Government of the University

The 1963 constitution of the State of Michigan places Eastern Michigan University under a separate board consisting of eight members appointed by the Governor. It is known as the Board of Regents of Eastern Michigan University. Financial support for the University comes from tax monies paid by the people of Michigan and receipt of students' tuition and fees.

BOARD OF REGENTS

<table>
<thead>
<tr>
<th>Name</th>
<th>Term Expires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virginia Allan</td>
<td>December 31, 1970</td>
</tr>
<tr>
<td>Charles Anspach</td>
<td>December 31, 1968</td>
</tr>
<tr>
<td>O. William Habel</td>
<td>December 31, 1966</td>
</tr>
<tr>
<td>Lawrence R. Husse</td>
<td>December 31, 1972</td>
</tr>
<tr>
<td>J. Don Lawrence</td>
<td>December 31, 1968</td>
</tr>
<tr>
<td>Edward J. McCormick, Chairman and Presiding Officer</td>
<td>December 31, 1970</td>
</tr>
<tr>
<td>Dr. Martin P. O'Hara</td>
<td>December 31, 1968</td>
</tr>
<tr>
<td>Mildred Beatty Smith</td>
<td>December 31, 1972</td>
</tr>
</tbody>
</table>

ADMINISTRATIVE OFFICERS

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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</thead>
<tbody>
<tr>
<td>Harold E. Sponberg</td>
<td>President</td>
</tr>
<tr>
<td>Ray B. Loeschner</td>
<td>Assistant to the President</td>
</tr>
<tr>
<td>Bruce K. Nelson</td>
<td>Vice-President for Instruction</td>
</tr>
<tr>
<td>William C. Lawrence</td>
<td>Vice-President for Student Affairs</td>
</tr>
<tr>
<td>Lewis E. Profit</td>
<td>Vice-President for Business and Finance</td>
</tr>
<tr>
<td>Carl R. Anderson</td>
<td>Vice-President for Public Affairs</td>
</tr>
<tr>
<td>James H. Glasgow</td>
<td>Dean, Graduate School</td>
</tr>
<tr>
<td>Hebert M. Jones</td>
<td>Assistant Dean, Graduate School</td>
</tr>
<tr>
<td>Earl A. Roth</td>
<td>Dean, College of Business</td>
</tr>
<tr>
<td>Donald Drummond</td>
<td>Dean, College of Arts and Sciences</td>
</tr>
<tr>
<td>R. Stanley Gex</td>
<td>Dean, College of Education</td>
</tr>
<tr>
<td>Everett L. Marshall</td>
<td>Dean, Records and Teacher Certification</td>
</tr>
<tr>
<td>Ralph F. Gilden</td>
<td>Dean, Admissions and Financial Aids</td>
</tr>
<tr>
<td>Julius M. Robinson</td>
<td>Dean, Summer Session</td>
</tr>
<tr>
<td>Earl K. Studt</td>
<td>Director, Division of Field Services</td>
</tr>
<tr>
<td>Richard J. Nisbet</td>
<td>Director, Placement</td>
</tr>
<tr>
<td>Susan B. Hill</td>
<td>Dean of Students</td>
</tr>
<tr>
<td>Richard Gustavson</td>
<td>Administrative Assistant, Graduate School</td>
</tr>
</tbody>
</table>

DEPARTMENT HEADS

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
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</thead>
<tbody>
<tr>
<td>William Underwood (acting)</td>
<td>Accounting and Finance</td>
</tr>
<tr>
<td>Kingsley M. Calkins</td>
<td>Art</td>
</tr>
<tr>
<td>Richard A. Giles</td>
<td>Biology</td>
</tr>
<tr>
<td>Charles H. Duncan</td>
<td>Business Education</td>
</tr>
<tr>
<td>Clark G. Spike</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Appointment Pending</td>
<td>Education</td>
</tr>
</tbody>
</table>
Tuition and Fees

8

million people, sixty percent of Michigan's total population, live within fifty miles of Ypsilanti.

UNIVERSITY HOUSING

The University offers housing in residence halls and in apartments. At present, there are eight residence halls for women, four for men, and 304 apartments. Graduate students are eligible to live in any of these units, as they are available.

Students living in the residence halls are required to board there also. Room and board in the residence halls is currently $843.00 for the academic year. Apartment units rent for $80.00 per month for one-bedroom apartments and $93.00 per month for two-bedroom apartments. The University reserves the right to revise these rates when necessary. Applications and additional information may be obtained from the Director of Housing, Housing Office, Eastern Michigan University.

RECREATION AND SOCIAL LIFE

Detailed information concerning recreational and social life on the University campus may be found in the Undergraduate Catalog. Except for intercollegiate athletics, graduate students are eligible and urged to participate in all extracurricular activities.

STUDENT EMPLOYMENT POSSIBILITIES ON CAMPUS

Students interested in earning money with which to pay in part their expenses will be given advice and detailed information upon application at the Placement Office. Students are urged not to come to the University unless they have at the time of entering enough money to meet the expenses of the first semester.

TUITION AND REGISTRATION FEE

A student who holds a bachelor's degree will pay graduate tuition regardless of the type of credit received. A senior electing both graduate and undergraduate courses will pay only the undergraduate tuition.

<table>
<thead>
<tr>
<th>Tuition Schedule</th>
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<tbody>
<tr>
<td>Semester Hours</td>
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<tr>
<td>1</td>
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<td>6</td>
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<tr>
<td>7</td>
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<tr>
<td>8</td>
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<tr>
<td>9</td>
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<tr>
<td>10 or more</td>
</tr>
</tbody>
</table>
Registration Fee

All students are required to pay a nonrefundable registration fee of $15.00 per semester. This fee is collected when the student pays his tuition.

Late Enrollments

No enrollments will be accepted after the second meeting of a graduate class. This rule will be set aside only during the summer session when the first week of campus classes overlaps the last week of school of an inservice teacher. However, such a student must complete registration in advance, either by mail or during the registration period.

Late Enrollment Fee

A late fee of $5.00 is charged after the last official day of registration.

Fee for Program Changes Initiated by the Student

After registration a fee of $3.00 will be charged for (1) drop and add changes and (2) the addition of a course. Changes initiated by the Graduate Office, such as those resulting from closed or cancelled classes, do not carry the penalty.

Refund of Tuition and Fees — Fall and Spring Semesters

A. Withdrawal from the University

When a graduate student withdraws from all classes the following refund will be made:

1. Before the final official registration day — 100% of total.
2. Seven calendar days or less after the final official registration day — 90% of total.
3. More than seven calendar days and less than 22 days after the final official registration day — 60% of total.
4. More than 21 calendar days and less than 36 days after the final official registration day — 40% of total.
5. More than 35 calendar days and less than 50 days after the final official registration day — 20% of total.
6. After the 49th calendar day following the official registration day, no refund will be granted.

In all cases the date of reporting withdrawal to the Graduate Office will be used, and forms requesting refunds will be initiated by the Graduate Office.

B. Withdrawal from one or more classes

When a graduate student finds it necessary to withdraw from one or more classes, the following refund will be made:

1. Before the final official registration day — 100% of the difference between fees for the two programs.
2. Seven calendar days or less after the final official registration day — 90% of the difference between fees for the two programs.
Admission to Graduate Study

Instructional Program

PURPOSE
The graduate program at Eastern Michigan University is designed to provide training for teachers, supervisors, and administrators. Primary emphasis at all times is on a program of work which shall produce a better teacher. Through its graduate program, the University aims at broadening the general background and knowledge of the student and at substantially increasing his professional skills. The offerings of the Graduate School are sufficiently flexible to permit a program of courses adapted to the individual needs of the student.

SPECIAL ADMISSION TO GRADUATE STUDY
Special admission to the Graduate School of Eastern Michigan University is granted to a student who expects to transfer credit to another institution, or who is not working toward a degree, or who is uncertain as to the goal sought. Special admission is usually granted for 1 to 6 semester hours of graduate work, although 15 hours of credit in the Department of Special Education may be transferred to any state-supported institution.

A student who is not working toward a degree may elect more than 6 hours only after supplying a transcript of undergraduate credits or sending to the Graduate School a statement that he does not seek a master's degree at the University. In case a student exceeds the 6 hours originally granted for special admission and then applies for regular admission, the application of all credit on a master's degree is not automatic. Only those courses applicable on a required and suggested program of courses will be applied toward the degree.

REGULAR ADMISSION TO GRADUATE STUDY
Admission to the Graduate School of Eastern Michigan University is open to anyone who holds a bachelor's degree from a college or university of recognized standing and who is qualified to pursue with profit a program leading to the master's degree. Seniors in their last session at Eastern Michigan University may carry a combined schedule of graduate and undergraduate courses.

A student enrolling for the first time in graduate work at Eastern Michigan University must complete an Application for Admission form and return it to the Graduate School, together with official transcripts of undergraduate and graduate work taken at other institutions. Transcripts are not required for undergraduate work taken at this University. A student who has not completed all admission requirements shall not be given course credit or receive an official transcript for such credit.

GRADUATE PROGRAMS
Programs Leading to the Degree of Master of Arts in Education

  Educational Administration
  Guidance and Counseling
Reading
Teaching Language Arts and Literature
Teaching Social Studies
Teaching General Science
Community School Leadership (Flint)

These programs are designed for students who have had teaching experience or who hold a contract to teach. Applicants for admission to the programs listed above must present evidence that they hold a provisional or permanent certificate which is valid in Michigan schools.

Programs Leading to a Master's Degree in a Specialized Field

| Art: Art Education     | Home Economics          |
| Art: Fine Arts        | Industrial Arts         |
| Biology               | Vocational Industrial Education |
| Business Administration| Literature             |
| Business Education    | Mathematics            |
| Chemistry Education   | Physical Education      |
| General Science       | Physics                |
| Geography             | Social Studies          |
| History               | Speech and Dramatic Arts|

Admission to a program leading to a graduate major in a specialized field is the joint concern of the Dean of the Graduate School and of the department or departments concerned. Standards of admission are established by the department, and the Graduate School administers the policy.

The program of studies is prepared by a graduate adviser or an advisory committee in the applicant’s department. A student must be in residence on the campus at Ypsilanti for a minimum of 15 hours.

A department may require a substantial paper of research quality. No more than 6 hours of credit may be granted for the research paper and no more than 2 hours of credit for the research paper may be elected in any one session without permission of the departmental adviser and the Dean of the Graduate School.

A department may require an oral examination or a written examination or both. After a student has completed 12 hours of graduate credit, his adviser or advisory committee shall review his progress and shall send to the Dean of the Graduate School and to the Graduate Council a recommendation concerning admission to candidacy for the master's degree.

Programs Leading to the Degree of Master of Arts in Education and to a Provisional Certificate

Teaching in the Elementary Schools
Teaching Handicapped Children (Special Education)
Teaching Language Arts and Literature
Teaching Social Studies
Teaching General Science

These programs leading to a master's degree are designed for students who hold a bachelor's degree from an accredited institution but who lack
Graduate Assistantships

Only students with regular admission are given permission to enroll in undergraduate courses and receive graduate credit by completing additional work. A student who expects to transfer graduate credit to another institution may not be admitted to such courses.

GRADUATE ASSISTANTSHIPS AND TEACHING FELLOWSHIPS

Several graduate assistantships and teaching fellowships are available each year. Stipends vary with the work assigned, ranging from $450 to $2700 per academic year. In some cases, the course load of a graduate assistant may be restricted to 8 or 10 hours of graduate credit. All assistantships require 10 or more hours of work per week under the direct supervision of a member of the faculty.

From time to time graduate assistantships will be available for the summer session. The stipend will be $150 for a full assistantship with the course load limited to 4 semester hours.

Quality of undergraduate and graduate credits, the possession of a teacher’s certificate or its equivalent, and breadth of training will be among the factors considered in the granting of assistantships.

For additional information a student should write to the Head of the Department in which he expects to elect a major.

STANDARDS AND POLICIES

The Academic Year

The academic year is divided into two semesters and several summer sessions, one of six weeks, one of eight weeks, and two of two weeks. Students may enroll at the opening of any semester or session. The calendar is printed on one of the first pages of this catalog.

Credits

The unit of work and of credit is the “semester hour.” A semester hour is the credit granted in a course meeting once a week for fifteen or more weeks.

Unless otherwise noted, all graduate courses carry two semester hours of credit.

Grades

The grades used in the Graduate School of the University are listed below together with their grade point values.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade Points per semester hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>9</td>
</tr>
<tr>
<td>A</td>
<td>8</td>
</tr>
<tr>
<td>A−</td>
<td>7</td>
</tr>
<tr>
<td>B+</td>
<td>6</td>
</tr>
<tr>
<td>B</td>
<td>5</td>
</tr>
<tr>
<td>B−</td>
<td>4</td>
</tr>
<tr>
<td>C+</td>
<td>3</td>
</tr>
</tbody>
</table>
Approval for graduation and for candidacy require a grade-point average of 5.0 or B.

Application for Graduation

A candidate for graduation must make application for a diploma at the time of registration for the session at the close of which he expects to receive the master's degree. Application blanks are available in the Graduate Office.

A candidate for graduation should check with the Placement Office to make certain that all placement forms have been completed. Completion of a personnel folder in the Placement Office is one of the requirements for graduation.

A candidate for a certificate should check with the office of the Dean of Records and Teachers Certification to make certain that all requirements and application forms have been completed.

Financial Obligations

A student is eligible for registration or for graduation only after financial obligations with the University have been met. Reports of grades, transcripts of credits, or other statements of record will be withheld should the student be in arrears at the close of any session.

Campus Credit

For all graduate students there is a requirement of at least 15 semester hours on the campus at Ypsilanti. This requirement may be met by attendance in afternoon and evening classes during the year or in classes of a summer session.

Withdrawing from Classes

During the first eight weeks of a semester, a student may initiate withdrawal from one or more graduate classes in the Graduate Office. During this period a "W" is assigned when justifiable reasons are presented; otherwise, an "E" is assigned.

Beginning with the ninth week of a semester, it is not possible for a student to withdraw from a class with a "W" unless there are extenuating circumstances. Such proof should be presented to the Dean of the Graduate School for validation.

Removal of "Incompletes"

An "incomplete" should be removed by a student within four weeks from the beginning of the next session in which he is enrolled, but not later than one year after the incomplete was received.
Time Limitation

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Time Limitation

All requirements for a master's degree must be completed within six years from the time of first enrollment in a graduate course at this institution or elsewhere.

Research Paper

Graduate students are encouraged to write a research paper. For many, 592 Research Techniques (Formerly 594) affords opportunities to acquire basic research skills; for others, 597, 8, 9, 697, 8, 9 Independent Studies may supply an approach to research.
Course Offerings

COLLEGE OF ARTS AND SCIENCES

ART

FA 500  Masterpieces of Art. 2 sem hr
(Formerly CU 543)
Historical art forms with readings, slides, and discussion of historical works in the visual arts; a study by the block and gap method rather than a chronological survey. Design principles involved in the creation of the visual arts are applied both to famous works and the work of the student; laboratory experience in media for adults. Not open to students who have a major in art.

FA 501  Art Workshop I. 2 sem hr

FA 502  Art Workshop II. 2 sem hr

FA 503  Art Workshop III. 2 sem hr
Organizational problems in relationships of texture, space, line, volume, mass.

FA 510  Ceramics. 2 sem hr
Advanced studio course in ceramics.

FA 520  Drawing. 2 sem hr
Advanced studio course in drawing.

FA 530  Art History. 2 sem hr
Advanced course in art history.

FA 540  Jewelry. 2 sem hr.
Advanced studio course in jewelry.

FA 550  Graphics. 2 sem hr
Advanced studio course in graphics.

FA 560  Watercolor. 2 sem hr
Advanced studio course in watercolor.

FA 570  Sculpture. 2 sem hr
Advanced studio course in sculpture.

FA 580  Oil Painting. 2 sem hr
Advanced studio course in oil painting.

FA 608  Exhibition in Art Education. 2 sem hr
For a major receiving a degree in Art Education the exhibition will include the works of the student or may include examples of work done under the supervision of the art education degree candidate as evidence of master teaching ability. To be elected in the last semester before receiving a master's degree.

FA 610-617  Ceramics. each 2 sem hr
Advanced studio courses in ceramics. Based on background and need of the student. Open only to majors.
FA 618 Exhibition in Ceramics. 2 sem hr
For a candidate receiving a degree in Fine Arts, the exhibition will be composed of work done in the student's major area. To be elected in the last semester before receiving a master's degree.

FA 620-627 Drawing. each 2 sem hr
Advanced studio courses in drawing. Based on background and need of the student. Open only to majors.

FA 628 Exhibition in Drawing. 2 sem hr
For a candidate receiving a degree in Fine Arts, the exhibition will be composed of work done in the student's major area. To be elected in the last semester before receiving the master's degree.

FA 630-637 Art History. each 2 sem hr
Advanced courses in art history. Based on background and need of the student. Open only to majors.

FA 640-647 Jewelry. each 2 sem hr
Advanced studio courses in jewelry. Based on background and need of the student. Open only to majors.

FA 648 Exhibition in Jewelry. 2 sem hr
For a candidate receiving a degree in Fine Arts, the exhibition will be composed of work done in the student's major area. To be elected in the last semester before receiving the master's degree.

FA 650-657 Graphics. each 2 sem hr
Advanced studio courses in graphics. Based on background and need of student. Open only to majors.

FA 658 Exhibition in Graphics. 2 sem hr
For a candidate receiving a degree in Fine Arts, the exhibition will be composed of work done in the student's major area. To be elected in the last semester before receiving the master's degree.

FA 660-667 Watercolor. each 2 sem hr
Advanced studio courses in watercolor. Based on background and need of the student. Open only to majors.

FA 668 Exhibition in Watercolor. 2 sem hr
For a candidate receiving a degree in Fine Arts, the exhibition will be composed of work done in the student's major area. To be elected in the last semester before receiving the master's degree.

FA 670-677 Sculpture. each 2 sem hr
Advanced studio courses in sculpture. Based on background and need of student. Open only to majors.

FA 678 Exhibition in Sculpture. 2 sem hr
For a candidate receiving a degree in Fine Arts, the exhibition will be composed of work done in the student's major area. To be elected in the last semester before receiving the master's degree.

FA 680-687 Oil Painting. each 2 sem hr
Advanced studio courses in oil painting. Based on background and need of student. Open only to majors.

FA 688 Exhibition in Oil Painting. 2 sem hr
For a candidate receiving a degree in Fine Arts, the exhibition will be composed of work done in the student's major area. To be elected in the last semester before receiving the master's degree.
BIOLOGY

BIO 500 Survey of the Plant Kingdom. 2 sem hr  (Formerly BIO 542)
The major types of plants from algae to seed plants; emphasis on development of structure. Not open to graduate majors in biology nor to students who hold credit in Botany 221.

BIO 501 Survey of the Animal Kingdom. 2 sem hr.  (Formerly BIO 543)
A survey of the major animal groups from protozoans to mammals. Structure and function; the bases for classification and the evolutionary relationships of the several groups. Not open to graduate majors in biology nor to students who hold credit in Zoology 222.

BIO 502 Biology of Man. 2 sem hr  (Formerly BIO 521)
Man as a living organism in the world of living organisms, emphasizing his place among, and relationships with, the other organisms of the world; the morphological, physiological, taxonomic, and ecological relationships of Man. Lectures and laboratory experience. Not open to majors in biology.

BIO 503 Plants and Nature. 2 sem hr  (Formerly BIO 517)
Plants in their natural environment; identification and classification of local flowering plants, use of hand-lens and plant manuals, and methods of collection and preservation. Major plant groups and their climatic and geographic significance.

BIO 504 Field Zoology. 2 sem hr  (Formerly BIO 516)
Animals in their natural habitats; identification, behavior, and environmental relations. Field study and observations in woods, fields, ponds, and streams; collecting and displaying living and preserved material.

BIO 505 Science in the Elementary School. 2 sem hr  (Formerly BIO 580)
A survey of subject matter and grade placement utilizing current science readers and courses of study; the construction and use of science materials to fit the immediate needs of individual class members, together with a study of supply and equipment needs for elementary school.

BIO 506 Methods in Teaching Biology. 2 sem hr  (Formerly BIO 551)
Salient techniques and methodology in presenting biological principles; text analysis, curriculum revision, course content, planning and equipping a modern high school biology laboratory. Not open to students who have credit in 403 Methods and Materials for Teaching Biology.

BIO 511 Anthropology. 2 sem hr  (Formerly BIO 587)
The origin, development, differentiation and evolution of primates; the concept of culture against the background of man's biological inheritance. An appreciation of cultural differences.

BIO 512 Biogeography. 2 sem hr  (Formerly BIO 528)
Descriptive and historical plant and animal distribution and the basic principles governing the natural distribution in both space and time.

BIO 513 Principles of Heredity. 2 sem hr  (Formerly BIO 586)
The basic principles of heredity. Not open to students who hold credit in 301 Genetics.

BIO 520 Problems in Functional Biology. 2 sem hr  (Formerly BIO 589)
The reduction of complex life functions to a few basic principles; development of an ability to approach physiological problems with confidence; laboratory demonstrations as an effective learning device.

BIO 521 Outdoor Science and Land Laboratories. 4 sem hr
Using the outdoors effectively in instruction; recognition of instructional resources on school sites and other land laboratories. Basic ecological factors affecting associations of organisms; correlations between physical and social sciences. Field trips.
Biology

BIO 525 Conservation. 2 sem hr  (Formerly BIO 584)
A survey of the natural resources of Michigan; its land, water, minerals, forests, grasslands, wildlife, and human powers. Some of the current problems in conservation peculiar to Michigan on the basis of its history, its present resource utilization, and its future possibilities.

