. An independent project may be required. Prerequisites: BIOL 102 and BIOL 201.

**553 Limnology**  
**3 hrs.**

Biological, chemical, and physical aspects of lakes, ponds, and streams. Ecological relationships of invertebrate animals and lower plants are emphasized. Prerequisites: BIOL 101 and 102; CHEM 101 recommended.

**554 Water Pollution Biology**  
**3 hrs.**

A comparison of organisms which live in clean waters as contrasted to 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. Prerequisites: BIOL 101 and 102.

**555 Marine Biology**  
**3 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.

**559 Radiation Biology**

3 hrs.

A study of the fundamentals of radiobiology, including radioactive decay, radiation measurements, isotope technology, as well as radiation and interaction in living matter, health and safety regulations in the laboratory. Prerequisites: Twelve hours of chemistry and consent of instructor.

**560 Ichthyology**

3 hrs.

A general survey of fishes that considers their anatomy, physiology, ecology, behavior, and phylogeny. Field and laboratory work emphasizes the methods of collection, preservation and identification of Michigan fishes. A paper may be required. Prerequisite: Eight hours of Biology, including Biology 101.

**562 Vertebrate Zoology**

3 hrs.

A comprehensive, phylogenetic survey of vertebrate life that emphasizes the structural, physiological, and ecological adaptations that characterize each vertebrate class. Vertebrate paleontology and the paleoecology of the time periods when major vertebrate groups arose are included. A paper is required. Prerequisites: Twelve hours of Biology, including BIOL 101, or consent of instructor.

**598 Readings in Biology**

1-3 hrs.

**599 Independent Studies in Biology**

1-4 hrs.

For advanced students who wish to carry on advanced work in special fields. Prerequisite: Consent of instructor.

**Open to Graduate Students Only****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.

**603 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 applications of these principles to the problems of substance abuse. This course is cross-listed with Counseling-Personnel, Social Work, and Sociology. Prerequisite: Admission to Specialty Program in Alcohol and Drug Abuse, or consent of instructor. Graded on a Credit/No Credit basis.

**604 Seminar in Substance Abuse II**

3 hrs.

Continuation of BIOL 603. This course is cross-listed with Counseling-Personnel, Social Work, and Sociology. Prerequisite: Admission to Specialty Program in Alcohol and Drug Abuse, or consent of instructor. Graded on a Credit/No Credit basis.

**Seminars in Biology**

2-3 hrs.

Seminars in which a selected area of biology is studied in depth. Oral presentations and discussion will be required. Possible topics will reflect the areas of expertise of the biology 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.

**611 Seminar in Animal Biology****612 Seminar in Plant Biology****613 Seminar in Ecology****614 Seminar in Genetics/Evolution****615 Seminar in Physiology****Topics in Biology**

3-4 hrs.

Courses in which a selected area of biology is studied in depth. Possible topics will reflect the areas of expertise of the biology 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.

**521 Topics in Animal Biology****622 Topics in Plant Biology****623 Topics in Ecology****624 Topics in Genetics/Evolution****625 Topics in Physiology****Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis**

6 hrs.

**710 Independent Research**

2-6 hrs.

**712 Professional Field Experience**

2-12 hrs.

**Biomedical Sciences (BMED)**

Buthala, Chairperson; Professors Eisenberg, Ficsor, Friedman, Wood; Associate Professors Beuving, Ginsberg, McIntire.

**Open to Upperclass and Graduate Students****518 Endocrinology**

Fall (alternate years), 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: BMED 350; biochemistry recommended.

**519 Endocrinology Laboratory**

Winter (alternate years), 3 hours.

Laboratory experience in endocrinological concepts involved in endocrine research and clinical testing. Prerequisite: Permission of instructor.

**520 Human Genetics**

Winter (alternate years), 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. Prerequisites: BMED 250, BMED 495, or consent of instructor; biochemistry recommended.

**522 Cytogenetics**

Fall '86, 3 hrs.

The molecular, morphological, and dynamic aspects of chromosomes, nucleus, and allied structures in the nucleate organisms are considered. The chromosomal basis of transmission genetics involving normal, mutant, and ploid genomes is presented. Prerequisite: BMED 250 or equivalent.

**524 Microbial Genetics**

3 hrs.

A molecular approach to microbial genetics, dealing primarily with bacterial and viral systems. Emphasis is placed on current literature and on the application of concepts of biomedical research. Prerequisites: BMED 250 and BMED 312 or consent of instructor; biochemistry recommended.

**525 Genetics Laboratory**

Winter '86, 3 hrs.

Students will acquire techniques currently used in the field of genetics. Although all areas of genetic interest will be presented, emphasis will be placed on the areas of Cytogenetic, biochemical genetic, genetic toxicology and genetic counseling techniques which are currently used in medical, industrial biomedical research areas. In addition time will be provided for in depth experimentation. Prerequisites: BMED 250 and a biochemistry course.

**531 Biology of Aging**

3 hrs.

This course is designed to provide non-majors 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.

**532 Bacterial Physiology**

Winter '84, '85, '86, 3 hrs.

Bacterial structure-function relationships are examined in a biochemical context. Current concepts of cell biochemistry are organized around the bacterial cell as a traditional model system for understanding energetics, synthesis of cell structures, transport, metabolism and regulatory mechanisms. The course is designed for advanced undergraduates and beginning graduate students. No textbook required; reading assignments are from the scientific literature. Prerequisites: A microbiology course and a biochemistry course.

**534 Virology**

Winter '84, '85, '86, 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: BMED 312; biochemistry recommended.

**536 Immunology**

Fall '84, '85, '86, 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 *in vitro* and *in vivo* humoral and hypersensitivity reactions. Prerequisites: BMED 350; biochemistry recommended.

**537 Histology**

Fall, 3 hrs.

A study of the function and microscopic anatomy of mammalian tissues.

**540 Cell and Organ Culture**

Fall '84, '85, '86, 3 hrs.

The purpose is to introduce the student to the fundamental procedures of cell and organ cultures of mammalian tissue. The application of cell and organ culture to routine clinical, research, or drug screening procedures will be emphasized, as well as specialized procedures employed to solve specific biomedical research problems. Prerequisite: Consent of instructor.

**554 Histological Techniques**

Winter, 2-3 hrs.

A variety of techniques, including celloidin, paraffin, decalcification, and special stains, will be used to prepare mammalian tissues for histological examination. Prerequisite: BMED 537 or consent of instructor.

**560 Reproductive Physiology**

3 hrs.

An introduction to the physiological events associated with reproduction in higher animals. Emphasis is placed upon reproduction in mammals with constant comparison among mammals and between these and other animal groups. This course also introduces the subject of contraception and population control, artificial insemination, and birth defects. Prerequisite: BMED 350.

**570 General Pathology**

Fall (alternate years), 4 hrs.

An introduction to pathology which describes the structural and biochemical changes occurring in cells and tissues following injury or disease. Prerequisites: BMED core curriculum and organic chemistry.

**572 Biology of Cancer**

Fall (alternate years), 3 hrs.

A comprehensive examination of the biological basis of cancer, using animal models as examples with application to its expression in humans. This multidisciplinary subject will utilize information from the areas of immunology, biochemistry, histology, virology, and cell biology to give a current view of this disease. Prerequisite: BMED 350; biochemistry recommended.

**574 Embryology**

Winter (alternate years), 4 hrs.

Embryology is the study of the development of an organism from a single fertilized cell to a complex multicellular fetus. The course will present this material from both a classical descriptive and experimental cellular point of view. In addition to the lecture, laboratory exercises will provide experience in the recognition of the various stages of development and in the culturing and manipulations of embryos *in vitro* and *in vivo*. Prerequisites: BMED 113, 250, or equivalent.

**598 Readings in Biomedical Sciences**

1-3 hrs.

**599 Independent Studies in Biomedical Sciences**

1-3 hrs.

For advanced students who wish to carry on advanced work in special fields. Prerequisite: Consent of instructor.

**Open to Graduate Students Only****601 Special Topics**

2-6 hrs.

Critical examination of developments in the various specialties represented by members of the department. The field in which work is offered will be indicated in the student record. May be repeated for credit. Prerequisite: Consent of instructor.

**602 Seminar: Variable Topics**

2-6 hrs.

Several seminars in various areas of Biomedical 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.

**610 Biomedical Science for Secondary Education**

3 hrs.

Instructional laboratory techniques suitable for secondary education programs in health and human biology. This course is directed toward graduates with science degrees who teach secondary education units in health and human biology. Course content is variable to take advantage of new techniques, available instruction, and the interests of the students. Prerequisite: Consent of instructor.

**621 Genetic Toxicology**

Fall '85, 3 hrs.

Genetic toxicology, as a sub-discipline of toxicology, is concerned with the nature of harm that may be done to the genetic material and searches for ways by which such damage can be prevented. Through reading of current literature, lectures and presentations, the mechanism of action, modifying factors, as well as practical aspects of detection of mutagenic agents are examined. Prerequisites: One course in genetics and one course in biochemistry.

**630 Electron Microscopic Techniques**

Spring '84, 3 hrs.

A technique oriented laboratory stressing the various preparatory procedures employed for viewing biological materials. Prerequisite: Consent of instructor.

**631 Experimental Microbial Physiology**

3 hrs.

An experimental approach to microbial physiology, biochemistry, and molecular biology with major emphasis on laboratory techniques. Prerequisite: Consent of instructor.

**632 Advanced Techniques in Electron Microscopy**

Spring '84, 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 application to biologic 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 his/her preparations and prepare critical critiques.

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis**

6 hrs.

**710 Independent Research**

2-6 hrs.

**712 Professional Field Experience**

2-12 hrs.

**Black American Studies (BAS)**

LeRoi R. Ray, Jr., Director; Associate Professors Jones, Wilson.

**500 Black Humanism**

3 hrs.

An examination of the creative dimension of the Black Experience. Isolated and set apart in an enemy environment, Americans of African descent have been very creative in a wide range of human undertakings. This fact has been acknowledged and accepted, but this creativity has not had free range. One of the outcomes of the Black Revolution has been the emergence of "soul" as a concept to label the artistry and the artfulness of Black American life. The creative dimension has also included science and technology. Black humanism is a way of getting at the life-styles of Black Communities and individuals and the viability of the Black Presence and Experience. What universal elements can be identified in "soul?" What would American life and culture be like without this elusive quality?

**510 Multiethnic Education**

3 hrs.

This course is designed to prepare teachers and administrators who will work in a multiethnic setting. The course is primarily aimed at helping teachers at any level who teach a social studies component, but teachers of all other subjects (e.g., physical and biological sciences and special education and school administrators) will find the course useful. Students will learn how to compile data on the ethnic makeup and resources of the local community, developing instructional packages for use in multiethnic courses, and for evaluating materials prepared.

**598 Individual 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****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 (CHEM)**

Nagler, Chairperson; Professors Anderson, Berndt, Cooke, Foote, Harmon, Houser, Howell, Kana'an, Kanamueller, Lowry, Steinhilber, Stenesh; Associate Professors Brown, McCarville, Warren.

**Open to Upperclass and Graduate Students****501 Chemical Communications**

1 hr.

Principles and techniques involved in writing and/or presenting technical information is discussed and practiced through a series of lectures and assignments. Prerequisite: Twenty-four hours of chemistry.

**505 Chemical Literature****2 hrs.**

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

**506 Chemical Laboratory Safety****1 hr.**

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

**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 interests and requests. Prerequisite: Sixteen hours of chemistry or consent of instructor.

**510 Inorganic Chemistry****4 hrs.**

The course includes descriptive and theoretical inorganic chemistry as well as preparation of different types of inorganic compounds. Prerequisite or concurrent enrollment: CHEM 431.

**520 Instrumental Methods in Chemistry****3 hrs.**

An introduction to the theory and application of modern chemical instrumentation is presented. General topics covered are elementary electronics, electrochemistry, spectroscopy, and other instrumental techniques. Four hours of laboratory per week.

Prerequisites or concurrent enrollment: CHEM 431, 436.

**530 Introduction to Spectroscopy and Molecular Structure****3 hrs.**

Introduction to the basic principles of atomic and molecular spectroscopy with emphasis on quantum concepts; interpretation of spectra in relation to changes in atomic and molecular energies; elucidation of molecular structure from interactions with electromagnetic radiation in the ultraviolet, visible, infrared, and u-wave regions and with magnetic fields as applied to nuclear resonance and electron spin resonance. Prerequisite: CHEM 431.

**535 Introduction to Physical Chemistry****3 hrs.**

Theory and applications of chemical structure, energetics, and rates and mechanisms of processes as a basis for understanding the principles of chemistry. This course may not be applied to the requirements for a major in chemistry or for a graduate curriculum in chemistry. Prerequisites: Sixteen hours of chemistry, MATH 123, PHYS 111, or 211.

**550 Biochemistry I****3 hrs.**

The chemistry, properties, and molecular biology of proteins and nucleic acids. Includes discussions of amino acids, enzymes, and biochemical energetics. Prerequisites: CHEM 361 and 430 or 535.

**552 Biochemistry I with Laboratory****4 hrs.**

This course consists of 550 plus lab. Experiments involve more advanced techniques and instrumentation than in 456 laboratory. Emphasis will be on purification and properties of proteins and nucleic acids. Prerequisites: CHEM 361 and 430 or 535.

**554 Biochemistry II****3 hrs.**

Continuation of 550. Chemistry and metabolism of carbohydrates and lipids. Metabolism of amino acids and photosynthesis. Prerequisite: CHEM 550 or 552.

**556 Biochemistry II with Laboratory****4 hrs.**

This course consists of 554 plus laboratory. Experiments involve more advanced techniques than in 456 laboratory. Emphasis will be on metabolism of carbohydrates, lipids, proteins, and nucleic acids. Prerequisite: CHEM 550 or 552.

**560 Qualitative and Spectroscopic Analysis of Organic Compounds****4 hrs.**

A course in the spectroscopic and chemical methods of identification of organic compounds in the pure state and in mixtures which has as a secondary goal the development of deductive reasoning in the field of organic chemistry. Prerequisites: CHEM 361 and twenty-four hours of chemistry.

**564 Drugs and Pesticides****3 hrs.**

This course introduces students to the chemical nature and uses of drugs and pesticides. Abuses and potential toxicological hazards are also discussed in respect to biological-chemical properties and the behavioral-sociological implications. Prerequisite: 361 or 365.

**570 Polymer Chemistry****3 hrs.**

The aspects of macromolecular chemistry which are significantly different from the chemistry of small molecules are studied. In particular, mechanisms and techniques involved in the synthesis of macromolecules, and the structure, composition, mechanical properties, and solution properties of polymers are studied in terms of the organic, physical, and analytical chemistry involved. Prerequisites: CHEM 361 or 365, and CHEM 431 or 535.

**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 at least one semester organic.

**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****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.) Prerequisite: CHEM 501 or equivalent.

**605 Advanced Chemistry Laboratory Technique****1 hr.**

Content of course will vary depending on needs and interest of the students. Topics may include glassblowing, laboratory electronics, vacuum line, manipulations under controlled atmosphere, separation and purification, and radio-chemical techniques. May be repeated for credit. Prerequisite: Approval of instructor.

**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 510.

**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 510.

**612 Topics in Inorganic Chemistry****3 hrs.**

A cooperative investigation of one or more topics of major consequence in contemporary inorganic chemistry. Aspects of the topic will be developed from primary sources and presented by the students. Prerequisite: CHEM 610 or 611.

**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.

**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.

**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.

**626 Chemical Instrumentation****3 hrs.**

Principles and characteristics of construction and design for chemical and optical instruments. Prerequisite: CHEM 520.

**629 Topics in Analytical Chemistry**  
3 hrs.

Subject for a given semester will be determined by student needs and interests. Among the subjects anticipated are: (1) Functional Group Analysis; (2) Complexation in Analytical Chemistry; (3) Analytical Separations Techniques; (4) Non-aqueous Solvents in Analytical Chemistry. Prerequisite: A 600-level analytical course.

**630 Advanced Physical Chemistry**  
3 hrs.

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

**633 Chemical Thermodynamics**  
3 hrs.

Includes a review of the three laws of thermodynamics, state functions, activities, partial molal qualities, thermodynamics of solutions, equilibrium, and statistical thermodynamics. Prerequisite: CHEM 431.

**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.

**639 Topics in Advanced Physical Chemistry**  
3 hrs.

This is a lecture course, the content of which may vary from year to year depending on the lecturer. Anticipated topics are: (a) high temperature chemistry, (b) electrochemistry, (c) colloids and surface chemistry. Prerequisite: CHEM 431.

**650 Proteins and Nucleic Acids**  
3 hrs.

Physical techniques for studying proteins and nucleic acids. Molecular evolutions and binding interactions of proteins and nucleic acids. Prerequisite: CHEM 550.

**652 Lipids**  
3 hrs.

The chemistry, metabolism, and methods of isolation and analysis of the major classes of lipids are discussed. Specific topics include fatty acids, fats, phospholipids, glycolipids, and chromatography. Prerequisite: CHEM 554 or consent of instructor.

**653 Enzymes**  
3 hrs.

A study of enzyme catalysis, kinetics, structure and mechanism, and a survey of experimental methods for determining these aspects of enzyme function. Prerequisite: CHEM 550.

**659 Topics in Biochemistry**  
3 hrs.

Content of the course will vary depending upon student interest and availability of staff. Contemplated topics include advanced intermediary metabolism, viruses, cancer biochemistry, physical techniques. Prerequisite: CHEM 554 or consent of instructor.

**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, reduction, condensation, etc. Prerequisite: CHEM 361.

**662 Stereochemistry**  
3 hrs.

A consideration of shapes of molecules and the isomeric consequences. Atomic and molecular orbital interpretation of molecular shape. The stereochemical relationships in substitution and alkene addition reactions will be considered. Prerequisite: CHEM 361.

**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 361 and 431.

**669 Topics in Organic Chemistry**  
3 hrs.

The course content will vary with needs of students and special competency of instructor. Prerequisite: CHEM 661 or 662 or 663 or consent of instructor.

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis**  
6 hrs.**730 Doctoral Dissertation**  
15 hrs.**735 Doctoral Research**  
2-10 hrs.**Communication Arts and Sciences (CAS)**

Dieker, Chairperson; Professors Heinig, Helgesen, Jaksa, Smith, Stech; Associate Professors Cottrell, Crane, Northouse, Pagel, Rhodes, Robeck, Rossman, Sill, VanHoeven, Washington, Woodworth, Yelsma; Assistant Professors Gilchrist, Lipkin.

**Open to Upperclass and Graduate Students****505 Special Topics in Communication**  
1-3 hrs.

Advanced 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, 300 Sprau Tower. Six hours of 505 and 605 may be accumulated as credit toward a Master of Arts in CAS.

**510 Studies in Oral Interpretation: Variable Topics**  
3 hrs.

Projects in reading and analysis of literature to intensify the student's application of the theory and principles of oral interpretation. Topics will vary each semester, and students may take one or all topics for credit. Possible topics include:

- Oral Interpretation of Shakespeare
- Oral Interpretation of the Bible
- Oral Interpretation of Selected Long Literary Forms

**530 Studies in Attitude Change: Variable Topics**  
3 hrs.

Selected areas of detailed study within the total range of rhetoric. Each of the courses listed below carries separate credit, and a student may take any or all of the offerings listed under CAS 530. In addition to the topics listed, additional topics are offered from time to time, and will be listed in the *Schedule of Classes*.

- Freedom of Speech
- Historical Basis of Rhetoric
- Presentational Speaking
- Political Communication

**540 Studies in Mass Communication: Variable Topics**  
3 hrs.

Analysis in depth of continuing issues in mass communication. Topics vary from semester to semester, and students may take one or all topics for credit. Topics include:

- Teaching Mass Media in Secondary Schools
- Television and Politics

**541 Mass Communication Law**  
3 hrs.

The laws, principles, and issues of mass communication regulation. Includes media ownership and licensing, programming, political broadcasting, controversy, defamation, obscenity, advertising, and the role of the FCC, FTC, and other regulatory agencies.

**542 Mass Media and the Child**  
3 hrs.

Assesses the impact that mass media fare from radio, television, films, comics, and other media may be having on the minds and behaviors of children.

**543 Mass Communication and Social Change**  
3 hrs.

The course examines the role of the mass media in diffusing information and persuasive messages, and the effects of these messages on individuals, groups, and institutions. The fields of politics, advertising, and public relations are studied from the communication/change viewpoint of the practitioner and the consumer.

**544 Mass Communication, News, and Public Affairs**  
3 hrs.

The course examines the role of the media in covering public affairs news and disseminating it to the public. Questions related to media access, fairness, media regulation, and message production are discussed in light of current events.

**545 Television Criticism**  
3 hrs.

Examines the various functions and writings of contemporary television critics, and establishes criteria for evaluating television programs and program criticism. Students will view and analyze various television program types, including documentary, drama, visual essay, and other entertaining and educational programs.

**546 Mass Entertainment**  
3 hrs.

This course examines the role and function of mass entertainment fare in modern society. Major topics include mass entertainment as part of leisure; the social and psychological functions of mass entertainment; measuring mass taste; and in depth study of popular mass media formats such as soap operas, detective, western, popular music, etc.

**547 Organizational Uses of Radio and Television****3 hrs.**

Applications of radio and TV technology for the business professional, educator, media specialist, and the clinician. Utilization of electronic media for training, research, observation, and instruction. In addition to required text materials, students must provide supplies averaging about \$10.00 per student.

**548 Broadcast Management****3 hrs.**

Studies the functions and responsibilities of broadcast station management. Students examine theories of station management, audience research, budgeting and accounting principles, sales and regulatory problems.

**549 Public Relations and Organizations****3 hrs.**

The course will examine the role of public relations and public information in a variety of organizations with a communication theory perspective. The course is designed to prepare individuals for positions in public relations and public information, or for other positions in organizations concerned with the flow of information across organization boundaries.

**550 Public Relations Program Development****3 hrs.**

This is an advanced course in public relations emphasizing research methodology, developing planning objectives, and program evaluation for corporate, governmental, educational, and social service organizations. Prerequisite: CAS 549

**551 Methods of Film Analysis****3 hrs.**

An investigation of the approaches to film analysis (auteurist, intentionalist, sociological, structural, historical, ideological, psychological) by intensive "reading" and shot sequence examination and evaluation of widely divergent works. Prerequisite: CAS 242 or 356.

**560 Studies in Communication Education:****Variable Topics****3 hrs.**

Selected studies in background, methods, materials, and procedures in any one of the several speech areas. Possible topics include directing speech activities, communication behaviors of change agents, as well as others. Topics will vary from semester to semester, and students may take one or all topics for credit.

**561 Teaching Communication in the Elementary School****4 hrs.**

Examination of the linguistic development of pre-school and elementary school children, the functions of language, study of the nature of the emotional and physical development of children as related to symbol-using behaviors, study of materials and methods for affecting desired behaviors in children's thinking, communicating, and enjoyment. The undergraduate student must have completed at least twelve hours of work in CAS or obtain consent of instructor. Prerequisites: ED 300 and CAS 365 or 366. Offered Fall semesters only.

**562 Teaching Communication in the Secondary School****4 hrs.**

This is a course in becoming a professional teacher of communication. The focus of the course is self-examination, openness, and individual initiative. Some of the major topics

are an examination of self in relation to teaching, the evolving and changing philosophies of speech communication education, the world of high school teaching as it now exists, innovative procedures in teaching communication, and how to get and hold a job in speech communication. The class is, for the most part, a laboratory-workshop, using a mixture of group work, guests, visitations, and special projects. The student must have completed at least fifteen hours of work in CAS and, ideally, take the course immediately prior to student teaching. Prerequisite: ED 301. Offered Winter semesters only.

**564 Creative Drama for Children****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.

**570 Studies in Communication: Variable****Topics****3 hrs.**

Selected areas of study within the total range of communication. Each course carries separate credit, and a student may take any or all of the offerings listed under CAS 570. The topics will be listed in the *Schedule of Classes*.

**571 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.

**572 Nonverbal Communication****3 hrs.**

The course examines theory and research in the nature and function of nonverbal message systems. Topics include: the role of nonverbal communication in the developmental stages of humans; individual differences in ability to interpret messages; the relationship of nonverbal communication to the concept of culture; extensions of a person such as space, clothing, possessions; and specific messages related to the face and body.

**573 Personality and Communication****3 hrs.**

The course examines the major personality theories as they contribute to an understanding of the role of communication in self-development. Particular emphasis is given to humanistic theories.

**574 Intercultural Communication****3 hrs.**

An examination of the factors contributing to effective communication in an intercultural context. The course focuses on such topics as ethno-centrism, cultural perceptions, values and beliefs, language and meaning, and nonverbal factors. Communication systems of selected countries are described and analyzed.

**575 Family Communication****3 hrs.**

Examines the current literature pertaining to holistic systems, power influences, and satisfactory patterns of family communications. Students analyze family interactions and identify satisfactory patterns of marital family communication.

**577 Communication Ethics****3 hrs.**

Principles and perspective of ethical speech communication are studied and applied to a variety of private and public communication situations. The impact of honest versus deceptive communication on the individual and society is evaluated.

**579 Female/Male Interaction****3 hrs.**

Examines the variable of gender as it influences communication between women and men. Topics include female-male stereotypes, interpersonal attraction, differences in female-male verbal and nonverbal codes, relational dialogues and patterns, and female-male interaction on the job.

**581 Communication in Organizations****3 hrs.**

A study of communication practices and problems found within organizations with emphasis given the three aspects of organizational communication: development of theoretical perspectives; application of communication skills; and awareness of audit and research methodologies. Students will study the relationship between communication and management/employee effectiveness.

**582 Group Communication Theory****3 hrs.**

A study of small group communication from theoretical perspectives. The emphasis will be on analyzing small group communication based on an understanding of group communication theories, concepts, and research methods.

**583 Interviewing****3 hrs.**

Theories and principles of planning, conducting, and evaluating interviews are studied and applied to specific interview types, including selection, performance appraisal, survey, and journalistic interviews. Emphasis is placed on the perspective of the interviewer rather than the interviewed.

**584 Health Communication****3 hrs.**

Studies concepts and theories relevant to the maintenance and enhancement of effective communication in health care settings. Emphasis is given to the study and application of communication theories to the transactions which occur among health professionals and between professionals and clients/patients.

**591 Introduction to Communication Research****3 hrs.**

In this introductory course, students will acquire skills and knowledge of basic research design, data collection, data analysis, computer usage, and report writing needed for the completion of a research project.

**598 Independent Study****1-4 hrs.**

A program for advanced students with an interest in pursuing independently a program of readings, research, or projects in areas of special interest. To be arranged in consultation with a member of the staff and the Chairperson of the Department.

**Open to Graduate Students Only****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.

**605 Special Topics in Communication**  
1-3 hrs.

Intensive 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 CAS Department, Third Floor, Sprau Tower. Six hours of CAS 505 and 605 may be accumulated as credit toward a master's degree in CAS.

**670 Seminar in Communication: Variable Topics**  
3 hrs.

Exploration of selected topics in communication. Possible topics, each of which may be taken for credit, include:

- a. Current Issues in Communication
- b. Conference Leadership
- c. Communication and the Future
- d. Advanced Communication Theory
- e. Power/Leadership in Organizational Communication

**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.

**672 Seminar in General Semantics**  
3 hrs.

A seminar which explores the differences between language and behavior. In depth study of differences between symbol and signal behavior, intensional and extensional languages, role of language in developing brain systems, a consideration of the Koraybskian analogy of "map and territory," among other subjects.

**673 Conflict Management**  
3 hrs.

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

**681 Group Communication Processes**  
3 hrs.

A study of small group communication as it affects problem solving and decision making procedures. Emphases 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.

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis**  
6 hrs.**710 Independent Research**  
2-6 hrs.**712 Professional Field Experience**  
2-6 hrs.**Computer Science (CS)**

Nelson, Chairperson; Associate Professors de Doncker-Kapenga, Kountanis, Motzkin, Williams; Assistant Professors Hobson, Johnson, J. Kapenga, Kerstetter.

**Open to Upperclass and Graduate Students****501 Computer Concepts for Public Administrators**  
3 hrs.

A fundamentals course for students in academic programs in Public Administration. An introduction to how computers work, how they are programmed and their use in information systems. Students learn to work with computer input and output on the WMU DEC System-10 and write at least one elementary computer program. Course requirements include several reports and a term project. This course may not be used toward a major or minor in Computer Science.

**502 Introductory Microcomputer Concepts for Teachers**  
3 hrs.

This course is designed to provide teachers with a minimum foundation in computer concepts and programming. Emphasis is on the use of the BASIC language to perform a variety of educational applications on microcomputers. Computer terminology and capabilities are explored as well as the significance of computers in contemporary society. Students will write a number of programs and will receive an introduction to the use of standard system software. Flowcharting is introduced. Examples of Computer Assisted Instruction will be given. Not for Computer Science majors or minors. Prerequisite: MATH 150 or equivalent.

**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. Prerequisite: 502.

**504 Advanced Microcomputer Concepts for Teachers**  
3 hrs.

A course which will provide teachers with an understanding of how microcomputer software is developed to fit the hardware. A review of number systems and an introduction to machine and assembly languages is given. Programs will be written in these low level languages. An introduction to several data structures is provided. Concepts in graphics and file handling will be extended. Not for Computer Science majors or minors. Prerequisite: 503.

**506 Scientific Programming**  
3 hrs.

Designed to give preparation in the use of numerical methods on digital computers for scientific and engineering applications. The FORTRAN language will be used. Problems such as series evaluation, multiplication and inversion of matrices, numerical integration and pointwise differentiation, as well as general numerical approximation will be prepared for the computer. Prerequisites: MATH 230 or 374 and CAS 112 or 306. (Cross-listed with MATH 506.)

**527 Theory of Computer Graphics**  
3 hrs.

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

**542 Data Base Management Systems (DBMS)**  
3 hrs.

This course presents the fundamental concepts and practices of data base management systems. The data base environment and administration are defined along with the roles of the data base administrator and the data dictionary. Conceptual and logical models are discussed. The three approaches—relational, hierarchical and network—are briefly described. Data access techniques such as sequential and multi-level sequential indexes, linked lists, inverted files and hashing are briefly reviewed. A few commercial systems will be surveyed. Security, reliability and integrity will be studied. Students will acquire experience with the various topics by applying them to an actual data base system. Students will also write application programs which use the data base system. Prerequisites: CS 215 or BIS 362.

**544 Software Systems Development**  
3 hrs.

Advanced computer programming techniques used in the specification, design, and implementation of large software systems. Testing and maintenance of software systems. Modular programming, top down structured design, composite design, HIPO, project management. Emphasis is placed on the solution of large software system problems using a team approach. Prerequisite: CS 331.

**554 Operating Systems**  
3 hrs.

Fundamentals are stressed. A historical survey of the development and growth of operating systems is given to lend perspective to the ideas that follow. Basic concepts and terminology will be emphasized. Programming assignments leading to the construction of a simple operating system are required. Processes, communication and synchronization, shared resources, memory management, resource allocation, scheduling, deadlocks, file management, and protection are discussed. Applications to a real system are investigated to motivate the ideas presented in the text and lectures. Prerequisite: CS 331.

**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 310 and CS 331.

**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****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.

**625 Computer Structures**

3 hrs.

Provides the principles of design of modern digital computers. Circuit implementations of switching networks and of sequential machines are investigated. Recent computer developments such as microprocessors, disk memories, integrated circuits and microprogramming are included. Designs of various CPU circuits and memory organizations are considered. Prerequisite: CS 331.

**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 331.

**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 580 and 631.

**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 542.

**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.

**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.

**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 580.

**682 Artificial Intelligence**

3 hrs.

Computer intelligence, computer learning, information representation, heuristics, problem solving, pattern recognition, natural language processing, computer vision and searching techniques. Applications in chemistry, medicine, game-playing, and psychology. The LISP language will be used for programming. Prerequisite: CS 331.

**691 Seminar in Computer Science**

1-3 hrs.

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis**

6 hrs.

**710 Independent Research**

2-6 hrs.

**712 Professional Field Experience**

2-6 hrs.

**Economics (ECON)**

Professors Copps, Gardner, Ho, Kripalani, Ross, Sichel, Zelder; Associate Professor Caruso; Assistant Professors Asefa, B. Harik, S. Harik, Neill, Payne.

**Open to Upperclass and Graduate Students****500 Continuing Education in Economics: Variable Topics**

1-3 hrs.

Application of economic principles and analysis to selected topics of interest to students in Continuing Education courses and workshops. Topics will vary and course may be repeated twice. May not be counted in fulfilling economics major, minor, or M.A. requirements.

**501 Studies in Economic Problems: Variable Topics**

3 hrs.

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

**502 Studies in Quantitative Economics**

4 hrs.

The course deals with statistical and mathematical techniques and concepts useful in economic analysis and their application to various areas in economics. Subject matter of the course will vary from semester to

semester and may be chosen from such diverse topics as linear programming, game theory, input-output analysis, statistics, welfare economics, utility theory, and business cycles. Prerequisites: ECON 201 and 202; MATH 122 or consent of instructor.

**504 Introduction to Mathematical Economics**  
4 hrs.

An introductory course to acquaint the student with the application of basic mathematical concepts to economic analysis, including such topics as revenue curves, cost curves, capital assets, growth models, and multipliers and accelerators. Prerequisites: ECON 201 and 202; MATH 122 or consent of instructor.

**505 History of Economic Thought**

4 hrs.

A survey of the origin and development of economic thought from early times to the present. After a brief consideration of early mercantilism and the evolution of the philosophy of natural liberties, special emphasis will be placed on the contributions of significant thinkers and the influence of various schools of economic thought on national policy and economic development. Prerequisites: ECON 201 and 202.

**507 Monetary Theory and Policy**

3 hrs.

This course concentrates on the main elements of monetary theory and policy having to do with such problems as promoting economic growth, maintaining full employment and price stability, influencing the flow of capital into the various economic sectors with different possible social goals in mind, and stabilizing international trade and financial relationships. Prerequisite: ECON 420.

**508 Institutional Economics**

4 hrs.

An intensive examination of heterodox economic theory, conceived in terms of the basic social concepts of institutions and technology, and utilizing developments in modern social science for the resolution of persistent economic problems. Prerequisites: ECON 201 and 202.

**509 Econometrics**

3 hrs.

An introductory course in analytical and quantitative methods in economics. Applied economic problems like linear programming and input-output analysis will be considered. Simple regression models and their uses in economics are also included. Prerequisites: ECON 201 and 202; MATH 122 or consent of instructor.

**512 Collective Bargaining**

3 hrs.

An analysis of the major problems in present-day collective bargaining, including the negotiation of collective agreements, the practical aspects, and the economic implications. Prerequisites: ECON 201 and 202 or consent of instructor.

**515 Economics of Human Resources**

3 hrs.

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

**516 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.

**517 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. Not open to Economics graduate students.

**525 State and Local Government Finance**

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

**526 The Urban Economy**

**3 hrs.**  
The course will examine the economic structure and development of the urban complex. Among the topics to be considered are: the process of suburbanization, urban sprawl and urban blight, the pricing and production of public utilities in the local economy; economies of scale in the size of urban areas; the place of planning; the impact of public services and the tax structure on the location of economic activity; intergovernmental economic relationships. Prerequisites: ECON 201 and 202.

**588 Economic Development**

**4 hrs.**  
An analysis of the economic factors such as population, resources, innovation, and capital formation which affect economic growth. Selected underdeveloped areas will be studied to understand the cultural pattern and economic reasons for lack of development and the steps necessary to promote economic progress. Special attention will be paid to evaluating the effectiveness of the United States foreign-aid program and examining the issues arising as a result of the conflict with the U.S.S.R. Prerequisites: ECON 201 and 202.

**591, 592 Guest Economist Seminar**

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

**598 Readings in Economics**

**1-3 hrs.**  
An independent program of study for qualified students to be arranged in consultation with the instructor. Prerequisite: Consent of Department Chairperson.

**Open to Graduate Students Only**

**600 Applied Economics for Management**

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

**601 Economic Analysis for Administration**

**3 hrs.**  
This course will focus on the basic principles of economic theory and policy analysis to give the Public Administration student the essential tools needed for understanding

policy analysis and resource allocation. Students will be expected to demonstrate the ability to analyze a policy or resource allocation problem using the tools presented in the course. Closed to Economics Graduate Students. Prerequisite: ECON 201 or consent of instructor.

**602 Applied Economics**

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

**603 Advanced Price Theory**

**3 hrs.**  
An advanced study in the logic of the pure theory of production; joint production and joint costs, and introduction to the multiperiodic production theory. Advanced theory of consumer behavior; aggregation problems in product supply, factor demand and consumer demand analysis; review of selected empirical studies on consumer demand analysis; consumer surplus; problems involving optimization over time and under conditions of uncertainty; role of savings in consumer demand theory (utility maximization over time). Prerequisites: ECON 303 and 504.

**609 Seminar in Economics**

**1-3 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 staff. Topics will vary, and course may be repeated.

**612 Labor Union Structure and Practice**

**3 hrs.**  
An analysis of the government and operation of American labor unions with particular reference to the problems of union leadership, disciplinary procedures, membership control, and the economic and social consequences of these practices.

**623 Public Budgeting**

**3 hrs.**  
This course focuses on budget processes and techniques at the local, state, and federal levels. Primary emphasis is on the preparation phase of the budget process and the alternative budgeting techniques currently in use. Sources of revenues will also be examined. Closed to Economics Graduate Students. Prerequisite: ECON 601 or consent of instructor.

**624 Issues in Public Finance**

**3 hrs.**  
An exploration of issues in taxation, government spending, fiscal policy, and intergovernmental relations with emphasis on recent literature in those areas. Prerequisites: ECON 201 and 202.

**650 Industrial Organization and Public Policy**

**3 hrs.**  
The interest of this course centers on the areas where markets are characteristically oligopolistic. After a brief review of the different market types, the more important market structure, behavior, and performance variables and their accompanying public policy implications are dealt with.

**662 National Income Analysis**

**3 hrs.**  
A basic course in economic theory with emphasis on modern theories of output of the economy as a whole and on the uses of these theories as guides to policy. Prerequisites: ECON 201 and 202.

**680 Problems in International Trade and Finance**

**3 hrs.**  
An analytical understanding of contemporary issues in international trade and finance will be emphasized. Prerequisite: ECON 480 or 580 or consent.

**688 Issues in Economic Development**

**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.

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

**700 Master's Thesis**

**6 hrs.**

**710 Independent Research**

**2-6 hrs.**

**712 Professional Field Experience**

**2-12 hrs.**

**English (ENGL)**

W. Combs, Chairperson; Professors B. Carlson, Cooley, Cooney, Davidson, Demetrakopoulos, Denenfeld, Galligan, Gianakaris, C. Goldfarb, R. Goldfarb, Johnston, H. Scott, Stroupe, Weaver, Woods; Associate Professors Bailey, N. Carlson, Cutbirth, Davis, Douma, Drzick, Dybek, Gingerich, Hains, Holloway, Jayne, S. Scott, Seiler, Shafer, Small, Syndergaard; Assistant Professors Gordon, Hayden, Hinkel, Jorgens, Stone.

