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Graduate Issue
January, 1976

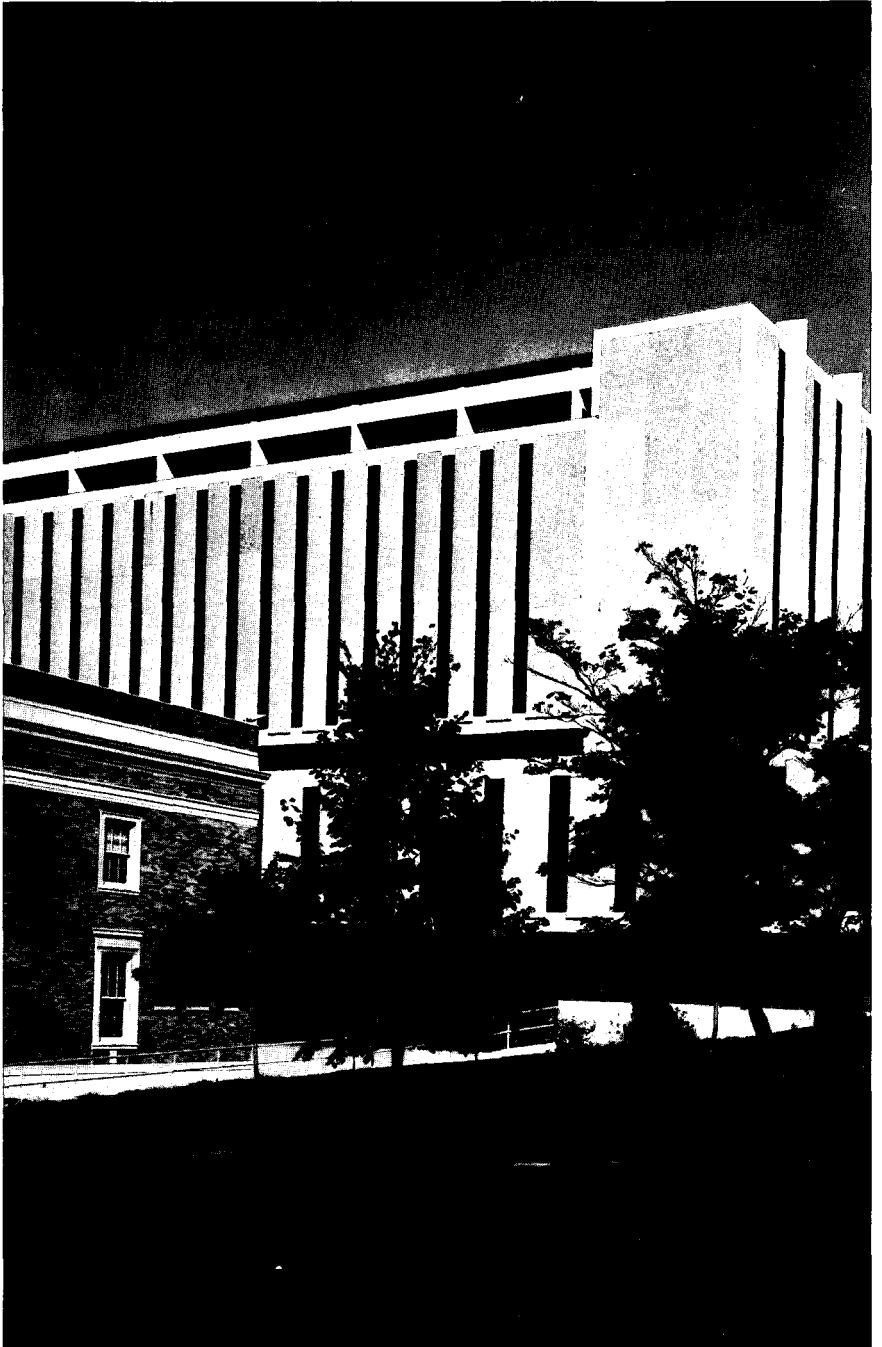
The University of Dayton Bulletin



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I The University of Dayton

Founded in 1850

The University of Dayton is a private, coeducational school founded and directed by the Society of Mary (the Marianists), a Roman Catholic teaching order.¹ It is among the nation's largest Catholic institutions of higher learning. Aware of the cultural richness of diversity, the University numbers among its students and faculty representatives of many faiths. For the same reason, it has consciously drawn its students and faculty not only from the middle-western neighborhood but from across the country and from numerous foreign countries.

STATEMENT OF PURPOSE

As a church-related institution of higher learning in a pluralistic environment, the University of Dayton chooses the Catholic world view and the scholarly traditions of the Society of Mary as its distinctive orientation in carrying out, in an atmosphere of academic freedom and social, racial, and religious tolerance, what it regards as its four essential tasks: teaching, research, social criticism, and public service. The ultimate purpose of all graduate work at the University is identical with this purpose.

A graduate school, through its faculty, seeks to provide and maintain the academic milieu for excellence in graduate work. Therefore, its influence and encouragement extend first to its own members and their scholarly activity. Because it conceives as the form and substance of graduate work not the credits accumulated but the mastery of a subject and the understanding of its relationship to kindred subjects, the graduate school seeks further to impart to its students thorough knowledge in academic fields, special skills in research, and sharpened powers of independent thought. Yet, while it gives them the resources, the guidance, and the inspiration of a scholarly staff in its classrooms, laboratories, and libraries, it expects the students themselves to bring marked initiative and energies to their work and to assume full responsibility for the progress of their studies.

¹ The Society of Mary, founded in France in 1817 by Father William Joseph Chaminade, presently conducts schools throughout the United States and in Africa, Australia, Canada, Japan, Europe, and South America. The Society operates Chaminade College in Hawaii and St. Mary's University in San Antonio, Texas.

In short, graduate work, for the student at the University of Dayton, has for its purpose an integrated program of advanced study based on adequate undergraduate preparation in a specific field. It presupposes academic and personal maturity and makes more than average demand upon the initiative, the industry, and the scholarship of the candidate for an advanced degree.

BASIC ACADEMIC STRUCTURE OF THE UNIVERSITY

The University of Dayton includes the College of Arts and Sciences and four professional schools, each with a dean: the School of Business Administration, the School of Education, the School of Engineering (including Engineering Technology), and the School of Law. The deans, through their departments, administer the undergraduate and graduate programs, the ultimate responsibility for which rests with the Dean for Graduate Studies and Research, who is also responsible for all research connected with the University. At the head of the academic structure of the University is the Vice President for Academic Affairs and Provost.

OFF-CAMPUS CENTERS

The University of Dayton maintains off-campus centers, all of them in Ohio, for graduate study in the following disciplines: Business Administration: Columbus and Lima; Education: Lima, Springfield, and Steubenville.

ACCREDITATION

The University of Dayton is officially accredited by the following agencies:

The State of Ohio, Department of Education.

The North Central Association of Colleges and Secondary Schools.

The National Council for Accreditation of Teacher Education for preparation of elementary and secondary school teachers.

The Engineers' Council for Professional Development for chemical, civil, electrical, and mechanical engineering curricula; also for programs of electrical, industrial, and mechanical technology in the Engineering Technology Division.

The University has the approval of the American Medical Association for its premedical program and of the American Chemical Society for its program in chemistry.

The School of Law is accredited by the Ohio League of Law Schools and is accredited provisionally by the American Bar Association.

INSTITUTIONAL MEMBERSHIP

The University holds institutional membership in the following:

The American Association for Higher Education.

The American Association of Colleges for Teacher Education.

The American Association of Collegiate Registrars and Admissions Officers.

The American Association of Collegiate Schools of Business Assembly.

The American Association of University Women.

The American Collegiate Retailing Association.

The American Council on Education.
The American Political Science Association (Departmental Services).
The American Society for Engineering Education.
The Association of American Colleges.
The Association of College and University Housing Officers.
The Association of Governing Boards of Universities and Colleges.
The Association of Independent Colleges and Universities of Ohio.
The Association of Urban Universities.
The Catholic College Coordinating Council.
The College Entrance Examination Board.
The College and University Personnel Association.
The Cooperative Education Association.
The Council of Graduate Schools.
The Dayton-Miami Valley Consortium.
The Institute of International Education.
The National Association for Foreign Student Affairs.
The National Association for Music Therapy (tentative approval)
The National Association of College Admissions Counselors.
The National Association of Schools of Music.
The National Association of Schools of Public Affairs and Administration.
The National Association of Student Personnel Administrators.
The National Scholarship Service and Fund for Negro Students.
The North Central Association of Colleges and Secondary Schools.
The Ohio Academy of Science.
The Ohio College Association.

INSTITUTIONAL CONSORTIA

Dayton-Miami Valley Consortium

Thirteen institutions of higher learning in the Miami Valley, including the University of Dayton, have organized the Dayton-Miami Valley Consortium (DMVC). The participating institutions seek to increase inter-institutional cooperation, improve curricula, develop new courses and programs, share library resources, minimize cost, and centralize selected functions, by using computers, modern educational technology, and communication media.

Consortium for Higher Education Religion Studies

The University is an active member of the Consortium for Higher Education Religion Studies (CHERS). This consortium makes possible cross registration, sharing of library resources, dialogue with students of other institutions, interchange of facilities, and cooperative innovative planning. Area members include Antioch College, Hamma Divinity School, Payne Theological Seminary, St. Leonard Seminary, University of Dayton, Wilberforce University, Wilmington College, and United Theological Seminary.

United Seminary, Antioch College, the University of Dayton, and Wright State University jointly employ and share a Professor of Judaic Studies under a grant from the Harriet Sanders Trust of Dayton, Ohio.

II University Facilities and Services

COMPUTER CENTER

In the Computer Center, the University's Office for Computing Activities (OCA) operates a large time-sharing computer for the benefit of students, faculty, and staff as well as for academic support services, the registration process, and other administrative functions.

Various academic departments offer courses in or involving programming and the use of the computer, for which students regularly come to OCA's Data Center to do assignments. In addition, students not enrolled in courses specifically requiring computer use may learn about it and gain experience on a first-come, first-served basis once they have received identifying numbers (applied for at the Office for Computing Activities). Open-shop terminals are in the Data Center, as are keypunch machines for those who need them. The Data Center distributes several manuals produced by the staff to explain the Computer Center's program library, equipment, and capabilities.

Student operators, consultants, and programmers are hired each year to assist the staff in providing computing service to the University community. Students interested in working as any of these are encouraged to visit the office of the Manager of Operations, the Manager of Academic Services, or the Director of OCA.

HEALTH SERVICES

The Gosiger Memorial Health Center is open from 8 a.m. to 7 p.m. on weekdays and from 8 a.m. to 3 p.m. on Saturdays. At all other times, emergency care is available. The doctor's hours are 9 a.m. to 3:30 p.m. on weekdays.