BIO 530 Plant Products in Industry. 2 sem hr  (Formerly BIO 540)
The various ways in which plants and plant products are utilized in modern industry; plants as the source of technical raw materials; the dependence of man upon the plant kingdom.

BIO 550 Taxonomy of Tracheophyta. 3 sem hr  (Formerly BIO 546)
Theory and practice in identification and classification of vascular plants.
Prereq: General Botany 221. Not open to students with credit in systematic botany.

BIO 560 Economic Zoology. 2 sem hr  (Formerly BIO 541)
The species, varieties, and breeds of animals that are used as beasts of burden; supply food, clothing, sport, and recreation; serve as pets; or are injurious to man or to his domestic animals and crops.
Prereq: one course in zoology.

BIO 595 Workshops in Selected Areas.

BIO 596 Seminar in Biology. 1 sem hr
Presentation of special reports on selected topics.
Prereq: 20 hours of credit in biology, including botany and zoology.

BIO 597, 598, 599 Independent Studies. each 2 sem hr
An intensive study of a problem or group of problems under the direction of a University faculty member.

BIO 610 Cytogenetics. 4 sem hr  (Formerly BIO 683)
Modern concepts of cell structure and behavior; chromosome structure and behavior, physical and chemical bases. Techniques of chromosome analysis and effects of different factors on mitosis and meiosis.
Prereq: BIO 586 or equivalent.

BIO 620 Virology. 2 sem hr  (Formerly BIO 544)
The nature and activity of the viral agents found in bacteria, plants and animals.
Prereq: 15 hours of credit in biology; bacteriology and biochemistry.

BIO 630 Cryptogamic Botany. 4 sem hr  (Formerly BIO 671)
A lecture and laboratory course on the structure and life cycles of representative lower plants.
Prereq: 15 hours of credit in biology including general botany; plant anatomy and microtechnique.

BIO 640 Plant Cell Physiology. 2 sem hr  (Formerly BIO 681)
Selected topics on recent advances in molecular botany.
Prereq: 221 General Botany, laboratory physiology (Plant or animal), and organic chemistry.

BIO 650 Phycology. 2 sem hr  (Formerly BIO 672)
Structure, function, distribution, and classification of the major groups of algae. Special attention to forms which may be found locally; opportunities for field collections, culturing algae.

BIO 651 Plant Taxonomy. 2 sem hr  (Formerly BIO 684)
Modern techniques and systems of classification of the higher plants. The student will apply one or more of the techniques in a field problem.
Prereq: one course in plant classification.
BIO 660 Experimental Animal Embryology. 2 sem hr
Demonstration and laboratory experiences utilizing the experimental method.
Prereq: 323 Embryology or equivalent.

BIO 670 Animal Behavior. 2 sem hr
The behavior of both vertebrates and invertebrates; instinct, learning, sociality, communication, and breeding behavior, with emphasis on the ontogenetic and adaptive significance of behavior patterns.
Prereq: two courses in zoology.

BIO 671 Comparative Physiology. 4 sem hr
A study of systems used to maintain endogenous homeostasis in a phylogenetic series of animals.
Prereq: organic chemistry, animal physiology.

BIO 672 Endocrinology. 4 sem hr
A biological and non-clinical survey of the invertebrate and vertebrate endocrine systems; the histology and function of each of the major endocrine organs, their specific hormones and integrative mechanisms.
Prereq: organic chemistry and animal physiology.

BIO 680 Advanced Field Ornithology. 2 sem hr
Field study and identification of fall migratory birds and the fall migration as a biological phenomenon.
Prereq: 425 Ornithology or 210 Birds.

BIO 695 Workshop in Advanced Biology. 2 sem hr

BIO 696 Seminar in Biology: Laboratory Instruction. 1 sem hr
Analysis and discussion of the special problems of laboratory instruction in biology in college.
Prereq: Appointment to a teaching fellowship.

BIO 697, 698, 699 Thesis Problem. 2 sem hr each
(Formerly 676, 678, 679, 686, 687, 688, 689)

CHEMISTRY

CHM 503 New Approaches to Teaching Chemistry. 2 sem hr
Laboratory procedures of the CHEM Study Program. Pre-lab discussions and lectures.
Prereq: Three courses in Chemistry.

CHM 520 Introductory Chemistry. 2 sem hr
The relationship of chemistry to the earth sciences, physical sciences, and biological sciences; terms and definitions common to the several fields. Topics covered are: the periodic table, modern theories of atomic structure, chemical processes and reactions in relation to physical surroundings and in relation to life processes. For non-majors only.

CHM 551 Advanced Biochemistry-Enzymology. 2 sem hr
Isolation, assay, kinetics, mechanisms, and structure of biological catalysts. A lecture course.
Prereq: Chemistry 451 or permission of department.

CHM 570 Modern Topics in Organic Chemistry. 4 sem hr
Modern chemical principles presented in a framework of organic chemistry; update information for students lacking recent instruction in Chemistry.

CHM 596 Seminar in Chemistry. 2 sem hr
Specific areas of Chemistry discussed by staff and graduate students. Each student leads one or more discussions.
CHM 597, 598, 599  Research in Chemistry. each 2 sem hr
The student performs original research under direction; thesis is submitted.

OTHER COURSES FOR CREDIT TOWARD M.S. IN CHEMISTRY EDUCATION
CHM 432  Advanced Inorganic Chemistry.
CHM 451-452  Biochemistry.
CHM 461-463  Physical Chemistry.
CHM 462  Physicochemical Measurements.
CHM 471  History and Literature of Chemistry.
CHM 472  Qualitative Organic Chemistry.
CHM 473  Advanced Organic Chemistry.
CHM 481  Instrumental Analysis.
CHM 496-497  Special Topics in Chemistry.

ENGLISH LANGUAGE AND LITERATURE

I. General Courses

LIT 500-503  are courses not open to undergraduate students and, effective June 15, 1965, and thereafter, not credited toward an M.A. in Literature. Such courses are offered for the benefit of graduate students specializing in departments other than English who wish to take collateral or cognate work in the Department of English. Such students, however, are not restricted to these courses, but may take any other graduate courses in English for which they have the prerequisites.

LIT 500  Masterpieces of Literature. 2 sem hr  (Formerly CU 532)
A study of various literary forms — drama, poems, and prose works — to provide greater understanding of the significance of literature to the individual and to society. Chosen for their excellence in themselves, and for their relevance to contemporary life are works of such authors as Homer, Sophocles, Shakespeare, Wordsworth and Ibsen.

LIT 501  The Religious Tradition in European Literature. 2 sem hr  (Formerly CU 560)
Analysis of great European literature of the past and the present concerned with man’s search for meaning. Examples are chosen from the Bible, drama, fiction, and poetry. Works of such authors as St. Augustine, Marlowe, Bunyan, Tolstoy, Shaw, Auden, and Graham Greene are studied.

LIT 502  Modern Problems as Portrayed in Modern Literature. 2 sem hr  (Formerly CU 503)
The portrayal in modern literature of such problems as the relation between the individual and the State, the Family, and the Crowd; the relation between Western and other civilizations. The effects of the industrial system and the search for values. Writers whose works might provide material include Huxley, Mann, Shaw, Forster, Joyce, Lawrence, Wells, Faulkner, Eliot, Auden, Miller, and Dos Passos.

LIT 503  Biography as Literature. 2 sem hr  (Formerly CU 574)
The documentary biography, the portrait biography, and the narrative-pictorial biography; biography as fact, as psychological interpretation, and as art.

LIT 508  Teaching of Children’s Literature. 2 sem hr  (Formerly LE 534)
An appreciation of the several types of books available for children with suggested uses which might be made in the elementary schools. Not open to students who have credit in 207 Children’s Literature. Offered for teachers in the elementary schools; not counted toward the M.A. in literature.
II. Courses for M.A. in Literature

A. AMERICAN LITERATURE

LIT 510 Problem of Evil in American Literature. 2 sem hr  (Formerly CU 562)
Analysis of selected essays, poems, short stories and novels in which three great American writers, Emerson, Hawthorne, and Melville, have delineated and speculated upon the nature, loci, causes, and effects of evil in the cosmos, in society, and in the individual soul.
Prereq: 15 hours of credit in literature.

LIT 520 Dickinson, Robinson, Frost. 2 sem hr  (Formerly CU 568)
The lyric and narrative poetry of three New England poets; explication of poems, biography, and the poets’ reflection of their times.
Prereq: 15 hours of credit in literature.

LIT 521 Whitman and Contrasting American Poets. 2 sem hr  (Formerly CU 571)
Form and content in Whitman’s poetry as related to the literary, social, and political backgrounds of his time. Comparisons with the theory and practice of Bryant, Poe, Whittier, and Longfellow.
Prereq: 15 hours of credit in literature.

LIT 525 Henry James. 2 sem hr
Major novels, shorter fiction, and literary criticism of Henry James.
Prereq: 15 hours of credit in literature.

B. BRITISH LITERATURE BEFORE THE ELIZABETHAN PERIOD

LIT 530 Studies in Chaucer. 2 sem hr  (Formerly CU 575)
Intensive reading of Chaucer’s major works and supplementary reading in Chaucerian criticism.
Prereq: 15 hours of credit in literature.

C. BRITISH LITERATURE OF THE SIXTEENTH CENTURY

LIT 540 Elizabethan Drama. 2 sem hr  (Formerly CU 567)
The plays of Marlowe, Jonson, and Webster, considered primarily for their intrinsic literary and dramatic merit and secondarily for the light they throw on Shakespeare’s milieu. A greater understanding of the term “Elizabethan drama.”
Prereq: 15 hours of credit in literature.

LIT 541 Studies in Shakespeare. 2 sem hr  (Formerly CU 564)
Studies in the historical, biographical, textual, and critical scholarship relevant to two or three of Shakespeare’s plays. Investigations, reports, papers.
Prereq: one course in Shakespeare and 15 hours of credit in literature.

LIT 542 Elyot, Sidney, Spenser. 2 sem hr  (Formerly CU 566)
To examine in depth the artistic aims, techniques and achievements of three British authors.
Prereq: 15 hours of credit in literature.

D. BRITISH LITERATURE OF THE SEVENTEENTH CENTURY

LIT 550 Donne, Browne, and Others. 2 sem hr  (Formerly CU 565)
The principal works of two or three English authors from the period 1600-1660, e.g., John Donne and Sir Thomas Browne.
Prereq: 15 hours of credit in literature, including one course in Shakespeare.

LIT 551 Studies in Milton. 2 sem hr  (Formerly CU 570)
Because one of the most interesting aspects of the study of Milton is his intellectual development, the material will be read in chronological order as far as practicable. Poems and selected items from prose.
Prereq: 15 hours of credit in literature.
E. BRITISH LITERATURE OF THE NEO-CLASSICAL PERIOD

LIT 560  Dryden, Pope.  2 sem hr
A study of the major works of Dryden and Pope, with an introduction to the most important criticism of their writings.
Prereq: 15 hours of credit in literature.

LIT 562  Boswell and Johnson.  2 sem hr
Major writings with attention to the men and times.
Prereq: 15 hours of credit in literature.

F. BRITISH LITERATURE OF THE NINETEENTH CENTURY

LIT 570  Wordsworth.  2 sem hr  (Formerly CU 572)
An intensive study of the poetry and critical essays of Wordsworth.
Prereq: 15 hours of credit in literature.

LIT 571  Byron, Keats.  2 sem hr  (Formerly CU 573)
An intensive study of the poetry of Byron and Keats.
Prereq: 15 hours of credit in literature.

LIT 575  Carlyle, Arnold.  2 sem hr  (Formerly CU 577)
A close examination of selected works, accompanied by rapid reading of other works and of biographies, correspondence, and other background materials that will aid students to place these two major writers in their time, and to discover their relevance to our time.
Prereq: 15 hours of credit in literature.

G. BRITISH AND AMERICAN LITERATURE OF THE TWENTIETH CENTURY

LIT 580  The Making of the Modern Mind.  2 sem hr  (Formerly CU 561)
The emergence of the moral, social, political, and religious dilemmas that confront thinking men and women of the twentieth century, studied chiefly through works of British and American literature.
Prereq: 15 hours of credit in literature.

LIT 581  Eliot, Jeffers, Auden.  2 sem hr
Intensive study of the work of three major contemporary poets.
Prereq: 15 hours of credit in literature.

II. MISCELLANEOUS

LIT 609  Literary Criticism.  2 sem hr  (Formerly CU 666)
A study of various approaches to literary criticism with application to specific works.
Prereq: 15 hours of credit in literature.

LIT 597, 598, 599  Independent Studies.  each 2 sem hr
An intensive study of a problem or group of problems under the direction of a University faculty member. Not to be elected until a student has been accepted as a candidate for the master's degree in literature.

LIT 696  Seminars in Selected Topics.  2 sem hr
Topics and instructors announced from time to time.
Prereq: 15 hours credit in literature. Further prerequisites may be required for some topics.

III. Languages, Linguistics, and Composition

The University does not offer a master's degree in language, linguistics, or composition. All candidates for the M.A. in literature must, however, present one course in the history of the English language, either undergraduate or graduate. See description of ENG 509 below; other courses in this group are not counted toward the M.A. in literature.
Foreign Language and Literature

ENG 501  Basic Studies for Teachers of Language Arts. 2 sem hr
(Formerly CU 533)
Seeks to increase the student's understanding of the nature and function of language to the end that he may deal more effectively with the communication problems of his pupils. No special knowledge of grammar is assumed.

ENG 502  Linguistics and the Teaching of Grammar. 2 sem hr (Formerly CU 535)
The aim of this course is to give prospective teachers of grammar in college, high school, or elementary school a knowledge of contemporary theoretical developments in linguistics and of current texts which apply linguistic theories to the teaching of English grammar in the classroom.

ENG 509  The Development of Modern English. 2 sem hr (Formerly CU 553)
The history of the English language. The scientific principles involved in linguistic evolution; the grammatical structure, the sources of the English vocabulary, the political, social, and cultural influences which have affected the language. This course is required of all candidates for the M.A. in literature who have not acquired undergraduate credit in the history of the English language. Not open to students who have credit in ENG 221 History of the English Language.

IV. Other Courses for Credit Toward M.A. in Literature

The following courses for advanced undergraduates are also available to graduate students for either 2 or 3 semester hours credit each depending upon the circumstances of the student's registration; on this matter the student should, before completing his registration, have a clear understanding with both the Dean of the Graduate School and the chairman of the Committee on Graduate Studies in the Department of English. For descriptions of these courses, see the Undergraduate Catalog.

305 Shakespearean Comedy.
314 Old English.
315 Age of Chaucer.
316 English Literature 1500-1600.
317 English Literature 1600-1660.
318 English Literature 1660-1744.
319 English Literature 1744-1798.
327 Milton.
401 Modern American and British Poetry.
404 English Literature 1798-1832.
405 Victorian Poetry.
407 Victorian Prose.
409 American Literature to 1865.
410 American Literature since 1865.
420 Old English Poetry.
430 History of Literary Criticism.
434 English Literature in Transition, 1880-1914.

FOREIGN LANGUAGE AND LITERATURE

FLA 516, FLA 517  Reading French for Graduate Students. 2 sem hr each
The structure, basic vocabulary, and common idioms of French, to serve as a background for the graduate student who seeks a reading proficiency; open to students whose previous language experience has been dimmed by time, as well as to the be-
The course will be taught at the adult level, and will cover more than the customary first semester undergraduate course. The student must not enroll for any course scheduled for the hours between the two parts of this course, but should leave this period free for study and drill. Enrollment in both parts is obligatory.

FLA 519 French Diction. 2 sem hr
Study of physiology of the fundamental vowel and consonant sounds in French. Drill on rhythm and intonation. Practice and recording in the laboratory so that the student may have an opportunity to hear himself.

FLA 520 French Grammar and Syntax. 2 sem hr
An advanced course in grammar and syntax. Intended to give a solid basis for oral and written expression, and for the teaching of French.

FLA 521 Advanced Conversation in French. 2 sem hr
The acquisition of an active vocabulary for daily life and a greater oral facility are the aims of this course. The student will be expected to work in the laboratory listening to recordings and making his own.

FLA 524 Modern French Literature. 2 sem hr
This course will cover contemporary prose fiction from Gide to Michel Butor. Works of Malraux, Camus, Sartre, and others will be studied and discussed.

FLA 561 Old French Literature. 2 sem hr
A study of the literature of the Old French period from the Chanson de Roland through the time of Villon. It is recommended that this course be taken with or after the course in Old French.
Prereq: Four courses in French literature including a course in the Survey of French Literature.

FLA 563, FLA 564 Sixteenth Century French Literature. 2 sem hr each
A thorough study of the literature of the sixteenth century in France, beginning with the Grands Rhétoriqueurs and Rabelais and concluding with the Edict of Nantes.
Prereq: Two courses in French literature beyond the survey level.

FLA 585, FLA 586 Old French. 2 sem hr each
A two semester course of study in the development of Old French from its Latin roots with major emphasis upon the morphological changes. A companion course to FLA 561 Old French Literature.
Prereq: 481 History of the French Language or its equivalent.

GEOGRAPHY

GEO 507 Resources and Nations. 2 sem hr
Patterns of distribution, production, consumption, and adequacy of physical and cultural resources; different management characteristics and roles which resources play in the development of nations. Not open to students who hold credit in an equivalent course.

GEO 508 Earth Science I. 2 sem hr
A course designed to give students a basic familiarity with rocks and minerals, and the significance of these in the development of landforms. Lectures, laboratories, and field trips will be used as teaching methods.

GEO 515 Meteorology. 2 sem hr
The phenomena of the sky in forecasting the weather; winds and cloud developments as significant weather signs. Scientific bases for forecasting will be stressed.

GEO 522 Processes of Landform Development. 2 sem hr
Interrelation of climate, soil formation, landform development, and vegetation; glaciation, streams, wind and shoreline environments in Michigan. Classroom, laboratory and field trips.
Geography

GEO 528 Biogeography. 2 sem hr
Descriptive and historical plant and animal distribution and the basic principles governing the natural distribution in both space and time.

GEO 529 Common Rocks and Minerals. 2 sem hr
Materials and processes in the formation and distribution of important minerals and rocks.

GEO 530 Principles of Earth History. 2 sem hr
Relationship of geologic processes to the rock record of earth history; origin of the earth, its relationship to the solar system, time, earth change, and the succession of life.

GEO 541 South American Lands. 2 sem hr
A regional geography study of the countries and colonies on the South American continent; resources, people, and national cultures.
Prereq: One course in geography.

GEO 542 Middle America and the Caribbean World. 2 sem hr
A regional study of Mexico, Central America, Colombia, Venezuela, and islands of the Caribbean Sea. Conditions leading to the present political upheavals in the area and an effort made to chart future trends.
Prereq: One course in geography.

GEO 544 Problems in Urban Geography. 2 sem hr
Causes and background of the contemporary urban explosion and the major geographical, economic, governmental, and social implications; analyzing land use changes, patterns, and trends. The work of metropolitan study groups and of planning commissions at the federal, state, and local level; field trips and a chartered plane flight over the Detroit-Toledo urban complex will be scheduled.

GEO 545 Problems in Political Geography. 2 sem hr
Individual and group research in selected aspects of spatial and physical dimensions, economic resources, population, culture, technological levels, circulation, and political structure of one or two selected, contemporary nation-states.
Prereq: 15 hours of credit in geography and related subjects.

GEO 552 Social Studies of Michigan. 2 sem hr
The geographic, economic, political and sociological backgrounds of important historical events in Michigan. The Indians, French, and British in Michigan; the territorial period; early statehood; the rise of mining, lumbering, manufacturing, and commercial agriculture; the utilization of natural resources for recreation.
Prereq: One geography course and one American history course.

GEO 553 Geography of the Great Lakes. 2 sem hr
A geographic and economic survey of water and land uses, primarily within the area of the Great Lakes drainage basin. The role of the St. Lawrence Seaway will also be considered. Documents and statistical source material will be used to acquire knowledge about one of North America's most vital and dynamic areas.

GEO 555 Geography of Australia. 2 sem hr
A regional study of the physical and economic geography of Australia and New Zealand including the physical setting, distribution of people and economic development.
Prereq: One course in geography.

GEO 556 Problems in the Geography of Western Europe. 2 sem hr
Selected problems in the cultural and economic geography of Western Europe.

GEO 557 Field and Project Geography. 6 sem hr
Use of field instruments and methodologies in physical, agricultural, urban, industrial, and settlement geography.
GEO 558 Geography of the Moslem World. 2 sem hr
A regional study of the areas of Africa and Asia practicing the religion of Islam. An assessment of the resource bases, current issues, and possible future trends in those countries which have grown in importance since 1940.
Prereq: One course in geography.

GEO 559 Geography of Soviet Lands. 2 sem hr
A comprehensive view of the resource bases of the Soviet Union and their regional differentiations.
Prereq: 10 hours of credit in geography.

GEO 561 Physical Landscapes. 2 sem hr
An understanding of selected landscapes; the agents and processes at work in the formation of surface features such as: weathering, wind, water, ice, waves, vulcanism and diastrophism.
Prereq: One course in geography or geology.

GEO 562 Weather. 2 sem hr
Isolation, temperature, pressure winds, moisture, precipitation, air masses and their activities, fronts, cyclones, hurricanes, tornadoes, and jet streams; observation and application of weather elements.