Except as noted below, graduate students in non-English curricula may elect 500-level English courses for graduate credit only if they have had two prior literature courses.

When they are scheduled as off-campus, interinstitutional courses by the Division of Continuing Education to meet for thirty-six contact hours during the semester, 500-level English courses will carry three credits.

**Open to Upperclass and Graduate Students**

**510 Special Topics in Literature**

**4 hrs.**  
Study of a literary movement, theme, or genre, such as classicism, the Arthurian tradition, the lyric. May be repeated for credit as long as the topics are different.

**530 Medieval Literature**

**4 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.

**532 English Renaissance Literature**

**4 hrs.**  
Readings in representative writers of the period 1500-1660.

**534 Restoration and Eighteenth Century Literature (British Literature 1660-1800)**

**4 hrs.**  
Readings in representative writers of the period 1660-1800, focusing on the diversity of literary forms in the period.

**536 Nineteenth Century British Literature**

4 hrs.

Readings in representative writers, focusing on one or more principal movements of the century.

**538 Modern Literature**

4 hrs.

Readings in representative writers in the period 1890-1945, not exclusively in British and American literature.

**540 Contemporary Literature**

4 hrs.

Readings in representative writers who have come to prominence chiefly since 1945.

**555 Studies in Major Writers**

4 hrs.

Study of the works of classical, European, British, or American writers. Limited to one or two authors. May be repeated for credit as long as the authors covered are different.

**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.

**572 American Dialects**

4 hrs.

A study of regional, social, and stylistic variation among American dialects with emphasis on the dialects of minority ethnic groups as structured systems.

**574 Linguistics for Teachers**

4 hrs.

An application of the concepts of linguistics to the teaching of language, literature, composition, and reading in the English curriculum. Prerequisite: ENGL 270, 271, 373, or equivalent.

**582 Studies in Children's Literature**

4 hrs.

A study in depth of significant themes, movements, and types of children's literature. Prerequisite: ENGL 282 or permission of the department.

**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 in 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.

**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 adviser required. May be elected more than once.

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

**610 Seminar**

3 hrs.

Study of a problem in literary history or criticism. May be repeated once with the permission of the graduate adviser.

**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.

**621 Studies in British Literature**

3 hrs.

The advanced study of selected aspects of British literature.

**622 Studies in American Literature**

3 hrs.

The advanced study of a topic in American Literary history, such as The American "Renaissance," The 1920's, The Transcendental Tradition in American Literature, Fiction (or Poetry, or Drama) in America, or The Development of Modern American Prose Style. May be repeated once with the permission of the graduate adviser.

**630 Research and Writing**

3 hrs.

A survey of aids in research leading to completion of a writing project.

**631 Essay Writing**

3 hrs.

A course in the writing of informal expository prose in the forms used for addressing general audiences. There will be a generous amount of reading in exemplary works and a concern for understanding the rhetorical principles underlying good modern prose. Prerequisite: A bachelor's degree.

**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.

**633 Professional Writing: Form and Technique**

3 hrs.

A course in writing in the various formats needed by large institutions, whether academic, corporate, or public. Particular emphasis will be placed on the use of the interview to gather information, on preparing speeches, brochures, newsletters, and other publications, and on the techniques of non-personal prose.

**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.

**641 Studies in Modern Poetry**

3 hrs.

An intensive study of the writings of several modern poets.

**642 Studies in Drama**

3 hrs.

Selected areas of drama from classical times to the present.

**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.

**645 Studies in the Modern Novel**

3 hrs.

An intensive study of the works of some important novelists of the twentieth century.

**652 Studies in Shakespeare: Tragedy**

3 hrs.

Selected tragedies of Shakespeare.

**653 Studies in Shakespeare: Comedy**

3 hrs.

Selected comedies of Shakespeare.

**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 only, and, with the permission of the instructor, to other graduate students.

**673 Psycholinguistics in Reading**

3 hrs.

An examination of psycholinguistic insights into the nature of the reading process, with emphasis on practical implications and applications for the classroom. No prerequisite.

**676 Early English**

3 hrs.

An examination of selected Old English (with translation), Middle English, and Early Modern English texts. Prerequisite: ENGL 271 or equivalent.

**680 Advanced Methods in Teaching Literature**

3 hrs.

A study of theories and methods of teaching language and composition.

**681 Advanced Methods in Teaching Language and Composition**

3 hrs.

A study of theories and methods of teaching language and composition.

**697 Studies in English: Variable Topics**

1-3 hrs.

Group study of special topics in language, literature, and composition. These special courses and workshops may be offered on campus, in the off-campus centers, or as in-service work in schools. Students may repeat this course, providing topics vary. For further information, consult the graduate adviser.

**699 M.F.A. Project**

3-6 hrs.

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

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

**700 Master's Thesis**

6 hrs.

**710 Independent Research**

2-6 hrs.

**712 Professional Field Experience**

2-12 hrs.

## Geography (GEOG)

Stoltman, Chairperson; Professors Dickason, Eichenlaub, Heller, Horst, Kirchherr, Micklin, Raup, Vuicich, Associate Professors Erhart, Quandt; Assistant Professor Stolle.

### Systematic Geography

#### Open to Upperclass and Graduate Students

##### 521 Studies in Climatology and Meteorology 3 hrs.

Studies at an advanced level in climatology and meteorology. Topics of current interest to atmospheric scientists are examined in depth. Forecasting techniques are utilized and applied to current weather situations, and regional climatic phenomena and their relation to atmospheric circulation patterns investigated. Prerequisites: GEOG 225 or consent.

##### 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.

a. 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.

b. 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.

c. 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.

##### 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.

a. Cultural Geography. Techniques of spatial analysis applicable to the study of humans and their environment. The place of origin, diffusion and present distribution of selected cultural patterns will be traced with emphasis given to cultural traits which strongly influence human occupancy of the earth's surface.

b. 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*.

c. 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.

##### 553 Water Resources Management 3 hrs.

Examination of water resources management with emphasis upon rational development and utilization of available supplies. Topics include supply and demand, methods of technological and geographical augmentation (desalination, inter-basin transfers, etc.), water administration and policies, and various water problems together with possible approaches to their solutions.

##### 554 Outdoor Recreation: Resources and Planning 3 hrs.

Examination of extensive, resource-based outdoor recreation (such as parks, wilderness, wild rivers, hunting and fishing, hiking, etc.) with emphasis upon recreational planning. Topics include supply and demand for outdoor recreation, identification of present and future recreational needs, policy considerations, administration of recreational land uses, and various problems associated with outdoor recreation. Readings, discussion, and student-designed and executed individual studies provide professional orientation.

##### 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.

##### 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.

a. 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.

b. 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.

c. Public Lands and Parks. Specific programs and policies relating to the preservation and/or development of government-controlled lands.

##### 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

##### 620 Seminar in Physical Geography 2-3 hrs.

A review of current literature and recent developments in several disciplines which form the basis of physical geography. Since each seminar emphasizes different subject areas, such as landforms, soils, and vegetation, this seminar may be repeated. A final research project is required. Prerequisites: One of several advanced courses in physical geography, geology or biology, or consent of instructor.

##### 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 556a or 570.

## Regional Geography

#### Open to Graduate Students Only

##### 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.

##### 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.

##### 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.

##### 513 Western and Southern Europe 3 hrs.

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

##### 514 U.S.S.R. and Eastern Europe 3 hrs.

Physical, cultural, and economic geography of the Soviet Union. Primary focus is on population change and agricultural/industrial development within a spatial framework. May not be taken for credit if student has received credit for GEOG 384.

**515 Southeast Asia****3 hrs.**

Survey of the physical, cultural, and economic geography of Southeast Asia. Primary focus is placed on countries of mainland Southeast Asia (from Burma to Malaysia and Vietnam) with emphasis on the spatial patterns and relationships found within particular societies and countries. May not be taken for credit if student has received credit for GEOG 389.

**516 Middle East and North Africa****3 hrs.**

Study of the diversity and uniformity—both physical and cultural—of the Middle East and Africa north of (and including) the Sahara. Special attention is given to aridity problems, economic development, petroleum, Arab reunification movements, and the impact of the Muslim world on the current political scene. May not be taken for credit if student has received credit for GEOG 387.

**517 Middle and South Africa****3 hrs.**

Intensive study of the physical, economic, and political geography in Africa south of the Sahara; analysis of recent developments in selected regions and states. May not be taken for credit if student has received credit for GEOG 386.

**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.

**520 South Asia****3 hrs.**

Survey of the physical, cultural, and economic geography of the Indian subcontinental region (India, Pakistan, Bangladesh, Sri Lanka and the countries of the Himalayas). Primary focus is placed on India with emphasis upon the characteristic spatial patterns and relationships found in the region. May not be taken for credit if the student has received credit for GEOG 390.

**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

**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.

**566 Field Geography****2-4 hrs.**

The theory and application of geographic techniques in field investigations; collection and analysis of field data; preparation and presentation of materials. The course is based primarily upon background lectures, field observations, and problem solving exercises. Prerequisite: GEOG 375 or consent.

**567 Computerized Geodata Handling and Mapping****4 hrs.**

Principles and procedures involved in structuring and using computerized geographic data systems (applicable to land use analysis, impact assessments, and urban and regional planning), and in representing these data by computer mapping methods. Equivalent applications of these methods will be made to both microcomputers and larger main-frame computer systems. Prerequisite: Senior or graduate standing.

**568 Quantitative Methodology****3 hrs.**

Introduction to the application of quantitative concepts and methods in the analysis of geographic problems. Emphasis is placed on data base management, computer applications of common numeric and statistical methods, and utility assessment of various research designs and strategies. Prerequisite: GEOG 567 or consent.

**580 Advanced Cartography****4 hrs.**

The compilation of data, design of maps, production techniques, and application of statistical techniques in mapping are applied to advanced cartographic methodology and photcartography. Students are assigned projects, and current trends in cartographic research, state-of-the-art production techniques, and geodetic surveying techniques are examined. Prerequisite: GEOG 375 or consent.

**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.

**598 Readings in Geography****1-3 hrs.**

Designed for highly qualified majors and graduate students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Written consent of departmental adviser and instructor.

### Open to Graduate Students Only

**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 adviser.

**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.

**666 Professional Development Seminar****1 hrs.**

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

**682 Advanced Remote Sensing****3 hrs.**

This course focuses on the interactive modes of interpreting remotely sensed imagery, especially digital satellite data. Digitizing of conventionally interpreted data will be interphased with computer generated data to establish geographic information systems. Individual projects will be carried out involving detailed fieldwork.

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

**700 Master's Thesis****6 hrs.****710 Independent Research****2-6 hrs.****712 Professional Field Experience****2-12 hrs.**

## Geology (GEOL)

Schmaltz, Chairperson; Professors Chase, Grace, Passero, Straw; Associate Professors Harrison, Schmidt.

### Open to Upperclass and Graduate Students

**502 Problems in Geology and Earth Science****1-3 hrs.**

Individual problems involving topical reading and/or research problems in earth sciences. May be repeated for credit. Prerequisite: Consent of instructor.

**505 Regional Geomorphology of the United States****3 hrs.**

A study of geomorphic processes and landforms by consideration of geologic regions of the United States. Prerequisite: GEOL 131 or consent of instructor.

**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 335 or consent of instructor.

**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 131, 301, or 335.

**532 Surficial Processes and Groundwater Geology****3 hrs.**

Detailed consideration of fluvial, eolian and glacial processes, and the geologic aspects of surface water and groundwater hydrology. Qualitative and quantitative aspects of ground water movement, location, evaluation, and the influences of man on the hydrologic system.

**535 Sedimentation and Stratigraphy**

4 hrs.

Processes, characteristics, and relationships among fluvial, deltaic, strand plain, lagoon, shelf, and slope terrigenous depositional systems. Laboratory includes textural analysis; sedimentary structures; paleocurrent analysis; electric logs, subsurface maps, and application of statistical and computer methods to the solution of sedimentologic problems; and basin analysis. Course includes a 3-day field trip. Three lectures and one three-hour laboratory per week. Prerequisite: GEOL 131 and 335.

**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 131 and consent of instructor.

**543 Paleoecology**

3 hrs.

Study will include the ecology, life, habits, and environmental interactions of ancient organisms. Prerequisites: GEOL 533 or BIOL 541.

**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. Prerequisite: GEOL 130, 131, or consent.

**545 Carbonate and Evaporite Depositional Environments**

3 hrs.

Processes, characteristics, and relationships of modern and ancient and basinal carbonate and evaporite facies. Course includes an 11-day field trip (Spring Vacation) 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 core and slabs at the mesoscopic level. Two lectures and one 3-hour laboratory per week. Prerequisites: GEOL 533, 535, and consent.

**560 Introduction to Geophysics**

3 hrs.

Introduction to geophysical exploration methods including seismic reflection and refraction, gravity, electric, and electromagnetic. Prerequisites: PHYS 110-111 or 210-211, MATH 122, and GEOL 130.

**561 Seismic Methods**

3 hrs.

Reflection and refraction seismology as applied to the search for petroleum, site studies in civil engineering, and other geologic problems. Two lectures and three-hour practical laboratory with field exercises and problems. Prerequisites: GEOL 560, MATH or CS 306, and MATH 123.

**562 Gravity and Magnetic Methods**

3 hrs.

Potential field methods as used in mining and petroleum exploration, for geologic mapping, and groundwater problems. Analytical solutions, numerical modeling, and other interpretational techniques. Prerequisites: GEOL 560, MATH or CS 506, and MATH 123.

**563 Electrical Methods**

3 hrs.

Resistivity sounding and profiling, induced polarization, spontaneous potential, electromagnetic methods using natural and artificial fields. Two lectures and three-hour laboratory with field studies and laboratory modeling. Prerequisites: GEOL 560, MATH or CS 506, MATH 123, and PHYS 540.

**564 Field Geophysics**

3 hrs.

Field studies demonstrating the use of seismic refraction, gravity, and electrical resistivity methods for glacial geology and groundwater problems in the Kalamazoo area. Course also includes 1-week trip to Michigan's Upper Peninsula to apply magnetic, self potential, electromagnetic, and gravity methods in Precambrian terrain. Prerequisite: GEOL 560.

**Open to Graduate Students Only****610 Geochemistry**

3 hrs.

An introduction to the basic principles and theories of geochemistry. Prerequisites: GEOL 440 or permission.

**611 Mineral Analysis**

3 hrs.

X-Ray diffraction and fluorescence techniques applied to mineralogical and petrological problems. Prerequisites: GEOL 335 or permission.

**612 Hydrogeology**

3 hrs.

The study of surface and ground water with special emphasis on its chemistry, movement, and relation to the geologic environment.

**615 Contaminant Hydrology**

3 hrs.

Theory and field methods related to the transport of contaminants in groundwater. Includes theoretical considerations, case histories, law, analysis of problems, and preparation of hydrogeological reports.

**620 Marine Geology**

3 hrs.

A course in oceanography with emphasis on marine geology and the relationships of physical, chemical, and biological principles to marine sediments and oceanographic processes. Prerequisites: GEOL 300 and consent.

**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 large map areas to hand specimens. Prerequisites: GEOL 430 and consent.

**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).

**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.

**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 offered during a semester or term will be announced in advance.

**655 Sedimentary Petrology**

4 hrs.

Thin section and hand-specimen study of sandstones, mudrocks, carbonate rocks, and chemical sediments, with emphasis on paleogeographic, tectonic, environmental, and paragenetic interpretation. Prerequisites: GEOL 335, 535, or consent.

**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.

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis**

6 hrs.

**710 Independent Research**

2-6 hrs.

**712 Professional Field Experience**

2-12 hrs.

## History (HIST)

Breisach, Chairperson; Professors Beech, Brown, Brunhumer, Castel, Cordier, Davis, Gregory, Hamner, Maier, Nahm, Nodel, Schmitt; Associate Professors Burke, Hahn, Hawks, Pattison.

## United States History

**Open to Upperclass and Graduate Students****520 Colonial America**

3 hrs.

The American colonies as part of the British empire: their founding, their political, social, and economic growth to the eve of the American Revolution.

**521 The Era of the American Revolution, 1763-1789**

3 hrs.

The causes, development, nature, and consequences of the American Revolution. Emphasis is given to the factors which induced the British to alter existing relationships with the American colonies; the reasons for and the variety of American responses are examined. Efforts made by both British and American leaders to preserve the imperial connection are studied along with the gradual development of the American movement to independence. Military and diplomatic aspects of the Revolution are examined, and an attempt is made to evaluate societal changes brought by American independence.

**522 The Age of Democracy and Expansion, 1789-1848**

3 hrs.

The United States is a democracy. Or is it? This course attempts to answer the question by examining the origin and development of American political institutions during a time that is much like our own—that is, a time of rapid changes and intense ideological, racial, international, sectional, and personal conflict.

**523 The American West****3 hrs.**

A study of the exploration, conquest, and occupation of the North American continent. Among the topics included are Indian relations, the fur trade, land disposition, the cattle frontier, the mining frontier, and problems of law and order.

**524 The Civil War and Reconstruction****3 hrs.**

Between 1861 and 1865 over 600,000 Americans died fighting each other. Why? And with what results? The answers to these questions do not simply illuminate the past, they also tell us much about the present—a present in which many of the basic factors which produced the Civil War are still operating.

**525 The Emergence of Modern America, 1877-1914****3 hrs.**

This course will focus on the causes and consequences of industrialization, urbanization, Progressivism, and the concurrent revolutions in agriculture, transportation, and communications. Attention will also be given to changing attitudes and values, the problem of generalization, and to the anonymous American.

**526 United States, 1914-1945****3 hrs.**

This course deals with four periods of recent American history: the Great War and Peace Conference of 1914-1919; the 1920s; the Depression; and American participation in World War II. Focus is on major social, political and economic trends, problems and personalities of the era, and the vastly changed position of the United States in world affairs.

**527 United States Since 1945****3 hrs.**

This course deals with the efforts of the nation, and groups within the nation, to cope with the enormous social, political, and economic problems of the decades after World War II. It traces the growth of American involvement in foreign affairs as a world power.

## Europe

**Open to Upperclass and Graduate Students****549 Topics in Ancient History****3 hrs.**

Selected topics in ancient history such as recent archaeological discoveries, the Roman republic, Imperial Rome, primitive Christianity, and the like. The specific topic is announced in the *Schedule of Classes*. Course may be repeated under different topics. Standing Options: Imperial Rome; Rome and Early Christianity.

**550 Topics in Medieval History****3 hrs.**

Selected topics in medieval history such as the History of the Medieval Church, Daily Life in the Middle Ages, etc. Topic to be announced in the *Schedule of Classes*. Course may be repeated under different topics. Standing Options: Medieval Church; Life in the Middle Ages.

**554 Renaissance and Reformation****3 hrs.**

Major developments in the period: activities of merchant venturers; rise of the modern state; cultural achievements of the Italian Renaissance. Religious thought of Luther, Calvin, and Zwingli; renewal of the Roman Catholic Church; Anglicanism; reformation; religious wars and cultural activities in the reformation.

**556 Studies in Modern European History****3 hrs.**

Selected topics in European history since the 16th century. Topics announced in the *Schedule of Classes*. Course may be repeated under different topics.

**559 The French Revolution and Napoleon****3 hrs.**

Theories respecting the French and related revolutions, and the nature of revolution and of the revolutionary psychology; the 18th-century background; the moderate and radical phases of the Revolution proper; the rise and fall of the Napoleonic Empire.

**560 Nineteenth Century Europe****3 hrs.**

A study of the revolutionary currents pulsating through Europe in the 19th century, of the conflicts they engendered, and the profound changes they brought.

**561 Victorian England: The Era of the Middle Class****3 hrs.**

A look at the reign of Queen Victoria (1837-1901), during which Britain attempted to meet the challenges of the French and Industrial Revolutions through parliamentary reform and expanded democratic participation. Problems of rapid urbanization; rise of the middle class; the emergence of Britain as the mightiest industrial and imperial power in the world.

**562 Hitler's Europe, 1914-1945****3 hrs.**

The first modern generation of Europe is associated with an era of unprecedented violence. The course is concerned with the experience of people and the events of states that raise questions as to the dynamics of revolution, hate, idealism, propaganda, optimism, wars, economic ambitions, progress, and murder.

**563 Europe Since 1945****3 hrs.**

The recovery of Europe from World War II, the movement toward European unity, the defense of Europe, and the role of Europe in the international community.

## Theory and Practice

**Open to Upperclass and Graduate Students****505 Local and Regional History****3 hrs.**

Studies of small areas in great detail, pursued by interested laymen as well as professional historians, frequently precede, modify, or augment historical studies of wider scope. The local historian relies almost exclusively on primary sources: archives and manuscript collections, oral history, genealogy, records of local government units, and so on. This course is an introduction to the specialized techniques and sources of local history; how they may be located and exploited for a variety of research objectives.

**511 Introduction to Archives****3 hrs.**

Theory, techniques, and practice in the development and administration of archives and archival materials.

**512 Introduction to Museum Studies****3 hrs.**

A survey course dealing with the history, philosophy, organization and practice of museums. The course will examine the organization and structure of various types of museums, and will cover such topics as: collecting theory, conservation and security,

care of collections, display techniques, historic preservation, registration and cataloguing, and museum ethics.

**513 Historic Preservation****3 hrs.**

Examination of problems in developing historic sites and districts. Topics include documenting historic sites, registration procedures, preservation law, funding sources, history of the preservation movement, social issues in urban rehabilitation, public, private and citizen interaction.

**591 Topics in Theory and Practice****2 hrs.**

Selected theoretical, technical, and interpretive issues in the field of History. Topics include philosophy of history, computers in historical research, interaction between history and such disciplines as archaeology, psychology, and climatology, new forms and techniques of historical documentation, and major historical interpretations currently before the academic world and the public. Topics announced in the *Schedule of Classes*. Standing Option: Philosophy of History.

**Open to Graduate Students Only****690 Historical Method****3 hrs.**

This course is intended as a general introduction to the field of history and its recent development. Emphasis is upon the structures of historical reasoning and explanation, and the use of expository oral and writing skills in communicating historical knowledge to various audiences. The course also surveys library research methods, including major journals and bibliographical tools for general historical research. It includes examination of the interaction between history and other disciplines which provide epistemological frameworks for historical explanation, such as philosophy, biography and psychology.

**691 Historical Sources****3 hrs.**

This course is an introduction to the sources and methods used in the study of traditional societies, particularly ancient and medieval Europe. Students are acquainted with the techniques of locating, studying and interpreting a diversity of written sources, such as narratives, chronicles, annals, charters, early government records, etc., with an emphasis on authenticating, dating and localizing such materials. The course also covers techniques for dealing with the variety of material remains which can generate historical data, such as archaeology, numismatics, epigraphy, and so on. The major objective of the course is to create an awareness for students in all facets of historical studies of the great variety of sources available for historical reconstruction, as well as the need for painstaking research at the local level as the first step in synthesizing broader studies of various chronological periods and geographical areas.

**692 Historiography****3 hrs.**

A course in general historiography. Readings from a departmental list in addition to assignments in student's major field. Prerequisite: HIST 690.

**695 Readings in Selected Fields****3 hrs.**

An individual study course designed to broaden a student's knowledge in a selected field beyond the scope offered by regularly scheduled courses.

## Other Courses

### Open to Upperclass and Graduate Students

#### 500 Studies in History 1-3 hrs.

Variable topics in historical studies including problems in applications, public historical awareness, local history, and historical analysis of issues in the contemporary world. Repeatable for separate credit so long as the topic varies. Consult *Schedule of Classes* for topics.

#### 598 Independent Reading in History 2-4 hrs.

#### 599 Internship Variable Credit

Upon prior approval by the Department of History, students may earn credit through appropriate professional experiences such as museum internships, work in archives and manuscript collections, historic preservation advocacy, historical editing, or other meaningful activities. Graded on a Credit/No Credit basis.

#### 693 Seminar in History 3 hrs.

#### 694 Colloquium 1 hr.

Course taught by the assigned instructor and by invited guest lecturers. Topic will vary. Offered infrequently.

#### 699 Historical Essay 4 hrs.

An analytical and interpretive study to be written under the supervision of a member of the History faculty and selected in consultation with the graduate adviser.

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

#### 700 Master's Thesis 6 hrs.

#### 710 Independent Research 2-6 hrs.

#### 712 Professional Field Experience 2-12 hrs.

and writing skills, as well as the culture component. Preferably, 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.

## Translation Courses (TRNS)

### Open to Upperclass and Graduate Students

#### 510 Translation Seminar 4 hrs.

Intensive practice in translation, primarily of non-literary documents, into English. The course will also include some practical work in lexicography, error analysis, translation quality assessment and general problem solving. Prerequisites: FREN 316, 317, 328, 551; GER 316, 317, 325, 552; SPAN 316, 317, 325, 552; LING 105; ENGL 305; TRNS 310.

#### 590 Translation Practicum 3-6 hrs.

Under the direction of a faculty adviser, a student will serve an internship in the translation department of a major company, work under the supervision of a professional translator or in a translation agency, complete a substantial and useful translation project on campus, or attend a series of translation workshops. Off-campus work will be evaluated jointly by institutions or individuals supervising the internship and the faculty adviser. On-campus projects will be evaluated by a panel of faculty members. TRNS 590 can be taken in two semesters (3 hrs. each) or in one semester (6 hrs.), depending on the nature of the internship. Specific assignments will be arranged in consultation with the adviser during the semester preceding the one in which the student expects to enroll in 590. Prerequisite: TRNS 510.

## French (FREN)

### Open to Upperclass and Graduate Students

#### 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. GPA of 3.0 in major.

#### 551 Advanced French Grammar and Composition 3 hrs.

Intensive review of French structure and practice in composition. Prerequisites: FREN 316 and 317 or equivalent.

#### 552 Advanced French Conversation 3 hrs.

Intensive practice with spoken French. Prerequisite: FREN 316 and 317 or equivalent.

#### 560 Studies in French 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: FREN 316, 317, 328, and 329 or permission of instructor. Representative topics which may be treated in this area include:

Medieval Literature—Outstanding works from various genres of the medieval period, such as chansons de geste, romans courtois, didactic works, farces, and poetry.

Renaissance Literature—Outstanding works from the period, to include Montaigne, Rabelais, and the Pleiade.

Seventeenth Century Literature—Literary trends of the seventeenth century, to include Corneille, Moliere, Racine, Pascal, and LaRoucheffoucauld.

Eighteenth Century Literature—Literature and philosophies of the French Enlightenment, to include major works by Voltaire, Rousseau, Diderot, and Montesquieu.

Nineteenth Century Literature—Studies in romanticism.

Nineteenth Century Literature—Studies in realism and naturalism.

Twentieth Century Literature—Studies in the contemporary novel.

Twentieth Century Literature—Studies in the modern French theatre.

## German (GER)

### Open to Upperclass and Graduate Students

#### 528 Survey of German Literature 3 hrs.

A comprehensive study of German literature from its beginning through Romanticism. Prerequisites: GER 316, 317, and 325 or equivalent.

#### 529 Survey of German Literature 3 hrs.

A comprehensive study of German literature from German Realism to the present. Prerequisites: GER 316, 317, and 325 or equivalent.

#### 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. Prerequisite: One course at 500-level; preferably among GER 528, 529, and 560.

#### 552 Advanced German Composition 3 hrs.

Intensive practice in composition and stylistics directed toward appreciation of literary and other written expression in German with work in free composition at an advanced level. Prerequisites: GER 316 and 317 or equivalent.

#### 553 Advanced German Conversation 3 hrs.

Intensive training in conversational German with emphasis on colloquial language and idiom. Prerequisites: GER 316 and 317 or equivalent.

#### 559 History of the German Language 3 hrs.

Survey of the development. Prerequisite: Six hours of 300-level German or above.

#### 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, and 325 or equivalent. Representative topics which may be treated in this area include:

The *Novelle*—Survey of the development with representative selections.

Lyric Poetry—Survey of the development with significant selections.

Nineteenth Century Drama—Primarily Kleist, Grillparzer, Hebbel, and Hauptmann.

Twentieth Century Drama—Representative selections.

## Languages and Linguistics (LANG)

Palmatier, Chairperson; Professors Cole, Dwarikesh, Ebling, Griffin, Osmun; Associate Professors Benson, Bigelow, Felkel, Gardiner, Giedeman, Hendriksen, Kissel, Krawutschke, Miller, Reish, Teichert; Assistant Professors Febles, Muizniece.

## Language Teaching Courses

### Open to Upperclass and Graduate Students

#### 558 Modern Language Instruction (in French, German, Spanish, or other language) 3 hrs.

Required for modern language teaching majors and minors (but the hours may not be counted toward the minor). 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,

## Latin (LAT)

### Open to Upperclass and Graduate Students

#### 550 Independent Study in Latin 1-3 hrs.

Directed individual study of a specific topic or genre in a Latin literary or linguistic area (e.g., biography, bucolic poetry, comedy, history, or satire). Departmental approval required for admission.

#### 557 Teaching of Latin 3 hrs.

For prospective teachers of Latin in the elementary or secondary school. Principles, problems, and current practices. Required for Latin teaching majors.

#### 560 Medieval Latin 3 hrs.

A study of the period 500-1500 A.D. when Classical Latin was blending into the new vernaculars to form eventual Romance Languages. Prose and poetic readings include a variety of themes reflecting the intellectual, cultural, and religious thinking of the times. Prerequisite: Permission of instructor.

## Latvian (LATV)

### Open to Upperclass and Graduate Students

#### 515 Methods of Teaching Latvian 2 hrs.

Evaluation of existing Latvian grammars. Examination of different language teaching methods. Psychological and sociological aspects of teaching at various levels in three Latvian community schools. Latvian teacher certification program. Opportunities to tutor beginning Latvian students, to engage in student teaching in the Kalamazoo Latvian School, and/or to work on a Latvian teaching materials project. Prerequisite: LATV 201 or equivalent.

#### 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. Prerequisite: Permission of instructor.

#### 551 Advanced Latvian Grammar and Composition 3 hrs.

Intensive review of Latvian structure and practice in composition. Prerequisite: LATV 316 or equivalent.

#### 597 Seminar in Latvian Linguistics 2-4 hrs.

Each seminar will deal with a selected topic relating to Latvian linguistics, e.g.: the development of the Latvian literary language—from folk literature to the present-day idiom. May be repeated for credit with a different topic. Prerequisite: Permission of instructor.

#### 560 Studies in Latvian Literature 3 hrs.

Topic varies according to genre, author, or period and will be announced. May be repeated for credit under a different topic. Prerequisite: Permission of instructor.

## Russian (RUSS)

### Open to Upperclass and Graduate Students

#### 550 Independent Study in Russian 1-3 hrs.

Directed, individual study of a specific topic in a Russian literary or linguistic area. Departmental approval required for admission.

#### 552 Advanced Russian Composition and Conversation 3 hrs.

Practice in composition and stylistics directed toward a command of literary and other written expression in Russian combined with training in conversational Russian with an emphasis on the colloquial idiom. Prerequisites: RUSS 316, 317, and 328.

#### 560 Studies in Russian Literature 3 hrs.

Topic varies according to genre, author, and 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: RUSS 316, 317, 328, 375. Topics treated in this area include but are not restricted to:

The Poetry of Pushkin: Emphasis on the tales and Byronic narratives.

The Golden Age of Russian Poetry: Emphasis on the lyrics of Pushkin, Lermontov, Tyutchev, and Fet.

Classic Russian Short Stories: Emphasis on the works of Turgenev, Gogol, Tolstoy, and Leskov.

*Eugene Onegin*: An in depth reading and treatment of Pushkin's great novel in verse.

Modern Russian Poetry: Emphasis on Mayakovsky, Akhmatova, Esenin, Yevtushenko, and Voznesenski.

## Spanish (SPAN)

### Open to Upperclass and Graduate Students

#### 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: 316, 317, either 322 or 323, plus one additional course at the 300- or 500-level.

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

A survey of Spanish literature from its origin to, and including, the seventeenth century. Prerequisites: SPAN 316, 317, and 325.

#### 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.

#### 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.

#### 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.

#### 550 Independent Study in Spanish 1-3 hrs.

Directed, individual study of a specific topic in a Spanish literary or linguistic area. Departmental approval required for admission.

#### 552 Advanced Spanish Grammar and Composition 3 hrs.

An advanced study of the intricacies and problems of Spanish grammar, syntax, and style with attention to improving written expression in Spanish at an advanced level. Prerequisites: Spanish 316, 317, and one additional 300-level course. At least three hours of 526, 527, 528, or 529 are recommended.

#### 553 Advanced Spanish Conversation 3 hrs.

Intensive practice to reinforce and expand the basic oral communication skills and to develop flexible and idiomatic oral expression. Prerequisites: SPAN 316, 317, and one additional 300-level course. At least three hours of 526, 527, 528, or 529 are recommended.

#### 560 Studies in Spanish 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. Prerequisite: Three hours of SPAN 526, 527, 528, 529, or departmental permission. Representative topics which may be treated in this area include:

Cervantes—*Don Quixote* 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 regional novel from Fernan Caballero through Blasco Ibanez.

Generation of '98—Thought and works of typical representatives such as Unamuno, Azorin, Baroja, and A. Machado.

Contemporary Theater—Evolution and analysis of the characteristics.

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

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

## Linguistics (LING)

### General Linguistics Courses

#### Open to Upperclass and Graduate Students

#### 500 Introduction to Linguistics 4 hrs.

An introduction to modern linguistic theory and to the application of that theory to linguistically-related disciplines.

#### 511 Methods of Teaching English as a Second Language 4 hrs.

Study of the application of linguistics and other disciplines to the teaching of Standard American English to speakers of other languages, with emphasis on current methods and materials for instruction and testing. Course work will include tutorial experience.

#### 512 Principles of Teaching English as a Second Language 4 hrs.

Study of the linguistic theory and historical development of teaching English to speakers of other languages, as well as an examination of second language acquisition and the various aspects of bilingualism. Prerequisite: An introductory course in linguistics.



**515 Methods of Teaching Critical Languages**  
2 hrs.

Study of the application of linguistics to the teaching of one or more "critical" languages (e.g., Latvian, Hebrew, Japanese, Arabic, Korean, etc.). Emphasis will be on modern and traditional methods and materials for instruction and testing. Course work will include tutorial experience. May be repeated for credit for a different language. Prerequisite: LING 201 or equivalent.

**540 Generative Grammar**

4 hrs.

An examination of the theories of Transformational Grammar and Generative Semantics, and a study of their origins, development, modifications, and applications. Prerequisite: LING 500 or equivalent.

**551 Psycholinguistics**

4 hrs.

A study of linguistic systems as they connect language and thought—and relate competence to performance—in the acquisition, production, and perception of language.

**552 Sociolinguistics**

4 hrs.

A systematic study of the linguistic correlates of social behavior and the influence of society on the nature of language.

**597 Seminar in Linguistics—Variable Topics**  
2-4 hrs.

Each seminar will deal with a selected topic relating to language and/or linguistics. Since content will vary from semester to semester, students are advised to check course descriptions in the Department office. The Department will welcome suggestions for seminar topics from students. Prerequisite: Major or minor status or permission of instructor.

**598 Readings in Linguistics**

1-4 hrs.

An opportunity for advanced students with good scholastic records to pursue the independent study of a linguistic subject not specifically covered by any of the courses in the Linguistics Department. Prerequisites: Permission of the instructor and chairperson.

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

**Languages (LANG)****710 Independent Research**

2-6 hrs.

**Linguistics (LING)****710 Independent Research**

2-6 hrs.

**Mathematics (MATH)**

Buckley, Chairperson; Professors Alavi, Chartrand, Clarke, Eenigenburg, Gioia, Goldsmith, Hirsch, Hsieh, Kapoor, Laing, Lick, McCully, Petro, Powell, Riley, Schreiner, Sievers, Stoline, White, Yang; Associate Professors Blefko, Kraai, McKean, Meyer, Nelson, Stoddart, Turner; Assistant Professors Channell, Gore, Lin.

**Open to Upperclass and Graduate Students**

**506 Scientific Programming**

3 hrs.

Designed to give preparation in the use of numerical methods on digital computers for

scientific and engineering applications. The FORTRAN language will be used. Problems such as series evaluation, multiplication and inversion of matrices, numerical integration and pointwise differentiation, as well as general numerical approximation will be prepared for the computer. Prerequisites: MATH 230 or 374 and CS 112 or 306. (Cross-listed with CS 506.)

**507 Numerical Analysis**

3 hrs.

Numerical methods including polynomial evaluation and interpolation, solution of systems of linear equations, solution of nonlinear equations, differentiation, integration, and the solution of differential equations. Additional topics may include systems of nonlinear equations, optimization, approximation by polynomials, fast Fourier transforms and boundary value problems. Corequisite: MATH or Computer Science 506.

**510 Multivariate Mathematical Methods**

3 hrs.

Topics from multivariate calculus, including jacobians and optimization techniques, and from linear algebra, including eigenvalues, idempotent matrices on generalized inverses. Emphasis on applications and examples from statistics. Prerequisites: MATH 230 and 272.

**530 Linear Algebra**

3 hrs.

Properties of finite dimensional abstract vector spaces, linear transformations, and matrix algebra are studied. Prerequisite: MATH 330.

**540 Advanced Geometry**

3 hrs.

Topics to be selected from projective geometry, algebraic geometry, differential geometry, or noneuclidean geometry. Prerequisite: Consent of instructor.

**550 Teaching of Secondary Mathematics**

3 hrs.

In this course consideration is given to curriculum problems and trends in secondary school mathematics and to specific problems of teaching mathematics effectively to secondary school students. Prerequisites: MATH 330 and 350.

**551 Participation in Teaching Secondary Mathematics**

2 hrs.

School experiences and related seminar designed to provide the prospective teacher of secondary mathematics with tutorial, small group, and a limited amount of total class teaching experience in the junior or senior high school mathematics classroom. Enrollment is restricted to students concurrently enrolled in MATH 550. Graded on a Credit/No Credit basis. Prerequisite: Approval of instructor.

**552 Teaching of Elementary Mathematics**

3 hrs.

Consideration is given to curriculum problems and trends in elementary school mathematics and to specific problems of teaching mathematics effectively to elementary school children. Prerequisite: MATH 150.

**553 Participation in Elementary Mathematics Teaching**

2 hrs.

Students will work cooperatively with an elementary school teacher in an elementary classroom in various aspects of helping children learn mathematics. The course will provide the prospective elementary teacher with an opportunity to work with small groups of young children and to observe them in

mathematics learning. The student will be required to maintain a journal and to meet weekly with a staff member supervising the course. Graded on a Credit/No Credit basis. Prerequisite: MATH 552.