Any full-time or part-time graduate student who wishes to make use of Health Center facilities is required to submit a pre-admission health form, including a report of a doctor's examination and recent chest x-ray, directly to the Health Center before admission to graduate studies. The proper form for this purpose may be obtained from the Office for Graduate Studies; no other forms will be accepted. Only students whose completed forms are on record will be permitted to use the Health Center.

HOUSING

Those wishing information about housing may call or visit the Housing Office (229-3317), Gosiger Center.

HUMAN RELATIONS OFFICE

The Human Relations Office serves students, faculty, staff, and administrators in several ways. It encourages and facilitates intergroup communication on

campus. It serves as a primary conduit for two-way communication between the University of Dayton and the black community both on and off the campus. It offers to minority students and others personal and group counseling, academic and cultural program support, and a variety of informational and guideline services. Its director is the compliance officer for Affirmative Action / Equal Employment Opportunity (AA / EEO) at the University.

INFORMATION CENTER

The Information Center, on the first floor of the John F. Kennedy Memorial Union, gives students and others easy access to miscellaneous data such as the location and telephone numbers of faculty, staff, students, and organizations; the location of academic and other departments; the location of buildings and classrooms; bus schedules; the schedule of on-campus meetings and other events (academic, cultural, athletic, and recreational), listing specific times, places, admission prices if any, names of speakers or performers, etc.; and events in Dayton and the surrounding area that are of special interest or value to University students.

The Center maintains a lost-and-found department and a rack of useful pamphlets, flyers, maps, and University publications. Tickets for Music and Theatre Arts performances are available here, and RTA (city bus system) tickets are for sale.

INTERNATIONAL EDUCATION

The Office of International Education, in O'Reilly Hall, advises and serves international students at the University of Dayton and provides help and information on many aspects of international education. It maintains a resources center with foreign cultural reviews, publications on travel abroad and special international topics, and American material of interest to international students on this campus.

LIBRARIES

The University of Dayton Library contains book, journal, and microform collections for both graduate and undergraduate students. Its book holdings are almost 375,000 volumes, and its journal titles number around 3,500. The Library is a partial Government Document Depository. It houses (in addition to the internationally famous Marian Library, which has auxiliary collections of its own) other special resources such as a rare book collection and an archives. The University Library provides continuous reference service and operates almost entirely under the open stack system. On each floor, comfortable reading areas are convenient to the stacks. Typewriters and photocopiers available for use, seminar rooms, and faculty carrels are among the Library's other facilities.

The Marian Library, on the seventh floor of the main library building, holds the world's largest collection of works on the Virgin Mary, which includes 40,000 books and pamphlets in over fifty languages, runs of 125 periodicals, a clipping file of 33,000 items, growing microfilm offerings, and numerous medals and photographs. The Marian Library supplements its resources for Mariology with national and regional bibliographies; a significant depository of early printing,

with 4,000 works dated before 1800; and reference works on the Bible, ecclesiastical and dogmatic history, Christian art (especially of the Eastern Churches and Medieval Europe), and the history of printing.

The Law Library, opened in 1974 with the reopening of the Law School, occupies a large portion of the ground floor of the main library building. It has over 91,000 volumes and offers modern research resources such as microfiche.

The Curriculum Library, housing specialized collections of the School of Education, is on the first floor of Chaminade Hall.

The University's active membership in the Dayton-Miami Valley Consortium has significantly augmented the library resources available to her students. Some libraries in the Consortium will lend materials directly to students from other schools; others require interlibrary loan forms, which may be secured from one of the reference librarians.

Other libraries in the area available to graduate students include the public system and the libraries of the Engineers' Club, Miami Valley Hospital, certain units of Wright-Patterson Air Force Base, and certain local industries.

PARKING

A one-year parking permit may be obtained for a fee of \$10 at the Traffic Office, Gosiger Center. This is a color-coded decal indicating the lot to which the permit holder has been assigned. Parking facilities on the main campus are limited. Restrictions to assigned lots are enforced rigidly between 8 a.m. and 5 p.m. on weekdays. After 5 p.m. daily and on weekends, all University lots (except for restricted zones) are open to all permit holders. An evening student may obtain an evening permit for the same \$10 fee. Note, however, that evening students arriving on campus before 5 p.m. on weekdays may park only in Lot A.

The Traffic Office brochure, issued with the permit, lists traffic regulations in detail. Drivers are expected to know these and to observe them.

PLACEMENT

The services of the Placement Office, St. Mary's Hall, which are available to seniors, graduate students, and alumni seeking positions in business, industry, and government, include the following:

1. Personal employment counseling.
2. A library of literature describing opportunities with more than 500 employers.
3. A listing of current job openings.
4. Direct referral of alumni to employers.
5. Campus interviews by representatives of business, industry, and government (conducted from October through March; announced in a monthly calendar which can be obtained in the Placement Office).

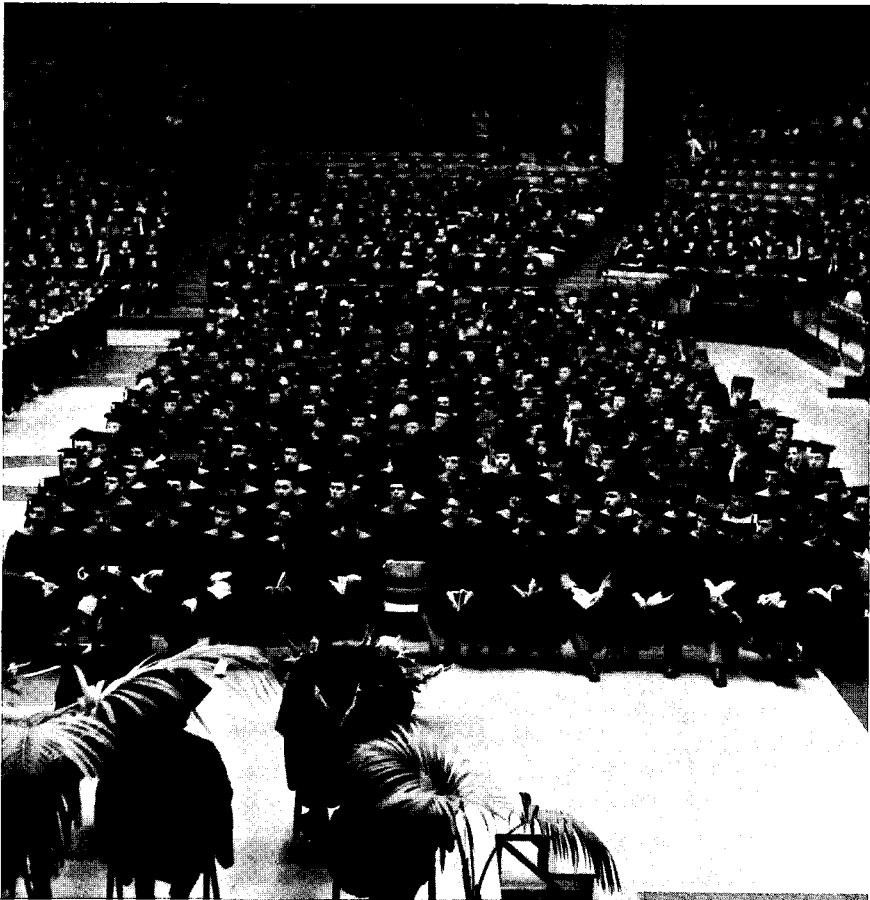
Part-time and summer employment are the responsibility of the Personnel Services Office. Teacher placement is the responsibility of the Teacher Placement Office, School of Education.

Information about graduate assistantships may be obtained from the appropriate departmental chairmen or program directors.

RESEARCH INSTITUTE

As an integral unit of the University, the Research Institute administers sponsored research that the University agrees to perform for commercial organizations and governmental agencies. Research projects are in such broad and diverse areas as ecological studies, bone implants, blood flow, heart and muscle investigation, aerodynamics and structural mechanics, archaeological investigations, systems analysis, and the development of high strength magnetic materials.

Projects concerning a single discipline are conducted by the appropriate department of instruction, and multidisciplinary projects are normally conducted in research facilities under the direct jurisdiction of the Research Institute. There is strong emphasis on the integration of all research with the instructional activities of the University, and a concerted effort is made to provide opportunities for graduate students to acquire training and experience in research.



III Financial Information

TUITION AND FEES

Tuition for Courses Taken for Undergraduate Credit

Per registered semester hour for lecture course on campus only.....	\$55.00
Per clock hour for laboratory course.....	20.00

Tuition for Courses Taken for Graduate Credit

Per registered semester hour except as below.....	61.00
School of Business Administration off-campus center per semester hour ...	70.00
School of Education per quarter hour	29.00
School of Education off-campus center per quarter hour.....	32.00
School of Engineering doctoral program per semester hour.....	70.00
Secondary and elementary teachers and school administrators per semester hour.....	45.00

Fees

Application fee.....	15.00
Foreign student application.....	25.00
Basic University fee, each term on campus only (This fee payable only once during the third term.).....	15.00
Audit per semester hour.....	28.00
Em credit per semester hour.....	15.00
Graduation fee	26.00

NOTE: Law students see Chapter X.

CANCELLATION AND REFUNDS

Cancellations will be allowed only after the completion of the proper Drop-Add Form. For refund purposes the effective date of cancellation is the date the student submits the official Drop-Add Form, not the last day the student attends class. The date that appears on the official Drop-Add Form will be forwarded to the Bursar's Office, and that date will determine the amount of refund due, if any.

Students who discontinue class attendance without officially completing the withdrawal procedures will be responsible for the full amount of the applicable tuition and fees.

Financial Information

Tuition charges for the first and second terms will be made according to the following schedule:

During the first week of classes.....	20%
During the second week of classes	40%
During the third week of classes.....	60%
During the fourth week of classes	80%
During and after the fifth week of classes.....	100%

Tuition charges for each session of the split third term will be made according to the following schedule:

During the first week of classes.....	35%
During the second week of classes	70%
During or after the third week of classes.....	100%

TRANSCRIPTS

A transcript of the permanent academic record is a confidential document to be released only with the permission of the student except under due process of law. A transcript of record will be issued by the Registrar upon receipt of a request in writing. The student may request his transcript to be mailed to himself, another institution, or an organization. The first copy of a transcript requested after graduation is a complimentary copy. All transcripts except the complimentary copy will require advanced payment of a dollar. The charge for transcripts ordered in lots of two or more is a dollar for the first copy and fifty cents for each additional copy.

ASSISTANTSHIPS

A limited number of graduate assistantships are available to students who are qualified. These carry a stipend and tuition remission for courses required for the degree. Recipients are expected to complete the requirements for the master's degree in two years.

Detailed information and forms for making application may be obtained from the chairman or director of the proposed graduate program.