GEO 563 Climate. 2 sem hr
Solar and physical climates. Koppen Classification of Climates; trends, statistics, and timely topics of climate. A laboratory course.
Prereq: GEO 223.

GEO 564 Historical Geography of Michigan. 2 sem hr
The geographical background of selected historical events and periods in Michigan. The Indians, French, and British in Michigan; the territorial period; early statehood; the rise of mining, lumbering, manufacturing, and commercial agriculture; and the utilization of natural resources for recreation.

GEO 568 Geography Field Trips.
Representative geographic regions in the area visited; significant geographic and geologic characteristics of each region. Students will have an opportunity to visit typical mining, forestry, agricultural, industrial, and cultural enterprises of the regions. A written report is required.

GEO 569 The American Midwest. 2 sem hr
A regional treatment. The natural setting, the distribution of the people, the important occupations, and the present and future problems in each of the several regions.
Prereq: One course in geography.

GEO 571 Teaching of Social Studies. 2 sem hr
Subjects included: selecting and securing, organizing, presenting, and evaluating materials.

GEO 574 Africa Today. 2 sem hr
Demographic, cultural, economic and political patterns of selected regions in subsaharian Africa; politico-economic problems of the emerging states.
Prereq: 10 hours of credit in geography including an undergraduate course in the Geography of Africa.

GEO 597, 598, 599 Independent Studies. each 2 sem hr
An intensive study of a problem or group of problems under the direction of a University faculty member.

GEO 622 Applied Weather. 2 sem hr
An amplification of weather principles covered in SC 562 through observations, field work, and laboratory exercises. Synoptic charts and their many uses of articles published by the American Meteorological Society.
Prereq: GEO 562.
GEO 655  Field Studies in Michigan.  2 sem hr
The geographic and geologic environment: On-campus sessions and field trips include both subject matter and methodological content. Write department for information on content. Offered as a two-week workshop in the summer session.

GEO 660  Area Analysis.  2 sem hr
Advanced geography field research. A philosophy of field geography; selected problems concerned with industry, recreation, agriculture, and commerce.
Prereq: 15 hours of credit in geography.

GEO 663  Analytical Climatology.  2 sem hr
An advanced course in climatology which treats in detail the causes and effects of climates in specific areas of the world. Analysis of various climatic classification systems, regional climatology, and applied climatology are stressed.
Prereq: Geography 122 or 222 or GEO 562 or equivalent.

GEO 670  History of Geographic Thought.  2 sem hr
The main themes of geographic thought from ancient times to the present day; the evolution of ideas fundamental to modern American geography.
Prereq: Permission of the department.

GEO 696  Seminar in Methods and Research.  2 sem hr
Basic research techniques applicable to Geography. Location and identification of source materials, statement and analysis of problems, and preparation and presentation of results of research.
Prereq: Permission of the department.

GEO 697, 698, 699  Independent Studies. each 2 sem hr
An intensive study of a problem of group direction or problems under the direction of a University faculty member.

HISTORY AND SOCIAL SCIENCES

I. History
(An oral examination is required of master's degree candidates in history. For details see graduate adviser in the Department of History.)

A. COURSES FOR M.A. IN HISTORY

HIS 511  Ancient History I.  2 sem hr
Greek City-State Civilization; the political, economic, social, cultural, and religious life of the Greeks in the period between the Persian Wars and the successors of Alexander the Great (479-323 B.C.) with special attention to fifth-century Athens, the legacy of Greece to the modern world.

HIS 512  Ancient History II.  2 sem hr
Roman Imperial Civilization; the political, economic, social, cultural, and religious life of the Romans from the accession of Augustus to the death of Constantine (31 B.C.-337 A.D.)

HIS 514  The Reformation Era.  2 sem hr
Causes of the Reformation; Europe on the eve of the Reformation; the Reformation in Germany; spread of Protestantism; spread of Calvinism; the Catholic Reformation; religious conflicts and consequences; secularization of European States and the legacy of the Reformation.

HIS 515  Medieval History I.  2 sem hr
The intellectual and institutional history of the Middle Ages; the philosophy of the Middle Ages; the Carolingian Renaissance, the Ottonian Renaissance, and the Twelfth Century Renaissance, the history of education from Antiquity through the Middle Ages; and the rise of the universities.
HIS 516 Medieval History II. 2 sem hr
The intellectual and institutional history of the High and Late Middle Ages; education, philosophy, and medieval institutions in a growing secular society.

HIS 517 Historical Background of Modern Britain. 2 sem hr
The history of Great Britain from 1815 to the present with primary emphasis on institutional development. Political, economic, social, and imperial problems will be examined, and Great Britain's role in today's world will be assessed.

HIS 518 Modern Germany. 2 sem hr
Liberalism and Nationalism following the Napoleonic era; the achievement of unity in the imperial structure, the impact of World War I; the problems of the Weimar Republic, the rise of the Nazi dictatorship, World War II.

HIS 519 Modern France. 2 sem hr
Developments in the French nation from the Revolution of 1789 to the present.

HIS 527 Religion and Public School Education. 2 sem hr
Problems relating to religion in public school education, the general problem is well stated by F. Ernest Johnson as follows: "How can public education, in accord with its function of putting each generation in possession of its full cultural heritage, do justice to the religious phase of that heritage without doing violence to religious liberty as constitutionally safeguarded in the First Amendment to the American Constitution and in similar provisions in the constitutions of the several states?"

HIS 535 Culture of Western Europe I. 2 sem hr
Historical and cultural development in the 17th and 18th centuries; formation of the modern state system, the Age of Enlightenment, and the Era of Revolution.

HIS 536 Culture of Western Europe II. 2 sem hr
Historical and cultural development in the 19th and 20th centuries; the impact of the Industrial and Scientific Revolutions; the life and thought of the people.

HIS 548 History Travel-Study Tours. 6 sem hr
Representative areas with significant historical background.

HIS 550 Twentieth Century Russia. 2 sem hr
Political, economic, and diplomatic developments in the history of Russia from the Revolution of 1905 to the death of Stalin.

HIS 551 Contemporary Latin America. 2 sem hr
The economic, social and political problems facing modern Latin American countries, placing these problems in their relationships to both the United States and the world.

HIS 557 Intellectual History of the Far East. 2 sem hr
Major texts of Chinese classical thought; dominant trends in the later development of Chinese and Japanese ideas. The enduring influence of Confucianism.
Prereq: One course in Far Eastern history or permission of the department.

HIS 558 Diplomatic History of the Far East. 2 sem hr
The international relations of China, Japan, and Korea with each other and with the Western powers from the beginning of the nineteenth century to the present; stresses arising from East Asia's enforced entry into the modern state system.
Prereq: One course in Far Eastern history or permission of the department.

HIS 560 Federalist-Jeffersonian America. 2 sem hr
The period 1789-1815 and the foundations of the American Republic. Ideology; political, constitutional, and economic issues; and problems arising from territorial and commercial growth.
Prereq: Three courses in American history including 223 or its equivalent.
History and Social Sciences

HIS 565 Problems and Trends in Recent American History. 2 sem hr
Significant aspects of selected minority, industrial, agrarian, and governmental problems.

HIS 566 Contemporary World Problems. 2 sem hr
The global problems of colonialism, the exchange of raw and processed materials and their relation to foreign policy, the implications of the present conflict between communism and democracy, and the possibility for present and future peaceful coexistence.

HIS 567 American Democratic Thought. 2 sem hr
An intellectual history, tracing the sources, mutations, and evolution of democratic concepts in the United States.

HIS 568 The New Deal. 2 sem hr
Political, social, and economic problems of the 1930's and early 1940's; attempted solutions and their ramifications.
Prereq: three courses in American History including 224 or its equivalent.

HIS 572 Nationalism. 2 sem hr
Several definitions of nationalism; the rise of nations and nationalities in the several historical periods. The increasing functions of the state.

HIS 573 America in the Atlantic Community. 2 sem hr
America and Europe since 1492. The impact America has made upon Europe and Europe upon America; the development of social, cultural, and intellectual cross-Atlantic currents.

HIS 582 Constitutional History of the United States. 2 sem hr
The formulation and development of the Constitution by usage, interpretation, and amendment; preservation of individual liberty and creation of an adequate national government.

HIS 583 Civil War and Reconstruction. 2 sem hr
The period between the Compromise of 1850 and the restoration of home rule in the South in 1877.
Prereq: Two courses in American History.

HIS 584 The United States: 1877-1917. 2 sem hr
The history of the United States for the four decades preceding 1917.

HIS 585 Emergence of Canada. 2 sem hr
The Canadian people and their culture; the government (English-Canadian relationship), the resources, the development of industry, United States-Canadian relations, and the emergence of Canada as a contemporary world power.

HIS 586 United States in World Politics. 2 sem hr
American foreign policy in the twentieth century; the nation's transition to great-power status and its adjustment to the demands of that role.

HIS 596 Seminar in Current Affairs. 2 sem hr
The problems involved in the teaching of current affairs and exploration of the most effective techniques and materials available in this field.

HIS 597, 598, 599 Independent Studies. each 2 sem hr
An intensive study of a problem or group of problems under the direction of a University faculty member.

HIS 687 Historical Method. 2 sem hr
The relationship of history to the humanities and social sciences; the use of the library, standard bibliographical aids, and collected source materials. The skills and experience necessary to evaluate historical writing critically and to conduct historical research in a mature and professional manner.
Prereq: 15 hours graduate credit in history.
HIS 688 Historiography. 2 sem hr
A critical study of the writings, philosophy, and influence of major historians.
Prereq: 15 hours of graduate credit in history.

HIS 696 Seminar in History. 3 sem hr
Research in problems of significance in history; areas of concentration will vary. The preparation of a paper demonstrating the ability of the student to apply the canons of historical scholarship will constitute a substantial part of the course.
Prereq: 15 hours graduate credit in history plus HIS 687.

HIS 697, 698, 699 Independent Studies. each 2 sem hr
An intensive study of a problem or group of problems under the direction of a University faculty member.

B. OTHER COURSES FOR CREDIT TOWARD THE M.A. IN HISTORY
The following courses for advanced undergraduates are also available to graduate students. The student, before completing his registration, should have a clear understanding with both the Dean of the Graduate School and the Graduate Advisor in the Department of History concerning the number of semester hours credit each course will carry. For descriptions of these courses see the Undergraduate Catalog.

Ancient and Medieval History.
323 Greek History.
324 Roman History.
327 The Early and High Middle Ages.
328 The Late Middle Ages.

European History.
307 British Empire.
311 England to 1689.
312 England 1689 to Present.
333 Europe since 1919.
337 German History to 1815.
338 German History since 1815.
343 Russia to 1855.
344 Russia since 1855.
435 Italy since 1815.
440 French Revolution and Napoleon, 1774-1815.
471 Social and Intellectual History of Nineteenth Century Europe.

American History
313 Michigan History.
361 Foreign Relations of the United States.
363 History of the West.
365 The Old South.
368 Social and Intellectual History of the United States to the Civil War.
369 Social and Intellectual History of the United States since the Civil War.
402 The American Revolution.
451 Background of Current Latin-American Problems.
Political Science, Sociology

36

Non-Western History
371 The Far East to 1800.
372 The Far East since 1800.

II. Political Science

PLS 505 Problems in Public Administration. 2 sem hr
Selected problems in public administration on the local, state, and federal levels; intergovernmental administrative relationships.

PLS 506 American Parties and Politics. 2 sem hr
An exploration of the devices, dilemmas, and delights of party politics as played in the United States. Not open to students who hold credit for 358 Political Parties and Pressure Groups.

PLS 540 Public Opinion. 2 sem hr
The role of public opinion in a democracy. Opinion methodology; the techniques of measuring public opinion.

PLS 543 Political Behavior. 2 sem hr
Empirical and theoretical knowledge concerning certain aspects of the actions and interactions of men in the political process; political participation, political affiliation and party identification, political leadership, political communication, political institutions, and voting behavior.
Prereq: one course in political science.

PLS 545 International Relations. 2 sem hr
Relations between nations; factors affecting behavior in the state system and possibilities of developing a viable international system.
Prereq: 112 or 202.

PLS 580 American Governmental Executives-National. 2 sem hr
The American Presidency; creation of the office; its historical evolution; its national and world significance; problems related to the powers, responsibilities, and limits of the office; election to the office; and succession to the office.

PLS 581 Contemporary Problems in American Government. 2 sem hr
Executive-legislative relationships; judicial review; the making of foreign policy; national defense; public welfare; the electoral process and the role of the citizen in American government.

PLS 587 State and Local Government. 2 sem hr

PLS 588 Problems in Representative Government. 2 sem hr
The right to vote; apportionment of legislative bodies; operation of the electoral college; accurate administration of elections; informing the electorate; and securing the public interest.

III. Sociology

SOC 520 Man in Society. 2 sem hr
Basic concepts, theory and analysis of social structures, social process and social disorganization. Not open to students who have a minor or major in sociology.

SOC 521 Contemporary Communities. 2 sem hr
Selected research on the community, including statification, power structure, the school, the church, social change, methods, and theories of community analysis.
Prereq: SOC 520 or equivalent.
SOC 524 The Family. 2 sem hr
Family structures and processes in American society. The functions of the family in socialization, status placement, and social mobility.
Prereq: SOC 520 or equivalent.

SOC 525 Social Psychology. 2 sem hr
The order and regularity underlying processes of human interaction; motives and attitudes, social norms and roles, the socialization process, personality, and group membership. The effect of group membership upon individual behavior. Not open to students who hold credit in SOC 308.

SOC 526 Criminology. 2 sem hr
Criminal law as an instrument of social control; theories of criminal behavior; and penology. The response of society to the breaking of laws; police, courts, prisons, and programs of prevention and control.

SOC 525 Techniques of Social Research. 2 sem hr
A review of the methods currently employed in sociological research, with particular emphasis upon the sample survey technique. Laboratory experience with some phase of an ongoing research project is provided.

SOC 576 Intercultural Relations. 2 sem hr
Two purposes: to analyze the sources of tension and conflict among the major cultural, religious, and racial groups in American society; and to examine the various methods of bettering human relations.

SOC 586 Crime and The Community. 2 sem hr
Crime and law enforcement as expressions of community organization.
Prereq: SOC 206, or 526, or permission of the department.

SOC 587 The Causes of Crime. 2 sem hr
Crime, criminals, and criminal behavior; the development of criminal law. Individual and environmental factors in criminal acts and the dynamics of criminal and delinquent behavior.
Prereq: SOC 206 or 526 or permission of the department.

SOC 588 The Treatment of Crime. 2 sem hr
Contemporary correctional policies and programs in the United States and other nations. Efficacy of law enforcement; police, courts, prisons, and probation in the control of crime. Effective rehabilitation and crime prevention.
Prereq: SOC 206 or 526 or permission of the department.

SOC 589 Social and Cultural Aspects of Personality. 2 sem hr
The imprint on personality from contacts with many groups; personality types in different societies, with particular reference to selected patterns of group membership and the consequences for individual behavior.

IV. Economics

ECO 504 Development of Economic Analysis. 2 sem hr
Theories and policies of internal change and evolution in economic science.
Prereq: One course in economics or permission of the department.

ECO 530 Economics: Principles and Public Issues. 2 sem hr
The basic analytic tools of economic theory and their use in considering policy for current major problems. Not open to students who hold credit in economics.

ECO 532 Collective Bargaining. 2 sem hr
Labor and management relations considered from the point of view of the two parties and the public welfare; labor contracts. Traditional and current areas of dispute and methods of settlement.
Mathematics

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ECO 577 Industrial Organization. 2 sem hr
The enterprise sector of a capitalist economy; incidence of competition and monopolistic tendencies in various industries and markets, market structure, conduct and performance, mergers and concentration, and public policies.
Prereq: One course in economics or permission of the department.

ECO 578 Government and Business. 2 sem hr
The political and economic functions of government; business corporations and financial mergers; direct control of business; control versus government ownership of utilities; governmental controls of agriculture and natural resources; and the responsibility of government in maintaining employment.
Prereq: one course in economics and one course in political science.

ECO 579 Economic Growth and Development. 2 sem hr
Conditions, courses, and consequences of growth and development; instruments of expansion and control and important theories and models of growth. Economic growth in both the United States and underdeveloped countries.

ECO 595 Workshop in Economics. 2 sem hr
Selected principles of economics presented by visiting consultants. Class discussions on phases of contemporary economics.

MATHEMATICS

The following courses may be elected for graduate credit and course descriptions may be found in the undergraduate catalog: 400, 402, 411, 414, 416, 420, 421, 423, 436, 440, 441, 445, 464, 470, 471, 491.

MTH 500 Modern Mathematics: Content K-6. 2 sem hr
(Formerly MTH 512 or SC 524)
The modern mathematics required for teaching this subject in the elementary grades; set theory, logic, numeration systems, the real number system, and geometry. Not open to students who have credit in MTH 501.

MTH 501 Modern Mathematics, K-8. 2 sem hr
(Formerly SC 529)
New topics in modern mathematics programs; the materials of various study groups; and presentation of practical problems in teaching mathematics in grades K-8. Not open to students who have credit in MTH 512 or MTH 500.
Prereq: Teaching experience or MTH 349 or MTH 351 or MTH 464.

MTH 503 Arithmetic Methods. 2 sem hr
(Formerly LE 564)
Currently problems in teaching arithmetic. Evaluating pupil achievement; new topics.
Prereq: 349 or 351 Teaching of Arithmetic, or teaching experience.

MTH 506 Introduction to Mathematical Logic. 2 sem hr
Propositional and first order predicate calculi and rules of deduction; mathematical systems and proofs.
Prereq: A minor in mathematics.

MTH 510 Introduction to the New Mathematics. 4 sem hr
Structure of the real number system and its subsystems; whole numbers; rational numbers; logic and sets.
Prereq: For those currently teaching grades 1-8.

MTH 511 Introduction to Mathematical Systems. 4 sem hr
Logic, sets and abstract mathematical systems. For those currently teaching grades 9-12.

MTH 515 Elements of Set Theory. 2 sem hr
(Formerly SC 527)
Sets and subsets, set operations, sets of numbers, relations, cardinal numbers, ordinal numbers, ordered sets and other topics.
Prereq: A minor in mathematics.
MTH 516 The Theory of Integers. 2 sem hr (Formerly SC 548)
Elementary properties, divisibility, congruences, powers and other topics.
Prereq: An undergraduate major in mathematics.

MTH 517 Linear Algebra. 2 sem hr
Linear equations, vector spaces, dimension, linear transformations and multiplication.
Orthogonality, adjoint, and the determinant. The characteristic and minimum polynomials. Miscellaneous topics.
Prereq: 15 semester hours in mathematics.

MTH 518 Group Theory. 2 sem hr
Definitions and examples, modules, commutative groups, homomorphisms, quotient groups, permutations, groups with operators, and dimension.
Prereq: 15 hours of mathematics and permission of department.

MTH 520 The Real Number System. 2 sem hr
A development of the real number system and a study of its properties.
Prereq: A minor in mathematics.

MTH 531 Modern Mathematics: Content, Junior High School. 2 sem hr
(Formerly MTH 514 or SC 526)
The modern mathematics required for teaching this subject in the junior high school: algebra, geometry, axiomatic systems, number theory, measurement, proof, probably and statistics, relations and functions, and their graphs.
Prereq: Teaching experience in junior high school mathematics or 15 hours of credit in mathematics.

MTH 536 Introduction to Digital Computers and FORTRAN. 2 sem hr
An introduction to the IBM 1620 computing system and the FORTRAN programming language; explanation of basic FORTRAN statements and illustration of statement usage in sample programs. Students will write several FORTRAN programs and run them on Eastern's 1620.
Prereq: College algebra and permission of instructor. Not open to students who hold credit in 336.

MTH 542 Non-Euclidean Geometry. 2 sem hr (Formerly SC 552)
Foundations of geometry and historical development. A study of hyperbolic and elliptic plane geometries. These compared with parabolic plane geometry.
Prereq: A minor in mathematics.

MTH 544 Introduction to General Topology. 2 sem hr
Brief introduction to elementary set theory, topological spaces and mappings, connectedness, compactness, product spaces and metric spaces.
Prereq: 12 hours beyond sophomore level mathematics.

MTH 547 Geometry for High School Teachers. 2 sem hr
Fundamental concepts of Euclidean and non-Euclidean geometries including topology, developed from a postulational point of view.
Prereq: A minor in mathematics.

MTH 561 Modern Mathematics: Content, Senior High School. 2 sem hr (Formerly MTH 502)
Number theory leading to the proof of the fundamental theorem of arithmetic, nature of proof, mathematical systems such groups, integral domains, rings, and field, concept of isomorphism and elementary matrix theory.
Prereq: A minor in mathematics.

MTH 574 Probability. 2 sem hr
Probability, expectation, variance, covariance, distribution functions, sampling theory and other topics.
Prereq: 15 hours of undergraduate credit in mathematics.
MTH 581 Modern Mathematics: Methods, K-6. 2 sem hr  (Formerly SC 525)
Effective techniques in presenting materials, planning class activities, and creating good learning situations; modern mathematics curriculum for grades K-6.
Prereq: MTH 500 or MTH 512 or SC 524 or permission of department.

MTH 583 Modern Mathematics; Methods, Junior High School. 2 sem hr
Effective techniques of presenting materials, planning class activities, and creating good learning situations; a modern junior high school curriculum.
Prereq: MTH 531 or MTH 514 or SC 526 or permission of department.