**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.

**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.

**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.

**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.

**564 Introduction to Statistical Computing**

2 hrs.

An introduction to the use of statistical computer software. The emphasis will be on how to use existing software effectively. Statistical packages discussed will include MINITAB, SAS, SPSS, and BMDP. Statistical work treated will include: data entry, editing, statistical analysis of the one and two sample problems, analysis of variance, and regression analysis. Prerequisites: WMU's computer literacy requirement and an introductory statistics course.

**566 Nonparametric Statistical Methods**

3 hrs.

This course presents a broad overview of statistical methods commonly referred to as nonparametric or distribution-free methods. Topics include: inferences for proportions, contingency tables, goodness of fit problems, estimation and hypothesis testing based on ranking methods, measures of rank correlation, efficiency. Emphasis will be on the application of nonparametric statistical methods to data from many different applied fields. Prerequisite: An introductory statistics course.

**567 Statistical Design and Analysis of Experiments**

4 hrs.

A course in experimental design and the analysis of variance with particular emphasis on industrial experiments. Topics include: completely randomized, randomized complete block, Latin square, and split-plot designs; orthogonal contrasts and polynomials; multiple comparisons; factorial arrangement of treatments; confounding; fractional replication. This course is molded around the complete analysis of good applied problems. Prerequisite: An introductory statistics course.

**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; stepwise regression; use of indicator variables; non-linear regression. Prerequisite: An introductory statistics course.

**570 Advanced Calculus**

3 hrs.

Properties of real numbers, Cauchy sequences, series, limits, continuity, differentiation, Riemann integral, sequences and series of functions. Prerequisites: MATH 272 and 314. (330 recommended).

**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.

**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 (MATH 374).

**580 Number Theory**

3 hrs.

Diophantine equations, congruences, quadratic residues, and properties of number-theoretic functions. Prerequisite: MATH 330.

**595 Seminar in Elementary Mathematics Education**

1-3 hrs.

Current curriculum problems in the area of elementary mathematics education are identified and discussed. Students are required to identify a problem and give both an oral and written report on research in that area. Prerequisite: MATH 552.

**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****600 Statistics for Public Administrators**

3 hrs.

This course is designed to assist public administrators in understanding various statistical procedures which could be used to

comprehend and interpret data sets related to public policy analysis. Topics covered in the course include: a review of basic statistics in the context of policy analysis; and case studies used in analyzing policy data. Throughout the course, examples will be used from policy analysis and evaluation literature to illustrate the utility of the statistical procedures presented. Prerequisite: Elementary statistics or equivalent. (Cross-listed with PADM 691.)

**602 Mathematical Modeling I**

3 hrs.

This course considers the methodology of modeling a series of practical problems. The mathematical tools used may include dimensional analysis, optimization, differential and difference equations, graph theory and network flow theory. The practical problems may include population dynamics, economic theory of prices and production, scale models, scheduling problems, pollution, social group interaction, epidemics, and facility location. Prerequisite: MATH 574 or consent of instructor.

**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. Applications to problems in business and industry will be included. Prerequisites: MATH 123 and 408 or 608 or IEGM 610.

**608 Linear Programming**

3 hrs.

Linear inequalities; convex geometry; optimization in linear systems; zero-sum games; applications. Prerequisite: An introductory course in linear algebra.

**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 610 through 619 are primarily for teachers and ordinarily will not apply towards the Master of Arts in Mathematics.**

**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 adviser.

**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 adviser.

**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 adviser.

**619 Computer Methods in Secondary Mathematics**

3 hrs.

This course will emphasize applications of computing techniques to the teaching and learning of mathematics in grades 7-12. The BASIC programming language will be reviewed in the context of solving mathematical problems using microcomputers and the WMU DEC system-10. Computer-oriented mathematics curriculum materials will be examined and developed. Prerequisite: Consent of adviser.

**622 General Topology I**

3 hrs.

Topics include: Separation axioms, continuity, compactness, connectedness, product and quotient spaces, metric spaces. Prerequisite: MATH 570 or permission of instructor.

**623 General Topology II**

3 hrs.

Topics include: Continuous functions, uniform spaces, function spaces, paracompactness. Prerequisite: MATH 622.

**624 Algebraic Topology**

3 hrs.

Topics will include simplicial complexes, homology and cohomology theories, including singular homology theory. Prerequisite: MATH 622.

**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.

**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.

**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.

**632 Field Theory**

3 hrs.

Algebraic and transcendental extensions of fields, Galois theory, and valued fields. Prerequisite: MATH 630.

**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.

**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 adviser.

**641 Graph Theory II**

3 hrs.

Continuation of MATH 640. Prerequisite: MATH 640

**645 Studies in Combinatorics**

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

**649 Studies in Geometry**

3 hrs.  
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

**The courses 651, 652, 653, and 654 are primarily for teachers and ordinarily will not apply towards the Master of Arts in Mathematics.**

**651 Mathematics for Elementary School Teachers**

3 hrs.  
Emphasizes the concepts and foundations of the mathematics commonly taught in elementary school, and of associated problems of learning and teaching. Each student will be expected to study and report on some special problem or aspect of the teaching of mathematics. Prerequisite: Consent of adviser.

**652 Mathematics for Junior High School Teachers**

3 hrs.  
This course is designed to acquaint the student with contemporary trends in junior high school Mathematics. Several current programs will be studied to determine what topical content should be included and the treatment to be given to this content in a modern mathematical program for junior high school students. Prerequisite: Consent of adviser.

**653 Studies in Teaching of Secondary Mathematics**

3 hrs.  
An advanced methods course devoted to identification and examination of strategies for teaching mathematics. Strategies for teaching skills, concepts, generalizations problem-solving, and proof-making will be explicated. Prerequisite: Consent of adviser.

**654 Curriculum Studies in Algebra and Geometry**

3 hrs.  
Current curriculum recommendations, problems, and trends in algebra and geometry are identified and discussed and the most recent experimental and commercial curriculum materials analyzed. Prerequisite: Consent of adviser.

**656 Teaching of College Mathematics**

2 hrs.  
In this course consideration is given to curriculum problems and trends in post-high school mathematics; research on specific problems of teaching mathematics effectively to college students will be emphasized. Prerequisite: Consent of adviser.

**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 ratio tests; selected topics in statistics. Prerequisite: MATH 562.

**661 Multivariate Statistical Analysis**

3 hrs.  
A theoretical treatment of multivariate statistical problems and techniques. Topics include: multivariate normal distribution;

quadratic forms; multiple and partial correlation; sample correlation coefficients; Hotelling's  $T^2$ -statistic; Wishart distribution; applications to tests of the mean vector and covariance matrix; principal components; factor analysis; cluster analysis; discriminant analysis. Prerequisite: MATH 663.

**662 Applied Linear Models**

3 hrs.  
An advanced course in applied statistics. Linear models will be used to treat a wide range of regression and analysis of variance methods. Topics include: matrix review; multiple, curvilinear, nonlinear, and stepwise regression; correlation; residual analysis; model building; use of the regression computer packages at WMU; use of indicator variables for analysis of variance and covariance models. Prerequisite: MATH 562.

**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.

**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.

**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.

**666 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.

**667 Introduction to Random Processes**

3 hrs.  
This course is a treatment of random sequences and Markov processes. Discrete and continuous Markov processes; transition and rate matrices; Chapman-Kolmogorov systems; 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.

**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.

**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.

**673 Real Analysis**

4 hrs.  
Topology of n-dimensional space, continuity and differentiability of functions of one variable; Reiman-Stieltjes integral; convergence of sequences and series of functions; Fourier series; analysis of functions of several variables. Prerequisite: MATH 570 or approval of adviser.

**674 Theory of Ordinary Differential Equations**

3 hrs.  
Systems of equations; existence and uniqueness of solutions; analyticity with respect to parameters and initial conditions; linear differential equations; isolated singularities, asymptotic solutions at infinity; stability. Prerequisites: MATH 530; 574 (572 recommended).

**676 Complex Analysis I**

3 hrs.  
Topics include: Cauchy Theory, series expansion, power series, types of singularities, calculus of residues.

**677 Measure and Integration**

3 hrs.  
The basic theory of measure and integration, including such topics as Lebesgue measure, abstract measures, measurable functions, product measures, Lp spaces, Radon-Nikodym theorem. Prerequisite: MATH 673.

**678 Introduction to Functional Analysis**

3 hrs.  
Metric spaces; category; compactness; Banach spaces; Hahn-Banach theorem; completely continuous operators; Hilbert spaces; self-adjoint operators; elementary spectral theory. Prerequisite: MATH 677.

**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.

**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.

**690 Seminar in Applied Mathematics**

1-3 hrs.

**691 Practicum in Statistical Consulting**

1 hr.  
Provides graduate students with the opportunity to participate as statistical consultants on real projects. The student consultants are involved with all aspects of the statistical 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.

**692 Seminar in Topology**

1-3 hrs.

**693 Seminar in Algebra**

1-3 hrs.

694 Seminar in Graph Theory  
1-4 hrs.

695 Seminar in Mathematics Education  
1-4 hrs.

696 Seminar in Probability and Statistics  
1-3 hrs.

697 Seminar in Analysis  
1-3 hrs.

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 Adviser.

699 Reading and Research  
1-6 hrs.

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

712 Professional Field Experience  
2-12 hrs.

730 Doctoral Dissertation  
15 hrs.

735 Graduate Research  
2-10 hrs.

## Medieval Studies (MDVL)

Otto Gründler, Director

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 or for a terminal degree, 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 Medieval Institute Publications publishes various series of monographs and periodicals in the field of medieval studies.

The Teaching Faculty of the Medieval Institute are the following:

George T. Beech (History), Guntram G. Bischoff (Religion), Gary Bigelow (Spanish), Joan A. Boucher (Music), Ernst A. Breisach (History), Norman E. Carlson (English), Nancy Cutbirth (English), Audrey Davidson (Humanities), Clifford Davidson (English), Stephanie Demetrakopoulos (English), David Ede (Religion), E. Rozanne Elder (History), Robert W. Felkel (Spanish), Jeffrey B. Gardiner (German), C. J. Gianakaris (English), Otto Gründler (Religion), Debra Israel (Art), Robert P. Johnson (Art), Elise Jorgens (English), Johannes A. Kissel (German), Peter Krawutschke (German), Paule Miller (French), George F. Osmun (Latin), Robert A. Palmatier (Languages and Linguistics), Kathleen Reish (French, Kalamazoo College), Thomas Seiler (English), John H. Stroupe (English), Larry E. Syndergaard (English), John Wickstrom (History, Kalamazoo College).

## Medieval Institute

**Open to Upperclass and Graduate Students**

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.

**Open to Graduate Students Only**

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.

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

700 Master's Thesis  
6 hrs.

710 Independent Research  
2-6 hrs.

## Cognate Electives

### ART

583 History of Medieval Art  
3 hrs.

585 History of Renaissance Art  
3 hrs.

### HISTORY

550 Topics in Medieval History  
3 hrs.

554 Renaissance and Reformation  
3 hrs.

692 Historiography  
3 hrs.

### ENGLISH

510 Special Topics: Norse Literature  
4 hrs.

555 Major Writers: Chaucer, Dante, Milton, Spenser  
4 hrs.

642 Studies in Drama  
3 hrs.

652 Studies in Shakespeare: Tragedy  
3 hrs.

653 Studies in Shakespeare: Comedy  
3 hrs.

### PHILOSOPHY

500 Ancient and Medieval Philosophy  
4 hrs.

### RELIGION

510 Millennium, Utopia, and Revolution  
4 hrs.

510 Great Islamic Thinkers  
4 hrs.

### MUSIC

582 Western Music before 1600  
4 hrs.

## Philosophy (PHIL)

Pritchard, Chairperson; Professors Ellin, A. Falk; Associate Professors Sheridan, Dilworth.

There is no graduate program in philosophy at WMU. Graduate students in other areas seeking to add analytical depth and perspective to their major studies through the study of philosophy should consult with the department chairperson, 5005 Friedmann Hall.

**Open to Upperclass and Graduate Students**

500 Ancient and Medieval Philosophy  
4 hrs.

A study of the history of selected philosophical topics up to the sixteenth century. Great thinkers such as Plato, Aristotle, Augustine, and Aquinas will be emphasized.

520 Mathematical Logic  
3 hrs.

Basic ideas in modern mathematical logic; fundamentals of propositional and quantificational calculi; basic features of formal languages and axiomatic theories; topics in metamathematics, e.g., the deduction theorem, consistency and completeness, and incompleteness. Prerequisites: MATH 310 or MATH 314 or permission of instructor.

534 Moral and Philosophical Foundations of Health Care  
4 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; competing images of humankind embedded in health science; patient autonomy, dignity, and medical paternalism. This is a cross-college interdisciplinary course which is team taught with faculty from the General Studies Science area.

598 Readings in Philosophy  
1-4 hrs.

Research on some selected period or topic under supervision of a member of the Philosophy faculty. Approval of instructor involved and chairperson of the department's individualized courses must be secured in advance of registration.

## Physics (PHYS)

Bernstein, Chairperson; Professors Carley, Hardie, Oppiger, Shamu, Soga, Zietlow; Associate Professors Kaul, Tanis; Assistant Professors Halderson, McGurn.

### Open to Upperclass and Graduate Students

#### 520 Analytical Mechanics 3 hrs.

The topics studied include the dynamics of a single particle and the motion of a system of interacting particles. Techniques of vector analysis are used frequently, and conservation laws are developed and applied. The Lagrangian formulation of mechanics is introduced. Prerequisite: Physics 211 and either MATH 274 or 374. The mathematics course may be taken concurrently.

#### 540 Electricity and Magnetism I 3 hrs. Winter

This is a theoretical course providing a thorough investigation of electric and magnetic fields. The applications of the theorems of Stokes and Gauss are emphasized, and Maxwell's equations are developed. Prerequisites: Physics 211 and either MATH 274 or 374, or consent of the instructor.

#### 541 Electricity and Magnetism II 3 hrs.

This course is a continuation of 540 and is an elective for majors wishing advanced work in field theory. Maxwell's equations and their applications to topics such as time-dependent fields, wave guides, and radiation will form the principal topics of the course. Prerequisite: Physics 540.

#### 560 Quantum Mechanics 3 hrs. Winter

In this course the development of quantum mechanics is traced, and simple applications of the theory are discussed. Topics include cavity radiation, the photoelectric effect, de-Broglie waves, the Rutherford-Bohr atom, the uncertainty principle, the Schroedinger equation with solutions, the coupling of angular momenta, and perturbation theory. Prerequisite: Physics 211 and 520 or consent of the instructor.

#### 562 Atomic and Molecular Physics 3 hrs. Fall

This course continues the study of the applications of quantum mechanics. Topics include the helium atom, multielectron atoms, the Raman, Zeeman, and Stark effects, stimulated emission, transition rates, selection rules, the diatomic molecule, and molecular physics. Prerequisite: Physics 560 or consent of the instructor.

#### 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: Physics 560 or consent of the instructor.

#### 564 Nuclear and Particle Physics 3 hrs. Winter

This course covers such topics as properties of nuclei, collision theory, nuclear reactions, nuclear models, fundamental interactions, and classification techniques used in particle physics. Discussions of experimental methods as well as theoretical treatments using quantum mechanics are included. Prerequisite: Physics 560 or consent of the instructor.

#### 566 Advanced Laboratory 3 hrs. Winter

The objectives of this course are to provide the student with experience in the use of modern laboratory equipment and with a better understanding of several important physical phenomena. The student will perform experiments from a list covering three areas: atomic, solid-state, and nuclear physics. A portion of the semester may be devoted to studying a problem in depth. The course consists of three, three-hour laboratory periods each week. Prerequisites: Physics 342 and Physics 560 (560 may be elected concurrently with 566).

#### 570 Relativity 3 hrs.

This course is primarily devoted to the special theory of relativity. Topics include the Lorentz transformation, space-time diagrams, mechanics of systems of point masses, collisions, electromagnetism, and conservation laws. An introduction to the general theory of relativity will also be given. Prerequisite: Physics 520 (may be taken concurrently).

#### 598 Selected Topics 1-4 hrs.

This course affords an opportunity for advanced students with good scholastic records in Physics to pursue independently the study of some subject of interest to them. Prerequisite: Consent of the instructor.

### Open to Graduate Students Only

#### 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.

#### 622 Quantum Mechanics I 3 hrs.

This course is designed to provide a foundation of fundamental techniques of calculation for more advanced work in the physics and chemistry of atoms, molecules, nuclei, and solids. An attempt will be made to provide an understanding of the principles of the subject through the Schroedinger-Heisenberg equations as well as through the formal operator theory of Dirac. The simple and representative systems of the simple harmonic oscillator and the one-electron atom will be discussed. The course will be confined almost solely to the non-relativistic approximation. This course and 662 are offered in alternate years.

#### 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 introductory relativistic quantum mechanics. Prerequisite: PHYS 622.

#### 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. This course and 630 are offered in alternative years.

#### 630 Classical Mechanics 3 hrs.

Lagrange's equations are developed early in the course and are used in the analysis of both point-mass and rigid-body problems. The modifications of classical mechanics required by the theory of relativity are reviewed. The Hamilton equations of motion and Hamilton-Jacobi theory are introduced, and some of the analogies between classical and quantum mechanics are discussed. This course and 624 are offered in alternate years.

#### 662 Electricity and Magnetism 3 hrs.

This course deals with the static electromagnetic field and its interaction with matter. The applications of boundary value problems are emphasized. This course and 622 are offered in alternative years.

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

#### 700 Master's Thesis 6 hrs.

#### 710 Independent Research 2-6 hrs.

## Political Science (PSCI)

Rossi, Chairperson; Professors Bernhard, Clark, Dahlberg, Enslin, Isaak, Kaufman, Kim, Kobrak, McAnaw, Olton, Phillips, Plano, Ritchie, Ziring; Associate Professors Chandler, Dicle, Hannah, Renstrom, Robin, Rogers; Assistant Professors Houghton, Jickling, Thompson.

## American Political System

### Open to Upperclass and Graduate Students

#### 504 Making of Public Policy in the U.S. 3 hrs.

A study of the formation of public policy at the local, state, and national levels with emphasis on the impact of decision processes upon policy outcomes.

#### 506 Problems of American Government 3-4 hrs.

A critical examination of major problems facing national, state, or local government with emphasis upon contemporary efforts and studies designed to understand or solve such problems. Topics will vary from semester to semester and students may repeat the course.

#### 516 Political Campaigning 4 hrs.

How are elections won? The course provides a practical guide on how to organize and conduct a political campaign. For the potential candidate or campaign worker, it tells how to do it. For others, it describes how campaigns are used to try to influence voters.

#### 520 Constitutional Law 3 hrs.

Study of leading American constitutional principles as they have evolved through major decisions of the U.S. Supreme Court. Emphasis on judicial review, federalism, separation of powers, commerce, and taxation.

**522 Civil Liberties and Civil Rights****3 hrs.**

An examination of Supreme Court responses to First Amendment, criminal procedure, and equal protection questions with particular emphasis on political, social, and policy-making aspects.

**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 determination. Prerequisite: PSCI 200 or a course in Economics.

**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.

**531 Administration in Local and Regional Governments****3 hrs.**

The administrative organization, structure, procedures, and forms of local units of government are analyzed.

**532 The Bureaucracy****3 hrs.**

The analysis of the role of public bureaucracies in the decision processes of government.

**533 Public Personnel Administration****3 hrs.**

This course emphasizes the development of public personnel patronage and merit systems, their structure, staffing, effectiveness, and current problems related to the staffing of public agencies.

**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.

**535 The Politics of Governmental Budgeting and Finance****3 hrs.**

A survey of the political process of governmental budgeting and finance. Budget systems including program planning and budgeting systems are studied. The politics of taxation and other governmental revenues including intergovernmental transfers are studied for their impact on public policy choices.

**536 Comparative Public Administration****3 hrs.**

This course introduces students to a variety of public administration systems found in the contemporary world and includes a brief evolutionary history of these systems. Various theoretical models of administration and bureaucracy are compared with current practice in Western Europe, North America, the Soviet Union, and in contemporary Asian and African systems.

**Open to Graduate Students Only****600 Seminar: National Politics****3 hrs.**

Research and study in selected topics in national politics. Topics will vary from semester to semester, and students may repeat the course.

**601 Seminar: State Politics****3 hrs.**

Research and study of selected topics in state politics. Topics will vary from semester to semester, and students may repeat the course.

**602 Seminar: Urban Politics****3 hrs.**

Examination of the literature on American urban politics and application of this literature to the development or refinement of some theories of community political behavior. The city will be used as a laboratory for the advancement of theoretical and empirical knowledge of politics. May be repeated.

**610 American Political Institutions****3 hrs.**

A systematic treatment of the characteristics of the coordinate branches of American government, interest group and media influences, and the processes by which public policy is formulated and carried out.

**622 Seminar: The Judiciary****3 hrs.**

Study and research of major topics of interest in the judicial process, judicial decision-making, judicial behavior, the judiciary as policy-maker, judicial systems, and public law. Topics will vary from semester to semester, and students may repeat the course.

**626 Administrative Law and Governmental Rules****3 hrs.**

Examines the process by which local, state, and national laws are administered and enforced by public agencies. Special attention is focused on the development, adoption, and enforcement of administrative rules. Prerequisite: PSCI 200 or consent.

**630 Seminar: Public Administration****1-3 hrs.**

Study in selected topics in public administration. Subject matter will vary, and the course may be repeated. The number of hours for which the course is offered in any given semester will be listed in the *Schedule of Classes*.

**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.

**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. Emphasizes the sources of bureaucratic power, the nature of administrative and political elites, and the strategies which agencies pursue in seeking to survive and expand their programs. Explores the impact of the political system on administrative decision-making and agency responsiveness.

**634 Seminar: Professional Issues in Public Administration****1 hr.**

This seminar examines topics of interest to professionals in the field of public administration. May be repeated. Total not to exceed three hours. Graded on a Credit/No Credit basis.

**635 Professional Seminar in Agency Administration****3 hrs.**

This professional seminar concludes the MPA candidate's program of study and provides an opportunity to focus all previous professional experience and academic preparation on the analysis and solution of a major problem confronting an agency of government. The candidate's report culminating this study should be of educational value to the student, of practical benefit to the agency studied, and of academic quality acceptable to the faculty.

**Foreign and Comparative Political Systems****Open to Upperclass and Graduate Students****541 Comparative Political Systems****3 hrs.**

A study of the principal types of political systems. The course examines comparatively and theoretically governmental institutions, political processes, political behavior, and political development.

**542 Administration in Developing Countries****3 hrs.**

A consideration of the relation of administrative structure and technique to the political, economic, and social problems of the developing countries. Special attention is given to the role of the bureaucracy in the political system and to the nature of, and obstacles to, administrative modernization.

**549 Problems of Foreign Political Systems****3-4 hrs.**

Course will consider selected problems of the governments and political systems of Western and Eastern Europe, Asia, Africa, and Latin America. The specific problems, topics, and countries to be studied will be announced each semester. May be repeated.

**Open to Graduate Students Only****640 Seminar: Foreign Political Systems****3 hrs.**

Study and research on major topics dealing with the political systems of selected countries. Independent research and seminar presentations for each student are stressed. The country to be studied may be located in Europe, Asia, Africa, or Latin America, and will be announced each semester. May be repeated.

**644 Seminar: Political Modernization****3 hrs.**

Focusing on the developing areas and using an interdisciplinary approach, the process of political modernization is examined in selected countries or typically on a cross-national basis. The topic to be studied will be announced each semester. Each student will conduct independent research. May be repeated.

**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, ideological/philosophical conflict and external commitment.

**646 Seminar in 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.

**International Relations****Open to Upperclass and Graduate Students****552 Studies in International Relations**

3-4 hrs.

Examines selected topics within the field of international relations. Topics will vary and will be announced each semester. Course may be repeated.

**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.

**555 International Law**

3 hrs.

The theory, sources, development, and general principles of international law, and the relationship of law to the dynamics of international politics. Decisions of international and municipal tribunals and the practices of states will be used to demonstrate the basic rights and obligations of states in time of peace and war. Such topics as recognition of states, diplomatic practice, treaties, and neutrality will also be discussed.

**557 Studies in Foreign Policy**

3-4 hrs.

Examines selected topics within the field of foreign policy. Topics will vary and will be announced each semester. Course may be repeated.

**Open to Graduate Students Only****650 Seminar: International Relations**

3 hrs.

Study and research on a common topic of current international political, organizational, or legal significance. Individual papers and reports will be presented. May be repeated.

**Political Theory and Methodology****Open to Upperclass and Graduate Students****562 Modern Democratic Theory**

3 hrs.

The course consists of two parts. First, a consideration of traditional democratic theories, and the criticism of these theories emanating from modern elitists such as Mosca, Michels, Pareto, and Ostrogorski. Second, an analysis of the attempts of contemporary economists, political scientists, and sociologists to meet these criticisms by revising democratic theory.

**563 Theories of Revolution**

4 hrs.

Examines significant classical and contemporary theories of revolution with reference to both their analytical and normative implications.

**564 Introduction to Political Analysis**

3 hrs.

A consideration of the approaches and methods used by contemporary political scientists with an emphasis on the application of scientific method to the study of politics. Included are applications of leading models of politics and the formulation of concepts, generalizations, and theories.

**590 Research Methods**

3 hrs.

Study of the formulation of research questions, the design of research, the methods of data collection, and the procedures for analyzing data concerning political institutions and behavior.

**591 Statistics for Political Scientists**

3 hrs.

An introduction to statistical reasoning with particular reference to research on political institutions and behavior. This course will emphasize bivariate statistics, but will include a brief introduction to multivariate analysis. No mathematical prerequisite is required.

**Open to Graduate Students Only****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. Subject will vary, and the course may be repeated.

**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.

**Special Studies****572 Computer Applications for Political Scientists**

3 hrs.

This course is designed to provide students with a foundation in computer concepts and applications in political science and public administration. They will learn to use application packages such as SPSS and DPL. The course includes computer exercises and a term project. Prerequisite: CS 105 or equivalent or consent of instructor.

**598 Studies in Political Science**

1-4 hrs.

An opportunity for advanced students with good scholastic records to pursue independently the study of some subject of interest to them. Subjects are chosen and arrangements made to suit the needs of individual students. Prerequisite: Approval of Department Chairperson and instructor.

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis**

6 hrs.

**710 Independent Research**

2-6 hrs.

**712 Professional Field Experience**

2-12 hrs.

**Psychology (PSY)**

Lyon, Chairperson; Research Professor Ulrich; Professors Asher, Farris, Gault, Huitema, Kent, Koronakos, R. W. Malott, Michael, Mountjoy, Robertson; Associate Professors Alessi, Brethower, Fuqua, Nangle, Poling; Assistant Professors Fulton, M. K. Malott, Peterson.

**Open to Upperclass and Graduate Students****510 Advanced General Psychology**

3 hrs.

Readings, lecture, and discussion designed to introduce non-majors in psychology to modern behavior theory. Emphasis will be upon human behavior, both normal and abnormal, with a significant portion of the course devoted to the higher cognitive processes. Recommended as a cognate course in Psychology. Recommended prerequisite: One prior course in psychology.

**512 Behavioral Pharmacology and Toxicology**

3 hrs.

Topics range from the use of drugs to clarify behavioral principles to the use of behavioral preparations to discern pharmacological principles' effects. Readings include summaries of pharmacological evidences and selected experimental reports concerning both the behavioral techniques and pharmacological problems in basic research. Prerequisite: 12 hours of Psychology, permission of instructor, or enrollment in SPADA program.

**513 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-typical behaviors and their ecological significance, and forms of learning which are not easily explained by simple operant and respondent models.

**516 Conditioning and Learning**

3 hrs.

A study of the various approaches to response measurement, experimental methodology, and theoretical interpretations of data in the area of conditioning and learning. Lecture and laboratory.

**517 Psychology of Learning for Teachers**  
3 hrs.

Designed to teach the principles of behavior and the application of these principles to teaching. Topic areas covered 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.

**518 Research in Stimulus Control**  
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 infra-human organisms. Prerequisite: Twelve hours of Psychology or permission of Instructor.

**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.

**523 Advanced Abnormal Psychology**  
3 hrs.

A comparative study of pathological behavior patterns in terms of the theoretical interpretation of the cause of these behaviors and the recommended treatment techniques. Designed for students in disciplines other than Psychology.

**524 Human Sexuality**  
3 hrs.

Discussion of those human behaviors concerned with sex, sexuality, and reproduction. Consideration is given to the anatomical 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.

**525 Behavior Analysis and Women**  
3 hrs.

This seminar considers the methods of inquiry and analysis representative of the common contemporary approaches to the study of sex differences. The class and written assignments emphasize a behavior analysis of the issues which feminists address as distinct from promoting feminism and consciousness raising.

**526 Human Drug Use and Abuse**  
3 hrs.

This course will provide a general overview of basic pharmacological principles, discuss the behavioral physiological mechanisms of action of several classes of medicinal and recreational drugs, and survey the factors thought to contribute to responsible and irresponsible drug intake. Although human drug use and abuse will be the primary focus of the course, nonhuman research findings will be emphasized where appropriate.

**528 Generalization, Discrimination, and Concept Formation in Humans**  
3 hrs.

Basic theoretical interpretations, methodological issues and data analysis in the stimulus control of behavior will be reviewed and analyzed with an emphasis on the potential and actual applications to human behavior.

**530 Statistics for Education**  
3 hrs.

An introduction to basic statistical procedures and concepts. Topics include: measures of central tendency and variability, frequency distributions and graphic presentations, the normal curve, probability theory and the binomial, hypothesis testing, the t-test, chi square, and correlation.

**535 Instrumentation in Psychology**  
3 hrs.

A survey of problems in response measurement in experimentation. Lecture and laboratory. May be repeated for credit.

**540 Industrial Psychology**  
3 hrs.

Application of psychological principles to industry and other organizations. An examination of employee selection, job satisfaction, training, evaluation of performance, supervision, and working conditions.

**542 Human Factors in Engineering**  
3 hrs.

A survey of research on the adaptation of equipment, products, and environment to human capacities. Prerequisite: Permission of instructor. (Cross-listed with IEGM 542.)

**560 Behavioral Medicine**  
3 hrs.

Application of behavioral technology to medical patients with emphasis on inpatient treatment. Sample topics include biofeedback, pain control, compliance with medical regimen, and issues in working in a medical setting.

**562 Management of Health Related Behaviors**  
3 hrs.

A behavior analysis approach to the management of behaviors directly and indirectly impacting health. Emphasis will be placed on outpatient, public health applications and preventive approaches to health maintenance.

**570 A Behavior Analysis Approach to the Area of Retardation**  
3 hrs. Fall

Topics will include: historical background, assessment, training, and legal implications of treatment.

**572 Applied Behavior Analysis: A Systems Approach**  
3 hrs.

The application of systems analysis concepts to the design of systems which yield behavioral measures of complex social situations.

**574 Experimental Social Psychology**  
3 hrs.

Methodology of research with groups, with emphasis upon design and application. Prerequisite: Permission of the instructor.

**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.

**597 Topical Studies in Psychology**  
1-4 hrs.

A survey and discussion of selected research topics of current interest. Topics may include both basic science and applied aspects of the discipline. 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 adviser. Courses may include the following:  
Parent Training  
Studies in Industrial Psychology  
Computer Assisted Instruction  
Theory of Direct Instruction

**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 hours.

**599 Practicum in Psychology**  
1-4 hrs.

In depth 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****601 An Introduction to Issues in Behavioral Assessment**  
1 hr.

This course is designed to provide information on the legal and ethical issues in assessment which serve as a framework for the evaluation of testing procedures. An overview of norm-referenced assessment instruments, traditional personality tests, and criterion-references tests, as well as supervised practice in direct observational assessment are included. This course is scheduled for the first five weeks of the semester in which it is offered.

**602 An Introduction to the Theoretical Analysis of Behavior**  
1 hr.

This course considers the extension of basic behavioral concepts and relations to thinking, private stimulus control, self-awareness, perception, and other related topics often considered least amenable to behavioral analysis. It presents a radical behavioral position on these and other theoretical issues, and considers the various objections to this point of view. This course is scheduled for the second five weeks of the semester in which it is offered.

**603 An Introduction to Professional Issues in Applied Behavior Analysis**  
1 hr.

This course considers an examination of recent literature with respect to the areas of legal regulation of behavior modification, professional standards of practice, the conduct of human research, and an analysis of ethical behavior. This course is scheduled for the final five weeks of the semester in which it is offered.



**608 Current Research in Applied Behavior Analysis****3 hrs.**

A detailed examination of research methodology and strategies, emphasizing the areas of measurement, reliability, and single organism research design. In addition, several areas of current research interest, as exemplified by the *Journal of Applied Behavior Analysis*, will be studied. Prerequisites: Previous course work in applied behavior analysis and previous or concurrent enrollment in PSY 530, 634, or equivalent.

**609 Advanced Seminar in Applied Behavior Analysis Research****3 hrs.**

An advanced course emphasizing: a) the continued examination of current research topics; and b) the development of professional research skills (planning and preparation, grantsmanship, dissemination, skill maintenance). Prerequisites: Previous enrollment in PSY 608 and permission of instructor.

**610 Experimental Analysis of Behavior****3 hrs.**

A survey of the major facts, concepts, principles, and methodology of respondent and operant research. The emphasis will be on lower animal research especially as described in the *Journal of the Experimental Analysis of Behavior*.

**611 Current Research in Experimental Analysis****3 hrs.**

A detailed study of the immediately preceding year's principal research in the analysis of behavior. The emphasis will be on lower animal research, especially as described in *Journal of the Experimental Analysis of Behavior*.

**612 Advanced Physiological Psychology****3 hrs.**

A survey of the interrelationships of physiological and behavioral processes. Lecture and laboratory. Prerequisite: Permission of the instructor.

**614 Motivation and Emotion****3 hrs.**

An introduction to the experimental analysis of psychological and physiological aspects of motives, incentives, and emotions, with an emphasis upon aversive control procedures. Prerequisite: Permission of instructor.

**617 Experimental Psychology of Learning****3 hrs.**

An intensive study of selected topics with special emphasis upon the techniques employed in the experimental analysis of behavior in the human and infra-human organisms.

**620 Analysis of Abnormal Behavior****3 hrs.**

An advanced study of the analysis of abnormal behavior, with consideration of the experimental foundations of the course and interpretation and treatment of various deviant behaviors. Restricted to graduate students in Psychology.

**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. An examination of experimental evidence and illustrative case studies.

**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.

**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.

**636 Experimental Design****3 hrs.**

A study of true and quasi experimental designs, single organism vs. group designs, and artifacts and interpretation. Statistical and non-statistical designs. Prerequisite: PSY 634 or equivalent.

**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.

**643 Personnel Selection and Placement****3 hrs.**

A critical study of assessment techniques such as testing, weighted application blanks, and interviewing. Included is consideration of administrative procedures and the methods of measuring the functional adequacy of assessment methods.

**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.

**645 Psychology of Work****3 hrs.**

Emphasis is placed upon an investigation of worker attitudes, morale, motivation, supervisory styles, and social interaction as determiners of employees' productivity and job satisfaction with particular attention paid to the "problem employee."

**650 Mental Health Law and Policy****3 hrs.**

A seminar devoted to topics of current as well as historical professional concern regarding professional application and research ethics. Topics include the American Psychological Association publications on professional ethics and the use of human subjects in research as well as APA Standards for Providers of Psychological Services, and the Michigan laws relating to the practice of psychology, the rules of the Board of Psychology, the concept of licensure, advertising to the public and psychology in the media.

**652 Systems Analysis****3 hrs.**

An advanced course stressing integration of behavioral analysis and systems analysis applied to the design, creation, and management of human services settings. Students will do analyses of human services settings in which they are involved and implement their systems designs in those settings. Concurrent involvement in human services setting or enrollment in service systems laboratory. Prerequisite: PSY 572.

**654 Mental Health Systems****3 hrs.**

Comparative approaches to psychological problems: This course concerns the various ways in which psychological problems are treated and the organizations involved in the treatment.

**655 Seminar in School Psychology****3 hrs.**

A seminar devoted to current professional practices in School Psychology. Focus is on studying various model systems for delivery of special services in the schools, as well as the various legal, ethical, and practical constraints on operation of such systems. Techniques of system analyses and synthesis are covered as well as consultation methods employed to implement or facilitate operation of new school programs.

**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.

**661 Psychotherapy: Theory and Methods****3 hrs.**

This is a treatment course which reviews several theoretical approaches to, and problem solving strategies for, a variety of client disorders. The course concentrates on the stages of treatment, the issues involved in treatment and various techniques of treatment. Permission of Instructor.

**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. Permission of Instructor.

**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. Permission of Instructor.

**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. Permission of the Instructor.

**665 Behavior Analysis and Behavior Modification****3 hrs.**

This is a treatment course designed to familiarize the student with the methods, applications, theory and clinical literature of behavior analysis and behavior modification. Training in community applications and token economies, skills acquisition, self-management, and behavior programming are also included. Permission of Instructor.

**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. Permission of Instructor.

**667 Cognitive Behavior Therapy**

3 hrs.

A course designed to provide the clinical student with the theory and applications of a cognitive-behavior 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. Permission of Instructor.

**668 Behavioral Assessment and Consultation**

3 hrs.

The course is intended to develop proficiencies in the assessment of behavior problems, using self-report measures, behavioral interviewing, direct observation techniques, and physical recording. Reliability and validity issues with respect to each assessment tool are covered. Behavioral consultation, an efficient alternative to one-to-one counseling in which therapist contact is primarily with the mediator rather than the client, is introduced. Students complete a lab project, using assessment and consultation techniques learned in the course. Prerequisite: PSY 601, nine hours graduate credit in psychology, or permission of instructor.

**674 Verbal Behavior**

3 hrs.

The experimental analysis of language and verbal behavior, with an emphasis upon the analysis of language as presented in the writings of Skinner.

**676 Skinner's Recent Writings**

3 hrs.

A consideration of *About Behaviorism* and *Beyond Freedom and Dignity*, especially as they consider issues of broad scientific, philosophic, and social significance. A much earlier work, *Walden Two* is studied for historical and contrastive perspective. Prerequisite: Nine hours of graduate credit in Psychology or permission of instructor.

**678 Behavioral Analysis and Cognitive Psychology**

3 hrs.

The first third of the course will consider behavioral approaches to the kinds of issues that are the major focus of cognitive psychology: complex human learning, memory, thinking, problem solving, imagery, language, and the self. The remainder will survey and analyze the approach to these issues taken by various types of cognitive psychologists: developments from the field of verbal learning, information theory, psycholinguistics, ethology, Piaget, and the cognitive behaviorists. Prerequisite: Nine hours of graduate credit in Psychology or permission of Instructor.

**679 Radical Behaviorism and Behavior Modification**

3 hrs.