IV General Academic Information

The University of Dayton presently awards the following degrees beyond the baccalaureate:

Master of Arts
Master of Business Administration
Master of Clinical Chemistry
Master of Computer Science
Master of Humanities in Philosophy
Master of Mechanical Engineering
Master of Public Administration
Master of Science
Master of Science in Aerospace Engineering
Master of Science in Chemical Engineering
Master of Science in Civil Engineering
Master of Science in Education
Master of Science in Electrical Engineering
Master of Science in Engineering
Master of Science in Engineering Management
Master of Science in Management Science
Master of Science in Materials Engineering
Master of Science in Teaching
Juris Doctor
Doctor of Engineering
Doctor of Philosophy in Biology
Doctor of Philosophy in Engineering

The various programs leading to these degrees are described in Chapters V through X, as are the specific curricula, courses, and requirements of the schools and departments offering them.

The academic requirements and regulations described in this chapter are those of the University which, unless otherwise noted, take precedence over all others and apply to all graduate students. The student is expected to assume full responsibility for knowing and following all pertinent regulations and procedures of the graduate school as set forth in this Bulletin and for meeting the standards and requirements expressed herein.

ADMISSION

Men and women graduates of approved colleges or universities who hold the bachelor's degree are eligible for admission. Applicants must have had adequate

undergraduate preparation in their proposed fields of study and must show promise for pursuing higher studies satisfactorily.

Inquiries concerning admission and requests for application forms should be addressed to the Office for Graduate Studies or to the Office of the Dean of the appropriate school or college of the University of Dayton. The application for admission to graduate work should be submitted by August 1 for the first term, by December 1 for the second term, by April 1 for the third term, and by June 1 for the second half of the split third term. It is the responsibility of the student that his application, with all the necessary supporting documents, be complete and in order. Registration as a graduate student will not be permitted otherwise. A student anticipating use of the University Health Services must also file a medical record along with the application.

Upon admission, students are designated as full time or part time by their deans or program directors. The determination of such status for graduate assistants, students engaged in research, and in general all graduate students is made by their respective chairmen.

Graduate students are also classified according to their relationship to formal programs, as follows:

1. Regular status – the student who has met satisfactorily all the general requirements of the college or school and the specific requirements of the department in which he is working.
2. Conditional status – the student who must fulfill some prerequisite imposed by the school or department before admission to regular status; and the student whose preparation cannot yet be determined.
3. Unclassified status – the student belonging to either of the categories below. The unclassified student will be considered as the student of a school or the college but will not be officially enrolled in a graduate program leading toward a degree.
 - a. Nonprogrammed – a student who fulfills all the requirements and is taking courses for credit but is not seeking a degree.
 - b. Transient – a properly qualified student working toward a degree in another institution who has written authorization from the dean of that institution to take specific courses at the University of Dayton for transfer of credit. The transient student must satisfy all registration requirements of the given course that are mandatory for students working for a degree at the University of Dayton.

REGISTRATION FOR COURSES

The responsibility for being properly registered rests with the student. Registration is required each term or session of all students who enter course work for credit and of all students who wish to audit courses. The written approval of the proper dean or the designated director or advisor is required for admission to any course. Graduate students must register at least ten days prior to the beginning term dates listed in the academic calendar. Any student who has interrupted the normal sequence of his graduate program is required to apply to the designated

advisor or chairman for permission to resume graduate study, at least two weeks prior to the first day of each term.

All students should consult the Graduate Composite for each term well in advance of registration in order to determine the scheduling of courses. Students enrolling at the off-campus centers (Columbus, Findlay, Lima, Springfield, Steubenville) should note that although the scheduling of off-campus classes follows the general pattern of the University calendar, they do not necessarily conform to the on-campus academic dates in all details. Law students should note a separate Law School calendar in Chapter X.

DEGREE REQUIREMENTS

The College of Arts and Sciences and the Schools of Business Administration, Education, Engineering, and Law offer programs variously distributed in time, leading to the master's and doctor's degrees. Specific requirements and sequences are listed in those sections of this Bulletin dealing with the specific degree programs.

Transfer Credits

A maximum of two courses of graduate work may be allowed in transfer from other accredited institutions to the University of Dayton provided the work is of B grade quality or better. The quality points are not transferred. Usually no transfer credit will be allowed for courses taken more than five years previous to matriculation in the graduate schools of the University of Dayton.

During the initial years of operation of any new program, exceptions to this limitation may be made with the approval of the dean concerned.

Residence Requirement

For the master's degree, at least 24 semester hours of credit, or its equivalent, must be earned at the University of Dayton or its off-campus centers.

For the doctoral degree, two-thirds of the semester hours required beyond the master's degree should be earned at the University of Dayton. Generally, this is 48 semester hours beyond the master's degree. For the doctoral degree, a student must be a full-time student during at least two semesters or the equivalency.

Academic Standards

To be in good standing, a graduate student must have a 3.0 quality point average at all times. Grades are expressed on the student's permanent record in the following manner:

- A – Excellent: 4 quality points for each semester or quarter hour.
- B – Average: 3 quality points for each semester or quarter hour.
- C – Poor: 2 quality points for each semester or quarter hour.
- F – Failed: 0 quality points.
- K – Passed: Credit is given, but no corresponding quality points are given. The K is used by certain departments when the thesis or special courses are not

General Academic Information

to affect the 3.0 cumulative quality point average needed to be in good standing.

- P – In Progress: For the thesis or for courses which have not terminated at the end of a semester. After the course or thesis is completed, the P is replaced on the permanent record by an A, B, C, F, or K with the corresponding credit and quality point average.
- I – Incomplete: To be used when a course has terminated but the student, for an acceptable reason, has not completed the work of the course. The I has 0 quality points per hour and does affect the cumulative quality point average. It can be changed to a letter grade if the student has completed his work within a period of four months.
- W – Withdrawal: Any withdrawal or change of course must be processed by an official Drop-Add Form through the Registration Center, with the approval of the graduate student's advisor. During the first three weeks of a full term (or 10 calendar days of a split term) a graduate student may withdraw from a class without record. Financial adjustments, if allowed, will be made only from the date of notification of withdrawal.
- X – Audit: This mark indicates that the graduate student has registered to audit the course. No credit hours or quality points are awarded for this mark. NOTE: Any course taken for audit may not be retaken for credit.
- Em – Examination: This mark indicates credit given to students (registered in the University) on the basis of examinations after admission to the University. The level of achievement which must be demonstrated by the student on these examinations is determined by the department in which the course is taught. Such credit shall be assigned only on authorization of the dean of the school or college in which the student is registered. No quality points are allowed.

NOTE: Students in the School of Law are graded on another scale. See Chapter X.

Foreign Language Requirement

At the discretion of the department offering a particular program, a reading knowledge of a foreign language may be required for the master's degree. Graduate students can take language courses on class or tutorial basis by special arrangement through the chairman of the Department of Languages, College of Arts and Sciences. No graduate credit is allowed for the fulfillment of language requirements.

Comprehensive Examination

A comprehensive examination is required in most programs. This examination may be oral or written, or both. Application for any comprehensive examination must be approved by the chairman of the student's major department at least two weeks prior to the examination. For further details, consult the explanation under the appropriate individual program in this Bulletin.

Thesis and Other Requirements

Students in a program requiring a thesis, an equivalent project, a candidacy examination, or a dissertation must not undertake work on such a requirement without the approval of the department chairman or the program director or of an advisor delegated with the authority to give it. Both the form and the content of the final work must have the approval of at least three members of the department, including the faculty advisor and the chairman or director.

At least three final copies of a master's thesis in approved form must be submitted at least two weeks before the date of graduation. Students in doctoral programs should consult appropriate sections of this Bulletin for requirements concerning candidacy and such matters as the number of copies of the dissertation, as well as for regulations governing topics, approval, and procedures.

Time Limit

All requirements for a master's degree must be satisfied within seven calendar years from the time of matriculation.

All requirements for a doctoral degree must be satisfied within five calendar years after admission to candidacy.

VETERANS

All departments of the University have been approved by the Veterans Administration for training under the G.I. Bill. Veterans' affairs are handled by the VA Representative, second floor, Chaminade Annex. All veterans wishing to utilize their educational benefits must contact this office each semester. Counseling by the Veterans Administration is available in the Guidance Center. The following is University policy on enrollment status for the purpose of VA certification: Full time – 8 or more semester hours; $\frac{3}{4}$ time – 6 or 7 semester hours; $\frac{1}{2}$ time – 4 or 5 semester hours; less than $\frac{1}{2}$ time – 3 semester hours.

INTERNATIONAL STUDENTS

Students from foreign countries should request information and applications from the Office of International Education. (See also Chapter II.) A student from a foreign country seeking admission to any graduate program must have completed a minimum of sixteen years of schooling, must have earned at least a bachelor's degree or its equivalent, and must present evidence of outstanding success in his chosen field of study. An applicant who is a citizen of a foreign country will be required to supply the following information along with his formal application form:

1. A completed academic record.
2. Three recommendation letters.
3. Scores from the Test of English as a Foreign Language (TOEFL).
4. Scores from the Graduate Record Examination (GRE). Exception: Instead, MBA candidates must furnish scores from the Graduate Management Admissions Test (GMAT).
5. A medical questionnaire completed by a responsible medical authority.

6. Evidence of sufficient funds to cover tuition costs for the first year, room and board, and return transportation costs; and, from countries where applicable, evidence of exchange funds and export permission. (A master's degree requires approximately two calendar years for completion.) Moreover, the international student must carry health insurance and be prepared to pay the first annual premium (\$45.00) upon arrival at the University.

International students should complete the application procedure two months prior to the beginning of classes for any term. (See academic calendar.) Original inquiries should be made at least one year before the term in which the student seeks admission.

NOTE: There are no exceptions for international students to the above rules.

GRADUATE STUDENTS IN UNDERGRADUATE COURSES

Some, but not all, curricula permit certain 400-level undergraduate courses to be applied to graduate program credit requirements. When such courses are permitted for graduate-level credit, then the work done shall be of the grade of B or higher in order for that credit to be accepted toward a degree. The student must pay the graduate tuition rates when registering in these courses for graduate credit.

UNDERGRADUATE STUDENTS IN GRADUATE COURSES

An undergraduate student may register for graduate courses only under the following conditions:

1. Graduate courses to count toward the undergraduate degree:
 - a. Approval must be obtained from the director of the appropriate graduate program.
 - b. The student's total course load must not exceed 17 semester hours during that term.
2. Graduate courses to count toward the graduate degree:
 - a. Approval must be obtained from the director of the appropriate graduate program.
 - b. The student's total course load must not exceed 17 semester hours during that term.
 - c. The student must be within 15 semester hours of completing the semester-hour requirements for graduation in his undergraduate program.
 - d. Credit obtained for the graduate courses may not be counted toward both the bachelor's degree and any future master's degree.
 - e. The undergraduate student whose status is less than full time or $\frac{3}{4}$ time must pay the graduate tuition rates to register in graduate courses for graduate credit.