MTH 585 Modern Mathematics: Methods, Senior High School. 2 sem hr
For those without a high school methods course.
Prereq: A minor in mathematics. Not open to students who have credit in 306.

MTH 586 Teaching of Modern High School Mathematics. 2 sem hr
Planning a modern high school mathematics curriculum; recommended courses at the senior level. Content and methods; high school reform movements.
Prereq: A major in mathematics including 306 or MTH 585.

MTH 587 Enriching Instruction in Mathematics, Senior High School. 2 sem hr
New teaching aids and supplementary reading materials; subject matter usually not developed in standard texts (e.g. linear programming, principles of computers, and advanced geometric constructions). Topics for accelerated students.
Prereq: MTH 561 and 306, MTH 585, MTH 586.

MTH 681 The Teaching of Junior College Mathematics. 2 sem hr
The role of algebra and trigonometry, elementary functions, analytic geometry, the calculus, and linear algebra; content and techniques of instruction. CUPM recommendations for a college program.
Prereq: Permission of the department.

MTH 697, 698, 699 Independent Studies. 2 sem hr each
A report on an approved subject in the field of mathematics, the history of mathematics, or the teaching of mathematics, under the guidance of a member of Mathematics Department staff.
Prereq: Completion of 10 hours of graduate credit in mathematics and permission of department.

MUSIC

Admission to a program leading to the degree Master of Arts in Music, requires a prior instrumental or vocal audition. Placement examinations in conducting, music literature and history, music theory, and piano proficiency are given for all students whose undergraduate degrees were earned at other institutions or at Eastern Michigan University before 1960. All entering students should consult the Chairman of the Department of Music about times for audition and placement examinations well in advance of their intended registration.

I. General Courses

MUS 500-503 are courses not open to undergraduate students and, effective June 15, 1966, and thereafter, not credited toward an M.A. in Music. These courses are offered for the benefit of graduate students specializing in departments other than Music who wish to take collateral or cognate work in the Department of Music. Such students,
however, are not restricted to these courses, but may take any other graduate courses in Music for which they have the prerequisites.

MUS 501 Masterpieces of Music. 2 sem hr  
(Formerly MUS 531)
Promotes interest, enjoyment, and understanding of some of the important works of the great composers. The importance of music as a factor in human experience and as a mode of thought is emphasized. Not open to students who have a minor or major in music.

MUS 504 America's Music. 2 sem hr  
(Formerly MUS 540)
The diversified styles of music made and continuously used by the people of the United States in terms of our historical cultural traditions. No prerequisites.

II. Courses for M.A. in Music*

A. BASIC COURSE

MUS 510 Introduction to Graduate Studies. 2 sem hr  
(Formerly MUS 601)
Available source materials for graduate research; research, documentation, evaluation and scholarly presentation, organizing and assembling a bibliography.

B. COMPOSITION AND THEORY

MUS 511 Survey of Harmonic Techniques. 2 sem hr  
(Formerly MUS 651)
Harmonic techniques and practices of composers of the eighteenth, nineteenth, and twentieth centuries.
Prereq: Basic theory, 242 Harmony or equivalent.

MUS 513 Structural Principles and Techniques through Analysis of Representative Works of Eighteenth and Nineteenth Centuries. 2 sem hr  
(Formerly MUS 653)
Structural principles and techniques through analysis of representative works of eighteenth and nineteenth centuries.
Prereq: 242 Harmony, 341 Counterpoint or equivalents.

MUS 514 Sixteenth Century Counterpoint. 2 sem hr  
(Formerly MUS 655)
Polyphonic techniques and forms based upon stylistic principles of the sixteenth century.
Prereq: Music Theory or equivalent.

MUS 517 Music Composition I. 2 sem hr  
(Formerly MUS 657)
The creative process in music through analysis of traditional and new music; original compositions in small forms illustrating various techniques and media.
Prereq: Permission of department.

MUS 518 Music Composition II. 2 sem hr  
(Formerly MUS 658)
Original composition based upon techniques of the twentieth century; composition of works of moderate length.
Prereq: MUS 517 or equivalent.

MUS 519 Music Composition III. 2 sem hr  
(Formerly MUS 659)
Original composition in larger forms with the intent of performance.
Prereq: MUS 517 and 518 or equivalent.

C. LITERATURE AND HISTORY

MUS 531 Renaissance Music. 2 sem hr  
(Formerly MUS 631)
Selected works representing the styles and idioms of the 16th century.
Prereq: Music History 353/354, or the equivalent.

MUS 532 Baroque Music. 2 sem hr  
(Formerly MUS 632)
Selected works representing some of the styles and idioms of the 17th century; works of the early and mid 18th century (Bach, Handel) in the restricted viewpoint of their relationship to the preceding century.
Prereq: Music History 353/354, or the equivalent.

*All 500-level courses are open to qualified Seniors.
Music

MUS 533 Music in the Classic Era. 2 sem hr
The development of musical style and form in the classic era, principally in the works of Haydn, Mozart, and Beethoven.
Prereq: Permission of department.

MUS 534 Music in the Romantic Era. 2 sem hr
The development of musical style and form in the romantic era. Intensive study of selected compositions.
Prereq: Permission of department.

MUS 535 Music of the Twentieth Century. 2 sem hr
Study of major works, composers, and aesthetic systems of twentieth-century music. Selected works to be announced each time the course is offered.
Prereq: Permission of department. Open to qualified seniors.

MUS 540 The Symphony. 2 sem hr
The symphony as an art form; and a musical and historical survey of the influences, trends, and styles found in examples from its inception to the present.
Prereq: Permission of department or MUS 633.

MUS 541 The Band and Its Literature. 2 sem hr
The history and development of the Band and its music.

MUS 542 The Organ and Its Literature. 2 sem hr
Organ music from its beginning to the present; types of instruments representing regional and epochal schools, as they influence the structure of music and its interpretation.
Prereq: Keyboard proficiency; or previous organ performance; or permission of department.

MUS 543 The Piano and Its Literature. 2 sem hr
Music for the piano from the Baroque to the Present.
Prereq: Permission of department.

MUS 544 Solo Song Literature. 2 sem hr
The art song literature from the American, English, French, German, and Italian repertoire, with an introduction to the literature of the arias from operas and oratorios.
Prereq: Demonstrable singing knowledge of one of the foreign languages.

MUS 545 The Opera. 2 sem hr
The musical and dramatic content in operas that form the standard international repertoire in relation to the composer’s style and the period of theater and music history from which they emanate.
Prereq: either MUS 632 or MUS 633.

D. MUSIC EDUCATION

MUS 551 The General Music Class. 2 sem hr
The place of music in the education of adolescents, involving methods and materials for the general music classes.

MUS 556 Development of a String Program in the Public Schools. 2 sem hr
Problems related to building a public school string program; including techniques and materials.
Prereq: Permission of department.

MUS 558 Supervision and Administration of School Music Education Programs.
2 sem hr
2 sem hr
Trends and practices in the teaching of vocal and instrumental music at the elementary and secondary school levels.
MUS 559  Piano Pedagogy. 2 sem hr  (Formerly MUS 617)
Individual instruction; teaching problems and procedures for developing technique;
teaching materials at various levels of advancement.
Prereq: Permission of department.

MUS 652  Advanced Techniques and Materials for Vocal Music in the Elementary
Schools. 2 sem hr  (Formerly MUS 621)
New materials and advanced teaching techniques in the elementary vocal music area.
Prereq: Music 330 or equivalent.

MUS 653  Advanced Techniques and Materials for Developing the Secondary School
Vocal Program. 2 sem hr  (Formerly MUS 622)
Modern theory, techniques, and materials for choral directors, vocal specialists, and
school music administrators; specialized instruction in their respective areas of concen­
tration.
Prereq: Permission of department.

MUS 654  Advanced Techniques and Materials for Developing the Secondary School
Band Program. 2 sem hr  (Formerly MUS 623)
Current trends in techniques and materials for the High School Band.
Prereq: Permission of department.

MUS 655  Advanced Techniques and Materials for Orchestras in the Secondary Schools.
2 sem hr  (Formerly MUS 625)
Selected problems and their solution pertaining to the improvement of the musical
performance of the school orchestra. Major emphasis is placed on the string section and
its problems.
Prereq: Permission of department.

E.  PERFORMANCE

MUS 571, 572, 573, 574, 575, 576  Applied Music (Secondary Instrument or Voice).
each 1 sem hr

MUS 577  Advanced Instrumental Conducting. 2 sem hr  (Formerly MUS 611)
Interpretative factors and more subtle baton techniques; greater understanding of style
and form through analysis of representative scores.
Prereq: MUS 326

MUS 578  Advanced Choral Conducting. 2 sem hr  (Formerly MUS 612)
Choral conducting techniques, styles and materials, organization, balance of choral
groups, score reading, control of voices for blending flexibility, (vocal poise and musical
discipline for both church and school singing groups.)
Prereq: MUS 326.

MUS 581, 582, 583, 584, 585, 586  Applied Music (Principal Instrument or Voice).
2 sem hr each
Prereq: Audition.

MUS 681, 682, 683, 684, 685, 686  Performance. 2 sem hr each
Prereq: Open only to students concentrating in applied music, with a graduate recital
required in partial fulfillment of the Master of Arts in Music degree.

MUS 689  Graduate Recital. 2 sem hr
Prereq: Required in partial fulfillment of the Master of Arts in Music degree of those
students concentrating in applied music.

F.  MISCELLANEOUS

MUS 595  Choral Arts Workshop. 2 sem hr
Choral Workshop.
Physics and Astronomy

MUS 596 Chamber Music: Performance Seminar. 2 sem hr
Study and performance of contemporary and traditional literature for chamber music ensembles. Open to advanced undergraduate and graduate students.

MUS 597, 598, 599 Independent Study. 2 sem hr
An intensive study of a problem or group of problems under the direction of a University faculty member.

MUS 697, 698, 699 Independent Study. 2 sem hr
An intensive study of a problem or group of problems under the direction of a University faculty member.

PHYSICS AND ASTRONOMY

PHY 503 Astronomy I. 2 sem hr (Formerly SC 583)
A non-mathematical descriptive course in astronomy to acquaint the teacher with the general field of astronomy. Many of the topics considered can be used in the elementary classroom. A study of the sun and its family of planets as well as the stars and nebulae in the universe beyond the solar system. Naked-eye observations of the constellations and telescopic observations of the moon, planets, double stars, and clusters. Not open to students who have credit in 303 Introduction to Astronomy.

PHY 504 Astronomy II. 2 sem hr (Formerly SC 590)
A non-mathematical descriptive course in astronomy to increase the teachers' acquaintance with the general field of astronomy and the work of the astronomer. Many of the topics covered can be used in the elementary and junior high classroom. The stellar system; a review of the solar system and the motions of the earth. Naked eye and telescopic observations constitute the laboratory phase of the course.
Prereq: PHY 503 or 303 Astronomy or equivalent.

PHY 510 Basic Concepts of Classical and Modern Physics. 2 sem hr (Formerly SC 593)
Fundamental concepts in classical and modern physics; mechanics, kinetic theory, wave motion, electricity, optics, atomic and nuclear energy. Designed for teachers of general science in seventh, eighth, ninth grades, and for teachers of elementary science.
PHY 520 Teaching of Physical Science. 2 sem hr
(Formerly SC 582)
Scientific attitudes for use with elementary pupils; the scientific method; a selected group of physical principles; and simple experiments which may be used in the elementary school.

PHY 524 Introductory Physical Science I. 2 sem hr
A laboratory course; introductory materials for teachers of physical science in secondary schools. Experiments and demonstrations by class participants.
Prereq: Three laboratory courses in science, or science teaching experience.

PHY 525 Introductory Physical Science II. 2 sem hr
An interdisciplinary course; selected topics in physics and chemistry.
Prereq: Three laboratory courses in science, or science teaching experience.

PHY 526 Introductory Physical Science III. 2 sem hr
A seminar course; problems and projects in a physical science curriculum.
Prereq: Three laboratory courses in science, or science teaching experience.

PHY 550 New Approaches to Teaching Physics I. 2 sem hr
Designed to increase the subject matter competency of those teaching or preparing to teach high school physics. Content, organization, problems and philosophy of the latest high school physics text materials.
Prereq: One year of college physics and one course in calculus.

PHY 551 New Approaches to Teaching Physics II. 2 sem hr
Designed to increase the subject matter competency of those teaching or preparing to teach high school physics. The content, organization, problems and philosophy of the latest high school physics text materials.
Prereq: PHY 550.

PHY 550 Atomic and Nuclear Physics I. 2 sem hr
Electron physics, radiation, atomic structure, x-rays, the quantum properties of waves and particles, relativity, the Bohr atom and atomic spectra, wave mechanics, and the Schroedinger equation.
Prereq: One year of college physics.

PHY 551 Atomic and Nuclear Physics II. 2 sem hr
Nuclear structure, radioactive decay, detection and measurement of nuclear radiation, fission, fusion, cosmic rays, production of radioisotopes in neutron howitzer.
Prereq: One year of college physics.

PHY 597, 598, 599 Independent Studies. 2 sem hr each
An intensive study of a problem or group of problems under the direction of a University faculty member.
Prereq: Prior approval of physics graduate adviser.

PHY 630 Continuum Theory of Matter (Theoretical Physics I). 2 sem hr
The language of theoretical physics; a continuum, i.e. properties of matter observed on a macroscopic scale. Problems in vibration, stress and strain, wave propagation, fluid motion, and diffusion.
Prereq: MTH 221, PHY 430, 470. PHY 431 and 460 are recommended but not required.

PHY 660 Molecular Theory of Matter and Theory of Fields (Theoretical Physics II). 2 sem hr
Properties of matter investigated from a microscopic point of view; interactions of large numbers of particles and individual interactions of particles, i.e. field theory.
Prereq: MTH 221, PHY 430, 470. PHY 431, 460 and 630 are recommended but not required.

PHY 675 Relativity and Quantum Theory (Theoretical Physics III). 2 sem hr
The principle of invariance and absolute velocity; implications of the relativity theory; the quantum theory; wave-particle duality; the Schroedinger equation; uncertainty principle; and philosophical implications.
Prereq: MTH 221, PHY 430, 470. PHY 431, 460 recommended but not required.
PHY 694  Guided Study.  2 sem hr
Under direction the student will study and report on a subject in physics, physics history, or the teaching of physics. Laboratory research, library research, or both.
Prereq: Admission to candidacy for an M.S. in physics education.

PHY 697  Research in Physics.  2 sem hr
An intensive study of a problem or group of problems under the direction of a University faculty member.
Prereq: Undergraduate major or equivalent, and permission of department.

PHY 698, 699  Research in Physics.  2 sem hr each
A continuation of PHY 697.
Prereq: PHY 697 and admission to candidacy for an M.S. degree in physics.

PSYCHOLOGY

I. Basic Courses

PSY 510  Fundamentals of Psychology.  2 sem hr
Advanced readings and lectures on the major findings and recent research developments in the areas of scientific method, sensation and perception, learning, and motivation and emotion.
Prereq: Major or minor.

PSY 511  Basic Concepts of Psychology.  2 sem hr (Formerly PSY 502)
Advanced reading and lectures on the major findings and recent research developments on the areas of developmental, personality, psychopathology, and social psychology.
Prereq: Major or minor.

PSY 512  Statistics in Psychology.  2 sem hr (Formerly PSY 510)
The tools of descriptive statistics applied to psychological and educational research.
Prereq: One course in psychology.

PSY 514  Correlational Analysis.  2 sem hr
Simple correlation and regression; special correlational techniques, including multiple correlation and factor analysis.
Prereq: PSY 205 or equivalent.

PSY 515  Analysis of Variance.  2 sem hr
Analysis of variance techniques as related to psychological research.
Prereq: PSY 205.

PSY 516  Research Design.  2 sem hr
Research methods, and analysis of data.
Prereq: Experimental psychology and PSY 512 or equivalent.

PSY 519  Instrumentation for Behavioral Research.  2 sem hr
Design, construction, maintenance, and evaluation of apparatus for behavioral research.
Prereq: MTH 104 or equivalent.

II. General Courses for Majors

PSY 522  Human Learning.  2 sem hr (Formerly SC 533)
Conditioning and learning in the acquisition and modification of individual responses; theories and principles having application to personality theory, psychotherapy, and education.
Prereq: 10 hours of credit in psychology.

PSY 524  Advanced Motivation and Emotion.  2 sem hr
A review of major findings, theories, and recent research developments in the area of motivation and emotion.
Prereq: 20 hours of credit in psychology, including PSY 259.
PSY 526 Cognitive Processes. 2 sem hr
A review of theoretical and empirical developments in the areas of thinking, problem solving, concept formation, creativity, and decision making.
Prereq: 20 hours of credit in psychology, including PSY 259.

PSY 528 Advanced Sensation and Perception. 2 sem hr
A review of research and theory dealing with sensory experience and perception.
Prereq: 20 hours of credit in psychology, including PSY 259.

III. Courses in Growth and Development

PSY 532 Development Psychology. 2 sem hr
Biological, intellectual, social and emotional changes through the life span. Major concepts and problems related to developmental stages of life.
Prereq: 20 hours of credit in psychology, including PSY 321 or 322.

PSY 534 Psychology of Adolescence. 2 sem hr (Formerly SC 501)
Physical, intellectual, emotional, and social development from puberty to adulthood with emphasis on the significance for teachers and others interested in youth.
Prereq: One course in psychology.

IV. Clinical Courses

PSY 540 Psychology of Adjustment. 2 sem hr (Formerly SC 502)
Issues, concepts, principles, and theories in human adjustment.
Prereq: One course in psychology; open to majors and minors with permission of adviser.

PSY 543 Abnormal Psychology. 2 sem hr (Formerly SC 580)
Behavior pathologies of children and adults, including symptom origins and methods of treatment. Not open to students who hold credit in PSY 360.
Prereq: One course in psychology; open to majors and minors with permission of adviser.

PSY 545 Clinical Psychology I. 2 sem hr
The responsibilities and tasks of the clinical psychologist; common diagnostic tools; the clinician's role in differential diagnosis; review of major treatment approaches used by clinicians.
Prereq: PSY 512 and PSY 543.

V. Theoretical Courses

PSY 550 Dynamics of Human Behavior. 2 sem hr (Formerly SC 565)
The determinants of behavior and personality with emphasis on the physiological, psychological, and cultural bases.
Prereq: One course in psychology; open to majors and minors with permission of adviser.

PSY 552 Theories of Personality. 2 sem hr (Formerly SC 570)
Contemporary approaches to the study of personality, e.g., Freud, Sullivan, Rogers, Murray, and Murphy.
Prereq: 10 hours in psychology.

PSY 554 Theory of Psychological Testing. 2 sem hr (Formerly SC 585)
Assumptions, rationale, and statistical foundations of psychological tests used in differential diagnosis.
Prereq: 10 hours in psychology, including statistics.

PSY 555 Individual Testing I. 2 sem hr
Training and supervised experience in the administration and interpretation of the WISC and WAIS Tests.
Prereq: PSY 545 and 554.
Psychology

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PSY 556 Individual Testing II. 2 sem hr
Training and supervised experience in Binet and special diagnostic tests.
Prereq: PSY 555.

VI. Practicum (Not Available)

VII. Applied Courses (Not Available)

VIII. Courses in Tests and Measurements

PSY 580 Psychology of Individual Differences. 2 sem hr
(Formerly SC 575)
The objective and quantitative investigation of human variability in behavior phenomena and the factors influencing these differences.
Prereq: One course in psychology; open to majors and minors with permission of adviser.

IX. Special Courses

PSY 595 Workshop in the Scientific Approach to Problem Solving. 2 sem hr
(Formerly SC 595)
The scientific approach to the solving of problems; the application of psychological principles.
Prereq: One course in psychology.

PSY 597, 598, 599 Independent Studies. 2 sem hr
An intensive study of a problem or group of problems under the direction of a University faculty member.
SPEECH AND DRAMATIC ARTS

I. General Courses

General courses in Speech and Dramatic Arts are courses which in addition to being offered for credit toward an M.A. in Speech and Dramatic Arts, are offered for the benefit of graduate students specializing in departments other than Speech and Dramatic Arts who wish to take collateral or cognate work in the Department of Speech and Dramatic Arts. Such students, however, are not restricted to these courses, but they take any other graduate courses in Speech and Dramatic Arts for which they have prerequisites.

SPH 522 Mass Communications. 2 sem hr
Theory and practice of Mass Communications with special reference to broadcasting.

SPH 523 TV Techniques for Classroom Teachers I. 2 sem hr
Skills and techniques needed by classroom teachers for the effective presentation of educational materials through the medium of television. Theory and practice.

SPH 526 TV Techniques for Classroom Teachers II. 2 sem hr
A continuation and intensification of the theoretical and practical experiences in instructional television provided in course SPH 523. Laboratory hours to be arranged. Prereq: SPH 523.

DRA 530 Creative Dramatics. 2 sem hr
The theory of creative dramatics. Opportunities are provided for actual practice in the various techniques and activities involved in introducing creative dramatics to children at various age levels.

DRA 542 Play Production — Junior-Senior High School. 2 sem hr
Principles and techniques of play production with emphasis on problems encountered in secondary schools. Dramatic structure, play selection, directing, screen design and construction, stage lighting, make-up, costuming, properties, and business management; improvement of effectiveness in both curricular and extracurricular theatre.

DRA 550 Children's Theatre. 2 sem hr
Methods of selecting, designing, and directing plays for children; problems encountered in elementary school productions.