This course is intended to provide training in the theoretical analysis of various psychological events which include both behavioral and mental references. The course includes an in depth analysis of the theoretical basis of the philosophic position identified as "radical behaviorism" as constructed with other theoretical positions in Psychology. Prerequisite: Nine graduate hours in Psychology.

**681 Personality Measures (Non-Projective)**

3 hrs

Survey of the theory of personality assessment and the basic concepts of nonprojective measurement, with emphasis on the

administration scoring and interpretation of various instruments for personality evaluation. The course includes, but is not limited to, the supervised practice in the administration of the MMPI, clinical analysis questionnaire, and observational rating scales. Prerequisites: PSY 601 or equivalent and graduate program status.

**682 Norm Reference Testing: Interpretation**

2 hrs.

A lecture course with an emphasis on basic psychometric concepts, related to the theory and interpretation of test results and psychological assessment reports. The selection of remedial educational programs related to these test results, as well as the recent issues in intelligence testing controversy are discussed. The course emphasizes the selection of standardized test batteries and assessment techniques, including 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, ITPA, Columbia Mental Maturity Scale, WPPSI, WISC-R, and WAIS. Prerequisites: PSY 601 or equivalent and degree program status. Not open to students completing PSY 683.

**683 Norm Reference Testing: Interpretation and Administration**

4 hrs.

A combined lecture and lab in individual assessment. Lecture focuses on basic psychometric concepts directly related to test administration and interpretation, as well as behavioral concept and operation 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, including 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, ITPA, Columbia Mental Maturity Scale, WPPSI, WISC-R, and WAIS. Prerequisites: PSY 601 and graduate standing in school or clinical psychology or permission of instructor. Not open to students completing PSY 682.

**684 Personality Assessment: Projectives**

3 hrs.

An intensified 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 degree program status.

**686 Criterion Referenced Assessment**

3 hrs.

A combined lecture and laboratory course covering theory and basic concepts related to criterion or domain 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, Bessie (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.

**690 College Teaching Seminar**

3 hrs.

Discussion and design of college instructional technology, especially recent developments and research. Topics considered are decision-making, source materials, behavioral objectives; course design and programming, testing and evaluation, remediation, and grading practices.

**691 College Teaching Practicum**

3 hrs.

Supervised practice in the instruction of Psychology at the undergraduate level. The student will be responsible for the design, execution, and evaluation of a college course section involving undergraduate students.

**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.

**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 adviser. Course may include: Applied Multivariate Analysis, Advanced Industrial Psychology, Behavior Analysis of Parenting

**699 Clinical Practicum in Psychology**

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: 681, 683, 661 and advanced standing in clinical psychology.

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

**700 Master's Thesis**

6 hrs.

**710 Independent Research**

2-6 hrs.

**712 Professional Field Experience**

2-12 hrs.

**720 Specialist Project**

2-6 hrs.

**725 Doctoral Research Seminar**

2-6 hrs.

**730 Doctoral Dissertation**

15 hrs.

**735 Graduate Research**

2-10 hrs.

## Public Administration (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 administrator uses discretionary power; how personal moral codes relate to assumptions about professional ethics and standards.

### 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.

### 673 Quantitative Public Policy Analysis

3 hrs.

This course will examine the principal quantitative methods of public policy analysis. The focus of the course will be on the use of quantitative analytic techniques or tools employed to study policy issues. A majority of the analytic tools and techniques considered will be data- and problem-oriented.

### 674 Human Behavior in Public Organizations

3 hrs.

This course is designed to aid in developing a basic understanding of human behavior within organizations and the implications this behavior has for organizational effectiveness. It also discusses the means available to a manager for improving performance within organizations. Topics include personality and motivation theories, group formation and dynamics, leadership, human factors engineering, performance appraisal, and organizational development.

### 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.

### 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.

### 677 The Public Administrator

3 hrs.

This course will examine the following factors: expectation versus reality in the administrative world; the nature of administrative 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; the psychological matrix of leadership.

### 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.

### 681 Designing Policy and Policy Systems

3 hrs.

The focus of this course is three-fold. First, it provides the administrator a conceptual understanding of the policy analysis process and illustrates how quantitative models fit into that process. Building upon this base, the second part of this course focuses on the bureaucratic and political impediments to implementing policy analysis. Finally, it considers how administrators manage research and analysis at various stages of the policy-making process.

### 682 Administrative Decision Making

3 hrs.

This course will examine the organization as a system of linked sub-systems and analyze the elements of decision making as influenced by this environment. The impact of bureaucratic pathologies on communication and control patterns will be related to managerial processes. Attention will be devoted to the effort of a systemic decision framework upon individual decisions and decision makers.

### 691 Statistics for Public Administrators

3 hrs.

This course is designed to assist public administrators in understanding various statistical procedures which could be used to comprehend and interpret data sets related to public policy analysis. Topics covered in the course include: a review of basic statistics in the context of policy analysis; sampling theory and application; regression analysis; time series analysis; and cases studies used in analyzing policy data. Throughout the course, examples will be used from policy analysis and evaluation literature to illustrate the utility of the statistical procedures presented.

### 693 Action Research Project

3 hrs.

This course will be taken twice. Each time it will follow a methodological sequence of other courses that discussed various research techniques used in the analysis and evaluation of public policy. Various projects will be undertaken by students on a team basis. These projects will allow for the specific application of the tools of analysis previously examined in the quantitative survey courses. Repeatable for credit.

### 695 Research Design

3 hrs.

This course will include conceptual and model analysis, hypothesis testing, research literature, theory construction, and individual research papers. Those papers may become the research design chapters for the students' dissertations.

### 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 the literature review chapter in his or her doctoral dissertation.

### 730 Doctoral Dissertation

15 hrs.

The dissertation will be policy-oriented and done with methodological care. It will be the student's bridge back to the agency for which he or she works or to the agency for which he or she would like to work. A practitioner's labor, the dissertation will provide

analysis at a sophisticated level of a management or policy problem confronting the people of Michigan and how an administrative agency could recommend and implement alternative solutions. Graded on a Credit/No Credit basis.

## Religion (REL)

Lawson, Chairperson; Professors Bischoff, Earhart, N. Falk, Gründler, Loew, Siebert; Associate Professors Ede, Kaufman.

### Open to Upperclass and Graduate Students

#### 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 to 1500; Renaissance and Reformation Theology.

#### 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: Millenium, Utopia, and Revolution; Femininity as a Religious Form; Great Islamic Thinkers; the Hindu Yogas; the Occult Tradition.

#### 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.

#### 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.

#### 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.

**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—Please refer to The Graduate College section for course description.**

**710 Independent Research**  
2-6 hrs.**Science Division (SCI)**

Distinguished University Professor G. Mallinson; Professors Holkeboer, Poel; Associate Professor J. Mallinson.

**Open to Upperclass and Graduate Students****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****601 Problems in Science Education**  
1-4 hrs.

This independent study course allows students to study various problems in Science Education under the direction of a supervising faculty member. Individual or small groups of qualified students may be involved in these problem areas reflecting the current concerns of Science Education. The course is designed to meet the needs of students for first-hand experience in field or laboratory research, pilot projects testing new ideas or concepts, or developing learning materials or resources. The course may be repeated for up to 4 hours of credit.

**610 Science for Elementary Teachers**  
2-3 hrs.

This course is designed for elementary and middle school teachers who lack adequate science backgrounds. The course deals with the role of science in the elementary curriculum and acquaints teachers with a survey of basic science concepts, content and teaching strategies appropriate for young children. No science prerequisites.

**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, motivation techniques, and other methodological problems confronting science teachers. Course content may vary, and the course may be repeated for up to six hours of credit provided different topics are involved.

**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.

**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.

**690 Science Education Seminar**  
2-4 hrs.

Designed to provide an integrating experience for students in the Science Education doctoral program. The subject of 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.**

**710 Independent Research**  
2-6 hrs.**730 Doctoral Dissertation**  
15 hrs.**735 Graduate Research**  
2-10 hrs.**Social Science Division (SSCI)****Open to Upperclass and Graduate Students****500 Data Processing for Behavioral Scientists**  
3 hrs.

An introduction to data processing for students of the behavioral sciences. Emphasis to be placed upon computer programming in one general purpose computer language and individual projects involving a behavioral problem selected by each student. In addition, there will be a survey of a number of computer techniques which show promise for research in the behavioral sciences. Solely for persons in the behavioral sciences. No special mathematical background required. Prerequisite: Consent of instructor.

**Open to Graduate Students Only****600 Seminar in the Teaching of Social Studies**  
2-3 hrs.

Assists teachers of social studies to evaluate their philosophy and teaching methods in the light of accepted principles and current practices in social studies instruction. Students will be encouraged to do individual studies which will enable them to remedy their own weaknesses. Prerequisite: Open only to graduate students who are teaching or have taught social studies.

**Sociology (SOC)**

Chaplin, Chairperson; Professors Braithwaite, Friday, Lewis, Markle, Robin, Wagenfeld, Walker; Associate Professors Kramer, Page-Robin, Petersen, Sonnad, VanValey, Wait, Wienir.

**Open to Upperclass and Graduate Students****501 Social Systems Theory and Analysis**  
3 hrs.

An investigation and critique of social systems theory, general systems analysis, and specific systems analysis techniques which

have been used in social organizations. Each student will be required to conduct a systems analysis during the course. Prerequisite: SOC 200 or consent of instructor.

**510 Studies in Social Problems: Variable Topics**  
3 hrs

An examination of a selected area of concern in social problems not intensively covered in other courses. The focus of the course will be substantive, as well as theoretical and methodological. Topics may include such areas as poverty, mental illness, narcotic addiction, alcoholism, aging, and international tensions. May be repeated for credit with a different topic. Prerequisite: SOC 200 or 210, or consent of instructor.

**512 Child Abuse**  
3 hrs.

This course is an examination of child abuse in American society. Medical, psychological, educational, psychiatric, legal, and treatment perspectives are combined in a social analysis. The origins, family context, nature, extent, and social consequences of child abuse are discussed. Currently practiced social and legal solutions are presented, as well as possible social change required to respond to this phenomenon.

**515 Sociology of Mental Disorder**  
3 hrs.

This course will be concerned with examining the historical evolution and contemporary meaning of concepts of mental health and mental disorder. This course will also consider the amount and kind of mental disorder in society, the structure of the mental health care delivery system, the nature of help-seeking for mental disorder, and sociological analysis of psychotherapy. Prerequisite: SOC 200, Grad Standing, or Consent of Instructor.

**520 Studies in Social Psychology: Variable Topics**  
3 hrs.

Further analysis of selected topics in social psychology not intensively covered in other courses. Specific topic will be designated in the course title when scheduled. May be repeated for credit with a different topic. Prerequisite: SOC 320.

**521 Childhood Socialization**  
3 hrs.

An investigation of social development of the child from birth to adolescence. Course will focus on child's interactions with parents and peers and these influence processes of learning, language acquisition, role-playing, the organization of knowledge, and development of self. Prerequisite: SOC 320 or Consent of Instructor.

**522 Adult Socialization**  
3 hrs.

An investigation of social learning and personality development in adolescence. This course examines the effects of interaction patterns and group allegiances, social class membership, biological maturation, sex roles and self-awareness on adolescent behavior, personality development and orientations toward the adult world and adulthood. Prerequisite: SOC 320 or Consent of Instructor.

**523 Contemporary Social Movements**  
3 hrs.

A study of the origins, growth, and effects in contemporary society of social movements. Selected social movements including communism, fascism, the radical left, the radical right, women's liberation, etc., will be analyzed. Prerequisite: SOC 200 or equivalent.

**524 Adult Socialization****3 hrs.**

Examination of processes of social learning and personality development from late adolescence through middle age. The course will focus on selection and performance of adult roles, issues of stability and change in adult identity, and the effects of role transitions and personal crises on adult development. Prerequisite: SOC 320 or Consent of Instructor.

**525 Social Psychology of Education****3 hrs.**

An intensive examination of the roles and the interaction of students, teachers, and administrators in the school setting. Particular attention will be given to the importance of peers, family, and social structure. Prerequisite: SOC 320 or equivalent.

**528 Research Methods in Social Psychology****3 hrs.**

An examination and comparison of major research strategies in social psychology as applied to several selected major topics within the field. Students will be expected to review, critique, and research within a selected area. Prerequisite: SOC 382 or equivalent.

**531 Studies in Social Change: Designated Areas****3 hrs.**

Analysis of social change in specific geographic or national areas designated in the course title as scheduled. Change is examined through perspectives from history, anthropology, and sociology. May be repeated for credit with a different area. Prerequisite: SOC 200.

**532 Introduction to Comparative Sociology****3 hrs.**

An introduction to the history, major theoretical perspectives, and methodological issues associated with cross-national and cross-cultural studies. Particular emphasis will be placed upon those studies which have been central to the development of the comparative approach in sociology. Prerequisite: Consent of instructor.

**540 Sociology of Medicine****3 hrs.**

A comprehensive survey of concepts and research findings in the field of the sociology of medicine. Topics to be covered include: the distribution of illness in society, relationships between social stress and disease, illness as a social process, health care professionals, the sociology of health care delivery. Prerequisite: SOC 373 or graduate standing.

**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.

**553 Urban Sociology****3 hrs.**

An introduction to sociological theory and research on the city including ecological theory, social psychology, institutional analysis, structure and processes like metropolitanization, suburbanization, and planning. Cities in developed and developing societies will be compared and contrasted, and specific attention will be given the industrial biases of current urban theories.

**556 Social Stratification****3 hrs.**

An analysis of the nature, causes, and consequences of class and status differences within societies. Stress is placed upon such concepts as mobility, class, status, and differential power. Conflict and functional theories of stratification are treated. Prerequisite: SOC 200 or consent of instructor.

**564 Juvenile Delinquency and the Community****3 hrs.**

A study of juvenile delinquency as a social problem. Extent, causative factors, methods of treatment, and programs of prevention and control are covered. When feasible, community resource people are invited to participate. Prerequisite: SOC 200.

**566 Advanced Criminology****3 hrs.**

Advanced Criminology is a theoretically oriented course. Looking historically at the philosophical belief systems, classical and modern theories of crime are reviewed. Specific types of crimes such as property crime, violent personal crime and corporate crime are discussed and interpreted within the theoretical paradigms reviewed. Prerequisite: SOC 362.

**567 Corporate and White-Collar Crime****3 hrs.**

An intensive analysis of corporate and white-collar crime from a sociological perspective. Topics covered include: the problems involved in defining corporate and white-collar crime, an assessment of the costs of these crimes, a description of the nature, extent and distribution of these forms of criminal behavior, the etiology of corporate and white-collar crimes, and societal and legal reactions to these types of crime. Prerequisite: SOC 362.

**570 Studies in Social Institutions: Variable Topics****1-4 hrs.**

An examination of a selected topic in the area of social organization or institutions. The focus of the course will be substantive, but theoretical and methodological concerns will also be covered. Possible topics could include work and leisure, occupations and professions, sociology of science, mass society, macro-sociology, arts, and others. May be repeated for credit with a different topic. Prerequisite: SOC 200 or consent of instructor.

**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.

**574 Sociology of Religious Institutions****3 hrs.**

A study of the social role of religious institutions and beliefs with particular reference to the United States. The course considers social factors affecting development of different types of religious institutions and the influence of religion on American society. Prerequisite: SOC 200 or equivalent.

**575 Industrial Sociology****3 hrs.**

The sociological study of industrial organizations and of the process of industrialization. The impact of technology and related factors on work organizations, the structure and operation of labor unions, and the changes

occurring in industrial society are discussed. Prerequisite: SOC 200 or equivalent.

**576 Sociology of School Organization****3 hrs.**

Advanced studies of education as an institution, emphasizing interaction with other social institutions and analysis of internal organization. Attention is focused on the school and social change, schooling and the control of society, and schooling and stratification, as well as impediments to change, power and authority structures and the schools, the teaching profession, and student social structures. Prerequisite: Six hours of sociology or consent of instructor.

**577 Sociology of Learning****3 hrs.**

Advanced studies of education focusing on the impact of culture and school organization on learning in the educational setting. Topics include cultural forces such as ethnicity, religion, socio-economic status and bureaucratic structure, classroom organization, team teaching and the open classroom, segregation, and school type. Prerequisite: Six hours of sociology or consent of instructor.

**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 600, or equivalent.

**579 Female/Male Interaction****3 hrs.**

Examines the variable of gender as it influences interaction between women and men. Topics include female-male stereotypes, interpersonal attraction, differences in female-male verbal and non-verbal codes, relational dialogues and patterns, and female-male interaction on the job. Cross-listed with CAS 579.

**581 Logic and Analysis of Social Research I****3 hrs.**

This course is designed to provide grounding in basic univariate and bivariate descriptive and inferential statistics for social scientists. Prerequisite: SOC 382 or graduate standing.

**585 Research Methodology: Variable Topics****1-4 hrs.**

This course concentrates on specialized research techniques and topics such as sampling and survey design, interviewing, the use of sociological computer software, etc. May be repeated for credit with different topic. Prerequisite: Consent of Instructor.

**590 The Family as a Social Institution****3 hrs.**

The family viewed in historical and cross-cultural perspectives. A structural-functional analysis of the family system. Emphasis is placed on change and comparative analysis. Prerequisite: SOC 200 or equivalent.

**592 Family Life Education and Counseling****3 hrs.**

Provides the student with a working knowledge of the methods and materials appropriate in the school, the church, and other social situations for working with individuals and small groups who desire preparation for marriage and parenthood. Some attention will be given to the techniques for handling counseling opportunities arising out of these teaching situations. Prerequisite: SOC 200 or consent of instructor.

**593 Marriage and Family in Middle and Later Years****3 hrs.**

A systematic analysis of the marital and family system and interpersonal relationships of husbands and wives, and parents and children during middle age and the later years of married life. Prerequisite: SOC 390 or equivalent, or consent of instructor.

**598 Directed Individual Study****2-6 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.

**Open to Graduate Students Only****601 Advanced General Sociology****3 hrs.**

A comprehensive survey of trends in the major fields of sociology. Prerequisite: Open only to graduate students in sociology.

**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.

**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.

**605 Studies in Sociological Theory: Variable Topics****3 hrs.**

Advanced study and exploration, following seminar format, of topics of interest to faculty and students, for example: various role theory formulations and their usefulness in understanding social behavior, ethnomethodology, philosophy of science, experimental design, Marx, Weber, or other selected theorists. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.

**610 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.

**611 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.

**614 Seminar in Ethnic Relations****3 hrs.**

Advanced study of race and ethnic relations, problems, and trends. Prerequisites: SOC 314 or consent of instructor.

**615 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.

**616 Studies in Social Problems: Designated Topics****3 hrs.**

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.

**617 Etiologies of Substance Abuse****3 hrs.**

A study of various social and behavioral theories regarding the causation of alcohol and drug addiction. The findings of research will be examined as they tend to support or disaffirm these social and behavioral theories.

**618 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 applications of these principles to the problems of substance abuse. This course is cross-listed with Biology, Counseling-Personnel, and Social Work. Graded on a Credit/No Credit basis.

**619 Seminar in Substance Abuse II****3 hrs.**

Continuation of SOC 618. This course is cross-listed with Biology, Counseling-Personnel, and Social Work. Graded on a Credit/No Credit basis.

**625 Social Psychological Theory****3 hrs.**

A study of major theoretical approaches in social psychology and their methodological and substantive implications. Prerequisite: SOC 320 or equivalent.

**626 Advanced Social Psychology****3 hrs.**

Advanced exploration of contemporary social psychology, with selected examples of theory and research to represent current work in socialization, small groups, and cognitive social psychology. Prerequisite: SOC 625.

**628 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 625.

**632 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. Prerequisites: SOC 532 or equivalent, and consent of instructor.

**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.

**641 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.

**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.

**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: Permission of instructor.

**660 Seminar on Theories of Crime****3 hrs.**

This course will deal with the most current theoretical developments in criminology, evaluating research related to the verification of theories and analysis of the objectives of theory, the requirements of theory, and the testing of theory. Prerequisite: SOC 566.

**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.

**662 Comparative Corrections****3 hrs.**

Review and analysis of the philosophies of corrections in different societies, the implementation of penal measures and innovative and alternative strategies of social control in eastern and western Europe, Asia, and the United States.

**663 Comparative Criminology****3 hrs.**

An analysis in depth of crime as this phenomenon is viewed in Sweden, Germany, Poland, and other eastern and western European countries. Emphasis is placed on theoretical and etiological approaches in different societies, and the applicability and tests of theories in these societies. Prerequisite: SOC 566.

**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.

**676 The School and the Community****3 hrs.**

Analysis of the school as a social institution in the American community, including consideration of interaction between the school and other basic social institutions, and the sociological significance of community structures, processes and problems for school community relationships. Prerequisite: SOC 200 or equivalent.

**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.

**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 682.

**682 Logic and Analysis of Social Research II****3 hrs.**

This course covers basic multivariate descriptive and inferential statistics for social scientists. Prerequisite: SOC 581.

**683 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. Prerequisite: SOC 581 or consent of instructor.

**684 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 683.

**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.

**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 682.

**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 682.

**689 Evaluation Research II****3 hrs.**

The purpose of this course is to provide an opportunity to conduct an actual evaluation study based on the techniques and procedures covered in SOC 687. The course will include discussion of each student's evaluation findings. Prerequisite: SOC 687.

**695 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.

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis****6 hrs.****710 Independent Research****2-6 hrs.****712 Professional Field Experience****2-12 hrs.****725 Doctoral Research Seminar****2-6 hrs.****730 Doctoral Dissertation****15 hrs.****735 Graduate Research****2-10 hrs.**

Darrell G. Jones,  
Dean

Ronald C. DeYoung,  
Assistant Dean

**Graduate Offerings:**

Accountancy  
Business Information Systems  
Finance and Commercial Law  
Management  
Marketing

## Accountancy (ACTY)

Welke, Chairperson; Professors Burke, Neubig, Newell, Wetnight; Associate Professors Dykxhoorn, Laudeman, Morris, Schaeberle, Sheppard, Sinning; Assistant Professors Forrest, Hines and Kreuze.

### Open to Upperclass and Graduate Students

#### 513 Accounting Information Systems 3 hrs.

A study of concepts, organizations, technology and controls of an accounting information system. Includes a study of specific applications (payroll, accounts receivable, etc.), with particular emphasis on data input, processing, and output utilizing the computer. Prerequisites: BIS 102, ACTY 310, and ACTY 322, or their equivalent.

#### 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. City 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. Prerequisite: ACTY 211 or consent of instructor.

#### 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. Prerequisite: ACTY 311 or equivalent.

#### 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. Prerequisite: Senior standing and accounting major.

#### 522 Cost Accounting—Concepts and Practice 3 hrs.

The development and application of cost accounting principles to organizations. The course includes: the application of costs to operations and to products; the preparation and analysis of detailed cost information; and the methods and procedures for solving complex cost problems encountered in industry. Prerequisite: ACTY 322 or equivalent.

#### 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.

#### 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 (Not open to students with PTC status)

#### 606 Advanced Financial Accounting 3 hrs.

An intensive study of asset valuation, liabilities, corporate capital, and the determination of income. Prerequisite: ACTY 211 or equivalent.

#### 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 211 or equivalent.

#### 608 Advanced Accounting 3 hrs.

A study of advanced accounting problems distinctive to corporate and partnership types of business organizations. Prerequisite: ACTY 606 or equivalent.

#### 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.

#### 617 Seminar in Advanced Auditing and Systems Concepts 3 hrs.

An advanced course which integrates auditing and systems concepts. Intensive examination of audit tools, audit theory and practice, management of the accounting information systems and EDP applications. Prerequisites: ACTY 607, ACTY 513, ACTY 516 or consent of instructor.

#### 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.

#### 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 alterna-



tive tax treatments. Tax problems of corporate acquisitions, reorganizations, liquidations, estates and trusts, partnerships, and capital gains will also be included. Case studies will be used, and research in taxation will be emphasized. Prerequisite: ACTY 324 or equivalent.

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

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

**710 Independent Research**  
2-6 hrs.

**712 Professional Field Experience**  
2-12 hrs.

## Business Information Systems (BIS)

Sanders, Chairperson; Professors DeYoung, Jones, Moskovis, Niemi; Associate Professors Bowman, Branchaw, Swenson; Assistant Professors Halvas, Nazir, Planisek, Shull.

**Open to Upperclass and Graduate Students**

**542 Report Writing**  
3 hrs.

Intensive discussion and practice of the commonly used report-writing techniques. The study includes various formats and graphics of reports. In addition to writing several brief reports, students prepare a complete research report and give one oral report. Open to students with junior standing and above. Prerequisite: BIS 242.

**554 Topics in Business Communication**  
3 hrs.

An intensive study of a topic in business communication such as communication systems, business media, business publicity, and others. The topic will be announced in advance. May be repeated for credit.

**555 Topics in Data Processing**  
3 hrs.

Special topics appropriate to business applications such as programming documentation and efficiency, planning, organizing and directing management information systems. Course may be repeated. Prerequisite: Permission of instructor.

**556 Office Management**  
3 hrs.

Areas of office administration from the manager's viewpoint. Particular emphasis is placed on developing, managing, and controlling office systems, as well as the role administrative managers play in managing human resources.

**557 Topics in Administrative Services**  
3 hrs.

Includes an intensive study of a selected topic in administrative services such as consumer relations, communication audits, office systems, work measurement and simplification, forms control and design, and others. The topic will be announced in advance. May be repeated for credit.

**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.

**564 Information Resource Management**  
3 hrs.

This seminar course provides an overview of the management of information systems resources. The student will gain an insight and understanding of the subject through study of the fundamentals of organizing, planning, controlling, and other significant management tasks that relate to management of information resources. Prerequisite: BIS 462.

**596 Independent Study**  
1-4 hrs.

A directed independent project in an area of business education or administrative services. Prerequisite: Consent of department head.

**598 Readings**  
1-4 hrs.

A series of direct readings in the area of business education or administrative services. Prerequisite: Consent of department head.

**Open to Graduate Students Only**

**600 Seminar in Business Education and Administrative Services**  
3-4 hrs.

Intensive problem solving in areas of business education or administrative services. May be repeated for credit.

**602 Computer Information Systems**  
3 hrs.

The design, implementation, and use of computer information systems for decision making. Included are recent hardware and software developments, systems architecture, and systems procedure techniques. Hands-on experience with mainframe and micro computers using a variety of statistical routines, PERT/CPM, VISICALC, word processing, and other software packages. Prerequisite: BIS 102 or equivalent.

**685 Research in Business Education**  
3 hrs.

An examination and analysis of research in business education with emphasis on utilization of these findings in the upgrading of instruction. Research tools and methodology are also examined.

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

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

**710 Independent Research**  
2-6 hrs.

**712 Professional Field Experience**  
2-12 hrs.

## Finance and Commercial Law (FCL) Finance Area

Professors Edwards, Issa, Assistant Professors Jones, Planisek.

**Open to Upperclass and Graduate Students**

**519 Security Analysis**  
3 hrs.

An analysis of stocks and bonds. Prerequisite: FCL 326.

**521 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 320 or equivalent or consent of instructor.

**526 Group Insurance and Pensions**  
3 hrs.

By means of problems and cases this course analyzes in detail the following areas: group life and health insurance, business life and health insurance, insured pension plans, and estate and tax planning. Prerequisite: FCL 322.

**527 Risk Management and Insurance**  
3 hrs.

Insurance and self insurance. The management of risk for a company. Prerequisite: FCL 321 or consent of instructor.

**528 Insurance Company Management**  
3 hrs.

The topics studied by means of cases and problems in this course include multiple-line insurance operations, special problems in functional areas of industry operations, and personal and commercial risk surveys and analysis. Prerequisite: FCL 323.

**598 Readings in Finance**  
1-4 hrs.

Directed individual study of bodies of knowledge not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

**Open to Graduate Students Only**

**608 Financial Management**  
3 hrs.

Study of the principles and problems underlying the management of capital in the business firm. Stresses the financial officer's responsibilities. Skills developed in the marshalling and interpreting of figure data in such activities as making and implementing capital expenditure policies, solving short-term and long-term financing problems, establishing dividend policies, effecting mergers and consolidations, and adapting to trends in financial markets. Techniques used include case analysis and problem solving. Demonstrates financial management's role in the total management effort. Prerequisite: FCL 320 or equivalent.

**610 Financial Aspects of Higher Education**  
2-4 hrs.

A survey of the financial considerations in the administration of institutions of higher education. The topics covered include the management of short-term investments, the management of endowment funds, budgeting for operations and for capital projects, and the development and implementation of group insurance and pension programs. Prerequisite: Adviser's consent.

**620 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 608 or consent of instructor.

**621 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 326 or its equivalent. Prerequisite: FCL 680 or consent of instructor.

**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 608 or consent of instructor.

**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 decision, valuation and cost of capital, risk analysis, capital structure, and dividend policies. Prerequisite: FCL 608.

**626 Insurance and Government**  
3 hrs.

This course covers the historical development, legal background, and methods of governmental supervision of the insurance industry. Principal emphasis will be placed upon state supervision of insurance, but the role of the federal government in present and future regulation is also considered. Prerequisite: Consent of instructor.

**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 608.

**Law Area**

Morrison, Chairperson; Professor McCarty; Associate Professors Batch, Bliss, Gossman; Assistant Professor Stevenson.

**Open to Upperclass and Graduate Students****532 Real Estate Law**  
3 hrs.

The study of land ownership, sales agreements, including the legal duties of the real estate broker, mortgages, land contracts, leases, zoning, condemnation and urban land development problems. Prerequisite: FCL 340.

**550 Law of Business Organizations**  
3 hrs.

A study of the laws affecting the organization and operation of business enterprises. The course examines the different forms of business organization, principally corporations and partnerships and analyzes how their structure affects the operation of various activities. Prerequisite: FCL 340.

**552 International Business Law**  
3 hrs.

A study of national, regional and international laws which affect the conduct of international business. An examination of the legal regulations which promote or restrain trade or investment by international business firms. Prerequisite: FCL 340.

**554 Government Regulation of Business**  
3 hrs.

Examine the laws, rules and regulations on the federal, state and local level which affect most business enterprises. Substantive laws

affecting the firm's obligation to employees, stockholders and the general public are examined as are procedural laws affecting the regulation of the firm by public institutions. Prerequisite: FCL 340.

**556 Marketing and Sales Law**  
3 hrs.

The course examines the law as it applies to the sale of goods, warranties affecting such sales and methods of financing those sales. Legal obligations imposed upon and risks assumed by the seller are emphasized. Prerequisite: FCL 340.

**560 Seminar in Criminal Law and Procedure**  
3 hrs.

This course surveys the laws and procedures underlying the American criminal justice system. After an introduction to the philosophy and sources of criminal law, the course investigates the legal definition of particular crimes and studies their elements. Legal procedures from arrest, through pretrial and trial phases, to sentencing, probation and parole are also considered, together with relevant evidentiary topics. Prerequisite: SOC 462 or PSCI 525 or FCL 340 or consent of instructor.

**598 Readings in Commercial Law**  
1-4 hrs.

Directed individual study of bodies of knowledge in business administration which will enhance the student's areas of interest and competence. Prerequisite: Written permission of instructor.

**Open to Graduate Students Only****607 Legal Controls of the Business Enterprise**  
3 hrs.

Review the legal problems encountered by executives in various business enterprises. Legal controls affecting the marketing, management, finance and accounting functions, are studied. Various facets of antitrust law, labor law, corporation law, and securities law are examined. Prerequisite: FCL 340.

**609 Law and the Administration of Higher Educational Institutions**  
1-4 hrs.

A survey of statutes, case decisions, and developing legal principles affecting the administration of higher education institutions. Teachers, counselors, staff, and administrative personnel will become acquainted with some of the legal rules and procedures with which today's colleges and universities must deal. Prerequisite: Adviser's consent.

**650 Managerial Aspects of Labor Law**  
3 hrs.

Background and consequences for business policy of law governing collective relationships between employers, employees, and their representatives with special emphasis on interpretation and evaluation of current legislation. Prerequisite: FCL 340.

**General Area****Open to Upperclass and Graduate Students****504 International Business Seminar**  
1-6 hrs.

A foreign study seminar designed for qualified and capable undergraduate students, graduate students, teachers, and business executives. The seminar introduces participants to a first-hand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organization, supplemented by coordinated faculty lectures

and assigned readings. Undergraduate or graduate credit of six hours, in one of the following departments upon consent of department head: Accountancy, Business Information Systems, Finance and Commercial Law, Management, or Marketing.

**Open to Graduate Students Only****600 Seminar in Business**  
3 hrs.

Intensive problem-solving in the primary business fields. Consent of instructor required. May be repeated for credit.

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis**  
6 hrs.**710 Independent Research**  
2-6 hrs.**712 Professional Field Experience**  
2-12 hrs.**Management (MGMT)**

Hill, Chairperson; Professors Booker, Hartenstein, Keenan, Rizzo, Smith, Wallace, Upjohn; Associate Professors Beam, Ramsey; Assistant Professors Carey, Farrell.

**Open to Upperclass and Graduate Students****500 Management Literature**  
1-4 hrs.

Studies in specialized areas of the management literature. The students will prepare an original paper on an assigned topic. Prerequisite: Permission of instructor.

**510 Multinational Management**  
3 hrs.

An examination of management strategy, controls, environmental influences of the multinational corporation with consideration of geographic factors. The management function abroad will be examined in light of the cultural assumptions underlying U.S. management and will deal with the necessary modification for effective operations in a cross-cultural environment.

**512 Women in Management: Male, Female and Organizational Perspectives**  
3 hrs.

A seminar dealing with the changing roles of women in business. Emphasis is given to the unique needs of women aspiring to managerial and professional ranks. Changes in attitudes and behaviors of women, men and organizations and the implication of change for traditional male-female relationships and organizational operations are explored. Prerequisite: Senior standing or permission of instructor.

**514 Entrepreneurship**  
3 hrs.

A senior or graduate elective for students interested in entrepreneurial careers. Primary attention given to managing a new or rapidly growing business. Alternative sources of capital are examined. Various growth strategies considered along with personal requirements for entrepreneurial success. Prerequisite: MGMT 300, FCL 340, FCL 320, MKTG 370 or department consent.

**540 Advanced Statistics****3 hrs.**

A second course in statistics complete enough to be used with limited background. Includes probability theory, t, Z, F, and binomial probability distributions, hypothesis testing with sampling theory, and Type I, Type II errors, point and interval estimates, statistical inference, comparison tests (two-sample and K-sample), association tests (correlations and regression), and non-parametric tests. Prerequisite: MGMT 200.

**598 Readings in Management****1-4 hrs.**

Directed individual study of bodies of knowledge not otherwise treated in departmental course. Prerequisite: Permission of instructor.

**Open to Graduate Students Only****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.

**604 Management Analysis and Practice****3 hrs.**

A survey of the use of management theories and behavioral science knowledge to analyze human problems in management and to assist in designing and operating organizations more effectively. The course treats planning, organizing, directing and controlling, as well as motivation, leadership, individual and group behavior, decision making and change strategies. Values, as they relate to the managerial process, will be considered.

**630 Systems Design and Evaluation****3 hrs.**

A survey of systems analysis and the various techniques to select among alternative courses of action when components of the problem cannot be measured accurately and precisely. Students will complete a project examining an existing system. Advanced standing (15 hrs.) recommended.

**651 Analysis of Administrative Behavior****3 hrs.**

Analysis of the contributions of management theory and of the behavioral sciences to modern administrative practices; group and individual behavior as related to and affected by the administrative process, lectures, cases, conferences. Not open to students having received credit for MGMT 451.

**653 Behavioral Science Application for Managerial Effectiveness****3 hrs.**

Models, methods, and applied technology relevant to the control of human performance in complex organizations. Emphasis on achieving human outputs such as productivity, satisfaction, learning, retention, decisions, problem solutions. Applied technologies could include selection, placement, job, and organizational analyses and evaluation.

**655 Organization Theory****3 hrs.**

Theories, models, and applications relevant to the structure of complex organizations and their subunits. Emphasis on alternative designs, their causes and consequences.

**656 Behavior Analysis Applications****3 hrs.**

Applications of behavior analysis and the principles of behaviorism to management problems in public and private organizations. Emphasis is placed on maintenance of performance reliability, effectiveness, and efficiency. Students will apply principles to the

improvement of an existing organization. Prerequisite: Consent of instructor.

**661 Introduction to Management Science****3 hrs.**

A systematic study and application of the scientific method to management decision-making. Introduction to techniques of linear programming, inventory theory, scheduling theory, and other optimizing decision models. For students who will take more specialized courses as well as those in other disciplines desiring a limited exposure to the field. Prerequisite: MGMT 200 or equivalent.

**664 Simulation****3 hrs.**

A systematic study and application of the methodology of system simulation including system identification and description, model development, computer implementation, experimental design and validation. Special attention is given to model classification, especially deterministic vs. probabilistic and discrete vs. continuous, and how it relates to computer implementation and fields of application. Prerequisites: MGMT 360 or equivalent and BIS 602 or equivalent.

**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.

**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.

**695 Advanced Management Practices****3 hrs.**

Independent study of current trends and advanced problems in the organization and management of complex organizations. Prerequisite: Permission of instructor. May be repeated for credit.

**699 Policy Formulation and Administration****3 hrs.**

This course focuses on the job of the general manager in formulating short and long run strategy. Using cases drawn from actual situations, the course develops ways of (1) perceiving specific opportunities from an analysis of evolving environmental trends, (2) understanding company strengths and (3) integrating strengths and opportunities in setting strategy and detailed operating plans. This is an integrative capstone course in that the tools and skills learned in other core courses are needed to develop practical, company-wide general management decisions. Prerequisites: Completion of MBA core courses.

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

**700 Master's Thesis****6 hrs.****710 Independent Research****2-6 hrs.****712 Professional Field Experience****2-12 hrs.****Marketing (MKTG)**

Trader, Chairperson; Professor Otteson; Associate Professors Belonax, Brogowicz, Cannon, Crow, Delene, Lindquist, Long, Luqmani, Mayo, Quaraeshi.

**Open to Upperclass and Graduate Students****570 Problems in Retailing****3 hrs.**

Designed to analyze current retailing problems: market segmentation, inventory planning and control, vendor evaluation, store services, traffic patterns, and warehousing. Report required. Prerequisites: Permission of instructor and senior level.

**571 Services and Non-Profit Marketing****3 hrs.**

An analysis of problems and issues relating to the marketing of services and the use of marketing in non-profit organizations. Emphasis in these two divergent areas will be given to application of marketing concepts, methods, policies, and strategies; special emphasis on environmental interactions. Prerequisite: MKTG 370 or permission of instructor.

**572 Advertising Media and Campaigns****3 hrs.**

Examines theory and practice of media research, use of Audit Bureau of Circulation data, broadcasting ratings, copy testing, development of media plans, and scheduling as required for advertising campaigns. Prerequisites: MKTG 374 and 474.