SEPARATION FROM THE UNIVERSITY

The admission of candidates, their continuance and status, the awarding of academic credits, and the granting of degrees are all subject to the ordinary regulatory powers of the University. The University reserves the right to withhold



or cancel, at its discretion, any of these privileges for reasons considered sufficient by its own governing body.

The various deans reserve the right to review at intervals the work of their graduate students, and in consultation with the program directors and / or chairmen of the departments, to recommend that those who are not doing work of a high caliber be advised to discontinue courses leading to a degree.

The disciplinary authority of the University is vested in the president by right, and in the deans and other officers on whom jurisdiction may be conferred for specific cases and in restricted areas.

V Interdisciplinary and Joint Studies

INDIVIDUAL INTERDISCIPLINARY STUDIES

Joseph W. Stander, S.M., Dean for Graduate Studies and Research

The University of Dayton, through the Office of the Dean for Graduate Studies and Research, offers individual interdisciplinary programs for those who are qualified. The student must have a bachelor's degree and a general cumulative point average of 2.8. The student must write a formal request to the Graduate Council to begin such a program.

The degree will be a Master of Arts or a Master of Science with a major in the interdisciplinary area. The program should involve three disciplines and one faculty member from each discipline. The three faculty members constitute the advisory committee. The final program will be drawn up and approved by the advisory committee. Copies will be sent to the chairmen of the departments involved.

Fifteen semester hours must be taken in courses offered by the three departments. Nine semester hours may be divided between directed study and thesis but must be related to the interdisciplinary area. Six semester hours of related electives may be chosen.

An oral or written examination should take place after 12 to 15 semester hours of course work to insure the integration of the disciplines. The examining committee is chosen by the advisory committee.

It is recommended that the student discuss his proposed program with the Dean for Graduate Studies and Research before proceeding to draw up the formal proposal for the Graduate Council. This request must contain the following:

1. A general description of the proposed program and the reasons for choosing such a program.
2. The courses (at least 15 semester hours) which will be taken and the departments involved in the overall work.
3. If a project or thesis is desired: a clear statement of the specific nature of the topic, the research intended, and the purpose of the project or thesis.
4. The names of three faculty members as suggestions for the advisory committee. The appointment of the committee, however, rests with the Graduate Council. (The student is urged to discuss the proposal with each of the three before submitting it to the Graduate Council.)

COMMUNICATION ARTS (COM) INTERDISCIPLINARY STUDY

George C. Biersack, Director of the Program

The Communication Arts Interdisciplinary Study program leads to the Master of Arts. It requires 12 semester hours of study in Communication Arts, 12 semester hours of study in one of several designated interdisciplinary areas, and six semester hours of thesis credit, followed by oral comprehensive examinations on both the course work and the thesis. See Chapter VI.

FOUNDATIONS OF EDUCATION (EDF) INTERDISCIPLINARY STUDIES

M. Audrey Grob, Director of the Program

The Foundations of Education Department of the School of Education offers an area of concentration for flexible interdisciplinary programs leading to the Master of Science in Education. The following EDF courses are available for such a concentration:

	<i>Quarter Hours</i>
EDF 501 Advanced Psychology of Learning.....	4
EDF 502 Advanced Philosophy of Education.....	4
EDF 503 Research Methodology and Statistics.....	4
EDF 504 Advanced Child and Adolescent Psychology.....	4
EDF 518 Cultural Foundations: School and the Social Order.....	4
EDF 550 History of Higher Education in the United States.....	4
EDF 590 Educational Research Design.....	4
EDF 593 Interpretation of Statistics and Research.....	4
EDF 554 Cultural Foundations: Historical	4
EDF 578 Cultural Foundations: Political	4
EDF 579 Cultural Foundations: Comparative Education.....	4
EDF 591 Research Project.....	4-6

See also Chapter VIII and consult with the director.

LAW AND BUSINESS ADMINISTRATION (LAW / MBA)

The JD / MBA Joint Degree Program is an integrated program of studies which leads to the Juris Doctor and the Master of Business Administration simultaneously. It was established in response to the growing need for professionals trained in both fields. While the specific program structure and requirements are determined for each student through individual consultation, the basic design is applicable to all students. Normally, the first year is taken entirely in the Law School and entails the same courses prescribed for all law students. Course work in the second and third years is distributed between law and business administration courses in a sequence to achieve integrated progression in both fields. The fourth year consists largely of law courses to complete the JD requirements. The total number of semester hours required for an MBA degree will depend upon the student's need for prerequisite courses. Those with undergraduate degrees in fields other than business administration normally require additional hours for such prerequisites. The designation of certain courses from both the Law School and the School of Business Administration as common electives results in completion of the entire program in one term less than would be required if the two degree programs were pursued independently.

The student may accelerate the joint degree program by attending summer sessions. Both schools offer courses during the summer. In any event, upon admission to the joint degree program, each student is required to meet with the program advisor to plan a program of studies.

Students applying for the program must meet the admission requirements of both the Law School and the School of Business Administration. Application for admission, along with other required records, should be submitted to each of the schools. See also Chapters VII and X.

LAW AND EDUCATION (LAW / EDU)

The Law School and the School of Education cooperate in offering a joint program leading to both the Juris Doctor and the Master of Science in Education. Because the program provides sufficient flexibility to accommodate particular needs and plans, its design and plan can be determined for each student individually. For further information, students interested in this joint program should consult program directors in both the Law School and the School of Education.

LAW AND PHILOSOPHY (LAW / PHL)

The School of Law and the Department of Philosophy in the College of Arts and Sciences cooperate in offering a joint degree program – concurrent studies in two disciplines that result in the Juris Doctor and the Master of Arts. Students interested in this combination must make separate application for admission to the law and the philosophy programs and satisfy the requirements of both, some of which, however, may overlap. See also Chapters VI and X.



MANAGEMENT SCIENCE (MSC)

Landis S. Gephart, Director of the Program

The program leading to the Master of Science in Management Science, which is interdisciplinary, is administered by the Dean for Graduate Studies and Research of the University, with the cooperative support of the College of Arts and Sciences, the School of Business Administration, the School of Education, and the School of Engineering.

The objective of this program is to develop managerial capability and skill appropriate to each student's preferences and goals. The general methodologies of management science include system analysis, model building, information systems, planning and control, and the varied techniques of operations research, such as decision analysis, reliability engineering, mathematical optimization, and applied probability and statistics. The program emphasizes the models, techniques, and quantitative methods that are useful in the solution of real problems.

In most years the demand for current graduates in the Management Science program has greatly exceeded the number of students available. Graduates are sought in all areas of the public and private sector, from engineering to business to medicine.

All courses are offered in the evening. Thus the Management Science program is fully accessible to those who work full time and want to satisfy both occupational and academic objectives.

FINANCIAL AID

Assistantships are available at the University of Dayton for the encouragement of graduate work and the promotion of research. These are administered by the academic departments. Detailed information may be secured from the Director of the Management Science Graduate Program.

ADMISSION

Applications are welcome from college graduates in all fields — engineering, the liberal arts, the physical sciences, and the social sciences. Advice on eliminating deficiencies in undergraduate backgrounds may be obtained by individual inquiry. There are three types of admission:

Regular admission is granted to applicants who are holders of the bachelor's degree from accredited colleges or universities and have demonstrated superior academic performance in their respective major fields. In general, they must be well trained in mathematics and statistics and must understand the use of computers.

Conditional admission is granted to applicants who do not qualify for regular admission but show promise of being able to complete the requirements of the management science program. Conditional admission may be granted to the following applicants:

1. The candidate for graduate work whose background does not include at least three terms of analytic geometry and calculus, two terms of statistics, and

competence in a computer language. Such an applicant may be required to complete certain prerequisite courses before admission to the program. These courses must be completed with a minimum grade of B. Any student requiring in excess of nine semester hours of prerequisites will be considered as unclassified.

2. The candidate whose preparation cannot be determined adequately and for whom any part of the qualifying education was obtained more than seven years before the proposed date of initiation of studies in the graduate program.

3. The candidate in the final term of work toward a bachelor's degree pending the filing of supplementary transcripts and evidence of the awarding of the degree.

4. An undergraduate at the University of Dayton who is within six semester hours of graduation and who has permission of the department to register for graduate credit. The combined elections in both the undergraduate and graduate courses for one term may not exceed 12 semester hours, and only students who have excellent records should seek such approval.

Applicants in categories 1 and 2 above may be required to complete additional qualifying work beyond the normal degree requirements. If, after the completion of 15 semester hours of graduate work, the cumulative grade point average is not B (3.00) or better, dismissal from the graduate program may result. Applicants in categories 3 and 4 will be subject to reevaluation and reclassification upon completion of the bachelor's degree.

Unclassified students will be permitted to register for a maximum of 12 semester hours of graduate work.

GENERAL REQUIREMENTS

Each student admitted to graduate study in the program will be assigned a member of the department as a permanent advisor. The advisor will guide the student in the development of a program of study deemed best for his particular interest and objectives. The program of study, approved by the advisor and the department head, must be filed with and approved by the director of the Management Science program.

It is the student's responsibility to meet with the department head as soon as possible after acceptance into a graduate program through formal notification by the Office for Graduate Studies. Conditional attendance for one term is permissible until the program of study has been filed. Amendments to the original program of study are permissible with the approval of the advisor and department head.

All programs and amendments must be prepared in quintuplicate. A copy will be returned to the student. A copy will be retained by the Director's Office and one by the Office for Graduate Studies.

A student admitted to the master's program must have met the requirements for the bachelor's degree. He must successfully complete the minimum number of hours of graduate work which are approved by his advisor and which are required in the program for which he is registered. He must obtain a cumulative average of B (3.00) or better. At the discretion of the advisor an oral or written examination may be required to confirm the student's ability to complete the program satisfactorily.

PROGRAM OF STUDY

The Management Science program (MSC) is a master's degree program design of complex technological systems. This concentration, with its many options, would prepare them for careers in the service professions of management, analysis, and policy research. The program emphasizes the practical application of the techniques of management science / operations research in modern society. The program of study must include a minimum of 36 semester hours consisting of 18 semester hours in Management Science, 9 semester hours in a cognate field, and 9 semester hours in electives.

MAJOR FIELD: MANAGEMENT SCIENCE

A minimum of 18 semester hours must be selected. The emphasis is on the techniques of management science / operations research / systems analysis.

COGNATE FIELDS

Applied Mathematical Systems. Courses in this specialization are in the Departments of Mathematics and Electrical Engineering. One course, 3 semester hours, is to be selected from the following:

MTH 519, 531, 565.

Two courses, 6 semester hours, are to be selected from the following:

MTH 519, 520, 521, 522, 525, 526, 531, 532, 561, 562, 565.

ELE 509, 514, 515, 531, 532, 533, 534, 535.

Business Administration and Systems. This cognate field allows the student to prepare for a career in the management and administration of economic and business systems. Courses are taken from the MBA program of the School of Business. Two courses, 6 semester hours, are to be selected from the following:

MBA 520, 530, 540, 550, 560.