SPH 589 Discussion and Conference. 2 sem hr
The principles and practice of discussion in problem solving and learning groups: conference, committee, panel, symposium, and forum.

SPH 590 Communications for Leaders. 2 sem hr
Principles and techniques in effective communication; the use of communication skills in interviews, discussions, staff meetings, abstracting printed materials, bulletins, written and spoken reports.

SPH 595 Workshop in Television. 2 sem hr
Information and procedures for use of airborne television in the classroom.

SPH 596 Seminar in Directing Speech Activities. 2 sem hr
The philosophy, organization, and administration of forensic programs for those who direct or plan to direct extra-curricular speech activities.

II. Specialization Courses

Specialization courses in Speech and Dramatic Arts are courses specifically designed for students wishing credit toward the M.A. in Speech and Dramatic Arts. Such courses are open to other students, however, who have the necessary prerequisites.
DRA 558  Advanced Directing.  3 sem hr
Theoretical and practical considerations involved in the direction of selected nonrealistic
styles of drama.
Prereq: 335 or permission of the department.

DRA 560  Ancient Dramatic Theory.  3 sem hr
Study of the main theories regarding the nature and purpose of drama from ancient
Greece to the end of the 17th century.
Prereq: 466 or permission of the department.

SPH 576  Seminar: Public Address.  3 sem hr
Critical study of the significant speeches of leading speakers with reference to their
dominant issues and their influence on social and political life.
Prereq: 9 hours of credit in speech.

SPH 581  Seminar: Rhetorical Theory.  3 sem hr
Study of the principles of rhetorical criticism.
Prereq: 9 hours of credit in speech.

SPH 584  Seminar: Studies in Group Discussion, Argumentation, and Persuasion.
3 sem hr
A review of contemporary research and theory in decision-making, communications, and
group processes with evaluation of the relation of such research and theory to current
problems and practices in group discussion, argumentation, and persuasion.
Prereq: 9 hours of credit in speech.

SPH 592  Research Techniques in Speech and Dramatic Arts  2 sem hr
An introduction to the nature and value of research; the research problem; basic re-
search tools; philosophical foundations of historical, descriptive, and experimental re-
search; professional writing.
Prereq: 9 hours of credit in speech.
III. Other Courses for Credit Toward M.A. In Speech and Dramatic Arts

The following courses for advanced undergraduates are also available to graduate students for eight 2 or 3 semester hours credit each depending upon the circumstances of the student’s registration; on this matter the student should, before completing his registration, have a clear understanding with both the Dean of the Graduate School and the Chairman of the Committee on Graduate Studies in the Department of Speech and Dramatic Arts. For descriptions of these courses, see the Undergraduate Catalog.

Communication and Public Address

389 Discussion and Conference (Formerly 289).
350 Persuasive Speaking.
356 Argumentation and Debate.
440 Survey of Public Address.
460 Theory of Speech Criticism.

Broadcasting

325 Broadcasting in Society.
327 Broadcast Management.
328 Radio and Television Continuity Writing

Interpretation

314 Interpretation of Drama.
411 Advanced Problems in Interpretation.

Speech Science and Pedagogy

300 Phonetics.
307 The Teaching of Speech.

Dramatic Arts

323 Creative Dramatics (Formerly 223).
322 Theatre for Children.
335 Play Direction.
370 Scene Design.
375 Stage Costuming and Make-up.
376 Stage Lighting.
385 Dramatic Writing.
386 Dramatic Writing.
406 History of the Theatre.
422 Independent Study in Dramatic Arts for Children.
423 Independent Study in Dramatic Arts for Children.
424 Independent Study in Dramatic Arts for Children.
425 Honors Course in Theatre.
426 Honors Course in Theatre.
427 Honors Course in Theatre.
428 Honors Course in Theatre.
499 Seminar in Theatre.
ACCOUNTING AND FINANCE

ACC 515 Accounting for School Business Administrators. 3 sem hr
Principles, theory and procedures of public school fund accounting; accounting principles as applied to various kinds of public school funds, financial statements and reports, internal accounting control, payroll accounting, business papers and procedures. Not open to Business Administration majors.

ACC 573 Securities Analysis. 2 sem hr
Procedures and methods of security analysis including valuation, timing, and psychological factors which influence the individual security, the industry, and the securities market. Designed for individual investors and for future securities analysis and managers. Prereq: Business 307.

ACC 583 Financial Administration Policies. 2 sem hr
The internal policies and problems of financial management encountered by businesses. Selected cases to develop administrative insight in the following areas: funds administration planning, capital structure planning, security distribution arrangements and timing, expansion financing, and solvency maintenance. Prereq: Business 307 and Economics 322, or equivalent.

ACC 584 Administrative Controls. 2 sem hr
An interdisciplinary approach to decision making requiring accounting data; the effectiveness of accounting information. Representative problem areas include: profit planning, cash flow, make or buy, capital investment and product pricing. Prereq: 12 hours of credit in accounting or permission.

ACC 597, 598, 599 Independent Studies. 2 sem hr each
An intensive study of a problem or group of problems under the directions of a University faculty member.

ACC 610 Accounting System Design and Installation. 3 sem hr
Fundamentals of developing and analyzing accounting systems. Prereq: 15 hours of credit in Business Administration.

ACC 664 Theory of Accounting. 2 sem hr
The historical evolution of accounting and the contributions made by accounting theorists, accounting societies, and governmental agencies. The evaluation and application of theories to selected accounting problems. Prereq: 15 hours of credit in accounting.

ACC 696 Seminar in Accounting Theory and Practice. 2 sem hr
An intensive study of selected problems in accounting. Prereq: 15 hours of credit in accounting.

BUSINESS EDUCATION

BED 569 Foundations of Business Education. 2 sem hr
Principles and developments in business education for school administrators and business teachers. The objectives and curricular patterns in business for different types of educational institutions; professional leadership and current research in the field.

BED 571 Current Problems in Business Education. 2 sem hr
Current problems confronting business teachers in the secondary schools. Organization and administration of business education programs; physical facilities, equipment, and instructional materials; student personnel relationships; school-business relationships; evaluation of business education programs. Open to Business Education majors only.
General Business

BED 572 Administration of Business Education. 2 sem hr
Analyzes administrative and supervisory duties and responsibilities. Local, state, and federal programs, finance and budgeting, physical facilities, selection and placement of teaching staff, public relations and publicity, equipment selection and maintenance.

BED 595 Workshop in Business Education. 2 sem hr
Modern methods, procedures, and materials for improving the effectiveness of the classroom teacher in the areas of shorthand, typewriting, bookkeeping and basic business.

BED 596 Seminar in Business Education. 2 sem hr
Concepts and problems of business education in secondary schools and community colleges; current literature and research supplemented by individual research in selected areas.
Prereq: BUS 569, BUS 571, BUS 572.

BED 597, 598, 599 Independent Studies. 2 sem hr each
An intensive study of a problem or group of problems under the directions of a University faculty member.

GENERAL BUSINESS

GBS 567 Risk and Risk Management. 2 sem hr
Nature of risk and the principles and methods used in risk management; business risks and the use of insurance in handling them.

GBS 568 Administrative Communication. 2 sem hr
Theory, principles, and practices of communication in a business; applications to business research, case analyses, and report writing.

GBS 570 Problems in Contemporary Economics. 2 sem hr
Basic business and economic problems in a free enterprise system; current economic problems. Not open to students who have credit in economics.

GBS 576 Business in Society. 2 sem hr
Intellectual and cultural foundations of business. The ideas and concepts upon which our society is based; the relationship of these concepts to the meaning of today’s business.
Prereq: Major in Business.

GBS 586 Quantitative Analysis for Business. 2 sem hr
Business decision making; complex problems of the modern business enterprise. Quantification and measurement, statistical decision making, linear programming, game theory, inventory control, replacement decisions and various techniques of statistical optimization.
Prereq: BUS 576 with one or more courses in mathematics at the college level.

GBS 588 Managerial Economics. 2 sem hr
Application of analytical methods in internal and external business management problems. Methods and techniques that facilitate decision making and forward planning under conditions of uncertainty. Management, uncertainty, prediction, measurement. Selected decision making problems. Management and technique of problem analysis and evaluation.
Prereq: Statistics 365, Economics 322.

GBS 589 Business Conditions: Analysis and Forecasting. 2 sem hr

GBS 592 Business Research. 2 sem hr
(Formerly 577)
Scientific research; basic considerations in research methodology; economic analyses. Oral and written reports.
Prereq: 30 semester hours of credit in business administration.
GBS 597, 598, 599 Independent Studies. 2 sem hr each
An intensive study of a problem or group of problems under the directions of a University faculty member.

MANAGEMENT

MGT 585 Organization Theory and Systems. 2 sem hr
The man-machine system of business enterprise; system concepts, feasibility studies, designing, planning, authorizing, installing, operating and modifying. Management decision-making concerning organizational concepts and staffing.
Prereq: 6 hours of credit in management.

MGT 596 Seminar in Administrative Policy. 2 sem hr
Policy making and administration from the viewpoint of the executive; an appreciation for the nature and origin of policies, leadership, and authority. Environmental influence and experience in decision making.
Prereq: 12 hours of credit in business administration.

MGT 597, 598, 599 Independent Studies. 2 sem hr each
An intensive study of a problem or group of problems under the directions of a University faculty member.

MARKETING

MKT 518 Marketing Policies and Problems. 2 sem hr
Analysis of current marketing problems and their implications relative to internal control and external economic, social, and political environment.
Prereq: 6 hours of credit in marketing or equivalent.

MKT 597, 598, 599 Independent Studies. 2 sem hr each
An intensive study of a problem or group of problems under the direction of a University faculty member.

MKT 660 International Marketing. 2 sem hr
The principles underlying international marketing, its organization and operation; technical, financial, and operational features of international marketing. Trade promotion activities of governments and private agencies.

MKT 696 Seminar in Advanced Marketing Theory and Practice. 2 sem hr
An intensive study of marketing.
Prereq: 15 hours of credit in marketing.

EDUCATION

LE 500 Human Development. 2 sem hr
Heredity, physiological changes, and physical growth of the child. Learning differences, mental abilities, and intelligence testing. The gifted and mentally limited.

LE 501 Psychology of Adolescence. 2 sem hr
Physical, intellectual, emotional, and social development from puberty to adulthood with emphasis on the significance for teachers and others interested in youth.

CO 502 Educational Organization. 2 sem hr
Organization of American public schools; authority, functions, and relationships of federal, state, and local governments to education. Methods of organization within school districts; non-graded organizational patterns.

CO 504 Parent Education.
(See Home Economics)
CO 505  Leadership Research and Theory. 2 sem hr
Theories and models of administration and leadership; general theories of leader behavior. A philosophy of social change and an understanding of social action.

LE 505  Mental Hygiene. 2 sem hr
The role and responsibility of the teacher in promoting good mental health. Factors and conditions contributing to maladjustment; the nature of mental disorders and diseases, school and agency services in prevention and treatment.

LE 509  Problems in Child Psychology. 2 sem hr
Ways in which children may be helped to accept greater responsibility; possible approaches for reducing tensions and increasing motivation of pupils. Course content will be determined by the needs of the students and the availability of community resources.

CO 509  International Agencies in Education. 2 sem hr
The objectives, methods, and materials for teaching international understanding. UNESCO, AID, and other agencies involved in international education; the development of educational systems in underdeveloped nations and the relationship of education to such forces as nationalism and colonialism.

LE 512  Audio-Visual Instruction. 2 sem hr
A survey course for teachers and administrators in which the nature and effective use of teaching materials are considered and fully demonstrated. Provisions are made for actual use of materials and equipment. Not open to students who have credit in 344 Audio-Visual Methods in Teaching.

LE 516  Classroom Problems in Reading — Elementary School. 2 sem hr
Study of classroom problems in reading. Analysis of various types of difficulties encountered by children; techniques for correcting such difficulties; materials and procedures for developing an improved reading program.

CO 521  Comparative Education I. 2 sem hr  (Formerly CO 524)
A comparative analysis of selected educational systems in Europe including the U.S.S.R. Patterns, trends and problems of various phases of education such as foundation, administration, organization and curriculum are examined.

LE 521  Educational Statistics. 2 sem hr
Comprehension and understanding of statistical procedures. Areas covered include: distribution, measures of central tendency, measures of dispersion, and correlation.

CO 522  Comparative Education II. 2 sem hr  (Formerly CO 524)
A comparative analysis of the educational systems of emerging societies. The role of education in emerging societies as well as the influence of Western educational thought and practices in non-Western societies.

LE 522  Problems in Audio-Visual Programs. 2 sem hr
An analysis of the function of an audiovisual teaching materials program; the qualifications and duties of staff, the selection and evaluation of materials and equipment, unit costs, school plant requirements; the problems of developing a program and the measures for appraising its adequacy and effectiveness. 
Prereq: LE 512 or Audio-Visual Methods in Teaching.

CO 523  The Junior High School Curriculum. 2 sem hr  (Formerly CO 561 The Junior High School)
History and philosophy of the junior high school; curriculum, providing for individual differences, modern classroom procedures, use of materials and aids of instruction, the activity program and guidance.

CO 525  Philosophy of Education. 2 sem hr
Through a study of the development of educational thought, the student is enabled to find his way through the maze of conflicting current opinions. The course should help him to find a tenable and satisfying philosophy to guide his own educational thinking.
CO 526 History of American Education. 2 sem hr
A sound historical foundation upon which to base judgments about our present educational practice in the United States.

LE 527 Juvenile Delinquency. 2 sem hr
Nature, meaning, basic causal factors and conditions of delinquency in home, school, and community; problems in personality and behavior; the juvenile court; delinquency prevention and control programs. Opportunity to study problems of particular individual interest. Not open to students who have credit in 354 Juvenile Delinquency.

CO 528 Progressivism in American Education. 2 sem hr
The genesis and development of pragmatism; the special contributions of Pierce, James, Mead, and Dewey; the educational theories and practices of the Progressivists Bode, Kilpatrick, Counts; present thought and new influences.

CO 529 Sociology of Education. 2 sem hr
Selected points of view and empirical studies on social organization, social change, policy-making, power and authority structures, social class system, and social movements in relation to the school as an institution.

LE 531 Measurement and Evaluation. 2 sem hr
An analysis of educational achievement and individual prognosis. Includes a study of the construction and use of standardized and teacher-made educational tests, rating scales, questionnaires and similar devices.

LE 532 Elementary School Children and Social Studies. 2 sem hr
Current issues and controversies in the teaching of social studies in the elementary school. More advanced than either ED 348 or its graduate equivalent LE 571 but will not require either course as a prerequisite.

CO 540 Community Organization. 2 sem hr
An understanding of the community as a social group. Emphasis on community analysis, leadership, criteria of a good community, community change and action, and community problems.

LE 540 Curriculum Foundations. 2 sem hr
Curriculum content and patterns of schools in the United States. Historical and theoretical authority for the curriculum; criteria for the choice of content.

LE 541 Curriculum — Elementary School. 2 sem hr
Fundamentals of curriculum development; selected types, several basic determinants, some approaches to organization, and the concept of change. In curriculum building emphasis is placed on the role of the teacher and on the problem-census approach to defining problems.

LE 542 Curriculum — Secondary School. 2 sem hr
The development and present status of the secondary curriculum; principles of curriculum revision and some factors involved in curriculum changes. Students are encouraged to concentrate on curriculum problems present in their school system.

LE 543 Core Curriculum. 2 sem hr
An insight into the nature and techniques of core teaching.

LE 544 Guidance. 2 sem hr
Basic principles of guidance in the public schools are emphasized with attention to gathering pupil information, informational services, counseling, group guidance, placement, follow-up, staff organization for guidance purposes, and the relation between guidance and the curriculum.

LE 545 Counseling Process. 2 sem hr
Approaches to counseling and techniques of interviewing, using pupil and environmental information, utilizing community resources, and working with the school staff in a guidance role.
Prereq: LE 544.
CO 546  The Dropout Problem.  2 sem hr
An intensive review of this national problem; practical procedures based upon school
and community resources for improving holding power.

LE 547  Standardized Group Testing.  2 sem hr
The principles of measurement and their applications in the use of standardized group
tests in guidance and evaluation.
Prereq: LE 521 or LE 531.

LE 548  Group Guidance.  2 sem hr
Understandings, skills, techniques, and materials for group methods in guidance pro-
grams.
Prereq: LE 544.

LE 549  Guidance in Elementary Schools.  2 sem hr
Fundamental principles, basic materials, cooperating personnel, and techniques of class-
room guidance in elementary schools.

LE 550  The Administrator-Counselor Team.  2 sem hr
A seminar approach to problems common to school teachers, counselors, administrators,
and related personnel.

LE 551  Intermediate Statistics.  2 sem hr
Inferential statistics, both parametric and non-parametric; theory of hypothesis testing.
Prereq: 521 Educational Statistics.

CO 553  Economics of Public Education.  2 sem hr.
Economic assumptions and theories of support for education; the effectiveness with
which school funds are spent.
Prereq: 6 hours of credit in administration.

CO 555  Problems in School Building Planning.  2 sem hr
Functional layouts and locations of school buildings in the light of recent trends toward
involvement of staff and community.

CO 556  Principles of Community School Organization.  2 sem hr
The basic principles in the organization and administration of community school activi-
ties. Observations of community schools and their varied programs together with textual
and research materials. The Flint Community Schools will receive particular attention.

CO 557  Problems in Community School Administration.  2 sem hr
Selected problems in community school administration for students who are directors
or instructors in a community school.
Prereq: CO 556.

CO 558  School Personnel Administration.  2 sem hr
The basic principles of staff relationships and policies necessary for effective service and
high-level morale.

LE 560  Reading Problems of the Disadvantaged.  2 sem hr
Methods, techniques and materials found effective in teaching reading to the disad-
vantaged; proper placement of developmental tasks; promising practices in large city
school systems; compensatory education as it affects reading.

CO 561  Public Relations.  2 sem hr
The following topics will be explored: need for an organized public relations program;
the role of the classroom teacher; role of the administrator; media and means used;
the roles of pupils, parents, patrons and community groups.

CO 562  Educational Leadership.  2 sem hr
The process of leadership; current theories and concepts of educational administration.
LE 562 Cultural Determinants of Learning. 2 sem hr
The educational theories and practices in literate and pre-literate societies as illustrative of various theories of cultural dynamics and change which relate to citizens who will be living in the twenty-first century; the relationship between culturally held values and the learning process.

LE 565 Teaching Reading to the Atypical Child. 2 sem hr
Principles, methods, techniques, and materials used in the teaching of reading to children with special needs or problems such as the gifted, and emotionally disturbed.
Prereq: LE 572.

LE 566 Improving Instruction. 2 sem hr
Identification, validation, and use of criteria for appraising and improving teaching and learning, with focus on the classroom; principles underlying techniques of improving instruction.

LE 567 Enriching the Early Elementary Classroom Program. 2 sem hr
Types of organization of elementary classroom activities and programs in relation to behavioral goals. Uses of direct and vicarious experiences, materials, and instructional techniques to develop and extend vocabulary, language, experience backgrounds, self-concepts, and social learnings. Particularly beneficial for teachers working with the educationally disadvantaged.

LE 570 Teacher and Self Exploration. 2 sem hr
The participant’s interaction and analysis; awareness of one’s social stimulus value, sensitivity to others, greater understanding of group process, and greater spontaneity.

LE 571 Teaching of Social Studies. 2 sem hr
Subjects included in social studies; problems related to the presentation of materials, planning of units, and types of class activities. Not open to students who have credit in 481 or 348 Teaching Social Studies.

LE 572 Foundations of Reading Development. 4 sem hr
History of trends in reading instruction in America; factors influencing achievement in reading; goals, critique of current methods, reading skills functional in the content areas, and organization, location, and evaluation skills.

LE 573 Programs in Language Arts: Elementary School. 2 sem hr
Curricular objectives and their implementation through listening, speaking, handwriting, spelling, and creative, narrative, and expository writing; evaluative procedures and some consideration of corrective techniques.

LE 582 The Nature of Common Reading Problems. 2 sem hr
Problems of underachievement; weaknesses and deficiencies in attitudes, comprehension, word recognition, and facility and flexibility in silent and oral reading; physical, intellectual, socio-economic, emotional, motivational, and schooling factors.
Prereq: LE 572.

LE 584 Psychoanalytic Theory and Education. 2 sem hr
The applicability of psychoanalytic theories and concepts to problems of education.
Prereq: LE 500.

LE 585 Kindergarten Education. 2 sem hr
Basic principles and philosophy of kindergarten education; curriculum planning and curriculum materials for kindergarten children.

LE 586 Trends and Issues in Kindergarten Education. 2 sem hr
Important trends and issues affecting the education of kindergarten children.

CO 587 Evaluating Educational Services. 2 sem hr
Principles and procedures involved in the evaluation of: administrative and supervisory functions, the planning and management of school business affairs, the special services programs, the curriculum and auxiliary services. Public opinion and criticism, follow-up studies, standardized tests, and studies of educational change in behavior and attitudes.
LE 587 Early Child Education. 2 sem hr
Historical, developmental, and curricular research in education of young children; continuity of program development.

LE 589 Developing School-Wide Reading Programs. 2 sem hr
Organization of school-wide reading programs; determinants of variability; effective interrelationships and communication; roles of special reading teachers and consultants. 
Prereq: 8 hours of credit in reading.

LE 591 Supervision of Student Teachers. 2 sem hr
Preparing the public school teacher to work with student teachers.