**574 Marketing Logistics****3 hrs.**

An analysis of problems relating to the movement, handling and storage of industrial products. Attention will also be given to changing market conditions and industrial structure as they affect the physical distribution of industrial goods. Prerequisites: MKTG 370 and MGMT 200.

**575 International Marketing****3 hrs.**

An examination of the theories and principles of international marketing. Attention directed to related commercial policies, trade practices and procedures, and marketing research tools and techniques needed to locate and evaluate foreign markets. Prerequisite: MKTG 370 or permission of instructor.

**576 Marketing Strategy****3 hrs.**

Identification of marketing problem situations and cause diagnosis with development of appropriate marketing strategies. Emphasis placed on application of marketing fundamentals to factual case situations and on decisions in a simulated dynamic environment. Communications of findings and strategies emphasized. Cases and computer games used. Senior level.

**577 Advertising Theory and Ethics****3 hrs.**

Critical examination of social, cultural, and ethical implications of "public and business" responsibilities involved in the advertising function. Special student interests developed through research and term projects. Prerequisites: MKTG 370, 374; permission of instructor.

**578 Marketing Decisions in Publicity and Public Relations**  
3 hrs.

Analysis of principles and practices of publicity and public relations as these areas relate to the firm's overall promotional strategies; stress on application through case studies and term project. Prerequisite: MKTG 370.

**598 Readings in Marketing**  
1-3 hrs.

Directed individual study of bodies of knowledge not otherwise treated in departmental offerings. Prerequisite: Consent of instructor.

**Open to Graduate Students Only**

**607 Marketing Management**  
3 hrs.

Analysis of marketing activities from management point of view. Includes study of decision-making relative to competition, demand analysis, cost analysis, product analysis, product design, promotion, pricing, and channels of distribution. Prerequisite: MKTG 370.

**671 Quantitative Analysis of Marketing Decisions**  
3 hrs.

Applications of quantitative methods of marketing management utilizing analytical tools in the areas of product, price, distribution, promotion decisions, and other marketing-related problems. Required for all MBA marketing majors, although waived for those having MKTG 371 or 471 or the equivalent.

**673 Product and Pricing Strategies**  
3 hrs.

In depth consideration of product life cycle including addition, modification, deletion analysis; special attention to demand analysis, cost considerations, competitive actions, and governmental regulations. Prerequisite: MKTG 607.

**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 607.

**675 Analysis of Distribution Systems**  
3 hrs.

Organization, structure, and behavior channels of distribution; focus on various distribution systems through which goods are marketed; cases and problems utilized. Prerequisite: MKTG 607.

**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 influence on the process as culture, social status, economic condition, personality, the family, and mass communications. Prerequisite: MKTG 607.

**678 Seminar in Marketing**  
3 hrs.

Intensive problem solving in the primary business fields. Prerequisite: Consent of instructor.

**679 Market Programming**  
3 hrs.

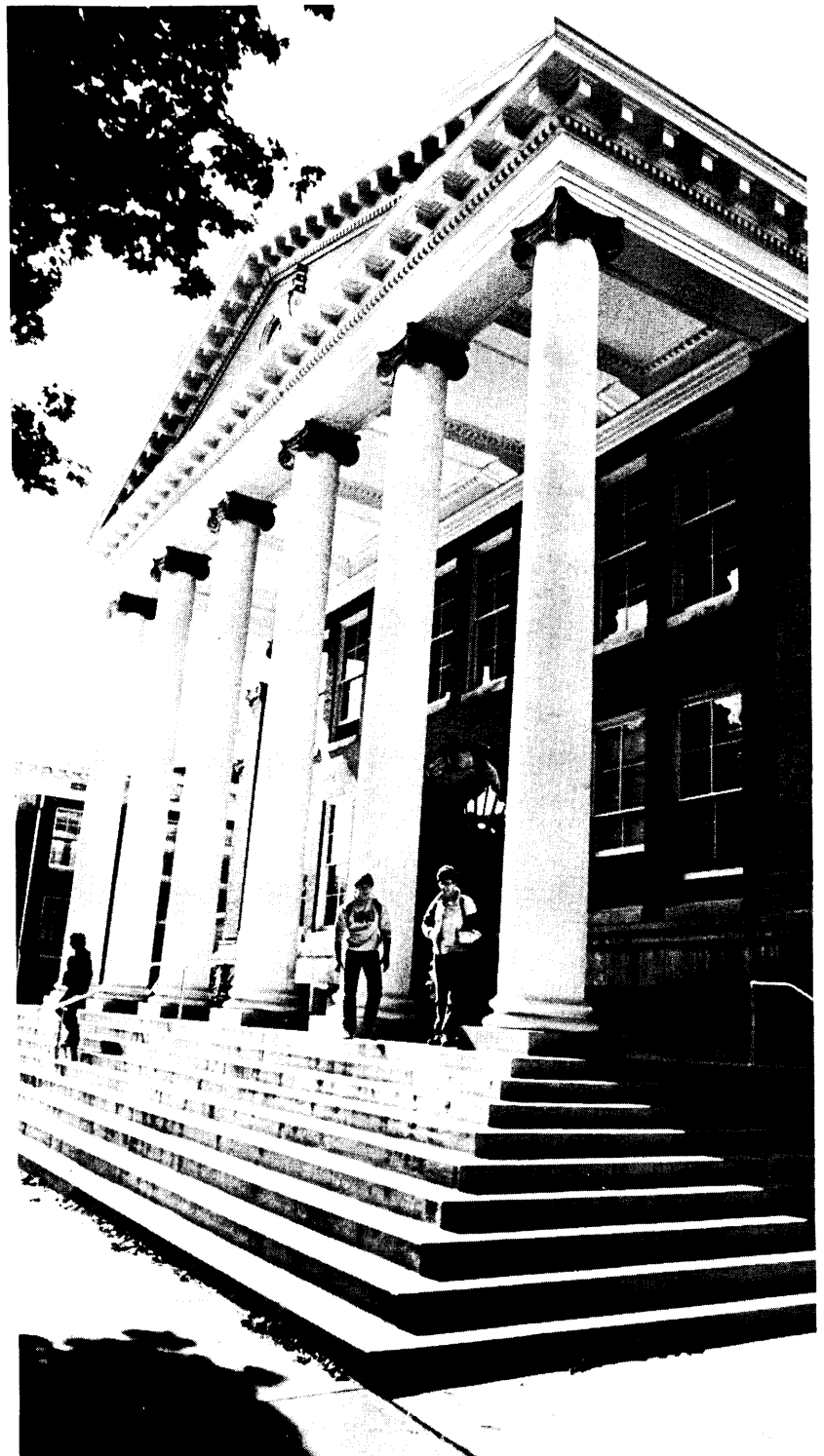
Designed for special emphasis toward developing a total marketing strategy within an organization. Practical application of the marketing tools and techniques to a current problem originating in a business organization. Prerequisite: Consent of instructor.

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

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

**710 Independent Research**  
2-6 hrs.

**712 Professional Field Experience**  
2-12 hrs.



John E. Sandberg, Dean

**Graduate Offerings:**

Counseling and Personnel  
Education and Professional  
Development  
Educational Leadership  
Health, Physical Education, and  
Recreation  
Special Education

## Counseling and Personnel (C-P)

Ryan Chairperson; Professors Betz, Carlson, Geisler, Hopkins, Mazer, Oswald, Trembly, Urbick; Associate Professors Belson, Bullmer.

### Open to Upperclass and Graduate Students

#### 580 Principles and Philosophy of Guidance 2 hrs.

An introductory course which presents a thorough investigation of the philosophical concepts underlying guidance service programs; a survey of the history and principles of guidance; and overview of guidance services. Open to all students, but is not intended for counseling majors.

#### 583 Guidance Workshop 1-4 hrs.

Designed for teachers and counselors who wish to study particular guidance problems and procedures in relation to their local guidance program. Open to all students, but is not intended for counseling majors.

#### 598 Readings in Counseling and Personnel 1-4 hrs.

Advanced students with good academic records may elect to pursue independently the study of some special interest 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.

### Open to Counseling and Personnel Graduate Students Only (Graduate students from other programs may enroll by special permission.)

#### 601 Research in Counseling and Personnel 3 hrs.

The application of selected research design and techniques as they relate to current theory and practice specifically germane to the field of counseling and personnel. Students will formulate and submit a research proposal in their specialty area of counseling and personnel.

#### 602 Group 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 the various group procedures and the process associated with these procedures.

#### 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.

#### 604 Counseling Techniques 3 hrs.

An introductory laboratory study of the concepts and skills required in interviewing and counseling.

#### 605 Professional Issues and Ethics 3 hrs.

Identification and discussion of issues in counseling, and related psychological services. A study of ethical standards of relevant professional organizations, including the American Psychological Association and the American Personnel and Guidance Association. A presentation of case studies applicable to an understanding of issues and ethics in the field.

#### 606 Basic Personality Processes 3 hrs.

Focuses on personality issues of particular importance to the student of counseling. Basic personality constructs and experimental investigations of personality dynamics will be surveyed, including stress and anxiety, coping and defense mechanisms, emotion, conflict and cognitive styles. Various conceptualizations will be studied, including psycho-dynamic, interpersonal, phenomenological, cognitive and behavioral approaches.

#### 610 Career Development Theory and Practice 3 hrs.

An introduction to: (1) basic resources available in the area of occupational, educational, personal, and social information; (2) theories of vocational development and their application to the process of counseling and personnel over the life span; and (3) the world of work, and especially an analysis of work's impact on American culture.

#### 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 behavioristic, the phenomenological, and the existential are studied and compared.

#### 612 Counseling Practicum 4 hrs.

This unit provides practical work in the student's area of specialization. Counseling experiences are provided in a laboratory setting so that the student may put into practice the knowledge and behaviors gained during previous studies. In addition, a supervised, professional experience is required in a setting appropriate to the student's vocational objectives. Graded on a Credit/No Credit basis. Approved application required.

**613 Field Practicum****2-6 hrs.**

An on-site supervised field placement in a mental health, school, agency or university setting. Clock hours, semester hours of credit, nature of supervision and setting requirements are determined by program option. Graded on a Credit/No Credit basis. May be repeated.

**620 Personal Development****2 hrs.**

A structured group experience focusing on the interpersonal and vocational development of participants. Individual personal counseling adjunctive to the experience is required for C-P majors. Graded on a Credit/No Credit basis.

**621 Psychopathology: Classification and Treatment****3 hrs.**

Basic concepts of history, current paradigms, and assessment of psychopathology with special emphasis on the APA diagnostic classification system and counseling/clinical approaches to treatment.

**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.

**623 College Student Development****3 hrs.**

Explores the nature and development of the post-secondary student pertaining to student personnel program administration. Theories of college student development, administrative strategies and techniques of program implementation are studied.

**624 Program Evaluation in Student Affairs****2 hrs.**

Methods and techniques appropriate for the student affairs administrator will be considered as they relate to: (1) assessment of student needs and (2) program evaluation.

**625 Legal Issues in Student Personnel Services****2 hrs.**

The law, as evidenced in constitutional provisions, legislative enactments, and court decisions, related to the administration of student personnel services will be the major focus of the course. Institutional-governmental relations and issues of consumerism will be reviewed.

**626 Administration of Student Personnel Services****3 hrs.**

Emphasis will be upon administration/management aspects of student personnel services in post-secondary 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.

**627 Community Agency Counseling****3 hrs.**

A survey of counseling and administration of counseling practice in agencies with families and individuals of all ages.

**628 Counseling Psychology****3 hrs.**

This course provides an introduction to the role and functions of counseling psychologists in mental health services. Specific areas to be studied include: Professional identity and the contextual variables of employment,

an overview of the therapeutic process, intervention strategies of both a preventative and remedial nature, ethics, process and outcome research, and related professional literature.

**629 Organization and Principles of Elementary School Guidance****3 hrs.**

A thorough investigation of philosophical concepts and principles underlining counseling and pupil personnel programs in elementary schools. The history, organization, and administration of the program services are surveyed and practical application of concepts are required.

**630 Organization and Principles of Secondary School Guidance****3 hrs.**

Enables students to understand, apply, and formulate programs of guidance as they apply to secondary schools. In particular the history, philosophy, role, function, organization, administration, and development of guidance will be examined in depth so that the counselor in preparation will have the necessary skills to assume an entry level position in secondary education.

**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 Biology, Social Work, and Sociology. Graded on a Credit/No Credit basis.

**632 Seminar in Substance Abuse II****3 hrs.**

Continuation of C-P 631. This course is cross-listed with Biology, Social Work, and Sociology. Graded on a Credit/No Credit basis.

**633 Student Affairs in Post-Secondary Education****4 hrs.**

The introductory section of this course will include the history of post-secondary education in America. The second phase of the course content will focus on the student personnel services area: (1) historical perspectives; (2) philosophical foundation; (3) professional organizations; and (4) service delivery systems.

**670 Administration of Counseling Services and Programs****3 hrs.**

Offered as a professional seminar to develop and enhance the leadership qualities of advanced graduate students. This seminar is designed to acquaint participants with a broad range of policies and procedures of administration drawn from various organizational settings. Each participant will develop an administrative manual or handbook which could be used as a set of guidelines for use in a setting appropriate to the student's career objectives. Prerequisite: M.A. in Counseling.

**672 Use of Clinical Judgment in Assessment****3 hrs.**

Clinical judgment in diagnosis and assessment is studied with the focus on sources of error that enter into the process of judging, diagnosing, and assessing. Opportunities for practicing the systematic use of behavioral observations and interviews are provided. Prerequisite: M.A. in Counseling.

**673 Marital and 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 conjoint treatment of couples, resistance, sexual dysfunction in both partners, and sexual dysfunction and its relationship to marital discord. Prerequisite: M.A. in Counseling.

**674 Psychological Development Theory for Counselors****3 hrs.**

This course is based upon a psychodynamic description and conceptualization of personality development and functioning from birth to death as expressed by Freud, E. H. Erikson, Kubler-Ross, and others. In addition, application of developmental theory in relation to the process of counseling and psychotherapy is considered. Prerequisite: M.A. in Counseling

**675 Counseling Theories and Practices****3 hrs.**

This is an advanced seminar 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: M.A. in Counseling.

**686 Topical Seminar in Counseling and Personnel****2-4 hrs.**

Seminar to explore in depth current topics relevant to counseling and personnel services for advanced graduate students with sufficient maturity and experience to engage in seminar-structured learning. May be repeated for credit. Topics will be designated by professors offering the seminar and may include:

- Analysis of individual
- Evaluation of personnel services
- Depression: Dynamics and Treatment
- The development and coordination of personnel services programs
- Administration of student personnel programs in higher education
- Philosophy of science for the behavioral sciences
- Counseling theory advanced study
- Development of personal theoretical positions

**690 Practicum in Counseling and Psychotherapy Supervision I****2 hrs.**

Designed for advanced graduate students who plan to assume leadership and supervision responsibilities in the continuing education of counselors. Includes didactic discussions of the elements of counseling supervision and practical experience in counselor education. Graded on a Credit/No Credit basis. Prerequisite: Permission of instructor.

**691 Practicum in Counseling and Psychotherapy Supervision II**  
2 hrs.

A continuation of C-P 690. Graded on a Credit/No Credit basis. Prerequisite: C-P 690 and permission of instructor.

**692 Advanced Practicum in Counseling and Psychotherapy I**  
4 hrs.

An advanced practicum designed to increase the competency of experienced counselors and therapists. Staffing conferences approach to the analysis of continuing cases presented by the participants will be combined with taped and live demonstrations of advanced techniques. Individual supervision required. Graded on a Credit/No Credit basis. Prerequisite: Consent of Instructor.

**693 Advanced Practicum in Counseling and Psychotherapy II**  
4 hrs.

A continuation of C-P 692. Graded on a Credit/No Credit basis. Prerequisite: C-P 692.

**694 Vocational Development Theory**  
2 hrs.

A critical examination of existing theories of vocational development, the motivation to work, and their application to the counseling process. Research pertaining to vocational development and the world of work will be analyzed.

**696 Practicum in Group Counseling**  
3 hrs.

Supervised practice in counseling with groups of varying types and ages. Staffing conferences of on-going groups will use audio and video tapes, content analysis, and other evaluative techniques. Prerequisite: Consent of instructor. Graded on a Credit/No Credit basis.

**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.****710 Independent Research**  
2-6 hrs.**712 Professional Field Experience**  
2-12 hrs.**725 Doctoral Research Seminar**  
2-6 hrs.**730 Doctoral Dissertation**  
15 hrs.**Education and Professional Development (ED)**

Eisenbach, Chairperson; Professors Bosco, Burns, Cain, Erickson, Fisk, Harring, Heinig, Inselberg, Kanzler, Kilty, Larsen, Lloyd, McGinnis, Moore, C. Smith; Associate Professors Armstrong, Balkin, Bladt, Brenton, Chapel, Cordier, Crowell, Miller, Walker, Assistant Professors F. Bailey, Brashear, D. Smith, Watson.

**Open to Upperclass and Graduate Students****502 Curriculum Workshop**  
1-6 hrs.

Opportunity provided for teachers, supervisors, and administrators in selected school systems to develop programs of curriculum improvement. This may include short-term offerings to resolve a particular curricular problem, as well as long-range curriculum studies. A wide variety of resources is used for instructional purposes, including several specialists, library and laboratory facilities, field trips, audiovisual materials, and the like. Each offering of 502, Curriculum Workshop, will be given an appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of 502 may be applied toward a master's degree.

**504 Adult Development**  
3 hrs.

This course will provide an in depth look at each age and stage in the life cycle. It will explore such problems as the changing role of parents and singles, the changing societal pressures on teachers, new adult life-styles, midlife career changes, the changing role 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.

**505 The Adult Learner**  
3 hrs.

This course will provide an in depth look at the learning adult from approximately age 22 to death with special emphasis on human variability, unique learning styles, and characteristics of the adult learner. Theories of adult learning, studies of intelligence and memory, learning capabilities, abilities, approach, and speed of learning will be considered. Motivation as prerequisite for high level wellbeing and problem-solving will be studied.

**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 a practical exercise in the designing of learning experiences for adults. Extensive use will be made of audiovisual media, experts in the field, and field observation in adult learning activities. The course should be helpful to administrators in planning inservice programs for their own staff.

**507 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.

**508 Parent Education**  
2 hrs.

Places major emphasis on home problems which have educational implications for the child. Parent-teacher relationships, council programs, and cooperative efforts for improvement of education in home and in school are studied.

**509 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 most need to know. The course will help teachers to 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.

**511 Developmental Reading Theory and Application**  
3 hrs.

Emphasizes the application of reading theory in the teaching of reading skills to special-needs students. Intensive study of the theory and practice of individualized reading, language experience approaches, and basic reading materials will be made. Will focus on the actual use of materials with pupils to provide practical experiences in teaching on an individual and small-group basis. Efficiency or reading procedures will be studied through actual use with pupils. Prerequisite: ED 312 or 322 and permission of instructor.

**516 Professional Symposium in Reading**  
3 hrs.

This course is designed to be the initial course in the graduate program in reading. It is designed to present the basic concepts concerning the nature of the reading process and the teaching of reading. Emphasis will be placed on reading as a thinking process and on factors affecting reading performance. Special emphasis will be placed on child development; language development; concept development; physical, psychological, and environmental factors affecting the child's learning to read. 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.

**517 Reading in the Content Area: Social Studies**  
3 hrs.

Designed to acquaint junior and senior high school teachers with the reading skills which should be taught and refined in their specific curricular areas. An effort will be made to help teachers, through demonstration and practice, achieve optimal benefit from secondary textbooks and related reading materials.

**518 Reading in the Content Area: Science, Mathematics, Industrial Arts, etc.**  
3 hrs.

Designed to acquaint junior and senior high school teachers with the reading skills which should be taught and refined in their specific curricular areas. An effort will be made to help teachers, through demonstration and

practice, achieve optimal benefit from secondary textbooks and related reading materials.

**520 Implications of Piaget's Research for Curriculum Design**

**3 hrs.**

Provides the student with an understanding of the structure of the intellect developed by Piaget and examines the curriculum. Some practical work will be combined with a study of the research on which Piaget has built his theory of intellectual development.

**521 Piaget and Young Children**

**3 hrs.**

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.

**530 Introduction to Career Education**

**3 hrs.**

This course is designed to acquaint teachers with the concepts of career education. Course work is centered on ways and means to incorporate career education into the existing curriculum structure at all levels of instruction.

**535 Introduction to Teaching the Disadvantaged**

**3 hrs.**

Designed for teachers and administrators who are presently working with disadvantaged children and youth. Class meetings are centered around problems arising from practical situations, particularly with respect to affective factors of environment and their relation to teaching and learning. Extensive use is made of consultants from social, governmental, and educational agencies working with the disadvantaged.

**548 Audiovisual Media I**

**3 hrs.**

An introduction to audiovisual media as effective means for achieving educational objectives in presentational, interactive, and individualized modes of instruction. Emphasizes evaluation, selection, production, and classroom use of commercially available and locally produced instructional materials. Students are expected to participate in laboratory experiences in which they produce materials such as mounted and laminated pictures and displays, overhead projection transparencies, audio tapes and photographic slides, and to demonstrate proficiency in the operation of audiovisual equipment. In addition to texts, each student should plan to spend \$15 or more for supplies and have the use of a simple camera.

**549 Audiovisual Media II**

**3 hrs.**

A continuation of ED 548, in which teachers and media specialists consolidate basic audiovisual skills and deal in depth with more advanced processes and techniques. Laboratory experiences may include production of complex transparencies, photographic slides, filmstrips and prints, super 8 films, audio and video tapes, duplicated materials, and more sophisticated charts, posters, and displays. A systematic production planning process is emphasized, with consideration given to evaluating effectiveness of media and to requirements for operating a school building level media center. In addition to texts, each student should expect to spend \$15 or more for supplies and should have the use of a versatile camera. Prerequisite: ED 548 or equivalent experience.

**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 must have the use of appropriate equipment and should expect to spend \$25 or more for supplies. Although no prerequisite is required, it is helpful to have had some experience with basic darkroom processes. May be repeated up to a total of six credits.

**597 Reading and Related Language Experiences**

**3 hrs**

A study of the current research in the many aspects of language which are involved in the process of effective reading.

**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 adviser and instructor.

**Open to Graduate Students Only**

**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.

**601 Fundamentals of Educational Research**

**3 hrs.**

This course is intended to develop an understanding of the major types of educational research and the interpretation of research results. Emphasis is placed on familiarity with sources of research, searching the research literature, and interpreting research reports. Each student is expected to design a valid research study.

**602 School Curriculum**

**3 hrs.**

This course, designed for teachers and administrators at all levels, attempts to analyze the decision factors stemming from societal forces; psychological, cultural, and developmental needs and perceptions of learners; and internal structures of the disciplines as guidelines for a curriculum emerging from and serving a democratic society.

**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 issues and the alternative solutions of present educational problems.

**604 Psychological Foundations of Education**

**3 hrs.**

An overview of the psychological forces that influence the learner in his/her educational

setting 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 to classroom situations.

**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. Prerequisite: Admission to the master's program in Early Childhood Education.

**607 Research Methods in Early Childhood Education**

**3 hrs.**

The purpose of this course is to acquaint the student with major types of research about young children, the steps involved in conducting such investigations, and the basic statistical concepts needed for understanding and designing research. Students will be required to present a research proposal.

**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.

**609 Early Childhood Education in Perspective**

**3 hrs.**

A study of the history of the education of young children with emphasis on the philosophy, the social settings, and the people who have influenced the movement.

**610 Guiding Child Development in the Elementary School**

**2 hrs.**

Designed to help nursery, kindergarten, and elementary school teachers gain an understanding of the manner in which skills, information, attitudes, and behavior patterns are acquired and modified. The contributions of each curricular area, such as language arts, arithmetic, science, social studies, health, etc. are stressed with emphasis on suitability of experience for different stages of growth, instructional practices, and appropriate procedures of evaluation.

**611 Informal Approaches to Studying Young Children's Development**

**3 hrs.**

The course helps teachers to 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 to account for children's psychological and social growth while creating classroom conditions to maximize this growth.



**612 Reading Techniques for the Elementary Classroom Teacher****3 hrs.**

This course is designed to provide an in depth study of the nature of the methods and procedures used in teaching children to read. This course will provide opportunity for the production of original materials to be used in the classroom at the elementary level. Participation in classrooms will be required. Prerequisite: ED 516.

**613 Early Childhood Problems and the Teacher****3 hrs.**

Deals with concepts of "discipline" and questions of behavior. Teachers will acquire practical knowledge of research concerning children's social behavior and will review and apply systems for promoting prosocial behavior in their classrooms.

**619 Clinical Studies in Reading****3 hrs.**

This course is intended to provide the basic information needed in the examination of persons with reading disorders. 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 should have the opportunity to construct, administer, score, and interpret both standardized and nonstandardized reading tests. Emphasis will be placed on producing a practical bibliography of measurement instruments and materials. Prerequisite: ED 312 or 322.

**620 Educational Therapy in Reading****3 hrs.**

Laboratory application of knowledge gained concerning the psychological, sociological, and physiological factors affecting children's reading ability is stressed. The prevention, diagnosis, and treatment of reading problems is experienced through working with disabled readers. Students will become familiar with testing instruments, their use, administration, and interpretation. Students will also learn techniques of therapy and recognize those factors necessary for effective therapy. Prerequisites: ED 312 or 322 and 619.

**635 Mainstreaming Exceptional Children in the Regular Classroom****3 hrs.**

For nonspecial education personnel. The course examines the evolution and implications of the mainstreaming concept; the mandates of state and federal legislation; program assessment at the interface of special/regular education; the categorical characteristics of impaired children; psychoeducational identification and diagnosis of special needs; diagnostic-prescriptive teaching; behavior management; accessing to support services; and writing IEPs. Not normally for certification in special education.

**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 units of instruction. Students follow a systematic instructional development procedure from task analysis to evaluation, working together with their own students or as assistant and consultant to another teacher. Prerequisite: ED 548 or equivalent.

**642 Photographic Communication****3 hrs.**

Explores uses of photography in the communication of ideas, considering techniques of composition, lighting, equipment operation, and basic photographic processes as means toward achieving an effective visual statement. Following preliminary assignments, each student plans and produces a picture story or photo essay suitable for publication and a synchronized sound/slide presentation for a specified audience. Considerable laboratory time is required outside of class. In addition to text materials, each student must have the use of a high quality, versatile camera and should expect to spend \$25 or more for supplies. Prerequisite: ED 549 or 550 or equivalent experience.

**643 Practicum in Clinical Studies in Reading****3 hrs.**

This course is intended to give students experience in employing both 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 taught. Prerequisites: ED 619 and 620.

**644 School Media Specialist Seminar****2 hrs.**

A team-taught course by Librarianship and Education faculty designed to synthesize course experiences in the school media specialist curriculum. Students are prepared for their initial experiences in seeking employment in the public schools and given experiences to help them function efficiently and effectively as professional school media specialists. Prerequisite: Written consent of departmental adviser. (Cross-listed with LIB 644.)

**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. (Cross-listed with LIB 690.)

**647 Administration of Audiovisual Media Programs****4 hrs.**

Considers audiovisual aspects of a unified instructional media program, including allocation and management of space, time, budget, and personnel; selecting, organizing, distributing, and maintaining materials and equipment; providing inservice education in audiovisual methods for teachers and interpreting the media program to administrators, staff, students, and the community. Prerequisite: ED 548 or equivalent experience.

**648 Instructional Media Seminar****3 hrs.**

An analysis and comparison of instructional media programs and facilities. Students examine existing media center operations and prepare recommendations and working plans either for organization of a new media

program or for reorganization and improvement of certain phases of operation in an ongoing center. Prerequisites: ED 548 and 647 or equivalent experience.

**649 Problems of College and Adult Reading****2 hrs.**

An advanced laboratory course covering philosophy, principles, and practices of a development program in reading for college students and adults. Lectures, discussions, and demonstrations will center around teaching techniques in common practice.

**650 The Characteristics of the College Student****2 hrs.**

The course is primarily intended for students who are preparing to teach at the college (community, four-year, or graduate) level. As much as practicable, the course will be conducted on an "action-research" basis. Every opportunity to interact with college students on a firsthand, face-to-face basis will be utilized by the individual members of the class. Opportunities will be provided to investigate such topics as: the academic adjustment, capabilities, motivations, behaviors, attitudes, and factors affecting the academic achievement of college students; the effects of separation from home and family, effects of interpersonal relations, and effects of campus social life on college students; and economic stability as it affects college students. Prerequisite: ED 601.

**652 Language, Reading, and the Young Child****3 hrs.**

The course focuses on language and the nature of the reading process and its development in a child from birth through the primary grades. Teachers will explore contemporary reading and language programs from this point of view. Deeper understanding of language-reading processes will enable teachers to arrive at ideal language development-reading programs for the children they teach.

**653 Practicum in Reading Therapy****3 hrs.**

This course affords students the opportunity to build competencies attained in ED 643. Reading therapy is offered on a one student to client basis under the direction of a trained clinical therapist. The course serves as an instructional internship for working with pupils who have problems in reading and related areas. This course will provide graduate students practice in setting up prescriptive instructional objectives, selecting materials in terms of needs, and carefully designing instructional procedures for disabled readers. Prerequisites: ED 619, 620, 643.

**656 Organization and Administration of Reading Programs****3 hrs.**

This course affords an opportunity for the individual to investigate the processes and procedures which may be employed in organizing and administering reading programs at the elementary and secondary levels. Emphasis is placed on the examination of existing programs and practices with a view toward improving reading education for all students. The course is intended to help students understand the development and management procedures of a reading program, kindergarten through adult basic education. Prerequisites: ED 597, 619, 687.

**669 Strategies in Teaching: Variable Topics****1-4 hrs.**

Designed for teachers and administrators who work with student teachers and wish to study supervisory and administrative problems and procedures. Emphasis is placed

upon the development skills in evaluation, planning, and the various supervisory strategies in working with student teachers in the classroom as well as the building or school system. Note is taken of current literature and research methods used in working with student teachers. Prerequisite: Teaching experience or consent of instructor.

**670 School Climate and Discipline**  
3 hrs.

This course is designed for teachers and administrators who wish to develop a school or classroom climate which maximizes learning and minimizes discipline problems. Emphasizes new approaches to working successfully with problem students and classes.

**687 Improvement of Reading in Secondary Schools**  
3 hrs.

Designed to aid teachers in developing the reading abilities and skills of their students at the secondary level. Emphasis is placed on aims, materials, and procedures. Graduate students will become knowledgeable with the readability of textbooks and how to adjust work to range of ability. Opportunities for understanding and using standardized and informal instruments as measures of student progress will be afforded. Emphasis will be placed on the organization of course work for improving reading skills. Prerequisite: Ed 312 or 322.

**688 Diagnosis and Treatment of Secondary Reading Problems**  
3 hrs.

This course is intended to provide an opportunity for diagnosing reading difficulties at the secondary level. Applying appropriate diagnostic procedures that enable the diagnostician to provide effective remediation is stressed. Prerequisite: ED 687.

**690 The Community College**  
2 hrs.

Studies the historical development of the junior and community college movement; the function of the community college in the total educational program; the divergent aims and curricular requirements of preprofessional, academic, and prevocational courses; the guidance and counseling function; community services programs; and methods and materials of instruction at the college level.

**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. Designed to acquaint teachers, reading, specialists, and administrators with the current research and literature pertinent to their areas of specialization. They should further 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.

**697 Special Topics in Reading**  
1-3 hrs.

A variable credit course designed to provide a vehicle for the development and implementation of special topics in the field of reading. The purpose is to provide students with the opportunity to study topical current issues.

**698 Resolving Educational Problems in the Schools**  
1-6 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.

**699 Seminar in College Teaching**  
2 or 4 hrs.

Designed for students who are interested in preparation for college teaching. The student is expected to enroll for four credit hours, work with a faculty member in his/her major department or unit in a classroom situation for a semester, and attend eight scheduled discussions arranged for all students in the seminar. These discussions will emphasize important topics related to college teaching. Exceptions may be made for the student who already has college teaching experience. In such cases, the student should enroll for two credit hours and attend the seminar discussion sessions only. Prerequisite: Permission of instructor.

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

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

**710 Independent Research**  
2-6 hrs.

**712 Professional Field Experience**  
2-12 hrs.

## Educational Leadership (EDLD)

Ryan Chairperson; Professors Dickie, Sanders, Smidchens; Associate Professors Brinkerhoff, Bunda, Dykstra, Schlack, Sheffer, Warfield; Assistant Professor: Cowden.

Topical descriptions are available in the department office, 3102 Sangren Hall.

**660 Administration**  
2-4 hrs.

Offerings in this area are intended to provide students opportunities to acquire the general understanding, skills, and knowledge necessary in the operation of organizations, institutions, and agencies. Topics vary from semester to semester and may be found in the schedule of courses. Students normally take more than one topic area. Topics offered under EDLD 660 include:

- a. Introduction to Educational Leadership (the first course in any degree program in this department)
- b. School Principalship
- c. School Law
- d. Business Management
- e. Administration of Higher Education
- f. Professional Development Seminar
- g. Critical Management Problems
- h. Grantsmanship

**661 Human Relations**  
2-3 hrs.

These offerings provide students with academic background in the behavioral sciences. Emphasis is on proficiency in working with people, understanding people and how they work, live, and get along together, and in using that understanding in getting the

best from people, individually and in groups. Topics vary from semester to semester, and a student may enroll for more than one topic area (see *Schedule of Classes* for specific topic offerings in any one semester or session). Typical EDLD 661 topics offered include:

- a. Personnel Evaluation
- b. Organizational Supervision and Development
- c. Administration of Staff Personnel
- d. Public Relations
- e. Practicum in Leading
- f. Training Skills Development

**662 Concept Formation**  
2-4 hrs.

The offerings in this topic area focus on concepts which highlight the complex issues of education and its relationship to the larger culture. Specific leadership roles in the context of the overall institutional functions and the world of work are emphasized. Topics vary from semester to semester. A student may enroll for more than one topic (see *Schedule of Classes* for specific offerings in a particular semester or session). Typical EDLD 662 offered include:

- a. Theory of Leadership
- b. Contemporary Educational Scene
- c. Curriculum Leadership
- d. Human Resource Development
- e. Interdisciplinary Seminar
- f. Policymaking
- g. Politics of Education
- h. Economics of Education
- i. Evaluation Seminar
- j. Evaluation Practicum
- k. Program Evaluation
- l. Systematic Problem-Solving
- m. Writing For Publication
- n. Futuristics

**663 Research**  
2-15 hrs.

Offerings are intended to provide the necessary understandings, attitudes, and skills to make every student working for a degree in this department a competent and discriminating consumer of research. The student who wishes to do so can specialize sufficiently to become a competent researcher or a director of research. Topics vary from semester to semester, and a student may enroll for more than one topic area (see *Schedule of Classes* for specific topic offerings in any one semester of session). Typical EDLD 663 topics offered include:

- a. Measurement I
- b. Introduction to Research
- c. Statistical Analysis/Research Design I
- d. Statistical Analysis/Research Design II
- e. Dissertation Seminar

## Individual Studies

Offerings in this area are intended to allow a student in any degree program in this department to demonstrate how well she/he can learn working alone and under faculty supervision. Offerings are intended to allow the student to become acquainted on a one-to-one basis with at least one faculty member.

**598 Readings in Educational Administration**  
1-4 hrs.

An advanced student with a good academic record may elect to pursue independently the study of some topic having special interest to her/him. Topic chosen must be approved by and arrangements made with written consent of the instructor involved. May be elected more than once.

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

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

**710 Independent Research**  
2-6 hrs.

**712 Professional Field Experience**  
2-12 hrs.

**720 Specialist Project**  
2-6 hrs.

**725 Doctoral Research Seminar**  
2-6 hrs.

**730 Doctoral Dissertation**  
15 hrs.

**735 Graduate Research**  
2-10 hrs.

## Health, Physical Education, and Recreation (PEGR)

Zabik, Chairperson; Professors Cheatum, Dales, Heinig, Ray; Associate Professors Jevert, Meyer; Assistant Professor Dawson.

**500 Studies in Health, Physical Education, and Recreation**  
1-2 hrs.

In depth study of selected topics in HPER. Format can include clinics, workshops, seminars, travel and/or mini-courses, and provide opportunity to acquire skills and teaching techniques. State, national, and international authorities or consultants may be involved. Topics include:

Aesthetics of Sport  
Hunter Safety  
Nutrition and Fitness  
Outdoor Education  
Physical Fitness  
Relaxation and Flexibility  
Special Physical Education Activities

### Open to Upperclass and Graduate Students

**510 Modern Health for Teachers and Health Professionals**  
3 hrs.

This course, designed for teachers and health professionals who have need of current knowledge in health science, surveys topics such as mental health, nutrition, substance abuse, physical fitness, chronic diseases, and stress management. Consideration is given to psychological, sociological, and cultural factors that influence health improvement. Attention is given to special factors of health and illness of children and adolescents. This course is not open to Health Education majors and minors.

**512 Principles, Practices, and Methods in Health Education**  
3 hrs.

This course surveys the history, philosophy, and methods of health education. The philosophical basis and practices of health education are discussed in terms of needs and capabilities of people and factors that influence their development and actualization. Emphasis is placed upon the promotion of health and prevention of disease, disability, and premature death. Curriculum development and teaching methods focus on content and strategies considered most effective in teaching disease prevention, health promotion, and self-actualization.

**514 Methods and Materials in Health Education**  
2 hrs.

Lectures and demonstrations with emphasis on effective health supervision of school children, principles and practices of health teaching in the various grades, and interrelation of this teaching with that of other subjects in the curriculum. Prerequisites: PEGR 314 and 315, or consent of instructor.

**516 Issues in Health Education**  
1-4 hrs.

Issues vary or occasionally repeat depending on the timeliness of the issue. Following are currently recommended themes. Students may register for 516 more than once but may not repeat the same issue. Issues include:

Improving Health Behavior  
Alcohol and Drug Education  
Venereal Diseases  
Consumer Health  
Cardiovascular Health  
Stress Release  
Bio Feedback  
Patient Education  
Health Careers  
Parent Education  
Wellness and Lifestyle

**520 Physical Activities for Exceptional Children**  
3 hrs.

Physical and recreational activities and games used in corrective, adaptive, and general physical education programs for special education children.

**521 Therapeutic Trends for Exceptional Children**  
3 hrs.

A study of past, present, and future trends in habilitation and rehabilitation programs for handicapped people.

**530 Practicum in Teaching and Coaching**  
1-2 hrs.

Demonstrations, participation, and evaluation on teaching and coaching fundamentals in selected sports. A graduate student may apply a maximum of four credits from 530 courses toward the master's degree program. Sports include:

Archery  
Badminton  
Basketball  
Football  
Golf  
Gymnastics  
Ice Hockey  
Judo  
Karate  
Soccer  
Swimming  
Track and Field  
Volleyball  
Wrestling  
Yoga

**535 Principles and Problems of Coaching**  
2 hrs.

Various dimensions and forces affecting coaching are identified and explored, including educational implications of sport and coaching, characteristics of coaches and athletes, vital relationships, motivation, emotions, behavior, discipline, selecting and evaluating personnel, scientific principles and systems of training, the organization and planning of practices and total programs.