One course, 3 semester hours, is to be selected from the following:

MBA 581, 582, 583.

Computer Science allows the student to prepare for a career in the management, design, and / or administration of computer systems. Courses in this cognate field are in the Department of Computer Science. Three courses, 9 semester hours, are to be selected from the following:

CPS 510, 528, 532, 536, 544-545, 553-554.

Educational Administration and Systems as a cognate field allows the student to prepare for a career as a policy and management analyst for school districts and institutions of higher learning. Courses are in the School of Education. EDA 506 is required of all students; another course may be substituted only with approval. Two courses, 6 semester hours, are to be selected from the following:

EDF 501, 503, 518, 590, 596 or 597 (with permission).
 EDA 509, 511 or 512, 513 or 514, 517, 521.
 EDC 533.
 EDS 589.

Engineering as a cognate field allows the student to take courses (approved by the advisor) from any approved graduate program in the School of Engineering. The engineering programs available are as follows:

Aerospace	Civil	Materials
Chemical	Electrical	Mechanical

Public Administration and Systems courses allow the student to prepare for a career as a policy and management analyst for governmental and public organizations. Courses in this cognate field are from the Public Administration program of the Department of Political Science. POL 510 is required of all students. Two courses, 6 semester hours, are to be selected from the following:

POL 521, 535, 540, 545, 552, 575, 576, 578, 595.

ELECTIVES

Nine semester hours can be taken as electives. These graduate courses, which are to be approved by the advisor, may be selected from any approved graduate programs of the University. These programs include the major or cognate fields, as well as other areas as diverse as biology and communication arts. Possible areas of study are as follows:

Reliability	Optimization Theory
Maintainability	Production Systems
General Systems Theory	Stochastic Systems
Information Management	Systems Analysis
Inventory Theory	Systems Simulation
Marketing Analysis	Urban Policy Analysis
Mathematical Modeling	Educational Policy Analysis
Operations Research	

COURSES OF INSTRUCTION

MSC 501. DECISION THEORY AND APPLICATIONS: A study of utility theory and decision making under certainty, risk, and uncertainty. Application of Bayesian analysis to multistage decision problems. Application of these techniques to various engineering and industrial problems. 3 sem. hrs.

MSC 502. SIMULATION TECHNIQUES IN OPERATIONS RESEARCH: The construction of models which simulate real systems, the use of random numbers in obtaining sample observation of the model, and the inference of system properties from samples of observations of the model. 3 sem. hrs.

MSC 508. QUALITY CONTROL: Principles and applications of the latest quality control procedures. Design of quality control systems and procedures. Recent developments in statistical quality control such as multi-level continuous acceptance sampling, variable sampling, and life testing. 3 sem. hrs.

MSC 515. QUEUING THEORY AND APPLICATION: Emphasis on application of theory to industrial engineering. Matching interference, mathematical queuing models, a study of case histories (with solutions) including marketing models, servicing problems, Markovian models. Monte Carlo techniques and computer simulation models. *3 sem. hrs.*

MSC 516. INVENTORY THEORY AND APPLICATION: Theory and application of inventory control with respect to costs of ordering and manufacturing, holding and storage, shortage-penalty costs, revenues, and discount rates. Forecasting, material control, input capacity and scheduling, stochastic inventory models, and dynamic inventory models including real time computerized inventory control models. *3 sem. hrs.*

MSC 521-522. OPERATIONS RESEARCH: Study of methods of operations research, including formulating problems, weighing the objectives, construction of models, deriving solutions, testing the models and implementing results. Emphasis on applications to industrial problems. *6 sem. hrs.*

MSC 524. DISCRETE TIME SERIES: Emphasis on industrial applications of open loop statistical forecasts. Techniques of describing a time series by very general classes of functions, including trigonometric functions. *3 sem. hrs.*

MSC 525. SYSTEM RELIABILITY AND MAINTAINABILITY: Application of probability and statistical theory to the design of reliability systems in the broadest sense; theory behind and techniques to be used in designing evaluation methods and procedures for determining reliability of component parts and total systems. *3 sem. hrs.*

MSC 528. DESIGN AND ANALYSIS OF EXPERIMENTS: Advanced topics in statistical experiments with emphasis on the design aspects. Topics include confounding, fractional replication, factorial and nested designs. *3 sem. hrs.*

MSC 540. INPUT-OUTPUT ANALYSIS: A study of the basic ideas of input-output analysis, with emphasis on its application to economic and technological planning in public and private sectors of the economy. *3 sem. hrs.*

MSC 545. PRODUCTION PLANNING AND CONTROL: Study of principles of managerial control and evaluation of various systems of control as to applicability not only to various types of production but also to maintenance activities, to engineering, and to research and development. *3 sem. hrs.*

MSC 585. ORGANIZATIONAL SYSTEMS: Application of systems theory to the operation of governmental, business, and educational organizations. Conventional theories related to the systems approach to an understanding of organizations. *3 sem. hrs.*

MSC 630. ADVANCED TOPICS IN LINEAR PROGRAMMING: Emphasis on computational techniques and applications of linear programming to industrial problems, primal-dual algorithm, decomposition principle, assignment, transportation and trans-shipment problems, network flow algorithm, and integer programming. Prerequisite: MSC 521. *3 sem. hrs.*

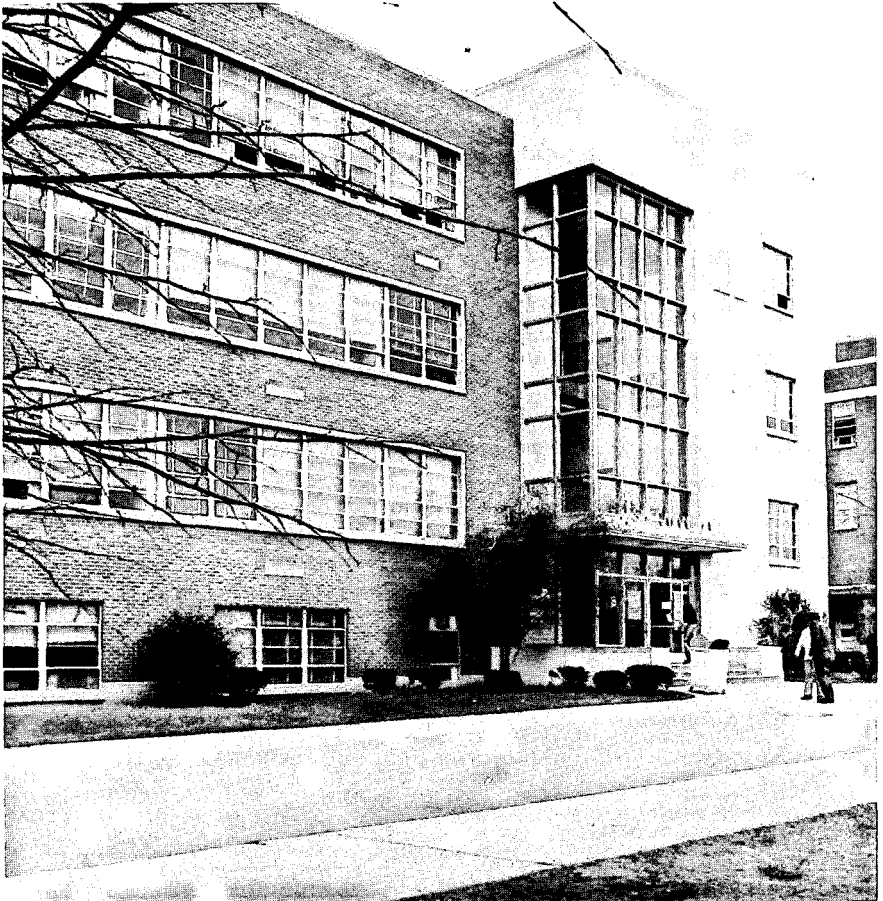
MSC 631. NONLINEAR AND DYNAMIC PROGRAMMING: Development of the theory and computational techniques of nonlinear and dynamic programming. Applications of optimization methods, nonlinear programming problems, stochastic programming, gradient methods, dynamic programming. Kuhn-Tucker theory and quadratic programming. Prerequisite: MSC 630. *3 sem. hrs.*

MSC 640. ADVANCED TOPICS IN RELIABILITY AND MAINTAINABILITY: The exact content of this course varies from year to year. The major emphasis is to study the latest research in the field and evaluate the impact on future practices in reliability and maintainability. Prerequisite: MSC 525 or equivalent. *3 sem. hrs.*

VI College of Arts and Sciences

Leonard A. Mann, S.M., Dean
Rocco M. Donatelli, Associate Dean for Humanities

The objectives of graduate work in the College of Arts and Sciences coincide with the general aims and philosophy of education that characterize the University of Dayton. Specific objectives and requirements of the several departments are presented in the programs described in the following sections of this chapter.



AMERICAN STUDIES (AMS)

Francis J. Henninger, Director of the Program

American Studies is an ambitious attempt to come to grips in a new way with the human species, to see how it was and how it is in order to improve the ways it will be. This attempt is directed toward how it was and is in America because American words, deeds, and thoughts, civilization and culture, both past and present, are comparatively easy to search out, to analyze, and to understand; and because upon the American people, more than any other, rests the proximate fate of the world.

The graduate program in American Studies leads to the Master of Arts.

ADMISSION REQUIREMENTS

An applicant must have achieved the baccalaureate degree and must have completed at least 72 semester hours in any combination of American Studies, Anthropology, Economics, Education, English, Fine Arts, History, Music, Philosophy, Political Science, Psychology, Sociology, and Religious Studies.

PROGRAM REQUIREMENTS

The student will take 30 to 36 semester hours of courses, three to nine in American Studies depending upon his undergraduate preparation. The remaining 27 semester hours will be taken in two to four of the cooperating disciplines, not less than six nor more than 18 in any one discipline. Courses must be chosen, with the help of a faculty advisor, from at least two of the groups.

When he is accepted into the program, the student must designate, as accurately as he can, which of the cooperating disciplines he wishes to study for his degree, and his earliest studies must include courses in at least two of those disciplines. The faculty advisor will determine whether the student shall take AMS 300 or AMS 301 or both. The student shall complete such requirements at the soonest opportunity or must interrupt his progress until he does.

When he has completed 12 semester hours toward his Master of Arts with a concentration in American Studies, the student will sit for an examination to determine his ability to integrate, or at least to make sophisticated comparisons among, bodies of information from at least two of the disciplines he has chosen to study for his degree. The examination will be composed and the answers evaluated by a committee of faculty from American Studies and the disciplines in which the student is working.

In his last term the student will take AMS 590, Interdisciplinary Research. In essence this is a master's thesis course. The end product of the course is the final achievement of the student's program: a self-designed study of information from at least two disciplines demonstrating a mature ability to produce scholarship from the integration or the comparison of the two.