LE 592 Reading in the Junior High School. 2 sem hr
Curricular objectives and their implementation through recommended activities, methods, and materials; functional programs for disabled readers.
Prereq: LE 572.

CO 593 The School and Community Understanding. 2 sem hr
Interpreting the school to the community; some basic understandings in the use of the community as a laboratory to enrich the education of the child and to serve the needs of the community.

LE 593 International Understanding. 2 sem hr
Available local and national resources for promoting international understanding in the classroom; selected issues in international understanding and selected school projects and programs. Resource persons will be invited to participate.

LE 594 Internship in Reading. 6 sem hr
Supervised experiences in selected school systems; major functions and problems of reading consultants and/or co-ordinators.

CO 594 Adult Education. 2 sem hr
Organization and administration of adult education programs for communities.

LE 594 Research Techniques. 2 sem hr
Kinds of research in a variety of settings; reviewing reports of research; developing an interest in research activities. Students will present a plan for a research problem.

CO 595 Workshop in Collective Negotiations in Education. 2 sem hr
Analysis of negotiations; issues which may be encountered by school administrators and teachers in collective negotiations in Education.

CO 595 Workshop in Curriculum Building. 2 sem hr
An intensive evaluation of curriculum problems for administrators.

LE 595 Workshop in Kindergarten Curriculum.

LE 595 Workshop in Theories and Techniques of Control in Elementary Schools.

LE 595 Workshop in Curriculum Development.
(For students not majoring in Administration)

LE 595 Workshop in Providing for Individual Differences in Reading.

LE 595 Experimental Workshop in the World of Work. (Flint Center)

CO 595 Workshop in Curriculum and Instructional Leadership.

CO 595 Workshop in College Personnel Services.

LE 595 Workshop in Group Leadership Training.

LE 595 Early American Life — Colonial Williamsburg.
Education

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LE 595 Production of Instructional Materials — Workshop I. 2 sem hr
Basic techniques in the production of a variety of teaching materials; lettering, mounting, and color application to flat pictures and graphics; projected materials of various sizes; overhead projectuals; and display boards of all types.
Prereq: 344 or LE 512.

CO 596 Seminar in Administration and Supervision I and II. 2 sem hr each
A "frame of reference" for administration and supervision; integration of previous learnings and an examination of persistent problems. Should be elected in consecutive semesters.
Prereq: 10 hours of credit in administration.

CO 596 Seminar in Intergroup Education. 2 sem hr
Understandings, attitudes, and skills concerning problems of race, religion, nationality, and socio-economic levels for school personnel; development of materials and resources, and group activities.

CO 596 Seminar: Federal Legislation Affecting Education. 2 sem hr
Consideration in depth of a selected number of recent federal statutes affecting public education; a brief summary of some of the major social forces currently shaping national policy; and a general review of legislation processes, by administrative and federal operations.

LE 596 Seminar: The Teaching of Reading. 2 sem hr
Sources, research studies, and a critical examination of selected studies and investigations; evaluation of student's background in reading.
Prereq: 10 hours of credit in reading.

LE 597, 598, 599 Independent Studies. 2 sem hr each
An intensive study of a problem or group of problems under the direction of a University faculty member.

LE 601 Programs in Language Arts: Secondary School. 2 sem hr
Curricular objectives and their implementation through listening, speaking, spelling, and creative, narrative, and expository writing; evaluative procedures and some consideration of corrective techniques.

LE 612 The Logic of Teaching. 2 sem hr
Philosophical analysis of concepts central to the processes of education; learning by doing, teaching as telling, and the curriculum as content, knowing "that" and knowing "how."

LE 620 Anthropology of Education. 2 sem hr
An overview of the learning process in human societies, addressing universal problems of motivation, selectivity, thinking remembering-forgetting, language and thought, value orientation and cultural sets.

CO 621 Existentialism and Education. 2 sem hr
An historical and comparative analysis of the relationship of pragmatism to existentialism; factors which affect theories and practices of American education.

LE 631 Advanced Statistics: Analysis of Variance. 2 sem hr
Involves statistical principles in experimental design through the study of single and multifactor analyses of variance.
Prereq: LE 521.

CO 640 Educator in His Community. 2 sem hr
The role of teachers and administrators in the community; the educator's understanding of his community and the community's understanding the school and its work.

LE 640 Individual Appraisal in Guidance. 2 sem hr
Appraising the intellectual, academic, social and emotional status of pupils; assisting them with their present and future adjustments by a study of actual cases.
Prereq: LE 545 and LE 547.
LE 642 Individual Mental Testing for Counselors. 4 sem hr
The Wechsler Adult Intelligence Scale and the Wechsler Intelligence Scale for Children and their applications to counseling; fifteen administrations of each test will be required. 
Prereq: Approval prior to registration.

LE 643 Counseling Practicum I. 2 sem hr
Supervised experience in counseling and other direct contact with students. Note: Application to take the class should be made one semester preceding registration. Forms are available through the Education Department. Only students whose names appear on the class list supplied by the Director of the Guidance and Counseling Program will be allowed to register. 
Prereq: Approval prior to registration.

LE 644 Counseling Practicum II. 2 sem hr
Intense counseling with one or two subjects; the counseling relationship and needs of both counselor and counselee. 
Prereq: Admission to specialist’s program in Counseling.

LE 645 Organization and Administration of Guidance Services. 2 sem hr
The philosophy and principles of guidance as implemented in practice; the administration of the various special guidance services. Guidance functions of various school staff members will be considered. 
Prereq: LE 643 or equivalent experience.

LE 646 Educational-Vocational Information in Guidance. 2 sem hr
Supplying educational-vocational information as a major guidance service; sources, organization, and dissemination of such information to students. 
Prereq: 6 hours of credit in counseling.

LE 649 Professional Problems of Counselors. 2 sem hr
Selected problems typical to the professional activities of the school counselor. 
Prereq: 12 hours of credit in Counseling.

LE 650 School Law for Teachers. 2 sem hr
Legal principles underlying the day-to-day teaching activities; how laws operate and legal principles develop. No prerequisite.

CO 653 Administration — Elementary School. 4 sem hr
Educational leadership in the elementary school; school-community relations, curriculum, instruction, special services, buildings, equipment, pupil relations, and personnel relationships. 
Prereq: 10 hours of credit in administration.

CO 654 Administration — Secondary School. 4 sem hr
Educational leadership in the secondary school; school-community relations, curriculum, instruction, special services, buildings, equipment, pupil relations, and personnel relationships. 
Prereq: 10 hours of credit in administration.

CO 658 Administration and Supervision of School Personnel. 4 sem hr
Principles underlying personnel relationships. Selection and retention of staff, development of salary policies, and assignment of responsibilities. 
Prereq: 10 hours of credit in administration.

CO 659 Pupil Personnel Administration. 2 sem hr
Principles underlying school-pupil relationships. 
Prereq: 10 hours of credit in administration.

LE 660 Survey of Resources and Materials in the Language Arts. 2 sem hr
Publications useful in teaching, listening, speaking, reading, and writing; special-purpose reading materials such as high-interest, low-vocabulary materials, materials for the gifted, materials for bibliotherapy. Determinants of readability. 
Prereq: 8 hours of credit in reading.
LE 661 An Analysis and Treatment of Common Reading Problems in the Elementary School. 2 sem hr
Formal and informal diagnostic procedures; case histories, test data, determinants of prognosis. Designing individualized programs.  
Prereq: LE 572 and LE 582.

LE 662 An Analysis and Treatment of Common Reading Problems in the Secondary School. 2 sem hr
Formal and informal diagnostic procedures; case histories, test data, determinants of prognosis. Designing individualized programs.  
Prereq: LE 572 and LE 582.

LE 663 Evaluation of Reading Growth and Development. 2 sem hr
Standardized and informal tests; selection, administration, and interpretation; and techniques for appraising achievement in listening, speaking, reading, and writing. Kindergarten through 12th grade.  
Prereq: LE 572.

LE 668 Practicum in Reading. 2 sem hr
Supervised experiences including reading clinics.  
Prereq: 8-10 hours of graduate work in reading and permission of reading program advisor.

CO 671 Elementary School Principalship. 2 sem hr
Educational leadership in the junior high school and school-community relations; curriculum, instruction, special services, buildings and equipment, pupil relations, and personnel relations.

CO 672 Junior High School Principalship. 2 sem hr
Educational leadership in the junior high school and school-community relations; curriculum, instruction, special services, buildings and equipment, pupil relations, and personnel relations.

CO 673 Senior High School Principalship. 2 sem hr
Educational leadership in the senior high school and school-community relations; curriculum, instruction, special services, buildings and equipment, pupil relations, and personnel relations.

CO 677 School Business Management. 2 sem hr
School business procedures; budgeting, construction and design of school-accounting systems, purchasing, salary schedules, school indebtedness, and insurance problems.  
Prereq: CO 553 Economics of Public Education.

CO 680 Legal Aspects of Administration. 2 sem hr
Operation of laws; development of legal principles. Federal and State relationships to education; authority and liability of school boards, administrators, and teachers; negligence, discipline, and control.  
Prereq: 10 hours of credit in administration.

CO 681 Ethics of Administration and Supervision. 2 sem hr
Moral and ethical meaning of administrative and supervisory behavior; human relations in leadership and values explicit and implicit in decision structures.  
Prereq: Admission to specialist's program in education administration.

CO 682 Behavioral Science in Administration and Supervision I and II. 2 sem hr each
Emphasizes contributions of research in the behavioral sciences. Explores studies of psychologists, sociologists, political scientists and others that have special value in understanding such concepts as leadership, organization, power, authority, communication, innovation and decision making.  
Prereq: Open only to students working on a specialist's program in educational administration.
CO 686 Research Seminar in Administration and Supervision I and II. 2 sem hr each
Explores research proposals in administration and supervision. Requires acquaintance-
ship with research literature in administration and supervision.
Prereq: 10 hours of credit in administration.

CO 696 Advanced Seminar in Administration and Supervision. 2 sem hr
An intensive study of elected problems in administration and supervision.
Prereq: Students working on a specialist's degree in educational administration.

CO 696 Inter-disciplinary Seminar in Educational Administration. 4 sem hr
Offered on an inter-institutional basis by the Departments of Education of seven State-
supported institutions. Recent research and theory from Education and behavioral
sciences. Enrollment by invitation only.

CO 696 Advanced Seminar: Implementation of Federal Legislation. 2 sem hr
Consideration in depth of several bases for the development of policy guide lines, ad-
ministrative procedures, and project objectives in the implementation of federal legisla-
tion affecting public education.
Prereq: CO 596 Seminar in Federal Legislation.

LE 696 Seminar: The Reading Process. 2 sem hr
For the research in the behavioral and medical sciences; linguistic studies; critical ex-
amination of selected studies, investigations, and reports.
Prereq: 20 hours of credit in reading.

LE 696 Seminar in Elementary School Curriculum. 2 sem hr
An intensive evaluation of curriculum materials and problems in elementary schools.
Prereq: LE 541 Curriculum-Elementary School and 20 semester hours of graduate credit.

LE 696 Seminar in Guidance. 2 sem hr
Problems in guidance and counseling.
Prereq: LE 643 or one year of full-time experience as a guidance counselor.

LIBRARY SCIENCE

LIB 525 Resource Materials for the Elementary School. 2 sem hr
Criteria and sources for selection and purchase of books, pamphlets, periodicals, and
free materials for nursery school through the sixth grade.

LIB 595 Workshop in Reading Guidance for Children. 2 sem hr
Reading guidance for teachers and librarians learning to meet the special needs of the
individual child.

LIB 596 Seminar for the Administrator and the School Library. 2 sem hr
For administrators, supervisors, beginning audiospecialists, and beginning librarians;
services, activities, materials and standards of a materials center in a school library.

HEALTH, PHYSICAL EDUCATION AND RECREATION

I. General Courses

PED 500-504 are designed for non-majors and should enhance the knowledge of stu-
dents from other departments.

PED 501 Problems in Community Health. 2 sem hr  (Formerly PED 590)
Community health problems and the forces operative in their solution; the role of the
educator in dealing with the health problems of his environment.

PED 502 Elementary School Health. 2 sem hr  (Formerly PED 557 Improving Elementary School Health Programs)
Elementary school personnel and the total school health program.
II. Tool Courses

PED 505 Basic Statistics. 2 sem hr  (Formerly PED 521 Educational Statistics)
Statistical procedures; distribution, measures of central tendency, measures of dispersion, and correlation.

PED 506 Test Construction. 2 sem hr  (Formerly PED 531 Measurement and Evaluation)
Types of written tests and examinations; construction, selection, and interpretation of results.

III. Athletic Courses

PED 619 Problems in Training for Athletics. 2 sem hr  (Formerly PED 689)
Problems in the physical preparation of athletes for competition; treatment and rehabilitation of resulting injuries.

IV. Recreation Courses

PED 520 Trends in Community Recreation. 2 sem hr  (Formerly PED 510)
Recreation and the cultural aspects of communities.

PED 522 Social Recreation. 2 sem hr  (Formerly PED 684 Social Recreation for Community and School Programs)
Planning and directing activities for family groups, church groups, senior citizens, and school and community functions.

V. Health Courses

PED 540 School Health Trends. 2 sem hr  (Formerly PED 530)
Review of recent literature and research in the areas of health service and health instruction; national trends in school health.

VI. Physical Education Courses

PED 561 Supervision in Physical Education. 2 sem hr
Problems, relationships, and procedures in the supervision of physical education programs.

PED 562 Facility Planning and Development. 2 sem hr
Terminology, standards for planning, construction, use, and maintenance of facilities in health, physical education, recreation, and athletics.

PED 565 Problems in Intramural and Extramural Sports. 2 sem hr  (Formerly PED 685)
Organization and administration of intramural and extramural sports in junior and senior high schools; practical aspects of programming for groups and individuals.

PED 570 Critical Analysis of Physical Education. 2 sem hr  (Formerly PED 589 Expanding Role of the Physical Educator)
The expanding role of physical education and the physical educator; an analysis of research in the foundation sciences and in philosophy.

PED 580 Physical Education Travel Study Tour. 2 sem hr  (Formerly PED 548)
A tour of several foreign countries to study curricula, methods, of teaching, training techniques, facilities, and points of cultural interest related to health, physical education, recreation, and athletics.

PED 585 Physical Education in Elementary Schools. 2 sem hr  (Formerly PED 555)
Curriculum development, teaching methods, program planning, and evaluation for the physical educator and the elementary school teacher; purposes and principles of organization and development of a physical education program for elementary schools.
PED 586 Physical Education in Secondary Schools. 2 sem hr  (Formerly PED 556)  
Developing a physical education curriculum for secondary schools; problems involved in supervision.

PED 587. Philosophy of Physical Education. 2 sem hr  
(Formerly PED 687 Interpretation of Physical Education)  
The development of concepts of physical education and their impact on the society in which we live.  
Prereq: Major/Minor.

PED 588 Administrative Problems in Physical Education. 2 sem hr  
The case study approach to the understanding of problems in physical education and athletics; planning, organizing, developing, staffing, coordinating, and budgeting programs.

PED 589 Advanced Physical Testing. 2 sem hr  
(Formerly PED 686 Advanced Tests and Measurements)  
The application and interpretation of advanced physical tests in the areas of health, physical education, recreation, and athletics.  
Prereq: Major/Minor.

PED 670 Current Problems in Physical Education. 2 sem hr  
Identification, discussion and analysis of current problems and issues which confront the physical educator.

PED 678 Comparative Physical Education. 2 sem hr  
(Formerly PED 688)  
The historical heritage of physical education from early Greek civilizations to the present. Comparative studies of aims, objectives, and programs of ancient and modern cultures.

VII. Research Courses

PED 594 Research Techniques. 2 sem hr  
Research in a variety of settings; reviewing published research, participating in research, presenting a plan for a research problem.

PED 595 Health Education Workshop. 2 sem hr  
(Formerly PED 593)  
Developing concepts of health education and total health programs.

PED 597, 598, 599 Independent Studies. 2 sem hr each  
(Formerly PED 697, 698, 699)  
An intensive study of a problem under the direction of a University faculty member.  
Prereq: PED 594 or equivalent.

PED 695 Workshop: Trends in Physical Education. 2 sem hr  
Basic issues and current trends in physical education and its related areas; local and national programs.  
Prereq: Graduate major.

PED 695 Workshop in Physical Fitness. 2 sem hr  
Current theories and practices in the development of physical fitness in our society; evaluation of school programs.  
Prereq: Graduate major.
SPECIAL EDUCATION AND OCCUPATIONAL THERAPY

LE 506 Education of Exceptional Children. 2 sem hr
Problems and methods involved in the adjustment and training of exceptional children in the school, e.g., the mentally retarded, the gifted, the crippled, the deaf, the blind, the emotionally unstable, and the delinquent. Not open to students who have credit in 251 Education of Exceptional Children.

LE 507 Contemporary Problems in Mental Retardation. 2 sem hr
Contemporary issues and problems relating to the mentally retarded; institutionalization, sterilization, euthanasia, the parent movement, federal legislation, demonstration project, and current research.

LE 510 Education and Treatment of Cerebral Palsied Children. 2 sem hr
An interpretation of the cerebral palsied child; types of cerebral palsy. The problems of education and treatment; opportunity is provided to observe children in the classroom and treatment room.
Prereq: LE 506.

LE 513 The Slow-Learner in the Classroom. 2 sem hr
Adjusting the curriculum for slowlearning children; problems of identification, methods and materials, curriculum modifications, and remedial techniques. This course is not an equivalent or a substitute for LE 558-559.

LE 514 Measurement and Diagnosis in Special Education. 2 sem hr
Psychological evaluation and assessment; the role of tests in the assessment of intellectual capacity, educability, emotional adjustment, and visual and auditory limitations.
Prereq: LE 506.

LE 515 Social Psychology of the Handicapped. 2 sem hr
Principles of social psychology which influence handicapped individuals and their environment; society as it affects handicapped individuals; and individuals as they affect society.
Prereq: LE 506.
CO 519 Administration and Supervision of Special Education. 2 sem hr
Organizing or improving a program for exceptional children; philosophical, legal, and practical aspects.
Prereq: LE 506 and 6 hours of credit in special education.

LE 519 Emotionally Disturbed Children. 4 sem hr
Dynamics of individual behavior; theories of emotional behavior in children illustrated by case materials and excerpts from psychotherapy.
Prereq: LE 506 and abnormal psychology.

CO 520 Family-School Relationships in Special Education. 2 sem hr
(Formerly CO 515)
Discovering and analyzing the home problems which have educational implications for the child.

LE 528 Adaptive Equipment and Appliances. 2 sem hr
Techniques of creating braces and splints for the upper extremities through the use of such materials as aluminum, royalite, plastic, celastic, plaster of paris, wood, and leather. The neuro-muscular theory of hand splinting with emphasis on necessary precautions. How to make, repair, fit, and purchase adaptive equipment and appliances.

LE 536 Methods of Teaching Physically Handicapped Children. 2 sem hr
Education and psychological needs of crippled children; teaching techniques to meet these needs, and problems that arise in group adjustment. Observation and laboratory are required.

LE 537 Pathology of the Physically Handicapped. 2 sem hr
Orthopedic disabilities, cardiac and other handicapping conditions of children; structure and function of the human body as it relates to these disabilities. Laboratory period and case studies are required.
Prereq: LE 506.

LE 538 Therapeutic Care of the Physically Handicapped Child. 2 sem hr
Medical and surgical aspects of the orthopedic and other handicapped conditions of children; therapies and services used in their rehabilitation. Opportunity for observation of children is available.
Prereq: LE 506.

LE 539 Speech Correction. 2 sem hr
The more important problems of speech, their causes, and the remedial procedures which the classroom teacher may employ. Disorders of articulation. Not open to students who have credit in Special Education 241.

LE 552 Language for the Deaf I. 2 sem hr
(1) The effects of a hearing loss on language development; (2) The development of language in the young deaf child; (3) The structure of the English language and principles of grammar; (4) A survey of varying language methods currently in use in schools for the deaf. Activities include: field trips to the Off-Campus Schools for the Deaf used as student-teaching centers; preparation of lesson plans and teaching materials.

LE 553 Language for the Deaf II. 2 sem hr
(1) The teaching of language to older deaf children; (2) A detailed study of the Fitzgerald Straight Language System with emphasis on practical use at elementary, intermediate and secondary levels; (3) Experience with a variety of approaches to the stimulation, improvement and correction of written composition. Activities as above.

LE 554 Auditory Training and Speech Reading for the Deaf and Hard-of-Hearing. 2 sem hr
(1) Study of the avenues of receptive communication available to the acoustically handicapped; (2) Methods of developing speech reading skills; (3) Methods of training residual hearing; (4) The care and use of group and individual amplification equipment.
LE 555 Anatomy and Physiology of the Speech and Hearing Mechanism. 2 sem hr
The anatomy and physiology of normal speech production and auditory reception; the physical processes of speaking and listening as dynamic, interdependent processes.

LE 557 Mental Deficiency. 2 sem hr
The nature and causes of mental deficiency; characteristics and social control of mental defects. Opportunities are provided for observation and clinical studies. Not open to students who have credit in 350 Mental Deficiency.

LE 558 Education of the Mentally Handicapped I. 2 sem hr
Selection and preparation of curriculum materials for mentally handicapped children; the methods and devices used in presenting this material. Opportunities provided for functional experiences.
Prereq: LE 506.

LE 559 Education of the Mentally Handicapped II. 2 sem hr
Educating the mentally handicapped in the intermediate program, and the techniques and methods in preparing and utilizing a curriculum adapted to the child's needs and abilities.