**540 Movement Education**  
2 hrs.

A concept in physical education which deals with the way children learn the basic principles of how their bodies move.

**560 Administration of Physical Education**  
2 hrs.

For administrative officers, as well as for teachers and directors of physical education. Includes a study of representative programs of physical education and a discussion of standards for evaluating such programs. Case studies examined.

**562 Administration of Athletics**  
2 hrs.

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.

**572 Recreation for the Aging**  
2 hrs.

An overview of aging, especially as it relates to leisure pursuits and organized recreation.

**580 Studies in Athletic Training**  
2 hrs.

- Prevention, Assessment, and Treatment of Injuries. A lecture/demonstration course concerned with the prevention, assessment, and treatment of sports-type injuries. Prerequisites: BMED 210, 240.
- General Training Room Techniques. Laboratory practice in taping, bandaging, immobilization, transportation, emergency care techniques. An in depth paper is required. Prerequisites: PEGR 380, PEGR 580-a.

**590 Exercise Physiology**  
2 hrs.

The mechanics of muscular contraction, nerve impulse conduction, oxygen exchange, and circulatory efficiency are discussed. Basic principles concerning the adaptation of the human body to stress in the form of strenuous physical exercise are applied to the training and conditioning of competitive athletics. Prerequisites: BMED 210, 240.

**591 Evaluation in Health, Physical Education, and Recreation**  
2 hrs.

Acquaints students with the theory, selection, construction, administration, interpretation of appropriate tests in the field. Class activity will include study and discussion of selected tests, application, scoring, interpretation, and construction of tests.

**595 Analysis of Movement in Sport**  
2 hrs.

The study of movement of muscles and the application of kinesiology to physical activity.

**598 Reading in Health, Physical Education, and Recreation**  
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

**610 Health Education in the Community**  
3 hrs.

Consideration of factors that influence health improvement in the community. Prerequisite: Approval of instructor.

**630 Advanced Coaching**  
1-2 hrs.

Theories of conditioning, training, practice organization, scouting, game and tournament planning, skill analysis and correction, defensive and offensive strategies, safety proce-

dures, 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.

**631 Advanced Treatment of Athletic Injuries**  
2 hrs.

The prevention, etiology, symptoms, pathology, and prognosis of those injuries occurring most frequently will be studied. Treatment techniques and rehabilitation procedures will be demonstrated. Medical specialists will lecture in their special areas related to athletic injuries.

**640 Rhythms in Elementary Education**  
2 hrs.

A study of the rhythmic movement needs of the elementary school child, including suggested methods of teaching through which children are stimulated to create their own responses in rhythmic play, folk and social dancing as outgrowths of movement fundamentals; and teaching examples, sample lesson plans, and up-to-date reference source. Lecture and activity periods.

**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.

**642 Motor Development**  
2 hrs.

Scientific evidence studied to determine the nature of motor learning and its interrelationships with physical growth, biological maturity, and social development.

**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.

**645 Curriculum Building in HPERS**  
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.

**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  
Developmental Programs in Special P.E.  
Aquatic Programs in Special P.E.

**650 Socio-Cultural Foundations in HPERS**  
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.

**661 Problems and Trends in Health, Physical Education, and Recreation**  
2 hrs.

Deals with modern trends, and with instructional and supervisory problems involved in conducting an effective program of physical education including a critical appraisal of present practices.

**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:  
Planning Facilities  
Business Procedures  
Public Relations and Promotion  
Administration of Athletic Programs  
Legal Liability

**680 Advanced Studies in Athletic Training**  
1-3 hrs.

A series of advanced seminars dealing with specific topics in sports medicine. Emphasis will be placed on in depth study of theories, problems, practices, and issues with appropriate lectures by physicians and specialists in the field. Professional sports medicine seminars will complement conventional on-campus study. Prerequisite: Completion of 580 series or consent of instructor. Topics include:

- a. Sports Medicine: Applied Anatomy and Physiology
- b. Sports Trauma Assessment and Management
- c. Sports Trauma Physical Therapy
- d. Administration of an Athletic Training Program

**690 Research Procedures in Health, Physical Education, and Recreation**  
3 hrs.

Research procedures in health, physical education, and recreation and sports. Introductory principles of scientific inquiry, research methods applicable to these fields, evaluation of published research, and procedures for developing a research design.

**691 Psychological Foundations in HPERS**  
2 hrs.

An overview of the application of psychology to physical education and sport with special emphasis on transcendent experiences in sports and the consciousness of sports.

**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.)**

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

**710 Independent Research**  
2-6 hrs.

**712 Professional Field Experience**  
2-12 hrs.

## Special Education (SPED)

Eisenbach, Chairperson; Professors Hannaford, Patterson, Sellin; Associate Professors Harris, Icabone, Nicolaou.

**Open to Upperclass and Graduate Students**

**502 Educational Provisions for the Learning Disabled**  
3 hrs.

This course is specifically designed for teachers who are interested in identifying and instructing learning disabled children and youth in a regular classroom setting. Emphasis will be placed on (1) identifying the exceptional pupil; (2) developing an educational profile which reveals the learner's strength and weakness; (3) identifying and describing methods and materials utilized in teaching the learning disabled individual. Open to all students except majors in Special Education curricula. Prerequisite: Consent of department.

**512 In-Service Professional Development**  
1-4 hrs.

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 are provided, including conferences. Credit for this course is not applicable toward a graduate degree in Special Education.

**530 Education of Exceptional Persons**  
3 hrs.

This course is primarily concerned with children and youth who are visually, auditorily, orthopedically, and/or emotionally atypical. Emphasis will be placed on developing and understanding of the psychological, sociological, educational, and philosophical aspects of each type of exceptionality. Present programs and services are described and evaluated. Field trips are made to public and private schools, institutions, and agencies. Prerequisite: Consent of the department.

**531 Practicum in Special Education**  
2 hrs.

Students enrolled in this course will be assigned to special classes in public or residential schools serving exceptional children and youth. Observation and participation will be combined with weekly seminars. Undergraduate students majoring in special education are required to enroll in SPED 530 and 531 concurrently. Admission to this offering will be determined by the number of placement opportunities available. Graded on a Credit/No Credit basis. Prerequisite: Consent of the department.

**532 Nature and Needs of the Mentally Retarded**  
4 hrs.

A course especially intended for teachers of the mentally retarded. Also recommended for school counselors, psychologists, social workers, and other auxiliary personnel. Course objectives include an understanding of the causes, diagnoses, classification, and interpretation of mental deficits. Prerequisite: Consent of the department.

**533 Diagnostic and Prescriptive Techniques in Special Education**  
4 hrs.

A through study of educational diagnostic instruments and techniques will precede the student's utilization of these measures in

evaluating exceptional persons in his/her curricular area. Diagnostic findings will be translated into individualized educational prescriptions. For majors enrolled in Special Education curricula and to be taken concurrently with SPED 534. Prerequisite: Consent of department.

**534 Curricular and Instructional Provisions for Exceptional Children and Youth**  
4 hrs.

Critical issues in determining curricular expectations for atypical individuals will be analyzed. Essentials in ascertaining appropriate behavior for these pupils will be combined with identifying and evaluating a variety of educational methods and materials. Students enrolled in this course will be expected to delineate behavioral goals for those evaluated in SPED 533 and translate diagnostic data into meaningful educational programs. Prerequisite: Concurrent enrollment in SPED 533 and consent of department.

**535 Adapting Teaching Strategies for Exceptional Persons**  
3 hrs.

This course will consist of a combination of classroom and field based experiences designed to integrate the philosophy and techniques of inquiry teaching into the Clinical Teaching Model. Students will be provided content and resources in science and mathematics for use with handicapped learners.

**536 Contemporary Issues in Special Education: Honors Seminar**  
1 hr.

A course especially designed for selected undergraduate majors in special education curricula. Emphasis will be placed on theoretical discussion of social, philosophical, economic, and educational problems related to the education of exceptional children and youth. Prerequisites: SPED 530, 531, and faculty approval of the applicant.

**542 Introduction of the Severely Impaired**  
3 hrs.

This course is designed to present knowledge about the observation of severely impaired individuals. Included in this course is knowledge associated with the nature and needs of the severely impaired and educational, community, and parent/family aspects. Participation with severely impaired individuals will be included as an integral part of the course. Consent of department.

**543 Orthopedic Conditions—Therapeutic and Educational Implications**  
4 hrs.

A course intended for teachers of physically handicapped and otherwise health impaired individuals. Course objectives include a knowledge of the medical conditions leading to orthopedic impairments and an understanding of the psycho-social implications of such impairments. Emphasis is also given to the educational and therapeutic needs of physically impaired children and youth. Prerequisites: SPED 530 and 531.

**544 Educating the Severely Impaired**  
3 hrs.

This course consists of the development of skills necessary for educating the severely impaired. Specific skills will be developed in the area of assessment, prescription, implementation, and evaluation of educational programs for the severely impaired. A major component of this course is practical experience with severely impaired individuals on a one-to-one and on a group basis. This component will be highly interrelated with the skill development component. Consent of department.

**560 Educational Provisions for Handicapped Adolescents and Young Adults**  
3 hrs.

An introductory course to the special education of adolescents and young adults. It will provide the student with knowledge and awareness about the components of secondary and post-school special education programs. Focus will be placed on the physical, intellectual, emotional, and social development of adolescents and young adults. Academic, social, career, and vocational needs and programs of handicapped adolescents and adults will be discussed.

**588 Behavior Disorders in School-Aged Learners**  
3 hrs.

Deals with the psychoeducational aspects of disturbed or disturbing behavior as related to the school program. Issues and problems associated with normal development, concepts of diagnosis, and the incidence of maladjustment will be reviewed. The characteristics, causes, diagnosis, and treatment of the effects of such conditions in children as psycho-neurosis, mental subnormality, juvenile delinquency, psychosis, learning disability, and social disadvantage will be examined in terms of their educational implications. Therapeutic, environmental, and classroom interventions will be presented and strategies for prevention will be analyzed. Prerequisites: SPED 530 or equivalent and consent of department.

**589 Programs and Intervention Strategies for the Socially and Emotionally Maladjusted**  
4 hrs.

This course, open only to majors in Special Education curricula, will emphasize techniques and procedures applicable to socially-emotionally maladjusted individuals in various special or public school settings. Current theories, contemporary programs, and trends in behavioral change and management will be reviewed and discussed. Prerequisites: SPED 530 or equivalent and consent of department.

**598 Readings in Special Education**  
1-4 hrs.

Designed for advanced students interested in independent study. Topics chosen must be approved by the instructor and chair of the department. May be repeated for credit. Prerequisite: Consent of department.

**Open to Graduate Students Only**

**620 Advanced Assessment of the Exceptional Learner**  
2 hrs.

This course is designed to equip graduate students in special education with advanced assessment techniques for mildly and moderately handicapped learners of school age. Major emphases are the interpretation of norm-referenced tests and the construction and interpretation of criterion-referenced tests. Prerequisite: Consent of department.

**621 Curriculum Development for Exceptional Learners**  
2 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 handicapped learners in both self-contained and resource type programs. Assessment and prescriptive data generated from simulated case studies utilized in SPED 620 will form the basis for the development of curriculum and for the re-

view and selection of specialized methods and materials. Prerequisite: Consent of department.

**622 Development and Assessment of Preprimary Exceptional Children**  
4 hrs.

This course is designed to provide teachers with an in depth understanding of normal and abnormal developmental patterns of preprimary children (ages 0-5) 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.

**623 Curriculum and Methods for Preprimary Exceptional Children**  
4 hrs.

This course is designed to provide teachers with skills in translating diagnostic information into a meaningful educational plan for children 0-5 C.A. Emphasis will be placed on situation specific teaching roles as well as curricular and methodologic strategies in preprimary special education. Prerequisite: Consent of department.

**624 Fundamentals of Learning Disabilities**  
2 hrs.

The course focuses on basic knowledges in the area of learning disabilities. Historical perspectives, definitions, and major issues will be explored. Service delivery systems and evaluation procedures will be examined and evaluated. Prerequisite: Consent of department.

**630 Clinical Practice in Special Education**  
3 hrs.

This course serves as a culminating, practical experience within the Master Clinical Teacher program. Students will apply the clinical teaching model in practical situations with exceptional learners. In addition, students will demonstrate supervisory and interdisciplinary communication skills associated with a teacher-consultant role. This course is offered on a Credit/No Credit basis. Prerequisite: Consent of department.

**633 Education of Gifted and Talented Children and Youth**  
2 hrs.

This course is designed to develop a student's understandings of the appreciation of the abilities, interests, talents, and problems of gifted children and youth. Attention will be given to methods and criteria used in identifying gifted, talented, and creative individuals. Through the use of available research data, students will be required to complete a critical evaluation of educational provisions including segregation, acceleration, and enrichment. Personal, social, and cultural factors which directly or indirectly influence the growth and development of these individuals will be considered. Prerequisite: Consent of department.

**634 Advanced Theory and Practice in Learning Disabilities**  
2 hrs.

This course will examine several theoretical perspectives which attempt to explain why learning disabled children fail to learn. Under each perspective, selected theorists will be studied in terms of their specific theory and its application to the clinical teaching model. Emphasis will be placed upon remediation methodology derived from each theory. Prerequisite: SPED 533, 534, and consent of department.

**635 Counseling Parents of Exceptional Children and Youth**  
3 hrs.

This course explores the dynamics of parental reactions to their handicapped children and youth. Techniques of dealing with stress situations in the home, in the school, and in the community are developed. The students are given opportunities for contact with parents of exceptional children. Attention will be given to the following topics: Parent's rights, the advocate relationship, parent education, life consultation, and techniques of interviewing and interpretation. Prerequisite: Consent of department.

**636 Topical Seminar in Special Education**  
2 hrs.

To provide a survey or in depth coverage of topics directly related to education of exceptional children and youth. May be repeated for credit. Prerequisite: Consent of department.

**637 Research and Evaluation Techniques in Special Education**  
4 hrs.

Through various class activities and the use of simulations, students completing this course will acquire skills and knowledge of research and evaluation in the areas of: the role of research and evaluation in special education, the use of the scientific approach, research and evaluation designs, observation and measurement, statistical analysis, interpretation of research and evaluation reports, and report writing. Prerequisite: Consent of department.

**638 The Application of Behavior Theory to Classroom Teaching**  
3 hrs.

Emphasizes the implications of the principles of behavior theory for classroom teaching techniques, particularly with exceptional children. Introduction to general and specific methods for generating, strengthening, and maintaining desirable behavior, and methods for weakening undesirable behavior. Both academic skills and non-academic behaviors will be included. Normal and abnormal behaviors will be discussed. Direct experiences in modifying the behavior of a school-age child will be arranged. Prerequisite: Consent of department.

**640 Organization and Administration of Special Classes and Services for the Handicapped**  
2 hrs.

Principles and practices of organization and administration of special programs at state, county, and local levels will be considered, including legal aspects of state aid. Prerequisite: Consent of department.

**641 Supervision of Special Education Programs and Services**  
3 hrs.

This course is designed to provide the experienced special educator with specific knowledges and skills necessary for supervising personnel who are providing direct services to exceptional learners. Attention will be given to essential program and personnel factors. Emphasis will be given to those 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. To demonstrate the competencies in this course, the student will conduct an interview with a supervisor in the field and prepare a written and oral report. Successful comple-

tion of a comprehensive examination over terms and concepts is also required. Prerequisite: Consent of the department.

**642 Developing Techniques for In-Service Training in Special Education**  
2 hrs.

Designed to inform students of the issues and problems involved in developing in-service education and to provide students an opportunity to design and present an in-service program for critique. Determining the needs of a given target population and an examination of delivery systems currently in use will be emphasized. Prerequisite: Consent of department.

**643 Legal and Financial Aspects of Special Education**  
3 hrs.

The current legislative and financial base for special education (national, state, and local levels) will be examined and utilized in simulation and reality situations for the development and modification of special education programs. This will include the basic concept of budgeting of resources and expenditures. Prerequisite: Consent of department.

**650 Seminar on Special Education in Higher Education**  
3 hrs.

Analyzes issues and problems related to departmental, college and university governance, focuses on procedures utilized in recruitment, selection and employment of faculty, emphasizes the significance of evaluation and accountability of curricula, faculty, administrators, and students, examines trends and issues in the development of professional preparation in special education and ancillary areas, analyzes the manpower spectrum and the diversity of collegiate special education programs and services offered in the United States and foreign countries. Prerequisite: Consent of department.

**656 Advanced Educational Foundations of Special Education**  
3 hrs.

This course is provided for students who have acquired extensive professional preparation and broad experience in the education of exceptional persons. An in depth knowledge of etiologies and characteristics of exceptionalities will be developed. Students will be required to select one area of exceptionality and complete a comprehensive and exhaustive review of the literature. Attention will be given to historical, social, cultural, economic, and psychological factors which have influenced or may influence the roles, functions, and structure of public schools, institutions, and agencies, and the programs and services provided for the handicapped. To demonstrate competency in this course, students will be required to teach undergraduates, prepare and give oral presentations, and successfully complete a comprehensive written examination. Prerequisite: Consent of department.

**659 Application of Learning Theories to Educational Programming for Exceptional Learners**  
2 hrs.

This course will offer an overview of theories of learning as they apply to exceptional learners. An in depth analysis of selected theories will be conducted in order to compare and contrast the relationships of each to the development of long-term goals for handicapped learners. Prerequisite: Consent of department.

**661 Consultation Skills for Special Education Personnel**  
2 hrs.

This course is designed to provide the student with those knowledges and skills related to the consultative role of the special educator. Emphasis will be on models of teacher consultation and the development of those interpersonal skills related to the consultant role. Prerequisite: Consent of department.

**674 Directed Teaching in Special Education**  
3-6 hrs.

This course is a requisite for graduate students who are preparing to teach in Special education. The course is preferably taken after directed teaching has been completed in a regular classroom. Graded on a Credit/No Credit basis.

**675 Internship in College Teaching**  
3 hrs.

Designed specifically for students officially admitted to the doctoral program in Special Education who are required to demonstrate ability to teach in a formal and informal setting. The student will be expected to evidence ability to plan and execute instructional tasks, develop and apply appropriate evaluative techniques, and interpret students' performances. Competence will be demonstrated in academic advising, supervising undergraduate students enrolled in practicum, and directing students engaged in independent study. Prerequisite: Consent of department.

**688 Classroom Management**  
2 hrs.

This course deals with techniques for the physical, instructional, logistic, and behavioral management of classrooms. Its emphasis will focus on three major topics: (1) instructional management systems, (2) behavior management systems, and (3) self-monitoring systems. Prerequisite: Consent of department.

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

**710 Independent Research**  
2-6 hrs.

**712 Professional Field Experience**  
2-12 hrs.

**730 Doctoral Dissertation**  
15 hrs.

# COLLEGE OF ENGINEERING AND APPLIED SCIENCES

James B. Matthews,  
Dean

Robert E. Boughner,  
Associate Dean

The College of Engineering and Applied Sciences includes the following departments: Consumer Resources and Technology, Electrical Engineering, Industrial Technology and Education, Industrial Engineering, Mechanical Engineering, Military Science, Paper Science and Engineering, and Transportation Technology.

The College of Engineering and Applied Sciences offers graduate programs in Manufacturing Administration, Home Economics, Operations Research, Paper Science and Engineering, and Vocational Education. *Course descriptions:* Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-laboratory hours).

## Graduate Offerings:

Consumer Resources and Technology  
Electrical Engineering  
Industrial Engineering  
Industrial Technology and Education (with Vocational Education courses)  
Mechanical Engineering  
Paper Science and Engineering

## Consumer Resources and Technology (CRT)

Coates, Chairperson; Professor Humbert; Associate Professors Benne, Petersons, Steinhaus; Assistant Professors Dannison, Houdek.

### Open To Upperclass and Graduate Students

**500 Seminar in Distribution (3-0)**  
2-4 hours. Fall, Winter

An intensive study of problems related to distribution. This seminar is especially recommended for seniors and graduates in food and petroleum distribution.

**522 Textile Clinic (2-0)**  
2 hrs. Summer

Investigation of textile problems, resources, and research. Prerequisite: CRT 220 or permission of instructor.

**524 The Socio-Psychological Aspects of Clothing (3-0)**  
3 hrs. Fall—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.

**565 Problems in Nutrition (3-0)**  
3 hrs. Summer

A discussion of current problems in nutrition. Not open to dietetics majors. Prerequisite: CRT 260 or equivalent.

**590 Project/Problems in Home Economics**  
1-4 hrs. Fall, Winter, Spring

Directed independent project in specialized area of home economics. Prerequisite: Department approval.

**598 Independent Study in Consumer Resources and Technology**  
1-6 hrs. Fall, Winter, Spring, Summer

Directed independent advanced study in subject matter area not otherwise treated in departmental courses. Department approval required prior to enrollment.

### Open to Graduate Students Only

**600 Clothing Techniques (2-2)**  
2 hrs.

Meets the needs of the advanced student in clothing construction techniques.

**602 Tailoring Techniques (2-2)**  
2 hrs.

Specialized tailoring techniques in coats and suits. Problems in the use and performance of new textiles in clothing.

**604 Studies in Textiles and Clothing (2-0)**  
2 hrs.

Concentrated study of specifics within these fields relating to the interests of the students. Can be repeated if topic is different.

**608 Seminar in Textiles and Clothing (2-0)**  
2 hrs.

Investigation and discussion of the current

research and literature in textiles and clothing. Repeatable if topic varies.

**610 Nutrition in the Life Cycle (2-0)**  
2 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. HEC 409 or 500.

**612 Seminar in Foods and Nutrition (2-0)**  
2 hrs.

Investigation and discussion of the current research and literature in foods and nutrition.

**614 Nutrient Metabolism I (2-0)**  
2 hrs.

Study of the functions, requirements, and interrelationships in metabolism of energy, protein, carbohydrate, and lipids.

**615 Nutrient Metabolism II (2-0)**  
2 hrs.

Study of the functions, requirements, and interrelationships in metabolism of vitamins and minerals.

**616 Consumer Education (2-0)**  
2 hrs.

Marketing problems and consumer credit. Students work on individual problems which concern the techniques of buying consumer goods.

**618 Teaching of Specific Subjects in Home Economics (2-0)**  
2-4 hrs.

Intensive study of problems in the specialized areas of Foods and Nutrition, Home Furnishings, Textiles and Clothing, Methods, etc. May enroll more than once. Maximum credit not to exceed four hours.

**622 Occupational Laboratory Experience**  
2-3 hrs.

A supervised experience program in a specific occupational area. Prerequisite: HEC 642 or permission of instructor.

**636 Teaching for Independent Living (2-3)**  
4 hrs.

Provides a practical background and a basic understanding of skills and problems of the homebound and visually impaired.

**640 Supervision of Home Economics (3-0)**  
3 hrs.

New developments in the teaching of home economics and the supervision of student teaching. Problems of students will receive major consideration.

**644 Curriculum Planning and Evaluation in Home Economics (3-0)**  
3 hrs.

Relationship of changes in family living and society to developmental needs of students as a basis for curriculum building in junior and senior high school. Techniques of evaluation applicable in home economics.

**648 Adult Education in Homemaking (2-0)**

2 hrs.  
Influence of developmental needs of adults and changes in society affecting families in developing adult programs in homemaking education.

**652 Family Life Education (3-0)**

3 hrs.  
Current issues, trends, and methods in teaching family life education.

**654 Housing (2-0)**

2 hrs.  
Economic and social aspects of housing. Single, duplex, and multiple housing problems considered.

**660 Studies in Family Relationships (3-0)**

3 hrs.  
Concentrated study of specifics in family relationships.

**662 Seminar in Family Relationships (3-0)**

3 hrs.  
Investigation and discussion of current research and literature in family relationships.

**664 Seminar in Home Economics Education (2-0)**

2 hrs.  
Investigation and discussion of current research and literature in Home Economics education.

**666 Studies in Home Economics Education (2-0)**

2-6 hrs.  
Investigation of certain areas in Home Economics education selected to meet individual needs of the students. May be taken more than once if subject matter is different. Maximum credit is six hours.

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

700 Master's Thesis  
6 hrs.

710 Independent Research  
2-6 hrs.

## Electrical Engineering (EE)

Hesselberth, Chairperson; Professors Davis, Vanderkooi; Associate Professors Alag, Mason, Mousavinezhad; Assistant Professor Johnson.

**Open to Upperclass and Graduate Students**

**501 Introductory Power Systems (3-0)**

3 hrs.  
An introduction to electrical power systems for non-electrical engineering students. Prerequisites: EE 211, MATH 374.

**530 Power System Analysis (3-0)**

3 hrs.  
Modern systems, control, optimization, network theories, matrix language, computer methods, steady state. Prerequisite: EE 430.

**561 Electromagnetic Fields (3-0)**

3 hrs.  
Time-varying electromagnetic fields with applications to wave guides and antennas. Prerequisite: EE 361 and 371.

**Open to Graduate Students Only**

**605 Microcomputer Systems (2-3)**

3 hrs.  
Analysis and design of microcomputer-

based systems with emphasis on applications. Prerequisite: A computer programming course.

**610 Network Synthesis (3-0)**

3 hrs.  
Synthesis of active and passive networks. Prerequisite: EE 310.

**630 Power Systems Analysis II (3-0)**

3 hrs.  
Continuation of EE 530, with emphasis on transient analysis of power systems. Prerequisite: EE 530.

**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: EE 371 or permission of instructor.

**697 Problems in Electrical Engineering**

1-6 hrs.  
Special problems based on individual need or interest under the direction of a member of the Graduate Faculty.

## Industrial Engineering (IEGM)

Wolf, Chairperson; Professors Groulx, Munsterman, Rayl; Associate Professors Aldrich, Boughner, Wygant; Assistant Professor White.

## Industrial Engineering and Manufacturing Administration

**Open to Upperclass and Graduate Students**

**500 Labor Management 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: IEGM 403.

**502 Industrial Supervision (3-0)**

3 hrs.  
The supervisor's duties, obligations, and responsibilities in his/her industrial role. The practical application of behavioral science principles to the industrial environment. Not open to students with credit in IEGM 402.

**505 Advanced Methods Engineering (3-0)**

3 hrs.  
Synthesis of effective work methods using a predetermined basic motion time system. Methods-Time Measurement, standard data system development, and administration. Prerequisite: IEGM 305.

**508 Advanced Quality Control (3-0)**

3 hrs.  
Analysis and application of new concepts in the fields of quality control. Tests of significance, probability studies, and other uses of statistics as applied to quality control. Prerequisite: IEGM 318 or 328.

**518 Engineering Valuation and Depreciation (3-0)**

3 hrs.  
A study of the valuation of industrial property with emphasis on methods of estimating depreciation. Topics include concepts of value, the courts and valuation, property and other

accounting records, cost indexes, estimation of service life, and methods of estimating depreciation. Prerequisite: IEGM 310.

**542 Human Factors Engineering (2-3)**

3 hrs.  
A survey of research on the adaptation of equipment, products, and environment to human use. Prerequisite: Permission of instructor. (Cross-listed with PSY 542.)

**Open to Graduate Students Only**

**600 Concepts and Principles for Manufacturing Administration (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. Not open to those with credit in IEGM 402 or 502.

**601 Engineering Seminar (1-0)**

1 hr.  
A seminar concerned with current topics in engineering with emphasis on application of engineering principles and professionalism. May be repeated for up to three hours. Prerequisite: Permission of instructor.

**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: IEGM 404.

**606 Capital Budgeting for Engineers (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. Not open to those with credit in IEGM 310.

**608 Reliability Engineering (3-0)**

3 hrs.  
The formulation of mathematical models for reliability allocation and redundancy. Topics include time dependent and time independent prediction measures for both maintained and non-maintained systems. Prerequisite: MATH 360 or 362.

**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.

**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 IEGM 610. Prerequisite: MATH 360.

**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.



**624 Supervision of Industrial Training (3-0)  
3 hrs.**

The philosophy and responsibilities of the Industrial Training Director. Techniques and methods of evaluating training in industry. Administrative procedures to develop training programs in apprenticeship, presupervisory training, supervisory training, on-the-job training, and other concepts of industrial training.

**626 Public Sector Labor Relations (3-0)  
3 hrs.**

Collective bargaining in the federal, state, and local governments.

**640 Introduction to Manufacturing Administration (3-0)  
3 hrs.**

An introduction to the master's in Manufacturing Administration program, including a discussion of computer applications, preparation of short reports and personal and societal concerns of technically educated professional employees.

**657 Studies in Industrial Engineering (3-0)  
3 hrs.**

Advanced work organized around topics of current interest in engineering and technology. The specific topic will be shown in the course title when scheduled. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.

**695 Advanced Topics in Industrial Engineering  
1-4 hrs.**

A specialized course dealing, each time it is scheduled, with some particular advanced aspect of Industrial Engineering not usually included in other course offerings. Topic announced in *Schedule of Classes*. May be repeated for credit with a different topic. Prerequisite: Permission of instructor.

**697 Problems in Industrial Engineering  
1-6 hrs.**

Special problems of individual need or interest under the direction of a member of the graduate faculty. May be elected with approval of department chairperson and faculty member. Application must be submitted and approved prior to the election of the course. May be repeated up to maximum of six hours.

## Industrial Technology and Education (ITE)

Behm, Chairperson; Professors Atkins, Bruce, Byle, Hutchings, Lindbeck, Risher; Associate Professors Darling, Fillingham, Schwersinske.

### Open to Upperclass and Graduate Students

**500 Furniture Production (1-3)  
2 hrs.**

Production of furniture, including the development of tooling and jig and fixture design for mass production of furniture. Prerequisite: ITE 200.

**502 Wood Technology (1-3)  
2 hrs.**

Experience in and study of cellulose materials and their use in construction and manufacture, including characteristics of lumber, hand-made wood products, the materials related to the fabrication of wood products, applied research, and testing. Prerequisite: ITE 100.

**505 Problems in Woodworking (2-2)  
2 hrs.**

Advanced laboratory experiences in woodworking. Content selection, project building and new techniques covered. Written reports based on current literature required. Areas covered dependent on individual needs.

**520 Architectural Graphics (1-5)  
3 hrs.**

A graphic study of architectural details and construction methods of frame and masonry veneer residential dwellings. Emphasis placed on residential planning and design principles. Design of a single-family dwelling, including preliminary studies, floor plans, elevations, all necessary details, plot plan, specifications required. Drawing will be reproduced. Prerequisites: ITE 120, or equivalent, and 305 (can be tacitly). Design of a single-family dwelling, including preliminary studies, floor plans, elevations, all necessary details, plot plan, specifications required. Drawing will be reproduced. Prerequisites: ITE 120, or equivalent, and 305 (can be taken simultaneously.)

**522 Laboratory Practices in Drafting (1-3)  
2 hrs.**

Methods and problems of teaching drafting and graphics on the secondary level. Emphasis placed on review of secondary and collegiate texts, resource materials, problem design, and drawings. Prerequisite: Twelve hours in drafting and junior classification.

**523 Advanced Drafting Practice (1-3)  
2 hrs.**

Advanced laboratory experiences in mechanical, architectural and machine drawing in conjunction with study of current technical literature. Written reports required. Advanced instruction in engineering drawing and descriptive geometry included.

**524 Commercial Architectural Design (1-3)  
2 hrs.**

Basic experience in designing light commercial structures. Emphasis placed on planning, traffic flow, exterior design, materials, and structural details. Prerequisite: ITE 520 or equivalent.

**525 Architectural Perspective and Rendering (1-3)  
2 hrs.**

Intensive study of angular and parallel perspective. Emphasis placed on entourage and rendering techniques in preparing architectural presentation drawings.

**530 Research in Machine Shop Practices (1-3)  
2 hrs.**

For teachers to study and develop advanced techniques in machine technology.

**538 Problems in Metalworking (1-3)  
2 hrs.**

Practical laboratory experiences in forging, foundry, heat treating, machine shop, and arc and acetylene welding. Emphasis on methods of selecting and developing course materials for junior and senior high school students. Course content adapted to meet individual needs. Prerequisite: ITE 234.

**545 Safety Practices and Compliance (2-0)  
2 hrs.**

Accident prevention, safeguarding and safe operation of industrial equipment emphasized. OSHA and MIOSHA legal responsibility and compliance treated.

**547 Modern Technological Practices (0-4)  
2-6 hrs.**

Study, development and application of construction, industry, and printing management/

marketing. Technical short courses offered by industry may be utilized. May be elected in two hour blocks to a maximum of six hours.

**551 Halftone Photo Processes (1-5)  
3 hrs.**

Emphasis on halftone reproduction and related photo techniques. Posterization, duotones, basic color, and mechanical drop-outs will be included. Color separation processes will be investigated. Prerequisite: ITE 350.

**552 Estimating (2-0)  
2 hrs.**

Continuation of Estimating 452. Special emphasis on use of Printing Industry Production Standards in pricing printed materials. Prerequisite: ITE 452.

**553 Printing Production Management (3-0)  
3 hrs.**

Managerial procedures used in printing industries to forecast, plan, schedule, and record production to control production costs. Hourly costs of printing machines will be developed by students. Prerequisite: Junior standing.

**560 Problems in Electricity/Electronics (1-3)  
2 hrs.**

Course is designed to select specific areas in electricity/electronics and study in depth current developments and industrial practices in these areas.

**561 Industrial Practices in Electricity/Electronics (1-3)  
2 hrs.**

Opportunity to analyze and interpret current developments in electricity and electronics Research of a specific area and a report are required.

**570 Arts and Crafts Techniques (1-3)  
2 hrs.**

Advanced laboratory experiences in internal plastic carving, leather work, model work, and related crafts in conjunction with a study of current technical literature in these areas. Written reports will be required. Course content adapted to individual needs.

**572 Metric Conversion (2-0)  
2 hrs.**

Study of origins and development of the modern metric system and of problems involved in changeover from customary inch-pound system to the metric system of measurement. Course includes application with base ten system, and basic and derived units of the modern international metric measuring system.

**573 Mechanics and Conditioning of Equipment (1-3)  
2 hrs.**

Installation, adjustment, preventive maintenance, and conditioning of power equipment and tool maintenance included. Emphasis on relationship between proper installation and condition to efficient machine operation.

**575 General Industrial Arts Laboratory Organization (1-3)  
2 hrs.**

Experience in drawing, woodworking, metalworking, electricity, and craftwork required. Includes selection, development, and preparation of instructional materials and instructional media for multiple activity instruction at junior and senior high school levels. Prerequisite: ITE 342 and 344. (344 can be taken concurrently.)

**578 Plastics Technology (1-3)**

2 hrs.

Comprehensive study of plastic materials and processes and applications of thermo-plastic, thermosetting, and selected synthetic materials. Product development emphasizes vacuum forming, compression, extrusion, injection, blow molding, lamination, casting, reinforcing, foaming, coating, and general fabrication.

**582 Applied Fluid Power (1-3)**

2 hrs.

Deals with fluid power development transmission and control systems. Laboratory experience requires application of fluid power to manual or electrically powered machines.

**593 Arts and Crafts (1-3)**

2 hrs.

Covers, craft techniques in sketching, leather, wood, and related experiences. Emphasis on procedures, methods, and materials.

**598 Readings in Education/Technology**

2-4 hrs.

Directed individual or small group study of topics or areas not otherwise treated in departmental courses. Head of department consent required.

**Open to Graduate Students Only****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 industry. Field research requires solving an identified technical or industrial problem under the supervision of a member of the graduate faculty. Prerequisite: Consent of instructor and department chair prior to registration.

**613 Occupational Laboratory Experience**

2-3 hrs.

Supervised industrial experience, requiring full-time employment for at least one semester. Students will study and participate in experiences in a specific occupational area. Prerequisite: Consent of instructor and department head prior to registration.

**616 Occupational Selection and Training**

(3-0)

3 hrs.

Primarily designed for vocational-technical teachers and administrators. Special emphasis on adapting instruction to individual needs of disadvantaged and other groups. Job cluster vs. specific training; orientation and selection of students; program evaluation and placement of trainees.

**642 Research, Evaluation, and Measurement**

(3-0)

3 hrs.

Designed to apply research, evaluation, and measurement techniques in an industrial/technical environment. Emphasis is placed on research methods and techniques, sources of research data, and the interpretation, evaluation, and application of research data. Each student will identify a real, or realistic, industrial/technical problem, pursue its solution through research data, and prepare a complete, research data based report. Prerequisite: Consent of instructor.

**646 Teaching Problems in Industrial Education (2-0)**

2 hrs.

Advanced individual or small group study of teaching methods, techniques, and technical problems. Emphasis placed on problem solving, pupil planning, and demonstration techniques. A teaching program unique to a particular school required.

**647 Modern Technological Practices—Foundry, Power Mechanics, Machine Shop, Welding, Electronics, etc.**

2-4 hrs.

In-service course for industrial teachers in technological practices. Cooperation of industrial groups utilized in course planning and organization. May be elected for a total of four semester hours.

**650 Advanced Problems in Graphic Arts (0-3)**

2 hrs.

Individual student study of advanced technical problems in graphic arts. Advanced instruction in imposition, photography, and computerized composition available.

**697 Technical Problems in Industrial Technology and Education**

1-3 hrs.

For qualified graduate students to pursue technical problems of individual need or interest under direction of a Graduate Faculty member. Approval of Chair, Industrial Technology and Education Department, and Graduate Faculty member required. Applicants must have permanent graduate program filed. Applications must be approved prior to registration for course. Course is repeatable to maximum of three semester hours credit.

**Open to Graduate Students Only—Please refer to The Graduate College Section for course descriptions.****700 Master's Thesis**

6 hrs.

**710 Independent Research**

2-6 hrs.

**712 Professional Field Experience**

2-12 hrs.

**Vocational Education Courses (VE)**

The following courses are designed for professional preparation in Vocational-Technical Education programs.

**Open to Upperclass and Graduate Students****512 Principles of Vocational Education**

3 hrs.

The place and function of the practical arts and vocational education in the modern school; fundamental principles upon which this work is based. For teachers of agriculture, business, distributive education, home economics, industrial subjects, office subjects, and administrators. For upperclass and graduate students.

**513 Technical Education Methods (3-0)**

3 hrs.

Analysis and methods of organizing instruction in technical education. Development of teaching plans emphasized. Development of educational programs within industry included.

**514 Workshop in Vocational-Technical Education**

1-3 hrs.

Designed to assist vocational education personnel meet vocational education program standards of quality mandated by the vocational-technical education service. Workshop topics will vary to meet vocational education personnel needs. Students may enroll for more than one topic, but in each topic only once, to a maximum of three hours credit. Prerequisite: Vocational certification or consent.