The student chooses from the following courses:

GROUP A

English

ENG	570	Studies in Early American Literature
ENG	572	The Romantic Age in American Literature
ENG	576	Major American Writers
ENG	582	Studies in American Literature Since the Civil War

GROUP B

Foundations of Education

EDF	502	Comparative Philosophies of Education
EDF	550	History of Higher Education in the United States

History

HST	552	Revolution and Confederation
HST	553	American Colonial History
HST	554	The Age of Jefferson and Jackson
HST	555	The Old South
HST	556	Civil War and Reconstruction
HST	572	Appalachia and the New South
HST	574	The Gilded Age, 1877-1900
HST	575	The Progressive Period, 1900-1920
HST	576	Between the Wars
HST	577	Contemporary American History
HST	578	Interpretations in American History
HST	660	Studies in U.S. History Before 1877
HST	670	Studies in U.S. History After 1877

Philosophy

PHL	513	Morality, Social Ethics and Law
PHL	515	Philosophy of Law
PHL	516	Value Theory
PHL	565	American Pragmatism
PHL	570	Existentialist Philosophy
PHL	571	Perception and Knowledge
PHL	575	Contemporary Philosophies of Evolution
PHL	577	Recent Christian Thought
PHL	592	Analytic Philosophy

Religious Studies

REL	530	Theological Movements
REL	568	Evolution and Ethics
REL	571	Theology and Imagination
REL	575	Theology and Film
REL	576	Theology and Art
REL	577	The Religious Quest in Literature
REL	582	Models of Catechesis

REL	583	Religious Psychology
REL	587	Religious Education as Autobiography
REL	592	Contemporary Issues

GROUP C

Economics

MBA	500A	Graduate Survey in Economics
MBA	540	Managerial Economics
MBA	541	Labor Relations and Labor Economics
MBA	545	National Economic Policy and Forecasting
MBA	550	Government and Business
MBA	570	Business and Society

Foundations of Education

EDF	501	Advanced Psychology of Learning
EDF	518	School and the Social Order

Political Science

POL	502	Colloquium in American Politics
POL	521	Seminar: Intergovernmental Relations
POL	545	Seminar: Urban Politics and Policy
POL	557	Seminar: State Government and Politics
POL	571	Seminar: Judicial and Constitutional Politics
POL	579	Seminar: Selected Topics in Public Policy

Psychology

PSY	522	Advanced Cognitive Processes
PSY	524	Human Information Processing
PSY	525	Basic Processes in Learning and Memory
PSY	526	Psychology in Perspective
PSY	571	Experimental Child Psychology
PSY	573	Developmental Psychology
PSY	585	Experimental Social Psychology
PSY	586	Social Psychology Applied to Community Problems
PSY	587	Social Influences and Group Dynamics
PSY	588	Interpersonal Processes
PSY	589	Attitudes

AMERICAN STUDIES

AMS	590	Interdisciplinary Research
AMS	300	American Cultures
AMS	301	Interpretations of American Culture

COURSE OF INSTRUCTION

AMS 590. INTERDISCIPLINARY RESEARCH: A study of the principles of interdisciplinary scholarship as well as of what can and probably cannot be accomplished by it. Contact with a teacher and other similarly occupied students on a regular basis. The student produces a self-designed study of information from at least two disciplines. 3 sem. hrs.

BIOLOGY (BIO)

George B. Noland, Chairman of the Department

The Biology Department offers programs leading to the Master of Science and the Doctor of Philosophy. Students who show outstanding ability may by-pass the MS and proceed directly toward the PhD.

The degrees are in Biology, but each student's program is tailored to his own interests and career plans. Specialization is accomplished by selection of courses, by choice of thesis or dissertation topic, and by participation in weekly seminars in the area of interest. The specific program is determined after consultation between the student and his advisory committee. Primarily to answer the needs of those already in scientific or teaching professions, the Biology Department also offers a Master of Science program without a thesis requirement. Four major areas of specialization are available. These areas and typical spectra of courses available are as follows:

Animal and General Physiology

Bioinstrumentation	Endocrinology
General Physiology	Immunology
Applied Physiology	Comparative Animal Physiology
Cell Physiology	Biometrics
Biochemistry	Advanced Biochemistry
Experimental Embryology	etc.

Ecology / Animal Biology / Field Biology

Ecology	Vertebrate Zoology
Population Biology	Vertebrate Morphology
Community Ecology	Vertebrate Paleontology
Biosystematics	Invertebrate Zoology
Aquatic Biology	Evolution
Field Biology	etc.

Plant and Cell Physiology

Physiology of Higher Plants	Cell Physiology
Developmental Plant Anatomy	Advanced Cell Physiology
Plant Life Cycles	Bioinstrumentation
Advanced Plant Physiology	Biometrics
Biochemistry	Advanced Biochemistry
Biochemical Genetics	etc.

Microbiology and Genetics

General Bacteriology	Genetics
Pathogenic Bacteriology	Biochemical Genetics
Bacterial Physiology	Advanced Microbiology
Antibiotics and Chemotherapy	Immunology
Clinical Studies	etc.

ADMISSION POLICIES

Applicants with bachelor's degrees from accredited schools may be admitted to full graduate standing if their grades are well above the average required for the bachelor's degree. Those with lower averages may be considered for acceptance on a probationary status, in which case particular attention will be given to the last 60 semester hours of the undergraduate program. Applications are also accepted from holders of the MS who are qualified for doctoral work. Admission to the PhD program at the University of Dayton requires research experience equivalent to the MS thesis. Ordinarily, a student will not be accepted into a PhD program unless funds are available to help support him.

Applicants should have the equivalent of the science and mathematics requirements of the University of Dayton's Bachelor of Science in Biology. These include calculus, physics, and organic chemistry, plus sufficient background in biology to demonstrate a knowledge of cell biology, genetics, development, and environmental biology. Normally, a student who lacks more than one pre-requisite will not be admitted to full graduate status. However, the summer session prior to entry can be used to remove deficiency.

ADVISEMENT

Each new student is assigned a provisional advisor who assists him during the first semester. Prior to registration for the second semester each student selects a major professor, who serves as chairman of the student's advisory committee. The composition of this committee is representative of the general field of study in which the student expects to work.

The committee helps to plan the student's entire program. Prior to the beginning of the second semester of the MS program the student declares his choice of thesis or non-thesis option. The option may not be changed later than the qualifying examination period. The committee generally meets with the student twice a year to offer suggestions and to assess progress in the program and thesis research.

PROGRAM REQUIREMENTS**MASTER OF SCIENCE**

The MS degree usually requires 24 semester hours of course work plus a thesis. A typical MS program includes in the 24 hours four semesters of BIO 601 (special topics in the area of specialization), BIO 552-553 (Biological Instrumentation), and supporting courses from the area of interest.

Students declaring the non-thesis option are urged to complete both BIO 552 and 553 in order to increase laboratory experience in the absence of thesis research. In some cases a research paper may be necessary.

All students are expected to attend BIO 501, Departmental Seminar, each semester. This is considered to be an important unifying experience for all aspects of the graduate program.

All students working toward the master's degree must complete the program within five years after admission to full graduate standing.

DOCTOR OF PHILOSOPHY

There are no set course requirements for the PhD degree; each student follows the program mapped out for him by his committee. In practice many students find it helpful to take 40 to 50 semester hours of graduate course credits to attain the level of competence suitable for a doctoral candidate. When it is desirable, a student will be encouraged to take some work at neighboring institutions or summer laboratories.

SEQUENCE OF EVALUATION

The programs are centered around development of professional competence. Each student is assessed in the following steps: a preliminary diagnostic evaluation at the beginning of the program; a qualifying examination at the beginning of the second year of full-time graduate study; a candidacy examination over the area of specialization (PhD students only); and a defense of thesis.

PRELIMINARY EVALUATION

An orientation program introduces new students to the department. During this period, there will be an assessment of the student's background knowledge of biology, genetics, developmental biology, and environmental biology. According to the outcome of these examinations and after consultation with the faculty, a student may wish to enroll in one or more of the core undergraduate courses to insure that he has a sufficiently broad base for his professional career. Normally no graduate credit is given for these courses.

QUALIFYING EXAMINATION

At the beginning of his second full year of graduate work, the student will take a qualifying examination. The purpose of the examination is to aid the student's committee in planning the remainder of his program. The examination will cover basic biological concepts, subject matter of graduate courses taken, and broad areas of the student's specialty. The emphasis will be not only on facts but on the student's ability to express himself, to reason, and to integrate his knowledge. Depending on the outcome of this examination and his overall performance during the first year, the student then completes the requirement for the MS or withdraws from the program. Students showing outstanding ability and wishing to proceed towards the PhD degree may be given the option of by-passing the MS.

Students who choose to complete a master's degree are considered candidates for that degree after the qualifying examination. A student who wishes to continue beyond the master's degree will be advised to continue for the doctorate

or to terminate his studies at the University on the basis of his performance in earning the master's degree.

PHD CANDIDACY EXAMINATION

This oral examination for PhD students is administered by the advisory committee, which may be supplemented by members requested by the committee or the department chairman. The examination will be taken no later than the student's sixth semester of full graduate standing or, for the student who has a master's degree in an appropriate field at the time of enrollment, no later than the fourth semester. The purpose of the examination is to judge the student's competence in the special area and in related fields. Following the examinations the student may be directed to (a) complete the dissertation, (b) strengthen his preparation by demonstrating competence in one or more areas, (c) withdraw from the program. At the committee's discretion, additional competence in an area may be demonstrated by special examination or by completion of specific courses to the committee's satisfaction. The student is considered a candidate for the PhD after successful completion of these requirements.

DEFENSE OF THESIS OR DISSERTATION

The examination on thesis, whether for the MS or the PhD, will constitute an oral examination on the matter of the thesis or dissertation. Normally the student presents a seminar on his thesis research within the week following his examination. A PhD student must present his dissertation for defense within five years after admission to candidacy or he must repeat the candidacy examination.

A suitable examination will be arranged for those students taking a non-thesis MS degree. All those working toward the master's degree must complete the program within five years after admission to full graduate standing.

TOOLS OF RESEARCH

Since the needs of the individual student vary with the background and type of research chosen, this requirement will be determined by his committee. The tools of research are normally for PhD candidates only and, if required, may include one or two of the following: a reading knowledge of French, German, Russian, or Spanish; ability to program a digital or analog computer.

RESIDENCE REQUIREMENT

A student is strongly advised to devote his full energies to his graduate studies. Normally he must attend the University as a full-time student for one full year in order to satisfy the residence requirement for the MS and for two full years in order to satisfy the residence requirement for the PhD. If his advisory committee encourages him to spend a semester or a summer as a full-time student at a neighboring institution, he may apply that time to the residence requirement.

COURSES OF INSTRUCTION

Any upper-level undergraduate course in biology may be taken for graduate credit if approved as a part of the student's program.