LE 561 Education of Gifted Children. 2 sem hr
The identification of gifted students; the use of test results, psychological services, and cumulative records. Curricula stressing enrichment and acceleration and the use of community resources. Of special value to classroom teachers.

LE 563 The Emotionally Disturbed Child in the Regular Classroom. 2 sem hr
For regular classroom teachers who do not have training in dealing with the emotionally handicapped child. The behavior of disturbed children, techniques for dealing effectively with symptomatic behavior; a case study analysis of children being taught by individuals electing the course. This course does not apply toward certification to teach emotionally handicapped children in special education programs.

LE 565 Habilitation of the Trainable Mentally Retarded Child. 4 sem hr
Habilitation and education of the trainable retarded child; philosophy and objectives, classroom management and procedures, program coordination and evaluation, parent counseling, professional personnel, legislation, housing, transportation, sheltered workshops, and other ancillary services.

LE 567 Education of the Brain-Injured Child. 2 sem hr
Planning and effecting educational programs for brain-injured children who have disturbances in perception, thinking and emotional behavior. Pathology of the central nervous system; teaching techniques, classroom management, case studies, research and teacher-child and parent relationships.

LE 568 Secondary Education of the Mentally Handicapped. 2 sem hr
A program of functional education for mentally handicapped children in the junior-senior high school age group; vocational, occupational, and terminal education.
Prereq: LE 506.

LE 569 Occupational Information in Special Education. 2 sem hr
Experiences in securing information of cultural, social, educational, and occupational opportunities in the community for exceptional children. Visits to industry, community, service agencies, and educational institutions.

LE 574 Psychology of Speech and Hearing. 2 sem hr
Speech, language, and hearing as a part of child development; social and emotional implications of communication disorders.

LE 575 Speech Pathology: Stuttering. 2 sem hr
Causation, symptomatology, and remedial procedures of stuttering; specific therapy procedures in the clinic, the school, and the home.
Prereq: Graduate major.
LE 577 Speech Pathology: Voice Problems. 2 sem hr
Prereq: Graduate major.

LE 578 Applied Phonetics. 2 sem hr
The International Phonetic Alphabet; physiology of sound production, ear training, and broad transcription of normal and deviant speech.

LE 579 Diagnostic Practicum. 2 sem hr
Supervised clinical experience in diagnosing speech problems. Directed observation and practice in obtaining a case history; testing articulation; diagnosing retarded speech, stuttering, and voice; testing for cleft palate, cerebral palsy, and aphasia.
Prereq: Concurrent enrollment in Speech Pathology.

WORKSHOPS
LE 595 Sensory Training for the Perceptually Handicapped Child. 2 sem hr
LE 595 Language Problems of Neurologically Impaired Child. 2 sem hr
LE 595 Pre-School Culturally Deprived Mentally Handicapped Child. 2 sem hr
LE 596 Seminar in Speech Correction. 2 sem hr
Speech correction in the schools and clinics; ethics, organization, administration, practice, parent-teacher education, and current trends in the profession. Independent study in current research.

LE 597, 598, 599 Independent Studies. each 2 sem hr
An intensive study of a problem or group of problems under the direction of a University faculty member.

LE 611 Curriculum Planning for the Emotionally Disturbed. 4 sem hr
Modification in content, method, classroom procedures, organization, and teacher attitudes necessary to work with children whose behavior is seriously deviant.

LE 670 Speech Correction: Clinical Methods I. 2 sem hr
Diagnosis and treatment of functional articulatory problems, stuttering, language impairment and functional voice disorders.

LE 671 Speech Correction: Clinical Practice I. 2 sem hr
Supervised clinical experience with children and adults in an individual and group setting. Functional articulation and voice disorders and rhythm problems. Concurrent enrollment in Clinical Methods I.

LE 672 Speech Pathology: Language Therapy. 2 sem hr
Incorporating newly acquired or recently modified speech patterns into communicative behavior. Patterns and codes of language; the development of therapeutic activities for individuals with speech, hearing or language impairments.

LE 673 Speech Pathology: Cleft Palate. 2 sem hr
Nature and etiology of palatal and facial deformities; surgical procedures and related therapy. Observation of dental, medical, and social service agencies.

LE 675 Speech Correction: Clinical Methods II. 2 sem hr
Treatment of speech disorders associated with cerebral palsy, cleft palate, hearing losses, and mental handicaps.

LE 676 Speech Correction: Clinical Practice II. 2 sem hr
Clinical experience with speech disorders associated with organic impairment; problems of children with cerebral palsy, cleft palate, hearing losses, and mental handicaps. Concurrent enrollment in Methods II.

LE 696 Seminar in Special Education. 2 sem hr
An intensive study of selected problems in special education. Open only to majors in special education.
UNAFFILIATED DEPARTMENTS

HOME ECONOMICS

HEC 500 The Disadvantaged Family. 2 sem hr
Problems facing individuals in families that are socially, culturally, and economically disadvantaged. Resources for effective local and federal programs of assistance in social service, education and in legislation; resource speakers and field trips.

HEC 501 Women in the Modern World. 2 sem hr
The dynamics of the past half century with implications for the American woman. Opportunities and conflicts represented by the emerging multiple roles for women; opportunities through counseling, continuing education, and mass media.

HEC 502 Family in Crisis. 2 sem hr
Social and psychological aspects of crisis situations in the family; educational preparation to face difficult situations in constructive ways. School, community, and legal assistance available for families in trouble.

HEC 504 Parent Education. 2 sem hr (Formerly HEC 542)
Discovering and analyzing situations and influences in the home which have educational implications for the child; methods and techniques for providing parent education.

HEC 505 Social and Economic Problems in Housing. 2 sem hr (Formerly HEC 532)
Personal and public concerns for adequate family housing with an evaluation on economics, art and social aspects. Local, state, and federal legislation on housing and trends in social action.

HEC 506 Foods in the Cultures of the World. 2 sem hr (Formerly HEC 583)
An inter-disciplinary approach to cultures of the world; special social and ethnic groups in America and their food habits, agriculture and climate, religion and economics.

HEC 507 Leisure and the Family. 2 sem hr (Formerly HEC 543)
Impact of various aspects of modern life on availability and perception of leisure time; survey of variations in family time and resources for creative use of leisure time activities which are appropriate at various stages of the family life cycle. Materials related to leisure time uses, sources of vacation information, consideration of the family with special needs. Cooperative programs by departments of Sociology, Arts and Crafts, Recreation, Music, and others. Consultants from each special field.

HEC 508 Food and Nutrition Problems of the Low-Income Family. 2 sem hr
Social and economic factors relative to the dietary patterns of the underprivileged family and its members; dietary conditions, and supplementary community food programs.

HEC 509 Demonstration Techniques. 2 sem hr (Formerly SS 505)
Development of effective techniques and standards for use of demonstration methods for home economists in teaching, business and television. Critical evaluation of individual and team demonstrations in laboratory experience.

HEC 510 Family Clothing Management. 2 sem hr
Clothing and textile problems for each individual in the family; the relationship of garment design, garment construction, fiber content, fabric construction, and finish to the acceptability of the garment.

HEC 511 Curriculum Development in Homemaking Education. 2 sem hr (Formerly SS 532)
Contributions of home economics at elementary and secondary levels; techniques employed in curriculum planning and reconstruction.
HEC 512 Methods and Materials in Family Life Education. 2 sem hr
(Formerly SS 552)
Philosophy and objectives in family life education; teaching-learning procedures. Sources for teaching materials, professional consultations, resource persons in family life education, and evaluation of sample materials.
Prereq: HEC 208 or equivalent; Education 305.

HEC 514 Home and Family Life Education in the Junior High School. 2 sem hr
(Formerly SS 595)
Developmental needs of pre-adolescents; changes in family and society as a basis for developing junior high school programs in homemaking and family life education. Survey of methods and materials, unique for effective personal and family-centered teaching at this level.
Prereq: HEC 371 or equivalent.

HEC 515 Space, Equipment and Furnishings for Homemaking Departments. 2 sem hr
(Formerly SS 563)
Problems in remodeling old and planning new departments, equipping and furnishing them. Trends in space use in departments with correlated application of experiences in classroom.
Prereq: HC 305; 371 or equivalent.

HEC 516 Federal Legislation for Wage Earner Programs in Home Economics. 2 sem hr
(Formerly SS 512)
Current legislation providing vocational training in home economics related positions, for youth, and adults. Processes of area studies, implementing programs, and roles of personnel involved.
Prereq: consent of department head.

HEC 518 Special Problems in Homemaking Education. 2 sem hr
Course developed to assist the in-service teacher with specific problems in homemaking programs. Major concerns are the slow learner, the returning school drop-out, the disabled or homebound child. Assistance and resources available for teachers who face such difficulties in their teaching responsibilities.
Prereq: HEC 371 or equivalent.

HEC 530 Family Economics and Home Management. 2 sem hr
(Formerly SS 512)
Management problems and consumer needs of American families: analysis of consumer aids, and buying-selling practices.
Prereq: HEC 264.

HEC 531 Recent Developments in Home Equipment. 2 sem hr
(Formerly SS 544)
Current models of household appliances; mechanical principles involved in construction, use and methods of testing. Cost-quality factors and consumer information.
Prereq: HEC 305 or equivalent.

HEC 540 Family Development. 2 sem hr
(Formerly SS 546)
Family growth patterns through predictable stages of development; processes of interaction and cooperation.
Prereq: HEC 104 or 206 or equivalent.

HEC 541 Child Guidance in the Family. 2 sem hr
(Formerly SS 578)
Family relationships with responsibilities to children at various developmental stages. Analysis, evaluation, practical application of various philosophies of child development and child rearing as they relate to family living.
Prereq: Educ 320 or equivalent.

HEC 544 Preparation for the Later Years. 2 sem hr
(Formerly SS 540)
Individual, family and community planning for the years ahead; developing potentialities; maintaining health; providing reasonable security; building interpersonal relationships. Lectures, field trips and demonstrations.
Home Economics

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HEC 545  Laws Affecting the Family.  2 sem hr  (Formerly SS 551)
Laws related to the family; their historical development and application to various stages of the family life cycle. Family law from the viewpoints of family members and professional persons who work with families; legal assistance available to families.

HEC 560  Tailoring.  2 sem hr  (Formerly SS 550)
Fundamental construction processes and special techniques applied to the construction of tailored garments; alterations and adaptations.
Prereq: 6 hours of credit in clothing and/or textiles.

HEC 561  Consumer Problems in Clothing and Textiles.  2 sem hr  (Formerly SS 513)
Investigation of the sociological, psychological, legal and technical facts involved in the selection and use of textiles and clothing.
Prereq: HEC 302; 113 or equivalent.

HEC 562  History of Costume.  2 sem hr  (Formerly SS 553)
The costume (through ages) from ancient times to present day; major characteristics; social, economic and aesthetic influences; recurring styles; and influence on present fashion.
Prereq: HIS 101 or 102 or equivalent and HEC 208 or equivalent.

HEC 563  History of Furnishings and Decorations.  2 sem hr  (Formerly History of Furniture)
Interior decoration through past centuries; furniture, decorative objects, and fabrics representative of various periods of history in relation to original and present use. Authenticity, quality, and appropriate adaptations.
Prereq: REG 309.

HEC 564  Fashion Design.  2 sem hr  (Formerly SS 554)
Structural designs, techniques, and presentation; designing and illustrating present-day apparel.
Prereq: One course in costume.

HEC 565  Clothing Design and Construction.  2 sem hr  (Formerly SS 535)
Principles of pattern design, with application to a variety of styles and fabrics. Special problems in fitting, adaptations of design, and processes of construction.
Prereq: 6 hours of credit in clothing/textiles.

HEC 566  Consumer Problems in Home Furnishings.  2 sem hr  (Formerly SS 559)
Characteristics, cost, construction, and range in quality of furniture, china, silver, glassware, wall coverings, rugs and carpets, flooring, woods and fabrics. Field trips. Purchasing problems are analyzed.
Prereq: HEC 204; 309 or equivalent.

HEC 569  Problems in Interior Decoration.  2 sem hr  (Formerly SS 564)
Practical experience in the integration of a complete decorative plan with regard to social and economic considerations, family living patterns, style and choice, client-decorator relationships and consultative practices. Field trips.
Prereq: HEC 305; 309 or consent of department head.

HEC 570  Methods and Materials in Teaching Clothing and Textiles.  2 sem hr
For the specialist in teaching clothing and textiles at secondary and advanced levels. Rewarding classroom procedures, organization resources, and evaluation methods.
Prereq: HEC 302.

HEC 580  Recent Developments in Foods.  2 sem hr  (Formerly SS 541)
The latest findings in research and technology in goods production, processing and distribution. Lectures, field trips, and demonstrations.
Prereq: HEC 211 or equivalent.
HEC 581  Special Problems in Meal Management.  2 sem hr  (Formerly SS 587)
Management problems dealing with cost in time, money and energy for family meals;
special occasions, simple catering, and special marketing problems.
Prereq: HEC 211; 204 or equivalent.

HEC 582  Experimental Foods.  2 sem hr  (Formerly SS 587)
Experimental methods and scientific approaches to food problems. Laboratory and
lecture.
Prereq: 6 hours of credit in foods; inorganic and organic chemistry.

HEC 584  Advanced Nutrition.  2 sem hr
The latest research in nutrition and emphasis on it as a world-wide problem. Problems
related to nutritional deficiencies and special diet needs.
Prereq: HEC 201 or equivalent.

HEC 611  Evaluation in Homemaking Education.  2 sem hr  (Formerly HEC 517)
Experience in measuring progress toward important goals in homemaking education;
critical consideration of available tests and evaluation materials. Evaluation instruments
and statistical techniques.
Prereq: HEC 371.

HEC 613  Supervision in Homemaking Education.  2 sem hr  (Formerly HEC 513)
Responsibilities, services and professional techniques for supervisors of homemaking
teachers at local, state and national levels; inservice and preservice programs.
Prereq: A provisional certificate in vocational homemaking education.

HEC 633  Management of Homes for Physically Handicapped.  2 sem hr  (Formerly HEC 533)
The principles of home management for the disabled homemaker or for the homemaker
who has the care of a handicapped person in the home. For home economists who deal
in adult education, social service, equipment and mass media.
Prereq: HEC 204 or equivalent.

HEC 660  Recent Developments in Textiles.  2 sem hr
The nature of textile fibers; economic, chemical, and physical problems related to their
manufacture and use; technological advances to overcome these problems.
Prereq: HEC 113 or equivalent and organic chemistry.

HEC 661  Textile Analysis.  2 sem hr
The chemical and physical analysis of fibers, yarns, fabrics and finishes; equipment and
techniques used; interpretation of data; presentation of findings to the consumer; textile
standards; current textile literature.
Prereq: HEC 660.

HEC 692  Research Techniques for Home Economics.  2 sem hr
Basic course for students planning to elect an independent study. Types of research and
techniques for interpretation. To precede HEC 697.
Prereq: 20 hours of credit in home economics.

HEC 696  Seminar in Advanced Home Management.  2 sem hr
Critical investigation of recent literature. Current trends in family practices at several
social levels; changes in values, goals, and problems throughout the family life cycle.
Prereq: Two courses in home management.

HEC 696  Seminar in Family Health.  2 sem hr
Recent developments in nutrition, preventive medicine, and home care of the sick.
Community, state, national, and world health organizations and improved family health.
For persons in family service, public health, and home economics.

HEC 696  Seminar in Family Life and Child Development.  2 sem hr
Survey of social science research in the study of family and children; recent research and
current issues. For teachers and other professional persons.
Prereq: Consent of department head.
HEC 697 Independent Study in Home Economics. 2 sem hr
An intensive study of a selected professional problem under the direction of a staff advisor.

INDUSTRIAL EDUCATION AND APPLIED ARTS

I. Courses for Non-Majors

IED 500 Crafts I. 2 sem hr (Formerly SS 522)
The selection and use of industrial materials, devices, and machines in the home, the school, and in business and industry. Opportunities are provided for laboratory experience. Not open to majors in industrial education.

IED 501 Crafts II. 2 sem hr (Formerly SS 523)
The selection and use of industrial materials, devices, and machines in the home, the school, and in business and industry. Opportunities are provided for laboratory experience. Not open to majors in industrial education.

IED 502 Problems in Industrial Arts for Elementary Schools. 2 sem hr (Formerly SS 539)
Individualized instruction based on the needs of the teacher in an elementary school. Open to majors in industrial education with permission of instructor.

IED 503 Teaching Aids in Secondary School Studies. 2 sem hr (Formerly SS 515)
Selection, design and construction of 3-dimensional teaching aids. Materials and procedures for making models, mock-ups, educational displays, dioramas, and specialized learning equipment for social studies, science, mathematics, language arts, and other subject areas. Principles and use of educational exhibits in junior and senior high school.

IED 504 Graphic Representation. 2 sem hr (Formerly SS 521)
Illustrations of ideas, plans, and proposals presented graphically. Production of examples of graphs, charts, and similar representations used by teachers and administrators. Not open to majors in industrial education.

IED 505 Graphic Arts. 2 sem hr (Formerly SS 527)
General graphic arts including: letterpress, planographic, gravure, and silk-screen printing; linoleum-block carving, and rubber-stamp making. Not open to students who have credit in 104 or 205 Graphic Arts or equivalent.

II. Communication

IED 510 Electricity-Electronics. 2 sem hr (Formerly SS 519)
For teachers of industrial education, science, and other fields. Algebra and trigonometry required. Not open to students who have completed 200 or 214 Electricity-Electronics or equivalent.

IED 513 Problems in Technical Drawing. 2 sem hr (Formerly SS 524)
Selected drawing problems related to the training and experience of individual students.

IED 515 Design in Industrial Education. 2 sem hr (Formerly SS 580)
Selecting, planning, and designing activities for each of several areas of industrial education.

IED 516 Problems in Architectural Drawing. 2 sem hr (Formerly SS 628)
Selected problems related to architectural drawing. Prereq: 4 hours in drawing.

IED 517 Problems in Graphic Arts. 2 sem hr (Formerly SS 627)
An opportunity for industrial education majors to investigate new techniques in the various areas of graphic arts. Open to majors in industrial education who hold credit in one or more courses in graphic arts.
IED 610 Problems in Electricity-Electronics. 2 sem hr  
(Formerly SS 619)  
Problems are related to the training and experience of individual students.  
Prereq: 200, 224, or IED 510.

III. Transportation

IED 520 Power. 2 sem hr  
(Formerly SS 511)  
Origin, transmission, and utilization of power.

IV. Materials Processing

IED 530 Problems in Woodwork. 2 sem hr  
(Formerly 581)  
An opportunity to acquire additional skills and technical knowledge in several areas of woodworking.

IED 533 Techniques in Plastics. 2 sem hr  
(Formerly SS 526)  
Applications of the different craft phases of plastics. Opportunity is provided for shop and laboratory experience.

IED 536 Problems in Metalwork. 2 sem hr  
(Formerly SS 582)  
Selected problems in metal work areas; problems are related to the preparation and experience of individual students.

V. Industry and Technology

IED 540 Contemporary American Industry. 2 sem hr  
History and development of manufacturing industries and the role they play in the American social, economic and cultural pattern.

IED 541 Industrial Materials. 2 sem hr  
(Formerly SS 634)  
Basic materials used in industry. Characteristics, sources, and industrial applications of metals, plastics, woods, clays, leather, adhesives, and finishes.

IED 640 Recent Technological Developments. 2 sem hr  
Innovations in materials and processes and their implications for programs of industrial education; industrial visitation.

IED 550 The Development of Industrial Education. 2 sem hr  
(Formerly SS 630)  
Origin and development of industrial education; historic viewpoints and their relationship to contemporary practices.

IED 551 Philosophy of Industrial Education. 2 sem hr  
Philosophies involved in the development of the practical arts and vocational education.

IED 552 Principles of Vocational and Technical Education. 2 sem hr  
(Formerly SS 633)  
Vocational and technical education as a phase of the program of education in the United States; philosophy, principles, practices, and current trends in a modern program of vocational and technical education.

IED 650 Industrial Education in Colleges and Universities. 2 sem hr  
The philosophy, history, and development of programs for teachers of industrial education; current trends in selected institutions.

IED 652 Technical Programs in Community Colleges. 2 sem hr  
(Formerly SS 639)  
Nature, scope, and functions of the contemporary vocational and technical programs in community colleges. New trends and developments.

VI. Content and Method

IED 560 Content and Method of Industrial Education. 2 sem hr  
Methods and procedures in curriculum development applied to industrial education; devices, and techniques for industrial education.
IED 660  Curriculum Planning in Industrial Education.  2 sem hr  
(Formerly SS 636)  
Principles and techniques in curriculum planning; survey and evaluation of courses of study.

IED 661  Evaluation in Industrial Education.  2 sem hr  
(Formerly SS 631)  
Principles and methods of evaluation in industrial education; experience in development and construction of effective devices for evaluation.

IED 662  Cooperative Programs in Industrial Education.  2 sem hr  
(Formerly SS 637)  
Cooperative vocational programs in the secondary school; organization and procedures for apprenticeship training, trades and industries, distributive education, and diversified occupations.

IED 663  New Media in Industrial Education.  2 sem hr  
New instructional aids, devices, and materials; their implications for programs of industrial education.

VII. Organization and Management

IED 670  Laboratory Planning.  2 sem hr  
(Formerly SS 635)  
Space and equipment in school laboratories, drawing rooms, and related facilities for industrial education; safety, efficiency, design, location, selection, installation, care, standards, specifications.