**542 Occupational Education (2-0)**

2 hrs.

Planning for wage earning programs at the secondary and adult levels.

**543 Coordination Techniques in Cooperative Education (3-0)**

3 hrs.

This is a study of duties and responsibilities of the teacher-coordinator. The organization and establishment of training programs, supervision of trainees on the job, development of individual training programs, establishing working relationships between the school, business, and home; and participation in activities in the community, especially adapted to current and prospective coordinators.

**Open to Graduate Students Only****614 Administration and Supervision of Practical Arts and Vocational Education (2-0)**

2 hrs.

Emphasizes functions of administration and supervision, and problems involved in organizing and operating vocational-technical education programs. For teachers, administrators, and supervisors of vocational education programs and those preparing for such positions.

**615 Trends in Technology and Employment (2-0)**

2 hrs.

Major occupational shifts resulting from recent advances in science and technology. The changing nature of the labor force, economic and sociological implications of automation and atomic power.

**617 Seminar in Vocational Education**

2-6 hrs.

An intensive study of problems related to vocational education. Topics vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings and credit hours in any one semester or session. Typical topics offered include: (a) Research in Vocational Education; (b) Vocational Course Development.

**643 Measurement and Evaluation in Vocational Education (2-0)**

2 hrs.

Preparing and using written and performance tests. Includes interpretation of test results, and evaluation of achievement.

**645 Laboratory Planning and Organization (2-0)**

2 hrs.

Planning a laboratory and selecting equipment and supplies for the facility including selection, development, and preparation of instructional materials and instructional media for multiple activities in instruction at the junior and senior high school levels.

**Mechanical Engineering (ME)**

Kenig, Chairperson; Professors Hamelink, Johnson, Matthews; Associate Professors Brownlow, Easwaran, Gill, Groper, Hemmye, House, Pridgeon, Sharma, Ulrich, Williams.

**Open to Upperclass and Graduate Students****531 Energy Management (3-0)**

3 hrs. Winter

Theory and application of industrial energy audits. Energy conservation and waste heat recovery. Prerequisite: ME 332 or consent.

**533 Industrial Ventilation (3-0)**

3 hrs.

Design and testing of systems to control air quality in laboratories and industrial environments. Prerequisite: ME 356 or consent.

**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.

**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 355, MATH 374.

**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.

**573 Engineering Materials (3-0)**

3 hrs. Spring-Odd yrs.

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 373.

**584 Casting Design (2-3)**

3 hrs. Fall

Engineering design of castings based on stress analysis and capabilities of production casting processes. Prerequisites: ME 280, 256.

**Open to Graduate Students Only****630 Advanced Fluid Dynamics (3-0)**

3 hrs. Fall-Odd Yrs.

Modern developments in fluid dynamics both in the areas of compressible and incompressible fluid flow. Topics include: Kinematics of fluid motion, laminar and turbulent flow in pipes, fluid machinery, and supersonic flow. Prerequisites: ME 356, MATH 374.

**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. Prerequisite: ME 332 or consent.

**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.

**697 Problems in Mechanical Engineering**

1-6 hrs. Fall, Winter, Spring, Summer

Special problems of individual need or interest under the direction of a member of the graduate faculty. May be elected with approval of department chairperson and faculty member. Application must be submitted and approved prior to the election of the course. May be repeated up to maximum of six hours.

## Paper Science and Engineering (PAPR)

Valley, Chairperson; Gottesman Professor Janes; Associate Professors Fisher, Kline.

**Open to Graduate Students Only****600 Surface and Colloid Chemistry (2-3)**

3 hrs.

Intermolecular forces are considered in detail to build a sound background for consideration of surface and colloidal behavior of matter. The thermodynamics of interfaces and surfaces is covered in detail considering the topics of 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, ion exchange, surface active agents, detergency, and retention of particles.

**620 Paper, Printing, and Ink (2-3)**

3 hrs.

A detailed analysis of the interrelationships of paper and the printing process. Printing problems and quality are considered as they are influenced by paper, coating, ink, and press conditions and operations.

**640 Coating Rheology (2-3)**

3 hrs.

The theories of flow of non-Newtonian liquids are discussed as they apply to pigmented coating systems. Further theories are formulated and evaluated in the lab to attempt to explain the behavior of coating under the shear conditions found in coating application systems.

**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.

**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.

**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.

**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 systematic study of unit operations used in the industry.

**696 Paper Industry Control Systems (2-3)**

3 hrs.

A study of the control of pulping and papermaking processes with emphasis on computer control strategies and the instrument systems unique to the paper industry. A unit operations and process modeling approach will be taken to familiarize the student with applications of these techniques to the paper industry.

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

700 Master's Thesis

6 hrs.

710 Independent Research

2-6 hrs.

712 Professional Field Experience

2-12 hrs.



Robert H. Luscombe,  
Dean

Janet E. Stillwell,  
Assistant Dean

**Graduate Offerings:**

Art  
Dance  
Music

## Art (ART)

Professors Argyropoulos, Carney, DeLuca, Johnston, Keaveny, Link, Mohr, Moulton, Rhodes, Rizzolo, Robbert; Associate Professors Chressanthis, Grinwis, King, Mergen, Metheany, Naffel, Neu; Assistant Professor Harkness.

### Open to Upperclass and Graduate Students

#### 510 Advanced Drawing 3 hrs.

Drawing as the study of form and as a conclusive aesthetic statement. Prerequisite: ART 410 or equivalent experience. Repeatable for credit.

#### 520 Independent Study in Art History 2-3 hrs.

Problems in art history from ancient times to the present selected by the individual student in consultation with the instructor. Prerequisites: ART 220, 221, and a 500-level course in the area of interest; permission of instructor. Repeatable for credit.

#### 521 Topics in Art History: Variable Topics 3 hrs.

Investigation of changing topics in art history in class or seminar sessions by advanced students. Course title varies from term to term. Prerequisites: ART 220 and 221 or equivalent for Art majors, none for other students. Repeatable for credit under a different title.

#### 529 Advanced Ceramics 3 hrs.

Advanced work in ceramics including glaze calculation. Prerequisite: Art 430 or equivalent experience.

#### 530 Advanced Ceramics 1-6 hrs.

Advanced work in ceramics on an independent basis. Prerequisite: ART 529 or equivalent experience. Repeatable for credit.

#### 531 Sculpture 3 hrs.

Advanced work in sculpture. Emphasis on bronze and aluminum casting and related techniques. Prerequisites: ART 340, 431, or equivalent experience. Repeatable for credit.

#### 534 Textiles 3 hrs.

Advanced work in textile design. Prerequisites: ART 434 or equivalent experience. Repeatable for credit.

#### 535 Multi-Media Art 3 hrs.

Various forms of art that deviate from the conventional media, such as light, kinetic, and performance art. Prerequisite: ART 435 or permission of instructor. Repeatable for credit.

#### 538 Jewelry 3 hrs.

Advanced work in jewelry processes. Prerequisite: ART 438 or equivalent experience. Repeatable for credit.

#### 539 Metalsmithing 3 hrs.

Advanced work in metalsmithing. Prerequisite: ART 439 or equivalent experience. Repeatable for credit.

#### 540 Painting IV 3 hrs.

Advanced painting. Prerequisite: ART 410 (or concurrently), 440, or equivalent experience. Repeatable for credit.

#### 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 400 level printmaking course. Repeatable for credit.

#### 542 Watercolor 3 hrs.

Continuation of advanced water color techniques with emphasis on experimentation. Prerequisites: ART 240, 442, or equivalent experience. Repeatable for credit.

#### 545 Graphic Design 3 hrs.

Advanced work in graphic design. Prerequisite: ART 445 or equivalent experience. Repeatable for credit.

#### 548 Photography IV 3-6 hrs.

Professional development through research in advanced projects. Prerequisite: ART 448 or equivalent experience. Repeatable for credit.

#### 552 Preparation for Art Teaching 3 hrs.

A course designed to investigate the current problems and issues on the social scene which affect teaching and learning in the visual arts at all levels of the public school; the creative person, product, process, and press (environment); the phenomena of perceptual learning; the actual construction of an operant art curriculum for the elementary, middle, and high school programs. Emphasis is placed upon developing professional viability. Prerequisite: Art 452 and art major status.

#### 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.) Prerequisites: 252, 352, 452, 552, and permission of the art education chairperson. This course is open to graduate and non-degree level students.

**560 Arts Education for the Elementary Teacher****3 hrs.**

A studio course designed for the elementary classroom teacher to provide experiences in qualitative elementary arts and integrated arts programming in the elementary public school. Repeatable for credit.

**581 History of Ancient Art****3 hrs.**

Selected topics from the art and architecture of ancient Egypt, the ancient Near East, the Aegean proto-Greek, Classical and Hellenistic Greece, Etruria and Rome to the Early Christian period.

**583 History of Medieval Art****3 hrs.**

Discussion of art and architecture from the decline of the Roman Empire through the Gothic Period (3rd-13th cent.).

**585 History of Renaissance 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, daVinci, Michelangelo, Titan, Van Eyck, Brueghel, and Durer.

**586 History of Baroque Art****3 hrs.**

Art of the late sixteenth, seventeenth, and early eighteenth centuries. Major artists and architects discussed are: Caravaggio, the Carracci, Rembrandt, Rubens, Poussin, Velasquez, Bernini, Borromini and Neumann.

**588 History of 19th Century 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.

**589 History of 20th Century 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. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

**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. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

**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, Daumier, Toulouse-Lautrec). Twentieth century printmaking. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

**593 History of American Art****3 hrs.**

Art in the United States from the Colonial Period to the present. Topics discussed are: Colonial portraiture and Copley; the evolution of 19th and 20th century painting and sculpture, with emphasis on the work of Stuart,

Cole, Bingham, Homer, Eakins, Ryder, Saint-Gaudens, Marin, Pollock, David Smith, and recent developments.

**594 History of Afro-American Art****3 hrs.**

Painting and sculpture in the United States by Americans of African ancestry from the Colonial period to the present. Includes examination of the African art background and the continuation of African art traditions and skills in America. Prerequisites: Art 220 and 221 for art majors, none for other students; Junior standing required.

**597 History of Modern Architecture****3 hrs.**

Major developments in architecture since 1750 with emphasis on late 19th or 20th century developments in domestic and commercial architecture and city planning in the West and in Asia. Special consideration given the works and influences of Wright, LeCorbusier, and Mies van der Rohe. Prerequisite: ART 220 and 221 for Art majors and minors; none for other students.

**Open to Graduate Students Only****610 Advanced Drawing****1-6 hrs.**

Graduate level work in drawing. Prerequisite: ART 510. Repeatable for credit.

**613 Graduating Presentation****2 hrs.**

Preparation and presentation of graduating exhibition, portfolio, and oral examination or written thesis, with the assistance of the student's major adviser. Evaluated by a departmental reviewing committee. Prerequisite: Last year of graduate study.

**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. Prerequisites: ART 220, 221, and a 500-level course in the area of interest or the equivalent; permission of instructor. Repeatable for credit.

**625 Graduate Art Seminar****2 hrs.**

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.

**630 Advanced Ceramics****1-6 hrs.**

Graduate level work in ceramics. Prerequisite: ART 530. Repeatable for credit.

**631 Advanced Sculpture****1-6 hrs.**

Graduate level work in sculpture. Prerequisite: ART 531. Repeatable for credit.

**634 Advanced Textile Design****1-6 hrs.**

Graduate level work in textile design. Prerequisite: ART 534. Repeatable for credit.

**635 Advanced Multi-Media Art****1-6 hrs.**

Graduate level work in Multi-Media Art. Prerequisite: ART 535. Repeatable for credit.

**640 Advanced Painting****1-6 hrs.**

Graduate level work in painting. Prerequisite: ART 540. Repeatable for credit.

**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.

**642 Advanced Watercolor****1-6 hrs.**

Graduate level work in watercolor. Prerequisite: ART 542. Repeatable for credit.

**645 Advanced Graphic Design****1-6 hrs.**

Graduate level work in graphic design. Prerequisite: ART 545. Repeatable for credit.

**648 Advanced Photography****1-6 hrs.**

Graduate level work in photography. Prerequisite: ART 548 or equivalent experience. Repeatable for credit.

**655 Workshop in Art for Secondary Teachers****2 hrs.**

A course designed to help the secondary teacher with no professional training in art or art education to better understand the child at this level and to help him/her in his/her creative mental growth through art activities.

**656 Art Teaching Seminar****3 hrs.**

This course examines current issues and directions in Art Teaching. Content centers on extensive reading as related to relevant issues; presentations of papers by course participants; discussions and guest speakers.

**657 Issues in Art Teaching****3 hrs.**

- Creative Problem Solving: This topic will study creative problem solving and problem solving techniques as they relate to Art Teaching. Course work centers on examination of creative problem solving through various subject areas and studio related activities. Repeatable for credit.
- Inter Arts: This topic is designed for the public school Art teacher, to study the interrelationship of the Arts and how both historical and studio programs can be developed and supported through team planning/teaching and audiovisual/video operation. Repeatable for credit.
- Relating Art: This topic is designed for teachers of the arts to study cognitive and affective inter-relationships of Art, Music, Dance, Drama or Poetry as educative values. Performance skills are taught using the technical vehicles of coordination, correlation, translation, and integration through both historical review and direct form making. Repeatable for credit.
- Research in Art Teaching: This topic reviews current research in Art Teaching directed toward classroom application. The course will consist of presentations and discussions on published research and will lead to written proposals for in-the-field studies. Repeatable for credit.
- Studio Problems for the Schools: This topic explores varied media and materials with application for use in school situations. Assigned projects will be given along with the opportunity for students to investigate areas in which they can improve and update their skills and knowledge. Consideration will be given to new and recent materials and media.

**658 Art Education Research**  
1-6 hrs.

To examine historical and contemporary philosophies in art education in order to familiarize the student with current methods of research in the field. Whenever appropriate, opportunity will be given students to do pilot research in an area of their own needs and interests. Repeatable for credit.

**659 Advanced Art Education**  
3 hrs.

An examination of some of the unique aspects of teaching art in the public schools. New materials, special and general materials sources, bibliographic resources, and related references are gathered and explored. Field trips will be developed to expose students to potential community resources in art, and discussions will examine current literature, trends and techniques in art education. (A lecture-lab).

**660 Related Arts**  
3 hrs.

A course that explores the art teacher's role in contemporary and experimental procedures in the teaching of the arts in the public schools. Some factors to be examined are: team teaching, team learning and planning. Audio-visual/video support, the individual school situation, and its personnel.

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

**700 Master's Thesis**  
6 hrs.**710 Independent Research**  
2-6 hrs.**Dance (DANC)**

Cornish, Chairperson; Professors Gamble, Stillwell; Assistant Professors Mills, Thomas; Instructors Baas, Nelson.

**Open to Upperclass and Graduate Students****500 Special Studies in Dance History**  
2 hrs.

A concentrated examination of available literature on selected topics within the student's major area. Group discussions and individual presentations will be an outgrowth of this study. Prerequisite: DANC 300.

**525 Special Studies in Dance**  
1-6 hrs.

A study of dance styles not included within program. Examples of possible topics include: Afro-American Dance; Ballet repertory; pre-classic dance forms and dance for the exceptional student. May be offered with visiting instructor or artist-in-residence. Repeatable for credit up to 6 hrs. Prerequisite: Adviser consent.

**540 University Dancers**  
1 hrs.

Open to all University students by application. Audition for this group will include performance in various dance styles. Studio Evenings and Annual Concert of Dance Experiences will take place through further choreographic and rehearsal auditions. May be repeated for credit. Prerequisite: By audition only.

**550 Western Michigan Repertory Dance Company (WMRDC)**

2 hrs.  
WMRDC is a major performing ensemble which provides master classes, lecture-demonstrations, and concerts in various dance styles on and off campus. Members must show proficiency in the areas of performance, improvisation, teaching, public speaking, and composition. Members must attend DANC 330. May be repeated for credit. Prerequisite: Audition or consent of Company Director.

**560 Performance Variable**

An experience in student or faculty-choreographed dance works, in projects not encompassed in specific dance courses. Application with approval of dance faculty committee must be filed with the dance adviser one month prior to performance. Registration occurs after performance has been completed. Prerequisite: Adviser consent.

**570 University Ballet Theatre (UBT)**  
2 hrs.

UBT is a major performing ensemble of the Department of Dance. Ballet dancers will have experience performing and rehearsing in a professional company environment. Members and apprentices must attend DANC 310. Repeatable for credit. Prerequisite: Audition or consent of Ballet Director.

**588 Dance Production**  
2 hrs.

The study of the production aspects of dance including sound, lighting, costuming, make-up and stage management. Practical applications will include first-hand experience in creating tape collages with special effects, designing lighting, costumes and make-up.

**589 Dance Management**  
2 hrs.

Course covers front-of-house aspects of management and publicity, budget, programming, organization of elements involved in company management, and grantsmanship. Practical application of these principles will be evaluated wherever possible.

**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.

**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 (MUS)**

Bullock, Director; Professor Appel, Curtis-Smith, Humiston, Ivey, Rappeport, Ricci, Sheldon, Suddendorf, Whaley, Wilson, Zupko; Associate Professors Allgood, Brown, Elliott, Hardie, Heim, Jones, Kynaston, McCarthy, Osborne, Para, Work, Zastrow.

**Open to Upperclass and Graduate Students****500 Applied Music**  
1-2 hrs. (\$6)

Private lessons for the graduate student in a non-major area of performance.

**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.

**512 New Music Ensemble**  
1 hr.

A performing organization which is committed to the performance of music and mixed media works in the avant-garde style. The ensemble is open to vocalists and instrumentalists on an audition basis.

**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.

**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.

**517 Collegium Musicum**  
1 hr.

Performance of early Western music. Open to all students of the University. Additional transcription, arranging, editing, and conducting of early music is required of enrolled Music History majors. Graduate students may count not more than two hours of this course for graduation. Membership by audition.

**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.

**519 Vocal Chamber Ensemble**  
1 hr.

Small vocal ensemble(s) which emphasize research and limited performance of special-

ized repertoire of one or various periods of music. Admission by permission of the instructor.

**530 Advanced Choral Conducting**  
2 hrs.

Supervised experience in conducting instrumental groups. The student may be called upon to prepare an ensemble for public performance. Prerequisite: MUS 331.

**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: MUS 331.

**540 Elementary School Music**  
2 hrs.

Emphasizes the place of music in the day-to-day-activities in the classroom. The fundamental musical skills are developed in order to assist the teacher to achieve these objectives.

**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 to an accumulation of not more than four credits.

**543 Research in the Psychology of Music**  
2 hrs.

Development and employment of research methods and techniques applied to the psychology of music. Experimental projects will be required in areas dealing with music and/or musical behavior. Prerequisite: MUS 380.

**544 Music Education Materials: Variable Topics**  
2 hrs.

A study of the theoretical bases for, and practice in, analyzing and evaluating music for use in music education programs. This course may be repeated for a maximum of four credits.

**546 Computer Assisted Instruction in Music**  
3 hrs.

The primary goal of the course is to teach students, who already program, some of the specific techniques used in developing original software for CAI in music. The main activity in the course will be programming, and one of the products of the course should be, for example, a program of sufficient sophistication as to at least potentially qualify it for publication. Prerequisite: CS 105 or 502 or consent of instructor.

**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 264 or MUS 264 concurrently.

**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 MUS 264 concurrently.

**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 161 with grade of C or better.

**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 with a grade of C or better.

**560 Counterpoint**  
2 hrs.

A study of the contrapuntal techniques of the 18th, 19th, and 20th centuries. Written assignments are closely correlated with the contrapuntal styles of significant composers. Prerequisite: MUS 161 with a grade of C or better.

**561 Counterpoint**  
2 hrs.

A continuation of MUS 560. Prerequisite: MUS 560.

**562 Advanced Composition**  
2 hrs.

A study of twentieth century techniques in composition with original work in vocal and instrumental forms. Prerequisite: MUS 362.

**563 Advanced Composition**  
2 hrs.

A continuation of MUS 562. Prerequisite: MUS 562.

**566 Musical Acoustics**  
3 hrs.

A course designed for the music student. Discussion as well as laboratory demonstrations of such principles 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; and psycho-acoustics. Prerequisite: MUS 161.

**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.

**568 Orchestration**  
2 hrs.

A continuation of MUS 567. Prerequisite: MUS 567.

**570 Introduction to Musicology**  
3 hrs.

History, purposes, scope of musicology; leading historians, past and present; modern methods of research, with special emphasis on primary sources and bibliography of the field.

**571 Introduction to Musicology**  
3 hrs.

A continuation of MUS 570.

**572 Baroque Music (1600-1750)**  
3 hrs.

A survey of the choral and instrumental music of the Baroque master such as J. S. Bach and G. F. Handel. Special attention to the development of style from monody through harmonic polyphony. Prerequisite: MUS 270 and 271.

**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.

**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. Special attention is given to the development of Nationalism. Prerequisites: MUS 270 and 271.

**575 Musicology and Research**  
2 hrs.

Presentation of musicological material in formal writing as well as informal classroom lecture; specific research projects with emphasis on selection and qualitative judgment of materials used.

**576 Musicology and Research**  
2 hrs.

A continuation of MUS 575. Prerequisite: MUS 575.

**577 Symphonic Literature**  
2 hrs.

A survey of music written for symphony orchestra during the Classic and Romantic periods

**578 Chamber Music Literature**  
2 hrs.

A survey of chamber music literature of the Classic and Romantic periods.

**579 Operatic Literature**  
2 hrs.

A survey of opera from 1600 to the present.

**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. Prerequisite: MUS 270 and 271.

**581 Choral Music Literature**  
3 hrs.

A survey of choral music (mass, motet, anthem, cantata, oratorio) from the Renaissance through the Romantic period.

**582 Western Music Before 1600**  
4 hrs.

A survey of music to 1600. Major developments in style, notation and performance practices will be stressed using works of theorists and primary manuscripts sources.

**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.

**590 Studies in Pedagogy**

1-4 hrs.

Topics to be announced. Selection will be made from the following: Piano Pedagogy, Vocal Pedagogy, String Pedagogy, Brass Pedagogy, Woodwind Pedagogy, Pedagogy of Teaching Theory, or similar topics. May be repeated for credit. Prerequisite: 300-level applied voice or permission of instructor.

**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 predominately 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 pianos, and various sound modification devices).

**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.

**598 Readings in Music**

1-4 hrs.

Graduate students may enroll in this course after consultation with the graduate adviser.

**Open to Graduate Students Only****600 Applied Music**

1-4 hrs. (\$6)

Private lessons for the graduate student in the major performance area. Includes conducting.

**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.

**617 Opera Workshop**

2 hrs.

A production experience in acting, singing, accompanying, and producing of musical theatre. The class is offered each semester and culminates in the performance of an opera or operatic scenes. Open to advanced singers, pianists, and persons interested in production techniques. Admission is by personal interview with the instructor.

**640 Band Techniques and Organization**

2 hrs.

Organization of the school instrumental program. Rehearsal techniques. Survey of band literature. Analysis and discussion of the problems of the instrumental teacher.

**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.

**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.

**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.

**660 Advanced Counterpoint**

2 hrs.

Contrapuntal techniques of the 16th, 17th, 18th, 19th, and 20th centuries. Written assignments are closely correlated with analysis of the contrapuntal styles of significant composers. May be repeated for credit. Prerequisite: MUS 561.

**661 Modal Counterpoint**

2 hrs.

A study of modal counterpoint as exemplified by the composers of the 16th century. Practical application through written assignments in the style of the period. Prerequisite: Graduate standing in music.

**662 Seminar in Composition**

2 hrs.

The completion of an original composition of larger scope in any medium, accompanied by analysis of advanced works and reading assignments. May be repeated for credit. Prerequisite: MUS 563.

**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.

**665 Band Arranging**

2 hrs.

Instruction in scoring for small wind instrument ensembles and the band. Opportunity will be provided to hear the results of each student's work.

**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.

**667 Advanced Orchestration**

2 hrs.

Scoring projects for full orchestra, solo and orchestra, and chorus and orchestra. Analysis of the orchestral techniques of 20th century composers. Projects employing the orchestral techniques of the avant-garde. May be repeated for credit. Prerequisite: MUS 568.

**670 Seminar in Musicology**

1 hr.

Research projects from all areas of the history of music. Each student will present his or her findings both as a formally written paper and as a seminar report. Emphasis will be placed on writing style, manner of presentation, scholarship, and validity of conclusions.

**671 Seminar in Musicology**

1 hr.

A continuation of MUS 670.

**673 Renaissance Music**

3 hrs.

The history of music in Western Europe during the 15th and 16th centuries. Special attention will be given to problems of musical notation and how they relate to musical style. Projects will involve the transcription of music from older notational systems to modern notation.

**677 Contemporary Music**

2 hrs.

A survey of trends in European music and music of the Americas from about 1910 to the present day.

**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.

**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.

**681 Research in Musical Behavior**

2 hrs.

Development and employment of research methods and techniques to the psychology of music and/or music education. Students enrolled in this course will be responsible for an experimental research project which, in the case of music education students, will satisfy the "terminal project" requirement (MUS 691) or, in the case of music therapy students, will provide the data basis for the required MUS 700, Master's Thesis. When this course is the culminating project for the master's degree, an oral examination on the project and related areas is an integral part of the requirements. Prerequisite: MUS 610 or ED 601.

**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.

**690 Graduate Recital**

2 hrs.

Presentation of a full-length recital in the student's area of concentration (applied music 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.

**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 Adviser 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. Assignment. The course shall be taken during the first semester of appointment.



**690 Graduate Recital**  
2 hrs.

Presentation of a full-length recital in the student's area of concentration (applied music 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.

**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 Adviser 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.

**Private Music Study—Open to Graduate Students Only****500 Applied Music**

1-2 hrs. (\$6)

Graduate students who are not majoring in applied music and who do not meet graduate performance level may register for this course. May be repeated for a total of not more than three credit hours.

**600 Applied Music**

1-4 hrs. (\$6)

Qualified graduate students may study in applied music for a total of four semester hours per semester in the major performance area. Three or more credits requires 60 minutes per week of instruction and necessary practice. May be repeated for credit. Includes private conducting study.

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis**

6 hrs.

**710 Independent Research**

2-6 hrs.

**712 Professional Field Experience**

2-12 hrs.



# COLLEGE OF HEALTH AND HUMAN SERVICES

William A. Burian,  
Dean

## Graduate Offerings:

Blind Rehabilitation  
Health and Human Services  
Occupational Therapy  
Social Work  
Speech Pathology and Audiology

## Blind Rehabilitation (BLRH)

Kaarlela, Chairperson; Associate Professors LaDuke, Ponchillia, Weessies; Assistant Professors LaGrow Luxton.

### Open to Upperclass and Graduate Students

#### 588 The Dynamics of Blindness and Rehabilitation 2 hrs.

This course presents an overview of blindness and the blindness service delivery systems. The social, psychological, educational, recreational and vocational effects on blind and on visually impaired adults are emphasized.

#### 589 Inter-Professional Seminar Regarding Blind Multi-Handicapped Persons 1 hr.

This course presents an interdisciplinary approach to the study of multi-handicapping conditions in which blindness is a common denominator.

#### 590 Physiology and Function of the Eye 2 hrs.

The anatomy, structure, and function of the eye, along with various eye diseases and malfunctions, are stressed in this course. The student is familiarized with various eye conditions, and their relationship to rehabilitation practice is emphasized.

#### 591 Braille and Other Communication Methods 2 hrs.

This course is designed to teach the braille literary code as it applies to Rehabilitation Teaching. Braille teaching methods are also presented.

#### 592 Education of the Blind and Partially Sighted 2 hrs.

This course provides an introduction to the ways in which blindness and visual impairment affect blind children, and an overview of the education systems serving them. History of education of visually handicapped children, the effects of a visual impairment on child development, educational assessment and planning and curriculum adaptation are explored.

#### 594 Principles of Orientation and Mobility 2-3 hrs.

This course covers an examination and application of the fundamental principles underlying the acquisition and interpretation of sensory information by severely visually impaired individuals.

#### 595 Introduction to Orientation and Mobility 4 hrs.

The content of this course relates to problems of non-visual orientation and mobility. Simulated experiences are provided which

emphasize the sensory, conceptual and performance levels needed for independent travel in a variety of environments.

#### 597 Introduction to Cecuteny 2 hrs.

This course deals with assessment and remediation of functional problems encountered by low vision persons. Emphasis is placed on optical, non-optical and electronic aids which increase visual functioning. In addition, the nature and needs of low vision persons and the interprofessional nature of low vision services are stressed.

#### 598 Readings in Blind Rehabilitation 1-4 hrs.

This course is arranged on an individual basis to provide students an opportunity to pursue independently the study of special areas of interest in depth.

#### 599 Gerontology 2 hrs.

This course offers an overview of the demographic, economic, health, social and psychological circumstances of the aging population in the United States, and the related service systems.

### Open to Graduate Students Only

#### 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.

#### 690 Methods and Techniques of Teaching Braille and Other Areas of Communication. 2 hrs.

Adaptive communication methods used by visually handicapped persons and the techniques of teaching them are explored in this course. Specifically, braille, handwriting, listening and recording devices, typewriting, and computer technology are presented. This course also includes a supervised practical teaching experience with a visually handicapped person.

#### 691 Practicum in Rehabilitation Teaching 1 hr.

This course provides supervised teaching experiences with blind or visually impaired individuals in a variety of settings.

#### 695 Practicum in Orientation and Mobility 4 hrs.

This course provides supervised teaching experiences with blind or visually impaired individuals in a variety of settings.

#### 710 Independent Research 2-6 hrs.

This course requires the completion of a creditable research project related to blind rehabilitation, conducted with faculty guidance.

**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.

**Health and Human Services (HHS)****511 The Health System and Its Environment**  
3 hrs.

This course provides a descriptive analysis of the organization of the health system. The student who participates can expect to gain an understanding of the structure of health services as well as the processes of operation of the service system and the ways in which consumers make use of the system. The analysis focuses on the interplay of forces within the system as well as between the system and its environment.

**512 Health Resources Administration**  
3 hrs.

This course is an introduction to principles and problems of health resources administration. The course focuses on two major areas. First, in a general introduction concerning the structure of the financing of health services, the course explores public and private mechanisms, insurance, and other financing plans. Second, the course examines the principles of financial administration for health services in the institutional and private-practice setting. In this context major current issues and problems such as cost containment in health financing are analyzed.

**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.

**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.

**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.

**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, theories of substance abuse for nursing and medical practice, and community health theory are among the possible areas of study. The specific topics are announced with each semester offering. Prerequisite: Consent of instructor.

**531 Introduction to Holistic Health Care**  
3 hrs.

The primary purpose of this course is to provide an introduction to the philosophies, theories, and concepts involved in holistic health care. It is meant to serve both as a general educational experience for 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: Graduate status.

**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, basic clinical skills for the substance abuse setting, and community health education practice are among the possible areas of studies. The specific areas are announced with each semester. Prerequisite: Consent of instructor.

**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.

**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 and refine his/her professional skills with the guidance and assistance of those professionals currently working in the health and human service area. By permission of instructor.

**Open to Graduate Students Only****650 Seminar in Holistic Methods, Part I**  
3 hrs.

The seminar is team taught and provides students with a broad overview of method which may be utilized in a holistic health care setting. Every one or two sessions a new faculty member representing a different sort of expertise or perspective will guide students

through a different holistic method. The seminar provides a principal body of information and some personal experience in the methods which can be used therapeutically by a holistic health care practitioner regardless of the student's principal disciplinary interest or training. Evaluation is by oral and written examinations.

**651 Seminar in Holistic Methods, Part II**  
3 hrs.

A continuation of HHS 650, providing an opportunity for exposure to additional holistic methods utilizing the same format and evaluation system as Part I of the seminar.

**662 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. Prerequisite: Permission of Gerontology graduate specialty program adviser.

**680 Multidisciplinary Seminar in Gerontology**  
3 hrs.

A multidisciplinary seminar in gerontology, drawing upon staff from various academic and professional departments on 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 with academic emphasis on the contributions of various academic fields to the understanding of aging.

**Open to Graduate Students Only—Please refer to The Graduate College section for course description.****712 Professional Field Experience**  
2-12 hrs.**Occupational Therapy (OT)**

Rider, Chairperson; Professor Tyndall; Associate Professors Bush, Cooper, Edwards, Ford Lukens, Powell, Richardson, Smith; Assistant Professor Hemphill.

**Open to Upperclass and Graduate Students****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****610 Professional Issues**  
3 hrs.

Current and emerging issues will be discussed. Students will take an active part in community, state, or national organizational and/or legislative processes related to the resolution of a specific issue. Students' potential for future professional leadership will be emphasized. Prerequisite: Six months of occupational therapy fieldwork.

**633 Administration of Occupational Therapy**  
3 hrs.

This course utilizes the basic skills of administration (planning, organizing, directing, coordinating, and controlling) in the development of a model of practice for Occupational Therapy services. These services will be developed for an agency or institution that does not now offer Occupational Therapy services, or for an agency or institution whose 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: Undergraduate or basic course in administrative functions and six months of occupational therapy fieldwork.

**640 Theory in Occupational Therapy**  
3 hrs.

This course will explore core concepts, models, and paradigms of the past, present, and future and their influence on education, research, administration, and the practice of Occupational Therapy. Components of theory, formulation of theory, and the effect of theory development on occupational therapy will also be explored. Prerequisite: Six months of occupational therapy fieldwork.

**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 this profession. It will include review and critique of occupational therapy research, recognition and application of ethical practices, identification of researchable questions, participation in research, statistical analysis, and development of a research proposal. All of the above are applied to occupational therapy. Prerequisites: Statistics and Research Methods and six months of occupational therapy fieldwork.

**686 Integration Seminar**  
3 hrs.

This course will integrate content and experiences from prerequisite core and cognate courses and focus on the relevance of this knowledge to Occupational Therapy and apply it to preparation for the thesis or non-thesis capstone experience (6 hours of 700, 710, or 712). Student presentations will relate area of cognate interest to the field of Occupational Therapy and identify the significance of service to specific populations or advancement of the profession through research, theoretical development, and/or education. Prerequisites: OT 610, 633, 640, 660, and three hours in a cognate area.

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis**  
6 hrs.**710 Independent Research**  
2-6 hrs.**712 Professional Field Experience**  
2-6 hrs.**Social Work (SWRK)**

Professors Burian, Flynn, Kramer, Pawlak, Reid, Wijnberg; Associate Professors Deshler, Greene, Joslyn, Leighninger, Lish, Mathews, McCaslin, Overbeck, Thompson; Assistant Professors Blakely, Cooney, Haiseth, Jones, Phillips, Reeser, Wertkin.

**Social Policy****Open to Upperclass and Graduate Students****512 Social Policy and Service Delivery in Selected Problem Areas**  
3 hrs.

Intensive study in selected fields of service, specializations, and social problem areas. Attention is focused on learning about the major social policy issues associated with the service or problem area. Specific topics will be announced each semester. Prerequisite: Consent of instructor.

**513 Social Welfare and the Law**  
3 hrs.

The legal bases of organized social welfare and social work practice are examined through the study of selected examples of social legislation and judicial decisions, the legislative process, development of administrative regulations, and court organization. Illustrative case studies are used to demonstrate how social workers can manage within the restrictions and opportunities presented by legal institutions and practices in social and individual case situations. Prerequisite: Consent of instructor.

**572 Community Agency Resources**  
2 hrs.

A study of community agencies and resources for those concerned with family and personal problems. Emphasis is placed upon the availability of these resources and their effective use by business and industry, speech therapist, guidance counselors, teachers, etc. May not be used as credit towards the M.S.W. degree.

**Open to Graduate Students Only****610 Foundations of Social Welfare Policy**  
3 hrs.

This first course in social welfare policy in the graduate curriculum explores and identifies the social, political, economic, historical, and philosophical foundations of American social welfare. Emphasis is given to the social conditions of poverty and racism and the structure of social services, particularly as developed through social legislation. The disciplined study of social welfare policy is pursued by the use of a range of explicitly stated analytic frameworks in which alternative choices in social policy and social provisions are made visible. Prerequisite: Consent of instructor.

**612 Social Policy and Service Delivery in Selected Problem Areas**  
3 hrs.

Intensive study of problem solving frameworks for the solution and management of selected social problems. Attention is focused on the roles of policy analysis and formulation, and service delivery in the problem-solving process. Specific topic will be announced each semester. May be repeated for credit. Prerequisite: Consent of instructor.

**Social and Behavioral Theory****Open to Graduate Students Only****630 Social Change Theory and Community Analysis**  
3 hrs.

The community as a field of action for social change and decision making is analyzed. Several conceptions of social change and stability are reviewed. The processes of community decision making are examined. A social systems framework is used as the conceptual base for analysis in both areas. Prerequisite: Consent of instructor.

**631 Individual Growth and Development**  
3 hrs.

This course will focus on an understanding of personality, individual functioning, and change throughout the life cycle. Specific emphasis will be placed on biological substrates, the person's emotional life, and how these factors interrelate with the socialization process and environmental variations. Ethnic and racial variables will be explored as they affect personality development. Theoretical approaches may include psychoanalytic ego psychology, cognitive functioning, and learning theories. Concurrent and interrelated with these theories is a focus on "social role concepts" as they affect a social work case assessment and practice interventions. Prerequisite: Consent of instructor.

**632 Organizational Theory for Human Service Management**  
3 hrs.

An examination of conceptual frameworks useful in the analysis and management of social service organizations, such as the study of structure and process, goals, informal and interorganizational relations, design, and organizational change. The functional and dysfunctional aspects of bureaucracy for social work practice are examined. Emphasis is placed on skill in the analysis of social service organizations. Prerequisite: SWRK 671 or consent of instructor.

**638 Psychopathology and Social Deviance as Related to Social Work Practice**  
3 hrs.

This course focuses on the understanding of psychopathology and social deviance with specific emphasis on the interface of biological, psychological, and socio-cultural variables. Emphasis will be placed upon social work assessment and practice interventions. The development of mental illness and emotional disturbance will be examined from several theoretical perspectives which may include psychoanalytic, phenomenological behavior, communications, and symbolic interactional approaches. Societal stigmas and labeling by the family, the community, and social agencies will be explored as they affect various populations, e.g., majority/minority groups. Research studies from social psychiatry, social psychology, sociology, and anthropology will be discussed, when applicable. Prerequisite: SWRK 631 or consent of instructor.

## Social Welfare Research and Technology

### Open to Graduate Students Only

#### 640 Research Methods in Social Work 3 hrs.

The purposes of this course are threefold: (1) to increase student knowledge of the methods of empirical research as a tool for social work knowledge building; (2) to improve student capacity for research consumption and utilization in social work practice; (3) to develop elementary skills in the machine processing, analysis, and presentation of data. Classroom instruction includes lecture and discussion plus laboratory sessions designed to familiarize students with data processing, electronic computer, and calculator equipment. Prerequisite: Consent of instructor.