BIO 501. SEMINAR: Presentation, analysis, and discussion of data dealing with biological research of current interest. Required of all graduate students each semester. *0-1 sem. hr.*

BIO 502. VERTEBRATE ZOOLOGY: The morphology, physiology, ecology, and distribution of representative vertebrate groups. Three hours lecture per week. *3 sem. hrs.*

BIO 502L. VERTEBRATE ZOOLOGY LABORATORY: A laboratory and field course dealing with the morphology, physiology, ecology, and distribution of vertebrate groups. *1 sem. hr.*

BIO 512. RADIATION BIOLOGY: Principles concerning the nature of ionizing radiation, its use in studying biological systems, and its effect on organisms. Two hours lecture and two two-hour laboratory periods per week. *4 sem. hrs.*

BIO 514. BIOCHEMISTRY: Lectures and readings on carbohydrates, lipids, amino acids, proteins, enzymes, nucleic acids, and the metabolism of those compounds. Three hours lecture per week. *3 sem. hrs.*

BIO 515. BACTERIAL PHYSIOLOGY: Lectures, assigned readings, and discussions dealing with the structure, function, and biochemistry of bacteria and the organelles. Three hours lecture. *3 sem. hrs.*

BIO 517. ENDOCRINOLOGY: Discussion of hormonal regulation of metabolism, growth and reproduction. Three hours lecture. *3 sem. hrs.*

BIO 517L. ENDOCRINOLOGY LABORATORY: Laboratory dealing with functional analysis of the mechanisms and activity of the endocrine system. *1 sem. hr.*

BIO 518. CYTOLOGY: The molecular basis for structure in animal and plant cells, including consideration of organization, function, and development of subcellular organelles and energy transduction. *3 sem. hrs.*

BIO 518L. CYTOLOGY LABORATORY: Isolation and chemical characterization of cellular organelles. Other experimental studies on cellular functions. Two three-hour laboratory periods per week. *2 sem. hrs.*

BIO 519. VIROLOGY: Lectures, selected readings and laboratory assignments dealing with the biology of plant, animal and microbial viruses. Tissue culture techniques will be considered. Two hours lecture and one three-hour laboratory period per week. *3 sem. hrs.*

BIO 521. BIOCHEMICAL GENETICS: An analysis of the nature of the gene and gene action. Particular attention will be given to genetic control of protein synthesis and to recent advances in biochemical and physiological genetics. Two hours lecture and one three-hour laboratory per week. *2 sem. hrs.*

BIO 521L. BIOCHEMICAL GENETICS LABORATORY: A laboratory to accompany BIO 521 employing an experimental approach to genetic problems. Students work the entire term on a project they choose. *1 sem. hrs.*

BIO 522. IMMUNOLOGY: Discussion of antigens, antibody, antigenicity, immunogenicity, and antigen-antibody reactions including hypersensitivity, immune tolerance and transplants. Biochemistry recommended. *3 sem. hrs.*

BIO 523. ADVANCED MICROBIOLOGY: Lectures, readings and discussions on current concepts in basic and applied microbiology, with emphasis on modern methods of microbial taxonomy, major groups of bacteria, microbial ecology, and industrial fermentation. *3 sem. hrs.*

BIO 524. CELL PHYSIOLOGY: The molecular basis for structure and function and energy transduction in animal and plant cells as well as the organization, function and development of membrane and subcellular organelles. *3 sem. hrs.*

BIO 524L. CELL PHYSIOLOGY LABORATORY: Isolation and chemical characterization of cellular organelles, study of cell structure by light microscope. *1 sem. hr.*

BIO 531. EXPERIMENTAL EMBRYOLOGY: Morphological and physiological aspects of development along with an introduction to teratology. Three hours lecture per week. *3 sem. hrs.*

BIO 531L. EXPERIMENTAL EMBRYOLOGY LABORATORY: Laboratory to accompany BIO 531. *1 sem. hr.*

BIO 532. VERTEBRATE MORPHOLOGY: The general biology of vertebrates with emphasis on the structure and function of morphological systems. The mechanical aspects of skeletal structure, locomotion, feeding and circulation. *3 sem. hrs.*

BIO 532L. VERTEBRATE MORPHOLOGY LABORATORY: Dissection of animals from each vertebrate class with emphasis on morphological systems and specializations. Stress on anatomical laboratory techniques. *1 sem. hr.*

BIO 533. COMMUNITY ECOLOGY: The composition, aspect, and ecological structure of biotic communities. The role of the community in specific terrestrial and aquatic ecosystems, in regard to energetics, mineral cycling, and response to environmental factors within major North American biomes. *3 sem. hrs.*

BIO 534. VERTEBRATE PALEONTOLOGY: The evolutionary history of the chordates. Emphasis on the selection factors, morphological adaptation, and paleoecology of the transitional groups and the higher classes. *3 sem. hrs.*

BIO 534L. VERTEBRATE PALEONTOLOGY LABORATORY: One or two one-day field trips, one overnight visit to a major museum, laboratory sessions examining extant and fossil skeletal material at U.D. and the Dayton Museum of Natural History. *1 sem. hr.*

BIO 535. PROBLEMS IN FIELD BIOLOGY: A course designed to acquaint students with field-oriented problems in biology. *1-3 sem. hrs.*

BIO 537. BIOSYSTEMATICS: A study of the principles of classification, stressing the evidence used in phylogenetic and evolutionary schema. *3 sem. hrs.*

BIO 538. POPULATION BIOLOGY: An advanced course considering the relationship of genetics and ecology. Emphasis on the growth and regulation of natural populations. Prerequisites: ecology and genetics. *3 sem. hrs.*

BIO 538L. POPULATION BIOLOGY LABORATORY: Field and laboratory exercises to accompany BIO 538. *1 sem. hr.*

BIO 540. PHYSIOLOGY OF HIGHER PLANTS: Uptake and transport of materials, energy metabolism, and growth in higher plants. Three hours lecture per week. *3 sem. hrs.*

BIO 540L. PHYSIOLOGY OF HIGHER PLANTS LABORATORY: Required laboratory to accompany BIO 540. *1 sem. hr.*

BIO 550. BIOMETRICS: The design and analysis of experiments in quantitative biology. Rectilinear and curvilinear regression, correlation, and the distribution function of various statistics. *3 sem. hrs.*

- BIO 552. BIOLOGICAL INSTRUMENTATION:** The theory of separation, measuring and data handling techniques, and their application to modern biology. Normally required of all graduate students. Two hours lecture and two two-hour laboratory periods per week. *4 sem. hrs.*
- BIO 553. BIOLOGICAL INSTRUMENTATION:** A continuation of BIO 552. *2 sem. hrs.*
- BIO 554. ELECTRON MICROSCOPY:** Theory and use of the electron microscope. Techniques for preparation of biological materials for viewing under the electron microscope. Normally, required of all who plan to use electron microscopy in their research. Two hours lecture and two three-hour laboratory periods per week. *4 sem. hrs.*
- BIO 555. LABORATORY TECHNIQUES (TOPIC):** Advanced treatment of new techniques and instrumentation used in specialized areas of biology. Changes with advances in a specialty reflected in the course title. *1-3 sem. hrs.*
- BIO 560. ADVANCED PLANT PHYSIOLOGY:** A treatment of several areas of plant physiology based on current research literature. Since the course is taught from current journals, the topics change. May be repeated. Prerequisite: a course in plant physiology. *2 sem. hrs.*
- BIO 562. ADVANCED CELL PHYSIOLOGY:** Critical examination of current research in several areas of cell physiology. Since the course is taught from current journals, the topics will change. May be repeated. Prerequisite: a course in cell physiology. *2 sem. hrs.*
- BIO 564. APPLIED PHYSIOLOGY:** Detailed consideration of stress in human physiology with emphasis on environmental variables as stressors. Attention to status assessment through the critical interpretation of clinical laboratory data. Prerequisites: BIO 403, CHM 313-314, and one year of physics. *3 sem. hrs.*
- BIO 564L. APPLIED PHYSIOLOGY LABORATORY** *1 sem. hr.*
- BIO 566. ANTIBIOTICS AND CHEMOTHERAPY:** A survey of the effects of antibiotics and chemotherapeutic agents on microorganisms and man. Mode of action, principles of antimicrobial chemotherapy, application to basic research and industrial production. Prerequisites: courses in cell biology and organic chemistry. *3 sem. hrs.*
- BIO 580. CLINICAL STUDIES (TOPIC):** Hospital or other clinical experience in patient-oriented areas of biology such as microbiology, mycology, immunology, parasitology and physiological chemistry. Permission required. *3-6 sem. hrs.*
- BIO 596. CURRENT BIOLOGICAL PROBLEMS:** The consideration of recent developments in biological thought and procedure. By permission of chairman only. *1-3 sem. hrs.*
- BIO 599. THESIS** *3-6 sem. hrs.*
- BIO 601. SPECIAL TOPICS:** The development, presentation, and discussion of topics in specialized areas of biology. Required of all graduate students each semester. *1 sem. hr.*
- BIO 699. DISSERTATION** *1-6 sem. hrs.*

CHEMISTRY (CHM)

John J. Lucier, S.M., Chairman of the Department

The Department of Chemistry offers graduate programs leading to the Master of Science and the Master of Clinical Chemistry.

CHEMISTRY PROGRAM

The purpose of the master's program in chemistry is to present to the student a rigorous approach to modern theories in chemistry and to increase his desire and potential for fundamental research through a program of literature search and laboratory experimentation.

Written examinations are given to assist the student and advisor in formulating the student's program.

ADMISSION REQUIREMENTS

The undergraduate prerequisites are the minimum requirements specified by the American Chemical Society. Those students who have graduated from A.C.S.-approved schools will have fulfilled these requirements. Others may have to take certain courses concurrently from the undergraduate program to meet A.C.S. requirements.

PROGRAM REQUIREMENTS

Twenty-four semester hours of course work and six semester hours of research are normally required for the Master of Science. The 24 semester hours must include at least three semester hours in each of the major fields of organic, physical, and inorganic chemistry. The student and his advisor decide upon the remainder of the program. Electives in other departments may be chosen with the approval of the departmental graduate committee.

All candidates for the Master of Science are required to submit proof of their ability to do independent work. Normally this proof takes the form of a thesis. Additional course work may be substituted if the student has previously demonstrated research proficiency commensurate with the master's degree as judged by the departmental graduate committee.

BIOCHEMISTRY OPTION

This program is designed for students planning careers in biochemistry or the medical sciences. Those who want to specialize in biochemistry should have undergraduate preparation in general, analytical, organic, and physical chemistry. The degree will require 24 semester hours of approved course work and six semester hours of thesis research. Up to six semester hours of approved biology courses may be included.

CLINICAL CHEMISTRY PROGRAM

The purpose of the program leading to the Master of Clinical Chemistry is to provide the student advanced training in basic chemistry, analytical procedures, modern biochemistry, and clinical chemical research. It will also prepare the student for an advanced degree (PhD) program in clinical chemistry.