VIII. Administration and Supervision

IED 680  Supervision of Industrial Education.  2 sem hr  
(Formerly SS 638)  
Problems and techniques in the supervision of industrial arts education, vocational-industrial education, and vocational-technical education. Open to majors in industrial education and to majors in administration.

IX. Research

IED 592  Research in Industrial Education.  2 sem hr  
Methods and techniques used in research in industrial education.

IED 595  Workshops in Selected Areas.  2 sem hr

IED 597, 598, 599  Independent Studies.  2 sem hr each  
An intensive study of a problem or group of problems under the direction of a University faculty member.

IED 696  Seminar in Industrial Education.  2 sem hr  
An intensive study of selected problems in industrial education. Open only to majors in industrial education.

IED 697, 698, 699  Independent Study.  2 sem hr each  
An intensive study of a problem or group of problems under the direction of a University faculty member.

INSTRUCTIONAL TELEVISION

TV 524  Broadcasting in Education.  2 sem hr  
(Formerly SPH 524  TV in Education)  
Extent and nature of experimentation in instruction by radio and television; current philosophy and attitudes toward teaching by radio and television.

TV 595  Workshop in Television Utilization.  2 sem hr  
For teachers; advanced problems in the use of television in the classroom.  
Prereq: One course in television.
# Graduate Faculty

## GRADUATE COUNCIL

Dr. James W. Gallagher, Dr. Kenneth L. Grinstead, Professor Raymond A. LaBounty, Dr. Everett L. Marshall, Dr. Allen Myers, Dr. Thomas J. Murray, Dr. Russell L. Ogden, Dr. Julius M. Robinson, Dr. John W. Sattler, Dr. Harold Sponberg, Professor Earl K. Studt, Dr. Elizabeth Warren, Professor Edgar W. Waugh, Dr. Wilbur A. Williams, Dr. James H. Glasgow, Chairman.

## FACULTY

<table>
<thead>
<tr>
<th>Name</th>
<th>Position and Department</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbott, Richard H.</td>
<td>Assistant Professor, History &amp; Social Science</td>
<td>B.A., Grinnell College; M.A., University of Missouri; Ph.D., University of Wisconsin</td>
</tr>
<tr>
<td>Albritton, Thelma P.</td>
<td>Assistant Professor, Special Education and Occupational Therapy</td>
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</tr>
<tr>
<td>Anderson, Carl R.</td>
<td>Associate Professor, History and Social Sciences Vice President, Public Affairs</td>
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</tr>
<tr>
<td>Anderson, Robert L.</td>
<td>Professor, Psychology</td>
<td>B.A., Northern Michigan University; M.A., Columbia University; Ph.D., New York University</td>
</tr>
<tr>
<td>Baird, Ronald J.</td>
<td>Associate Professor, Industrial Education</td>
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</tr>
<tr>
<td>Bajwa, Ranjit S.</td>
<td>Associate Professor, Education</td>
<td>B.A., B.T., Panjale University; Ed.D., Wayne State University</td>
</tr>
<tr>
<td>Ballard, Blaine</td>
<td>Associate Professor, Music</td>
<td>B.S., M.Ed., State Teachers College, Mansfield, Pa.; M.Mus., Indiana University</td>
</tr>
<tr>
<td>Barnes, James M.</td>
<td>Professor, Physics and Astronomy Department Head, Physics and Astronomy</td>
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</tr>
<tr>
<td>Barrett, Harry S.</td>
<td>Associate Professor, Art</td>
<td>B.S., M.S., M.F.A., University of Michigan</td>
</tr>
<tr>
<td>Bates, John</td>
<td>Assistant Professor of Biology</td>
<td>B.S., Hillsdale College; M.S., University of Michigan</td>
</tr>
<tr>
<td>Baty, Charles H.</td>
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<td>B.S., M.Ed., Stephen F. Austin State College</td>
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</tbody>
</table>
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Bell, Mary I. (1949) Associate Professor, Health, Physical Education, Recreation and Athletics
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A.B., M.A., Washington University; Ph.D., University of Chicago

Bergen, Madelyn U. (1966) Assistant Professor, History and Social Science
B.A., Hartwick College; M.A., University of Arizona

Best, Alan C. G. (1964) Assistant Professor, Geography and Geology
B.A., University of Nebraska; M.A., Ph.D., Michigan State University

Bird, P. George (1955) Associate Professor, Speech and Dramatic Arts
Technical Director, Quirk Theatre
B.S., M.S., University of Wisconsin

Birleson, Clifford (1951) Associate Professor, Education
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Bornemeier, Betty L. (1965) Associate Professor, Home Economics
B.S., M.A., Ph.D., Texas Woman’s University

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Bowen, Keith (1963) Professor, Health, Physical Education, Recreation and Athletics
Department Head, Health, Physical Education, Recreation and Athletics
B.A., State College of Iowa; M.Ed., University of Colorado; P.E.D., Indiana University

Breedlove, Charles B. (1964) Associate Professor, Physics and Astronomy
Coordinator, Science Education
B.S., McMurry College; M.S., Southern Methodist University; Ed.D., Wayne State University

Briggs, William D. (1965) Assistant Professor of History and Social Sciences
A.B., University of California; A.M., Sacramento State College

Brower, George (1954) Professor, Education
B.S., Western Michigan University; A.M., University of Michigan; Ph.D., Cornell University

Brown, Donald F. M. (1956) Professor, Biology
A.B., M.S., Ph.D., University of Michigan

Brown, Leland (1964) Associate Professor, General Business
B.A., M.A., Indiana State University
Bruce, Russell D. (1964) Assistant Professor, Health, Physical Education, Recreation and Athletics Director, Intramural Athletics
A.B., Cornell College; M.A., University of Michigan

Bryan, William C. (1960) Assistant Professor, Accounting and Finance
B.S., Oklahoma State University; M.B.A., University of Michigan

Brylowski, Walter M. (1955) Associate Professor, English Language and Literature
B.A., Kalamazoo College; M.A., University of Connecticut; Ph.D., Michigan State University

Buchanan, Singer A. (1964) Assistant Professor, Speech and Dramatic Arts
B.A., Tennessee State College; M.A., University of Michigan

Buckholts, Paul O. (1961) Professor, Geography and Geology
B.A., M.A., Oklahoma University; Ph.D., Harvard University

Cali, C. Theresa (1965) Associate Professor of Biology
B.A., M.S., Fordham University; Ph.D., Cornell University

Calkins, Kingsley M. (1950) Professor, Art Department Head, Art
B.S., Eastern Michigan University; A.M., University of Michigan

Carpenter, Arthur L. (1964) Assistant Professor, Education
B.S., Eastern Michigan University; M.S., Michigan State University

Caswell, Herbert H., Jr. (1955) Professor, Biology
B.S., Harvard University; M.A., University of California at Los Angeles; Ph.D., Cornell University

Cichanski, Allen (1955) Assistant Professor, Geography and Geology
B.S., Ph.D., Ohio State University

Cleeton, Kenneth H. (1957) Professor, Education Director, Special Projects and Research Development
B.S., M.A., University of Missouri; Ed.D., University of Colorado

Collins, W. Oscar (1957) Professor, General Business Department Head, General Business
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Cook, Frances C. (1960) Assistant Professor, Lincoln School Coordinator, Library Services, Lincoln School
A.B., M.A.L.S., University of Michigan

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A.B., University of Michigan; A.M., Eastern Michigan University

Cranmer, Robert W. (1954) Associate Professor, Lincoln School Elementary Principal, Lincoln School
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Faculty

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B.S., M.A., Ed.D., Wayne State University

Deckard, Donald J. (1966) ———— Associate Professor of Mathematics
B.A., M.A., Ph.D., Rice University

Desper, Martha L. (1960) ———— Assistant Professor, Lincoln School
B.A., Wayne State University; M.A., University of Michigan

DeVries, Harry (1946) ———— Professor, History and Social Sciences
A.B., Hope College; A.M., Ph.D., University of Michigan

DiMattia, Pearl E. (1966) ———— Assistant Professor of Biology
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Disbrow, Donald W. (1956) ———— Professor, History and Social Sciences
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Dean, College of Arts and Sciences
A.B., Western Michigan University; A.M., Ph.D., University of Michigan

Dume, Thomas L. (1957) ———— Associate Professor, English Language and Literature
B.A., University of Michigan; M.A., Columbia University; Ph.D., Temple University

Duncan, Charles H. (1965) ———— Professor, Business Education
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Earl, David M. (1965) ———— Associate Professor, History and Social Science
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Early, Madeline L. (1956) ———— Associate Professor, Mathematics
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Ecker, Louis G. (1965) ———— Assistant Professor, Industrial Education and Applied Arts
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Elder, Richard D. (1959) ———— Assistant Professor, Education
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Elwell, John S. (1948) ———— Associate Professor, Music
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Engelsman, Anthony (1936) ———— Professor, History and Social Sciences
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Fairfield, Richard T. (1963) ———— Assistant Professor, Art
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Fauman, S. Joseph (1958) Professor, History and Social Sciences
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Fielder, Anita L. (1963) Professor, Home Economics
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B.S., University of Kansas; M.S., M.Ed., Ed.D., University of Illinois

Figurel, J. Allen (1964) Professor, Education
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Fitch, William D. (1944) Professor, Music
B.S., Kansas State College; M.M., Ph.D., University of Michigan

Friedman, Monroe P. (1964) Associate Professor, Psychology
B.S., Brooklyn College; Ph.D., University of Tennessee

Fulton, Calvin W. (1956) Professor, Special Education and Occupational Therapy
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Gallagher, James W. (1958) Professor, Geography and Geology
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Gates, Mary Frances (1942) Professor, Education
B.A., Lawrence University; M.S., University of Chicago; Ph.D., University of Wisconsin

Gesler, Ralph A. (1952) Assistant Professor, Education
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Gex, R. Stanley (1954) Professor, Education
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Gibson, Eugene M. (1956) ——Professor, Foreign Language and Literature
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Giles, Elizabeth V. (1956) ——Assistant Professor, Chemistry
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Giles, Richard A. (1947) ——Professor of Biology
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Glasgow, James H. (1939) ——Professor, Geography and Geology
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Goff, Richard Davis (1964) ——Associate Professor, History and Social Sciences
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Gohn, Ernest S. (1958) ——Professor, English Language and Literature
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Goldschmidt, Erich (1955) ——Associate Professor, Music
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Goldsmith, William E. (1962) ——Assistant Professor, Education
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Goosey, Bob L. (1959) ——Assistant Professor, Mathematics
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Gotts, M. Margaret (1938) ——Assistant Professor, Mathematics
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B.S., Iowa State College; M.A., Cornell University; Ph.D., Northwestern University

Green, Edward (1963) ——Professor, History and Social Sciences
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Greene, Bert I. (1963) ——Professor, Education
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Gregerson, Harvey H. (1959) ——Assistant Professor, Special Education and Occupational Therapy
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Grinstead, Kenneth L. (1964) ____________ Associate Professor, Education
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University

Hadden, Eugene E. (1965) ____________ Assistant Professor, Education
B.A., M.A., Ed.D., North Texas State College

Hardison, D. Thomas (1963) ____________ Associate Professor, Music
B.S., M.S., Juilliard School of Music

Harris, Augusta M. (1929) ____________ Professor, Health, Physical Education,
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Chairman, Women's Division, Health, Physical Education,
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B.S., Eastern Michigan University; M.A., University of Michigan

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Hebert, Catherine A. (1947) ____________ Professor, English Language and Literature
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Hecock, Richard M. (1965) ____________ Assistant Professor, Geography and Geology
A.B., Albion College; M.A., Wayne State University; Ph.D., Clark
University

Helppie, Charles E. (1965) ____________ Professor, History and Social Sciences
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Herrick, Frances E. (1950) ____________ Associate Professor, Special Education and
Occupational Therapy
B.S., Eastern Michigan University; A.B., M.A., University of Michigan

Hester, Kathleen B. (1945) ____________ Professor, Education
B.S., Carnegie Institute of Technology; M.A., Ph.D., University of
Pittsburgh

Hoff, Robert D. (1965) ____________ Associate Professor, Health, Physical Education,
Recreation and Athletics
B.S., M.A., Ph.D., University of Iowa

Hudson, Cale C. (1966) ____________ Associate Professor of Education
B.S., M.S., Ed.D., Indiana University
Hutchinson, J. Glenn (1964)  Assistant Professor, History and Social Sciences  
A.B., Emory University; M.A., University of North Carolina

Irwin, Martha E. (1964)  Assistant Professor, Education  
B.A., M.Ed., Bowling Green State University; Ed.D., Western Reserve University

Isbell, Egbert R. (1937)  Professor, History and Social Sciences  
B.A., A.M., L.L.B., Ph.D., University of Michigan

James, Dorothy (1927)  Professor, Music  
B.M., M.M., American Conservatory of Music

Johnson, Bert M. (1951)  Professor of Biology  
B.S., A.M., Ph.D., University of Michigan

Jennings, Gerald L. (1963)  Assistant Professor of Industrial Education and Applied Arts  
B.S., M.S., Ball State University

Jones, Hebert M. (1964)  Associate Professor, Education  
Assistant Dean, Graduate School  
B.S., M.A., Ball State University; Ed.D., Indiana University

Jordan, Hoover H. (1939)  Professor, English Language and Literature  
Department Head, English Language and Literature  
B.A., Yale University; M.A., Ph.D., Cornell University

Karson, Samuel (1966)  Professor, Psychology  
Department Head, Psychology  
A.B., St. Joseph College; M.A., University of Detroit; Ph.D., University of Denver

Kelley, Earl C. (1965)  Professor, Education  
B.S., University of Chicago; M.A., Ph.D., Northwestern University

Kelly, Joseph P. (1940)  Professor, Speech and Dramatic Arts  
B.A., Grinnell College; M.A., Cornell University; Ph.D., State University of Iowa

Keros, John W. (1965)  Assistant Professor, Accounting and Finance  
B.B.A., M.B.A., University of Michigan; CPA, State of Michigan

Kickfighter, Clois E. (1966)  Assistant Professor, Industrial Education  
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Klahn, Richard Phillip (1966)  Associate Professor of Education  
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Kloosterman, Winton A. (1962)  Associate Professor, Education  
B.A., Beloit College; M.A., Teachers College, Columbia University; Ed.D., Wayne State University

Koo, Youngnok (1962)  Assistant Professor, History and Social Sciences  
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Kornbluth, Martin (1966)                        Associate Professor of English
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Kramer, Karl R. (1963)                        Assistant Professor, Education
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LaBounty, Raymond A. (1945)                   Professor, Industrial Education and
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Langman, Muriel P. (1950)                    Professor, Education
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Leatherman, Roger L. (1963)                   Professor, Education
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Leib, Floyd I. (1925)                         Associate Professor, Physics and Astronomy
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Liu, Stephen C. (1965)                        Assistant Professor of Biology
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Lloyd, Madeleine M. (1963)                    Associate Professor, Home Economics
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May, George S. (1965) Associate Professor, History and Social Sciences  
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McDaniel, Thelma (1961) Instructor, Speech and Dramatic Arts  
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McDonald, James R. (1965) Associate Professor, Geography and Geology  
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Meislets, Murray (1965) Assistant Professor, Psychology  
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Menzi, Elizabeth A. (1964) Professor, Health, Physical Education,  
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B.A., Oberlin College; M.A., Bowling Green State University; Ph.D., University of Michigan

Metler, John W. (1964) Assistant Professor, Education  
B.A., University of Western Ontario; B.D., Emmanuel College, Victoria University; M.A., Union Theological Seminary; Ed.D., Teachers College, Columbia University

Michael, Calvin B. (1956) Professor, Education  
B.A., Albion College; M.A., Ph.D., University of Michigan

Michalak, Virginia G. (1962) Associate Professor, Speech and Dramaic Arts  
B.A., Vassar College; M.A., Wayne State University

Miller, Marjorie M. (1946) Associate Professor, English Language and Literature  
A.B., Nebraska State Teachers College; A.M., University of Michigan

Minick, Merilyn (1966) Assistant Professor of Biology  
B.S., Eastern Michigan University; M.S., University of Michigan
Monahan, Thomas (1953)  Associate Professor, Education  
B.S., Willimantic State Teachers College; A.M., University of Connecticut

Mood, Darlene W. (1965)  Assistant Professor, Education  
B.Ed., Roosevelt University; M.A., Wayne University

Moore, Sarah E. (1964)  Assistant Professor, Home Economics  
B.S., A.M., Ball State University

Muckenhirn, Erma F. (1963)  Assistant Professor, Education  
B.S., M.A., Ph.D., University of Michigan

Murray, Thomas J. (1963)  Professor, Speech and Dramatic Arts  
B.A., M.A., Ph.D., University of Michigan

Myers, Allen (1958)  Professor, Special Education and Occupational Therapy  
Department Head; Director, Special Education and Occupational Therapy; H. Rackham School
B.M., M.M., North Texas State College; Ph.D., State University of Iowa

Nagle, Roland A. (1964)  Associate Professor, Special Education and Occupational Therapy  
B.A., M.A., Ph.D., University of Michigan

Neal, George H. (1964)  Assistant Professor, Accounting and Finance  
B.S., M.A., Memphis State University

Northey, James H. (1957)  Associate Professor, Mathematics  
B.S., Northern Michigan University; M.S., University of Michigan

O'Dell, Jerry W. (1966)  Assistant Professor, Psychology  
B.A., University of Cincinnati; Ph.D., University of Michigan

Ogden, Lawrence (1963)  Professor, Geography and Geology  
B.S.Ed., Northwest Missouri State College; B.S., University of Tulsa, M.S., University of Wisconsin; D.Sc., Colorado School of Mines

Ogden, Russell L. (1956)  Associate Professor, Business Education  
B.S., Eastern Illinois University; M.A., Ed.D., Colorado State College

Osadchuk, Mitchell M. (1956)  Associate Professor, Music  
A.B., Lake Forest College; M.Mus., Northwestern University

Owens, J. Henry (1940)  Professor, Foreign Language and Literature  
Department Head, Foreign Language and Literature  
A.B., Franklin College; A.M., Ph.D., University of Minnesota

Palmer, David E. (1952)  Associate Professor, Special Education and Occupational Therapy  
A.B., M.A., University of Michigan

Pappas, John George (1966)  Assistant Professor of Education  
B.A., University of Akron; M.A., Ohio State University; Ph.D., Kent State University
Faculty

Pappas, John N. (1962) ______________________ Associate Professor, Art
Leave of Absence (1966-67) Prix de Rome to study Sculpture
B.F.A., M.A., Wayne State University

Parsons, Karl (1950) __________ Associate Professor, Physics and Astronomy
Coordinator, Nuclear Physics
A.B., Indiana Central College; M.S., State University of Iowa

Pate, Robert S. (1947) _________________________ Professor, Mathematics
Department Head, Mathematics
A.B., Peru State College; M.A., University of Nebraska; Ph.D., University of Illinois

Pearson, Robert Brainard (1964) _____________ Professor, English Language and
Literature
B.A., University of Puget Sound; M.A., Ph.D., Cornell University

Peterson, Ralph G. (1946) ________________ Associate Professor, Education
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Pillsbury, Paul W. (1960) ________________ Associate Professor, English Language and
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A.B., Dartmouth College; M.A., Ph.D., University of Michigan

Porretta, Louis P. (1959) ________________ Associate Professor, Education
B.A., Eastern Michigan University; M.Ed., Wayne State University

Potter, Edward E. (1950) __________________ Professor, English Language and Literature
A.B., St. Ambrose College; A.M., University of Notre Dame; Ph.D., University of Michigan

Pyle, Hershal O. (1945) ________________ Associate Professor, Music
B.Mus., St. Louis Institute of Music; M.Mus., M.A., University of Michigan

Rarig, Howard R. (1965) ________________ Professor, Music
Department Head, Music
B.Mus., M.Mus., Ithaca College; Ph.D., University of Michigan

Richards, Lawrence P. (1965) ______________ Associate Professor of Biology
A.B., University of California at Berkeley; Ph.D., University of Illinois

Richmond, Bert O. (1964) __________________ Assistant Professor, Education
A.B., Indiana University; M.A., Ball State University; Ed.D., Indiana University

Riley, Maurice W. (1947) ________________ Professor, Music
A.B., A.M., Colorado State College of Education; M.Mus., Ph.D., University of Michigan

Risk, Norman W. (1949) ________________ Professor, Industrial Education and Applied Arts
B.S., Eastern Michigan University; M.A., University of Michigan
Robinson, Julius M. (1947) ___________________ Professor, General Business
Dean, Summer and Evening Sessions
B.S., Southwest Missouri State College; M.A., Northwestern University; Ed.D., New York University

Robinson, Margaret M. (1937) __________Associate Professor, Education
A.B., Eastern Michigan University; M.A., M.A.L.S., University of Michigan

Robinson, Robert S. (1959) ______________Assistant Professor, Education
A.B., A.M., University of Michigan

Rogers, Agnes L. (1955) _____________Assistant Professor, Special Education and
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A.B., University of Tennessee; A.M., George Peabody College

Rokusek, Henry J. (1964) ___________ Professor, Industrial Education and
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Dean, College of Business
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Russell, Wilma I. (1958) ___________________________ Professor, Education
B.S., Southwest Missouri State College; A.M., New York University; Ph.D., University of Michigan

Samonte, Quirico S. (1963) ______________Associate Professor, Education
B.A., M.A., University of the Philippines; M.A., Ph.D., University of Michigan

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