#### 645 Social Welfare Policy, Planning, and Administration Technologies 3 hrs.

The purpose of this course is to provide students with knowledge of a variety of analytical tools and technologies designed to aid in social welfare policy, planning and administrative operations, such as project management, program evaluation, information systems, and computers in social service agencies. Emphasis will be given to skill development in selected technologies. Prerequisite: SWRK 671 or consent of instructor.

#### 648 Supervision in Human Service Programs 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 these roles 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. Prerequisites: SWRK 661 or consent of instructor.

## Social Work Practice

### Open to Upperclass and Graduate Students

#### 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.

#### 563 Social Work Concepts in Rehabilitation 3 hrs.

Application of social work problem solving concepts to social-psychological problems in the broad field of physical and mental rehabilitation. Both individualized services and programmatic implications are given consideration. Open to M.S.W. students and students from related professional departments, with consent of instructor.

#### 566 Social Services in Schools 3 hrs.

The role of the Social Worker in elementary and secondary schools and the necessary adaptations in the changes taking place in the educational scene are examined and evaluated. Problem solving approaches are given special attention within the structure and organization of the schools and their relationships with the surrounding community.

The specific contributions of a school Social Worker as a helping person to the pupils, the school staff, and the homes by various interventive means are explored. Prerequisite: Consent of instructor.

#### 567 Institutional Correctional Social Work 3 hrs.

Social work treatment within a variety of institutional correctional settings. Prerequisite: Consent of instructor.

#### 568 Social Work in Non-Institutional Correctional Settings 3 hrs.

Social work treatment with probationers, parolees, and other non-institutional services. Prerequisite: Consent of instructor.

#### 569 Juvenile Justice 3 hrs.

The course deals with the processing of offenders through the juvenile justice system with concentration on the philosophy and functioning of juvenile courts. Personal and organizational factors that are associated with or that determine offenders' passage through the juvenile court are examined. Prerequisite: Consent of instructor.

### Open to Graduate Students Only

#### 636 Theory and Practice of Group Treatment 3 hrs.

Focus of the seminar is on the theory and practice of group work in social treatment settings. Consideration is given to such issues as group dynamics, leadership, composition, direct and indirect intervention, the use of program under various conditions.

#### 661 Introduction to Social Work Practice 3 hrs.

Unique features of the profession of social work are introduced in this beginning practice course. A problem-solving framework is provided as the basis of identifying and analyzing various individual and social problems, developing plans for problem alleviation, carrying out and monitoring of the plan and evaluation of effectiveness. In addition, selected theoretical orientations which offer practice alternatives to the problem-solving approach are examined for the purpose of helping each student conceptualize and develop an approach to practice which is theoretically and professionally sound. The focus throughout the course is on the role and responsibilities of the practitioner. Prerequisite: Concurrent enrollment in SWRK 671 or consent of instructor.

#### 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. 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 Biology, Counseling-Personnel, and Sociology. Open to SPADA students only. Graded on a Credit/No Credit basis.

#### 664 Social Work Practice in Special Areas 3 hrs.

Study of problem solving in specialized areas of social work practice. Focus upon the role of the social work practitioner in assessment, goal establishment, and intervention in the use of various social work methods in different arenas of practice. Specific topic will be announced each semester. May be repeated for credit up to a maximum

of six hours. Prerequisite: Consent of instructor.

#### 665 Seminar in Substance Abuse II 3 hrs.

Continuation of SWRK 663. This course is cross-listed with Biology, Counseling-Personnel, and Sociology. Graded on a Credit/No Credit basis.

#### 666 Seminar in Individual Treatment 3 hrs.

This course will introduce the student to social work practice with individuals. Social, psychological, economic, and biological stressors are considered as the impact on the individual's efforts to grow and survive. The ego developmental and crisis intervention approaches are the major orientations presented, augmented by concepts from cognitive theory. Particular attention will be paid to client's coping capacities. Prerequisite: SWRK 661.

#### 667 Seminar in Social Policy, Planning and Administration 3 hrs.

First part of a two semester seminar that focuses on the study of social welfare planning, such as models, strategies, problems of planning, needs assessment and problem analysis, program design, grant and proposal writing. Emphasis is placed on planning to improve social welfare conditions through program changes and alterations in institutional arrangements. Prerequisite: Concurrent enrollment in SWRK 677 or consent of instructor.

#### 668 Social Treatment with Families 3 hrs.

Social Treatment with Families is intended to introduce Social Treatment students in the MSW program to direct therapeutic work with families. Orienting frames of reference focus on structural and communications approaches to such treatment. Other perspectives may also be utilized by the instructor. Developmental and situational variables will be considered in relation to their impact on family functioning. Prerequisite: SWRK 636, SWRK 666.

#### 669 Seminar II in Social Policy, Planning and Administration 3 hrs.

This is the second part of a two semester seminar that focuses on the study of financial management and leadership skill development in the management of social welfare agency resources. The seminar focuses on such topics as: social program budget preparation; the relationship between the budget, goals, planning and decision making; staff recruitment, selection, development and training; communication and coping with conflict and performance appraisal. Prerequisite: Concurrent enrollment in SWRK 679 or consent of instructor.

#### 670 Seminar in Social Policy Practice 3 hrs.

This course in social welfare policy develops and integrates content from other courses in the social welfare policy, planning, and administration concentration which introduce 1) the use of specific tools in policy analysis, and 2) interventive skills in community and organizational policy change. Policy intervention skills are developed in such areas as the writing of policy and position statements, the giving of expert testimony before decision-making bodies, analyzing and summarizing legislative bills and/or judicial opinions, and the processes of such activities as forming and leading committees and task forces. Prerequisite: SWRK 669 or consent of instructor.

## Field Education

### Open to Graduate Students Only

#### 671 Field Education in Social Welfare Problem Solving

3 hrs.

This is the beginning field practice course in the master's program, and it is taken concurrently with SWRK 661 in order to maximize the interchange between classroom and field. The field work is designed to provide an opportunity for effective social work practice.

The course consists of three units: 1) four weeks of a communications lab as an introduction to the field experience; 2) sixteen hours per week in an agency for the remainder of the semester; and 3) seminars with the faculty liaison. The communications lab and seminars will be scheduled with regard to the needs of students. Students will be given some combination of the following responsibilities: work with individuals, families, groups, community problems, and/or policy planning and administrative assignments under the supervision of a field instructor. Graded on a Credit/No Credit basis. Prerequisite: Concurrent enrollment in SWRK 661.

#### 672 Field Education in Social Work Intervention

3 hrs.

This is the second field practice course in the master's program and is a continuation of the field experience of SWRK 671. Continued opportunity to develop and define skills necessary for effective social work practice is provided. The course consists of two units: 1) sixteen hours per week in an agency and 2) seminars with the faculty liaison. The seminars will be scheduled with regard to the needs of the students. Graded on a Credit/No Credit basis. Prerequisite: SWRK 671.

#### 676 Field Education in Social Treatment

3 hrs.

Placement will be in an agency unit through which experiences in social treatment (case-work and group work) are offered. Major emphasis will be on development of skill in direct social work practice with clients. For students demonstrating readiness and who anticipate assumption of supervisory tasks immediately following graduation, the placement plan and experiences will afford primary emphasis in skill development and in the range of supervisory role tasks and responsibilities. Campus or field-based seminars will supplement the field experience. Graded on a Credit/No Credit basis. Prerequisite: SWRK 672 or consent of instructor, concurrent with SWRK 666.

#### 677 Field Education in Social Planning and Administration

3 hrs.

Students are provided with direct experience in dealing with problems of community planning for human welfare, and in the administration of service delivery systems. Specialized field placement in social welfare organizations or special programs are arranged in accordance with student interests and abilities. Graded on a Credit/No Credit basis. Prerequisite: SWRK 672 or consent of instructor, concurrent with SWRK 667.

#### 678 Advanced Field Education in Social Treatment

3 hrs.

Continuation of 676. Students will remain in field placement. Direct social treatment (or supervisory) practice will continue. Added emphasis will be directed to skill development requisite to disciplined performance at

the beginning level of competence for social work practice in direct treatment (or supervisory) roles. Attention will be given to the concept of self-responsibility for professional development. Experiences will be offered which provide practice in leadership roles. Campus or field-based seminars will supplement the field experience. Graded on a Credit/No Credit basis. Prerequisite: SWRK 676, concurrent with SWRK 668.

#### 679 Advanced Field Education in Social Policy, Planning, and Administration

3 hrs.

Continuation of Social Work 677. Further emphasis in professional role development for planning and administrative practice. Skill learning assignments will include supervised work in such areas as planning approaches, program development, budgeting, information systems, personnel, management and the organization of groups for involvement in problem-solving activities. Graded on a Credit/No Credit basis. Prerequisite: SWRK 677, concurrent with SWRK 669.

#### 691 Advanced Social Treatment: At-Risk Individuals

3 hrs.

This course is designed to provide students in the Social Treatment concentration with an opportunity to deepen their knowledge of advanced clinical social work practice theory with its application to work with at-risk individuals. Special attention will be paid to interventions designed to promote the process of ego organization, or to repair malformations in development, based on an assessment of overall ego functioning in the situational context. This course builds on SW 666: Seminar in Individual Treatment and SW 638: Psychopathology and Social Deviance—Adults. It is designed to meet the requirements for the advanced practice course in Social Treatment. Prerequisites: SWRK 638, 666.

#### 692 Advanced Social Treatment: Children

3 hrs.

This course is designed to provide students in the Social Treatment concentration 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 SW 666: Seminar in Individual Treatment, SW 668: Social Treatment with Families, and SW 638: Psychopathology and Social Deviance—Children and Adolescents. It is designed to meet the requirement for the advanced practice course in Social Treatment. Prerequisites: SWRK 638, 666, 668.

#### 693 Advanced Social Treatment: 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 relations, transference, counter-transference, communication, group processes, problem solving, authority and leadership in groups, and group development from both an affective and cognitive perspective. The course (approximately forty-five hours) 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, Social Treatment with Groups. Prerequisites: SWRK 636, 666.

#### 694 Advanced Social Treatment: Industry

3 hrs.

The purpose of this course is to help students link ego developmental approaches to the world of work. The effect of work related problems are experienced not only by the individual but also in other social contexts. Helping men and women to synthesize the interacting forces of their lives within the context of the work place is an immediate challenge to social workers. Prerequisites: SWRK 631, 666, or consent of instructor.

## Special Seminars and Projects

### Open to Upperclass and Graduate Students

#### 564 Special Studies in Social Welfare Practice

1-4 hrs.

Study of selected topics related to the theory and practice of social welfare activities and endeavors. Focus will be on roles of human service workers and methodologies utilized in these roles in a range of social welfare areas. Specific topics will be announced. Prerequisite: Consent of instructor.

#### 597 Teaching Apprenticeship in Selected Social Work Curriculum Areas

1-4 hrs.

The course focuses on the development of educational skills for social workers through faculty-directed participation in teaching activities in a selected social work course. Specific learning objectives and expectations for apprentices are arranged with participating faculty. This course may be taken a second time (1-4 credits, or a maximum of 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.

#### 598 Readings in Social Welfare and Social Work

1-4 hrs.

Individual study in social welfare and social work topics which are not covered in the University's graduate course offerings. Prerequisite: Consent of major adviser and proposed instructor.

### Open to Graduate Students Only

#### 686 Field Studies in Research and Practice

3 or 6 hrs.

Special group projects in practice and research which are planned, organized and carried out by faculty and students. Full-time degree students will complete the project during a Spring Session. Part-time degree students complete the project over a combination of two sessions or semesters. Projects are frequently aimed at performing a community service and vary in focus on professional concerns and issues of local, regional, national, or international importance. These projects are designed to integrate learning which has taken place during the students' work in core courses, provide students with diverse cultural and educational experiences, and further development of research and practice competence. Graded on a Credit/No Credit basis. Prerequisite: SWRK 640, 672.

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

#### 710 Independent Research

2-6 hrs.

## Speech Pathology and Audiology (SPPA)

Erickson, Chairperson; Professors Bate, Lohr, Stromsta; Associate Professors Clark, Hanley, Lawson, Nelson, Oas, Seelig; Assistant Professors Boersma, Sparks.

### Open to Upperclass and Graduate Students

#### 500 Scientific Methods in Speech, Language, and Hearing 2 hrs.

Research in normal and disordered communication is studied with reference to the scientific method, principles of measurement, instrumentation, and experimental techniques. The course requires that either a laboratory or a clinical research proposal be formulated by each student.

#### 550 Advanced Speech and Hearing Science 2 hrs.

Theories of speech production, reception, and perception are considered in this course from the point of view of experimental phonetics and experimental audiology. Prerequisites: SPPA 204, 205, 206.

#### 551 Neuropathologies of Speech 2 hrs.

This course is concerned primarily with surveying selected communication disorders associated with neuropathologies. Prerequisites: SPPA 200, 203, 205.

#### 552 Communication Problems of the Aged 3 hrs.

This course is designed to acquaint the student with receptive and expressive communication problems common to older adults. Emphasis will be on the clinical management of characteristic organic speech disorders and impaired auditory functions associated with aging.

#### 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.

#### 555 Hearing Measurement 2 hrs.

This course is designed to acquaint the student with principles, theories, and methods of hearing measurement which provide the basis for clinical audiometric procedures.

#### 556 Rehabilitative Audiology 3 hrs.

Orientation to the clinical management of communication problems associated with auditory impairment.

#### 557 Educational Audiology 3 hrs.

This course deals with the educational, psychological, and vocational needs of the hearing impaired child and the parameters that affect educational programming.

#### 595 Oral Language Development and Dysfunction 2 hrs.

This course is designed to provide 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.

#### 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.

#### 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

#### 610 Diagnostic Audiology 4 hrs.

An advanced course dealing with those batteries of audiological techniques used for assessing rehabilitative needs and for otologic diagnoses.

#### 611 Hearing Aids 3 hrs.

Components, characteristics, evaluation, selection, use, and maintenance of hearing aids are studied in detail.

#### 612 Pediatric Audiology 3 hrs.

This course deals with the identification, measurement, and management of hearing impairment in infants and young children.

#### 613 Industrial and Public Health Audiology 2 hrs.

A study of hearing conservation programs in industry, including noise measurement, damage-risk criteria, hearing measurement, and medico-legal problems; noise in communities; noise as a public health hazard; and hearing screening and deafness prevention program.

#### 650 Seminar in Speech Pathology 1-4 hrs.

Selected topics in speech pathology are systematically explored through critical analyses 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.

#### 651 Seminar in Speech and Hearing Science 2-4 hrs.

Selected topics in speech and hearing science are systematically explored through critical analyses of literature and 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.

#### 652 Seminar in Audiology 2-4 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.

#### 653 Diagnosis and Appraisal I: Principles 3 hrs.

This course is intended to provide theoretical bases for the examination of persons with speech, hearing, and language disorders.

#### 654 Diagnosis and Appraisal II: Procedures 2 hrs.

In this course the student gains experience with instruments, procedures, and techniques designed for the appraisal and diagnosis of communication disorders. One hour per week of participation in out-patient diagnostic examinations is required.

#### 655 Diagnosis and Appraisal III: Practicum 2 hrs.

In this registration students receive extensive experience in diagnostic examinations.

#### 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.

#### 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.

#### 659 Principles of Professional Practice 2 hrs.

Currently identifiable professional and philosophical questions are defined and studied with reference to the history of the development of the profession of speech pathology and audiology.

#### 660 Voice Disorders 3 hrs.

Organic and functional disorders of laryngeal and resonator origin are studied in depth.

#### 661 Articulation Disorders 2 hrs.

This course considers in detail the nature and treatment of functional misarticulations and of misarticulations associated with cleft palate.

#### 662 Stuttering 3 hrs.

Theories and therapies applicable to the understanding and clinical management of stuttering are studied in depth.

#### 663 Aphasia in Adults 3 hrs.

This course deals comprehensively with the identification and treatment of communication problems in the adult aphasic individual.

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

#### 700 Master's Thesis 6 hrs.

#### 710 Independent Research 2-6 hrs.

#### 712 Professional Field Experience 2-12 hrs.

# SCHOOL OF LIBRARY AND INFORMATION SCIENCE

Laurel Grotzinger, Interim Director

## Graduate Offering:

Library and Information Science

## Library and Information Science (LIB)

Grotzinger, Interim Director; Associate Professor Carroll; Assistant Professors Eriksen, Rosen, Smith, Wittig.

### Open to Upperclass and Graduate Students

#### 502 Old and Rare Book Collecting

3 hrs.

Study of the history of bookmaking; the descriptive anatomy of manuscripts and books, binding, paper, print, illustrations, acquisitions and sales; and care and preservation. The book as an artifact, identification of first editions, rare book reference sources, and techniques for ascertaining the monetary value of books are considered.

#### 510 Collection Development

3 hrs.

Introduction to the basic principles of building collections for libraries and information centers. Includes selection and evaluation of materials for individual collections and examines principles and examples of library resource sharing.

#### 512 Reference Services

3 hrs.

Examination of reference sources, print and non-print, their evaluation, and the ways in which they may be used to provide service. Includes reference interview techniques, search strategies, and automated searching.

#### 530 Introduction to Cataloging and Classification

3 hrs.

Introduction of the theories and practices of cataloging and classification. Emphasis on Dewey Decimal Classification, subject cataloging from the Sears and Library of Congress headings, descriptive cataloging of monographs, serials, and non-print materials, filing rules, and OCLC terminal utilization.

#### 535 Introduction to Information Science and Technology

3 hrs.

A survey of information retrieval systems and services. Students are introduced to the development of information science, various storage media, telecommunications, and computer technology.

#### 542 Reading Interests of Young Adults

3 hrs.

Study of the fields of literature suited to the interests of young people. Students are given opportunity, through wide reading, to develop principles and standards for the selection of the book collection. Includes an introduction to methods of stimulating broader reading interests and conducting group book discussions with young people.

#### 546 Storytelling

3 hrs.

Underlying principles of the art of storytelling as a means of developing appreciation of literature and stimulating an interest in reading. Includes content and sources of materials, techniques, and practice in telling stories before groups of children, and planning the story hour program.

#### 590 Studies in Librarianship

1-3 hrs.

Examines specialized topics within the field of library and information science applicable to both undergraduate and graduate students. Topics considered will vary.

#### 598 Readings in Librarianship

1-3 hrs.

Offers a program for the advanced student for independent study in a special area of interest, arranged in consultation with a graduate adviser. Written permission of instructor required.

### Open to Graduate Students Only

#### 600 Libraries and Librarianship

3 hrs.

An introduction to librarianship through study of the role and functions of the modern library, its historical development, and the contributions of libraries and the profession to society. Composed of three one-hour units. (600 I-Introduction to Libraries and Librarianship; 600 II-History of Libraries and Librarianship; 600 III-Librarianship as a Profession, to be taken during the last nine hours of the student's program.)

#### 607 Library Experience

2-3 hrs.

An introduction to library activities and services through assignment to a selected library. For each credit hour received, thirty-five hours of supervised library experience are required. May be taken only with permission of the student's graduate adviser, and when an appropriate situation is available. Graded on a Credit/No Credit basis.

#### 611 Resources in the Humanities

3 hrs.

Examination of the nature of the disciplines and research approaches in the humanities. Includes an analysis of selected traditional and non-traditional forms of bibliographic control with emphasis on searching and problem solving. Prerequisite: LIB 512 or equivalent.

#### 612 Resources in the Social Sciences

3 hrs.

Examination of the characteristics of users of social sciences information and the nature of research methods as they affect access to materials. Includes analysis of selected traditional and non-traditional bibliographic control with emphasis on problem solving and search techniques. Prerequisite: LIB 512 or equivalent.



**613 Resources in Science and Technology**  
**3 hrs.**

Examination of the characteristics of scientific information users and the scientific method as it affects organization of resources. Analysis of selected traditional and non-traditional forms of bibliographic control is combined with use of alternative search strategies. Prerequisite: LIB 512 or equivalent.

**614 Government Publications**  
**3 hrs.**

Examination of government publications, their acquisition and organization, and the special problems involved in providing user service. Focus is on United States federal documents.

**616 Materials and Methods for School Media Programs, K-12**  
**3 hrs.**

Cooperative role of media specialists, teachers, and other school personnel in evaluation, selection, and utilization of media appropriate to the instructional program. Oral and written critical analysis of print and non-print materials combined with effective ways of working in all types of organizational patterns.

**617 Reading Guidance for Children**  
**3 hrs.**

A study of the developments in children's literature from approximately the 18th century in England and the Colonial period in America to the present, with special emphasis on socio-economic and cultural factors which affect content. Includes principles and techniques in guidance of children's reading interests and in the evaluation of current literature.

**618 Media Technology in Libraries**  
**3 hrs.**

A study of contemporary media technologies as they apply to libraries and information centers. Students will use a variety of audiovisual equipment and will produce television and slide-tape presentations relevant to library public relations, program development, and service.

**622 Library Administration and Management**  
**2 hrs.**

An introduction to the theory and principles of management as they relate to the development, implementation, and evaluation of library service and organization. Students investigate and apply major management functions identified with library situations. Participative management techniques are emphasized.

**623 Special Library Administration**  
**2 hrs.**

A study and investigation of general management theories and principles as they are applied in all categories of special libraries. Emphasis is on contemporary issues, including patterns of organization, program development and evaluation, resource sharing, information delivery systems, and staff utilization. Prerequisite: LIB 622 or equivalent.

**624 Library Service to Children and Young Adults.**  
**3 hrs.**

The function and administration of public library service for children and young adults. Emphasis on coordination with school libraries and other community agencies; program development in children's and young adult departments.

**625 Public Library Administration**  
**2 hrs.**

A study and investigation of general management theories and principles as they are applied in all categories of public libraries. Emphasis is on contemporary issues, including patterns of governance, program development and evaluation, and staff utilization. Prerequisite: LIB 622 or equivalent.

**626 Academic Library Administration**  
**2 hrs.**

A study and investigation of general management theories and principles as they are applied in all types of academic libraries. Emphasis is on contemporary issues, including patterns of organization, program development and evaluation, resource sharing, automation, staff utilization, and issues in higher education. Prerequisite: LIB 622 or equivalent.

**627 School Media Center Administration**  
**2 hrs.**

A study and investigation of general management theories and principles as they are applied to school media center, K-12. Emphasis is on the library media center program, including patterns of organization, program development and evaluation, staff utilization, budgeting, and facilities. Prerequisite: LIB 622 or equivalent.

**628 Services of Special Libraries**  
**3 hrs.**

Current developments in services to various clientele of special libraries and information centers. Includes the Alberta L. Brown lecture series.

**629 Research Methods in Librarianship**  
**3 hrs.**

Introduction to basic techniques of research methodology: descriptive, historical, and experimental. Includes critical evaluation of library studies and their influence on library organization, administration, and services. Opportunity for investigation and analysis of current problems in public, college, school, and special libraries. Prerequisite: Nine hours of Librarianship courses or written permission of instructor.

**630 Advanced Cataloging and Classification**  
**3 hrs.**

Continuation of Introduction to Cataloging and Classification, LIB 530. Emphasis is also given to development of catalogs and cataloging codes, Library of Congress classification and subject headings, cataloging of rare books, and computerized shared cataloging. Prerequisite: LIB 530 or permission of instructor.

**632 Technical Services Seminar**  
**3 hrs.**

Seminar on contemporary issues in the areas of technical services. Topics vary. Prerequisites: LIB 510, LIB 530, or permission of instructor.

**634 Library Automation**  
**3 hrs.**

A survey of computer technology as it is applied to the performance of operations in libraries and information centers. Includes experience in analysis by flow-charting, some programming basics, and the preparation of a feasibility study to automate a library task.

**635 Information Storage and Retrieval**  
**3 hrs.**

Design of information storage and retrieval systems, with emphasis on automated aspects. Includes consideration of characteristics of media used for the storage of information, and indexing and bibliographical control procedures used in retrieval systems, with emphasis on non-traditional methods.

Trends and developments in modern information technology and methods of information dissemination are considered. Prerequisite: LIB 634 or CS 105, taken prior to or concurrently with 635; or permission of the instructor.

**636 Indexing, Abstracting, and Automated Language Processing**  
**3 hrs.**

A seminar approach to the problems of bibliographical control and the production of copy for secondary publications. Attention is given to indexing with controlled and uncontrolled vocabularies, book indexing, thesaurus construction, classification, and automated language processing. Practical experience is given in preparing abstracts and indexes from source documents.

**637 On-Line Searching of Data Bases**  
**1-3 hrs.**

Course covers three topics on on-line searching of data bases: Topic A: Introduction to on-line systems, consideration of communication networks and computer terminal equipment, and comparison of on-line systems (1 hour). Topic B: On-line searching using Lockheed's DIALOG system (1 hour). Topic C: On-line searching using System Development Corporation's ORBIT system (1 hour). A student may enroll for one, two, or three credit hours. No topic is a prerequisite for another.

**644 Adult Reading Interests**  
**3 hrs.**

Evaluation of findings of reading interest studies and their implications for library service; an understanding of reading habits, abilities, and needs of adults. Study of the library as an adult education agency, with an introduction to leadership training and adult education techniques.

**645 Library Outreach Services**  
**3 hrs.**

A seminar dealing with improvement of library service to the educational and socially disadvantaged. Public and school library programs of outreach, information and referral, and work of community agencies will be discussed as models for programming at various age levels. Students will observe, participate in, and plan programs relevant to specific phases of library service to the disadvantaged.

**650 Advanced Seminar in Librarianship**  
**2 hrs.**

Analysis and study of specific problems in contemporary library practices. Lectures, field trips, and resource consultants. (Offered irregularly)

**652 Seminar in International Librarianship**  
**3 hrs.**

Opportunity to study the development, current status, and programs of library service at the international level in all types of libraries. (Offered irregularly)

**690 Studies in Librarianship**  
**1-6 hrs.**

Examines selected topics within the field of library science. Topics considered will vary from semester to semester. (All minicourses are numbered 690)

**Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.****700 Master's Thesis**  
**6 hrs.****710 Independent Research**  
**2-6 hrs.****712 Professional Field Experience**  
**2-12 hrs.**

# THE GRADUATE COLLEGE

Laurel Grotzinger,  
Dean and Chief Research Officer

Rollin Douma,  
Associate Dean,  
Program Development

Sid Dykstra,  
Associate Dean,  
Student Services

Conrad Katzenmeyer,  
Associate Dean,  
Research

Telephone: (616) 383-1660

## Graduate Offering:

Graduate Studies

## Graduate Studies (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 College (GRAD) course. All 700-level courses are graded on a Credit/No Credit basis.

### 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. A student may elect this course in units of from two to six hours; however, the election must be made in no more than two units and within a calendar year. An application form (available in all departments) must be submitted to Registration at enrollment time. Prior to enrollment this form must be signed by: 1) the thesis adviser; 2) the department chairperson; 3) the Administrative Assistant for Graduate Programs in The Graduate College. Graded on a Credit/No Credit basis.

### 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. An application form, signed by the student's graduate adviser and the faculty supervisor, must be submitted to Registration at the time of enrollment. Graded on a Credit/No Credit basis.

### 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. An application form, signed by the student's graduate adviser and the faculty supervisor, must be submitted to Registration at the time of enrollment. Graded on a Credit/No Credit basis.

### 720 Specialist Project 2-6 hrs.

The Specialist Project is designed for all units offering the specialist degree. An application form (available in all departments) must be submitted to Registration at enrollment time. Prior to enrollment this form must be signed by: 1) the project adviser; 2) the department chairperson; 3) the Administrative Assistant for Graduate Programs in The Graduate College. Graded on a Credit/No Credit basis.

### 725 Doctoral Research Seminar 2-6 hrs.

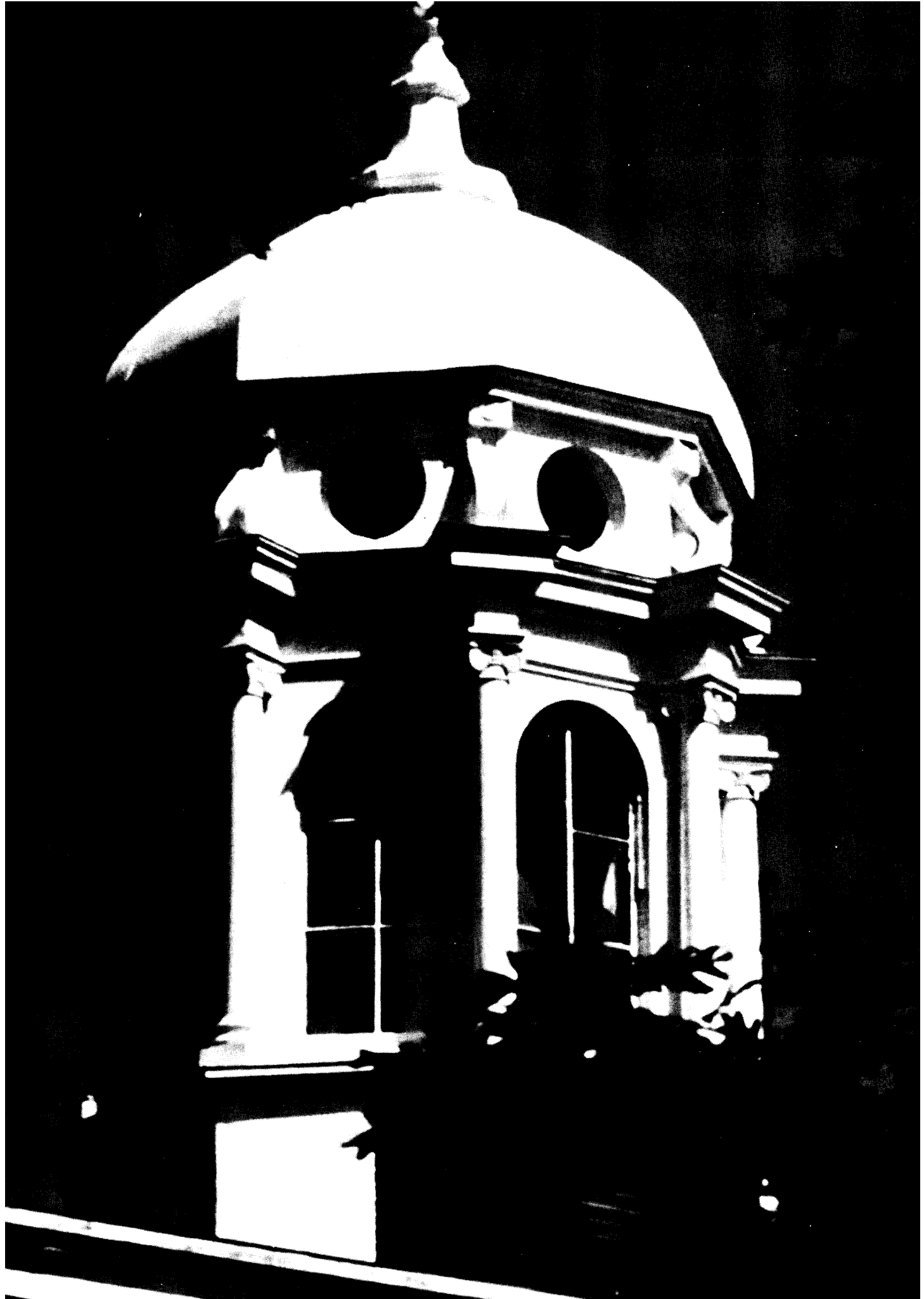
Units offering doctoral programs may use this number to designate their research seminars. Such seminars may be taken more than once by the student. Permission of instructor is required. Graded on a Credit/No Credit basis.

### 730 Doctoral Dissertation 15 hrs.

The doctoral dissertation is required in all doctoral programs and must reflect an appropriate creative effort on the part of the student. An application form (available in all departments) must be submitted to Registration at enrollment time. Prior to enrollment, this form must be signed by: 1) the committee chairperson; 2) the department chairperson; 3) the Administrative Assistant for Graduate Programs in the Graduate College. Registration for 730 will be in increments of 3 hours. Graded on a Credit/No Credit basis.

### 735 Graduate Research 2-10 hrs.

Units offering doctoral programs may use this number to designate research projects for their doctoral students. Such projects may be taken more than once by the student. Permission of instructor is required. Graded on a Credit/No Credit basis.



# Section VI

## The Graduate Faculty

### Members

**Adams, Phillip D.**, 1964, Professor of Humanities  
B.A., Western Michigan; M.S., Ph.D., Ohio;  
F.R.S.A.

**Aker, Ugur**, 1981, Assistant Professor of Economics  
B.A. Robert College (Istanbul); M.A., Ph.D., Wayne  
State

**Alag, Gurbux Singh**, 1977, Associate Professor of  
Electrical Engineering  
B.E. (E.E.) Saugor University; M.E. (E.E.) Calcutta  
University; D.E., Rensselaer Polytechnic Institute

**Alavi, Yousef**, 1958, Professor of Mathematics  
B.S., M.S., Ph.D., Michigan State

**Aldrich, David W.**, 1983, Associate Professor of  
Industrial Engineering  
B.A., Colgate; B.S., M.S., Ph.D., Purdue

**Alessi, Galen J.**, 1974, Associate Professor of  
Psychology  
B.S., Maryland; M.A., Western Michigan; Ph.D.,  
Maryland

**Alfgood, William T.**, 1969, Associate Professor of  
Music  
B.M., East Carolina; M.M., Illinois; D.M.A.,  
Michigan

**Anderson, Robert H.**, 1957, Professor of Chemistry  
B.A., Baker; M.A., Ph.D., Columbia

**Appel, William C.**, 1965, Professor of Music  
B.S., State Teachers of Indiana (Pa.); M.Mus.,  
Indiana

**Argyropoulos, Triantafilos**, 1964, Professor of Art  
B.S., M.F.A., Michigan

**Armstrong, J. William**, 1969, Associate Professor of  
Education and Professional Development  
B.S., Northwestern; Ed.D., Indiana

**Asefa, Sisay**, 1980, Assistant Professor of  
Economics  
B.A., Central College (Pella); M.S., Ph.D., Iowa  
State

**Asher, Eston J., Jr.**, 1954, Professor of Psychology  
and Director of Institutional Research  
B.S., Kentucky; M.S., Ph.D., Purdue

**Atkins, Michael B.**, 1971, Professor of Industrial  
Technology and Education  
B.S., M.S., East Texas State; Ed.D., Texas A & M

**Bach, Shirley**, 1964, Professor of Natural Science  
B.S., Queens College; Ph.D., Wisconsin

**Bafna, Kailash M.**, 1979, Professor of Industrial  
Engineering  
B.S., Banaras Hindu University (India); M.S.,  
Mississippi; Ph.D., Purdue

**Balley, Frederick S.**, 1958, Assistant Professor of  
Education and Professional Development  
B.S., M.A., Western Michigan; Ph.D., Michigan  
State

**Balley, Thomas C.**, 1970, Associate Professor of  
English  
B.A., Oberlin; M.A., Missouri, Ph.D., Washington  
University

**Balkin, Alfred**, 1971, Associate Professor of  
Education and Professional Development  
B.A., M.A., Indiana; M.A., Ed.D., Columbia

**Batch, C. Nicholas**, 1972, Associate Professor of  
Finance and Commercial Law  
A.B., Michigan; M.B.A., Western Michigan; J.D.,  
Wayne State

**Bate, Harold L.**, 1964, Professor of Speech  
Pathology and Audiology  
B.A., Butler; M.A., Florida; Ph.D., Wisconsin

**Beam, Henry H.**, 1975, Associate Professor of  
Management  
B.S.E., Princeton; M.S.E.E., M.B.A., Ph.D.,  
Michigan

**Beech, George T.**, 1965, Professor of History  
B.A., Michigan State; Ph.D., Johns Hopkins

**Behm, Harley D.**, 1967, Professor and Chair,  
Department of Engineering Technology  
B.S., Northern Montana; M.Ed., Ed.D., Missouri

**Belonax, Joseph J.**, 1978, Associate Professor of  
Marketing  
B.S., M.B.A., Northern Illinois; Ph.D., Nebraska

**Belson, Beverly A.**, 1979, Associate Professor of  
Counseling and Personnel  
B.A., Northern Iowa; M.A., Syracuse; Ph.D.,  
Michigan State

**Benne, Max E.**, 1964, Associate Professor of  
Consumer Resources and Technology  
B.S., M.S., Ed.D., Michigan State

**Benson, John William**, 1974, Associate Professor of  
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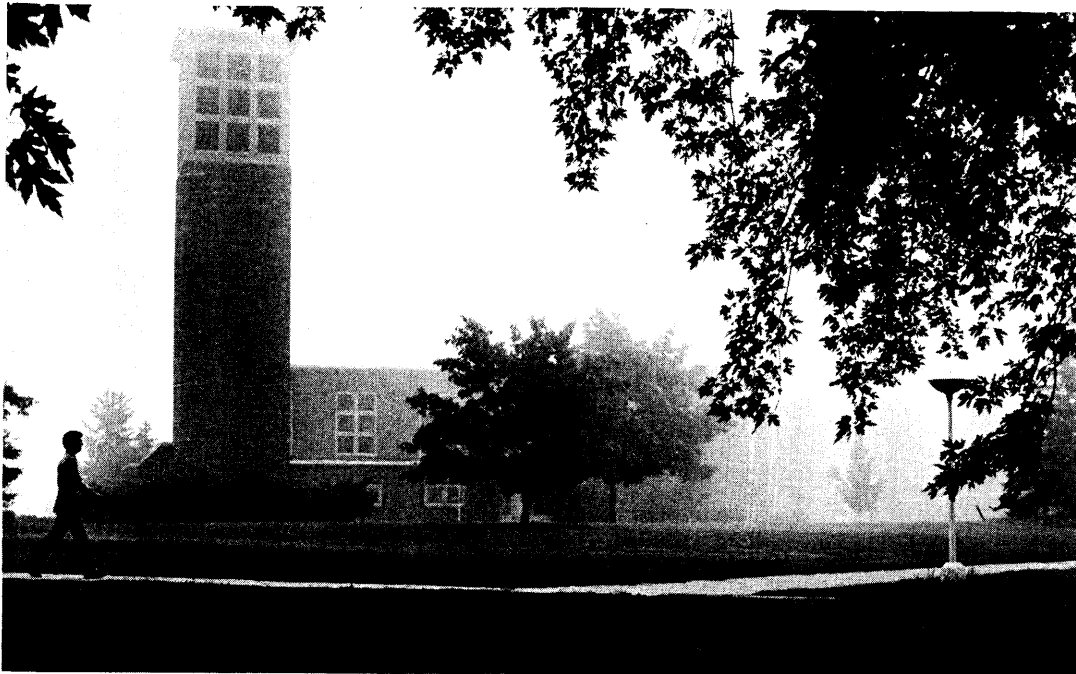
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