ADMISSION REQUIREMENTS

Candidates for the degree are required to have a minimum of 24 semester hours of chemistry (general, quantitative, and organic chemistry). Typical students will have completed the bachelor's degree in areas such as medical technology, chemistry, ciology, or preprofessional studies (premedical, pre dental).

LABORATORY EXPERIENCE

All students are required to have clinical laboratory experience. A training program available through cooperation of local hospitals is required of all students.

PROGRAM REQUIREMENTS

The normal requirements for the master's degree are 24 semester hours in course work and six semester hours for an approved thesis and oral defense of the thesis. Six semester hours in course work may be substituted for the thesis work, if the candidate can show previous experience in clinical chemistry research and whenever this exception will not prejudice his program. Approval of the departmental committee is required for waiver of thesis work.

In this program, CHM 525, 525L, 526, and 526L, Principles of Organic chemistry, may not be taken for credit. Credit for certain undergraduate courses may be allowed at the discretion of the departmental committee.

Each candidate, in consultation with an advisor, will select a program of studies designed according to the student's goals and background, to fulfill the requirements for the master's degree. The program, and any subsequent changes, must be approved by the departmental committee.

		<i>Semester Hours</i>
CHM	530	Physical Chemistry..... 3
CHM	535, 535L	Analytical Chemistry..... 4
CHM	531, 531L	Identification of Organic Compounds 3
CHM	551, 552	General Biochemistry I, II..... 6
CHM	555	Special Topics in Clinical Chemistry..... 1
CHM	557, 558	Applications of Clinical Chemistry I, II..... 2
—	—	Elective..... 3
BIO	550	Biometrics 3
CHM	560, 561	Research..... 6

Individual candidates may find courses of interest in the graduate chemistry curriculum, the biology curriculum, the Department of Business Management, and elsewhere.

COURSES OF INSTRUCTION

CHM 533. INTERMEDIATE ORGANIC CHEMISTRY: Modern theory of organic chemistry and reaction mechanisms. Prerequisite: CHM 314 or equivalent. 3 sem. hrs.

CHM 539. SPECIAL TOPICS IN PHYSICAL CHEMISTRY: Topics of current interest in areas such as chemical instrumentation, electronics, physical biochemistry, macromolecular chemistry, and spectroscopy. 3 sem. hrs.

CHM 540. QUANTUM CHEMISTRY: Introduction to the concepts of quantum mechanics with applications to chemical systems. 3 sem. hrs.

CHM 541. TOPICS IN PHYSICAL CHEMISTRY: Modern aspects of physical chemistry, which may include the solid state, electrochemistry, or mathematical methods of physical chemistry. 3 sem. hrs.

CHM 542. KINETICS AND CHEMICAL STATISTICS: Phenomenological and mathematical characterization of kinetic systems. Treatment of ensembles and their partition functions with applications to solid, liquid and vapor states. Development of Bose-Einstein and Fermi-Dirac statistics. 3 sem. hrs.

CHM 543. CHEMICAL THERMODYNAMICS: Study of first, second, and third laws to develop free-energy functions for use in chemical equilibrium. 3 sem. hrs.

CHM 544. COORDINATION CHEMISTRY: Properties of transition metal ions, reaction mechanisms in coordination compounds, bioinorganic systems, electron transfer mechanisms, and the experimental tools common to coordination chemistry. 3 sem. hrs.

CHM 545. INORGANIC REACTIONS AND STRUCTURE: Survey of modern inorganic chemistry treating organometallic chemistry, homogeneous catalysis, stereochemical nonrigidity, boron chemistry, acid-base theories, and selected nonmetal topics. 3 sem. hrs.

CHM 546. SPECIAL TOPICS IN MODERN ANALYTICAL CHEMISTRY: Modern analytical methods. Subject matter may include NMR, EPR, electroanalytical methods, GLC, mass spectrometry, IR and Raman spectroscopies, visible and ultraviolet spectrophotometric methods, x-ray techniques, ESCA and Auger spectroscopies, atomic absorption, and fluorescence. 3 sem. hrs.

CHM 547. BONDING IN INORGANIC COMPOUNDS: Atomic theory; bonding theories, especially molecular orbital theory; the ionic model: molecular symmetry; and the structure of solids. 3 sem. hrs.

CHM 549. ADVANCED ORGANIC CHEMISTRY: The chemistry of multiple bond systems, resonance aromaticity, electrocyclic additions, carbenes, oxidation reduction, electrophilic substitution, and addition reactions. 3 sem. hrs.

CHM 550. SPECIAL TOPICS IN ORGANIC CHEMISTRY: Modern physical organic chemistry, spectroscopy, photochemistry, molecular rearrangements, stereochemistry, and natural products. 3 sem. hrs.

CHM 551. GENERAL BIOCHEMISTRY I: The chemistry of proteins, carbohydrates, lipids, and nucleic acids. The metabolism of these compounds is related to bioenergetics, membranes, enzymes, and certain disease processes. Prerequisites: CHM 314 and 302 or special permission of the instructor. 3 sem. hrs.

CHM 552. GENERAL BIOCHEMISTRY II: Electron transport and oxidative phosphorylation, lipid metabolism, nitrogen metabolism, nucleic acid and protein synthesis, biochemical genetics, regulation, hormones, and nutrition. Prerequisite: CHM 551. *3 sem. hrs.*

CHM 553. TOPICS IN BIOCHEMISTRY: Topics of current interest in biochemistry. Prerequisite: CHM 551, 552 or permission of instructor. *1-3 sem. hrs.*

CHM 554. DIRECTED READINGS *1-3 sem. hrs.*

CHM 555. SPECIAL TOPICS IN CLINICAL CHEMISTRY: Topics of current interest in clinical chemistry. *1-3 sem. hrs.*

CHM 557. APPLICATIONS OF CLINICAL CHEMISTRY I: The relationship between medical practice and clinical chemistry. Each class period will be devoted to the thorough study of selected hospital cases related to a single disorder. Physicians in charge of the cases present the medical aspects. A clinical chemist presents the laboratory work and specific problems. *1 sem. hr.*

CHM 558. APPLICATIONS OF CLINICAL CHEMISTRY II: A continuation of CHM 557. *1 sem. hr.*

CHM 559. CLINICAL CHEMISTRY LABORATORY: An introduction to the instrumentation and language of clinical chemistry laboratories. The laboratory will include basic procedures, techniques, reagents, instrumentation, and an introduction to the concept of quality control. Students will perform procedures used in representative modern clinical laboratories for routine analyses and special tests. Three three-hour laboratory periods per week. *3 sem. hrs.*

CHM 560-561. RESEARCH *3 sem. hrs. each term*

CHM 562L: INTRODUCTORY BIOCHEMISTRY LABORATORY: Spectrophotometry; pH and dissociation; thin-layer, column, and paper chromatography; enzymology and enzyme purification; quantitative and qualitative techniques for studying proteins, amino acids, lipids, carbohydrates, and nucleic acids; and radioisotopic tracer techniques. Corequisite: CHM 551 or special permission of instructor. *2 sem. hrs.*

Note: The following two courses are not applicable to any master's degree in Chemistry:

CHM 525-526. PRINCIPLES OF ORGANIC CHEMISTRY: An introduction to the fundamentals of organic chemistry. Prerequisite: CHM 124. *3 sem. hrs. each term*

CHM 525L-526L. PRINCIPLES OF ORGANIC CHEMISTRY: Laboratory course to accompany CHM 525-526. One three-hour laboratory per week. *1 sem. hr. each term*

Note: All the following courses are applicable only to the Master of Science in Clinical Chemistry and the Biochemistry option:

CHM 527-528. THEORETICAL PRINCIPLES OF CHEMISTRY: Prerequisite: CHM 126L or equivalent. Corequisite: MTH 218. *3 sem. hrs. each term*

CHM 527L-528L. THEORETICAL PRINCIPLES OF CHEMISTRY: Laboratory course to accompany CHM 527-528. One three-hour laboratory per week. *1 sem. hr. each term*

CHM 529. INORGANIC CHEMISTRY: An introductory course. The fundamentals of modern inorganic chemistry including atomic structure, principles of structure and bonding, acid-base chemistry, periodicity, coordination compounds, nonaqueous solvents, electrochemistry, molecular symmetry, and the chemistry of representative elements. *3 sem. hrs.*

CHM 530. PHYSICAL CHEMISTRY: A concise treatment of theoretical chemistry. Prerequisite: CHM 124. *3 sem. hrs.*

CHM 531. IDENTIFICATION OF ORGANIC COMPOUNDS: An analytical course. Functional groups, physical properties, and instrumental methods for the identification of organic compounds. Prerequisites: CHM 315-316. *1 sem hr.*

CHM 531L. IDENTIFICATION OF ORGANIC COMPOUNDS: Laboratory course to accompany CHM 531. Two three-hour laboratory periods per week. *2 sem hrs.*

CHM 532. SPECIAL TOPICS IN THEORETICAL CHEMISTRY: A treatment of special topics surveyed in CHM 527-528. Prerequisite: CHM 304. *3 sem. hrs.*

CHM 535. ANALYTICAL CHEMISTRY: Methods of analysis based on modern instrumentation including chemical, electrical and spectral methods. *2 sem. hrs.*

CHM 535L. ANALYTICAL CHEMISTRY LABORATORY: A laboratory course to accompany CHM 535. *2 sem. hrs.*



COMMUNICATION ARTS (COM)

George C. Biersack, Chairman of the Department

The graduate program of the Department of Communication Arts leads to the Master of Arts.

Communication Arts is an academic discipline whose significant traditions are directly linked to the inventions and refinements of the ancient Greeks. The department subscribes to the Aristotelian concept of discovering all possible means of persuasion on any given subject and of utilizing these means appropriately in the classical categories of ethical, pathetic, and logical proofs. To meet the challenge of modern interpersonal relations, local to international, there is a critical need for the basic principles and sophisticated skills of the communication arts.

ADMISSION REQUIREMENTS

The applicant for graduate study must meet the following requirements:

1. A bachelor's degree from a recognized institution of higher learning. In the case of seniors who have almost completed graduation requirements, the graduate committee of the Department of Communication Arts may permit the taking of graduate courses which will be applied to the master's degree only after the appropriate bachelor's degree has been awarded.
2. A 2.8 cumulative point average (or the equivalent). The graduate committee will recognize the potential merits of professional experience and maturity in a specific field as a factor for consideration relative to the student's ability.
3. A competent cultural background, demonstrated through satisfactory undergraduate studies or professional accomplishment and growth.
4. Twenty-four semester hours in an area of Communication Arts or demonstrated equivalent skill in a specific field, coupled with satisfactory undergraduate studies.
5. Demonstration of a comprehensive background in theory and necessary skill in oral communication.
6. For the interdisciplinary plan (Plan B), the demonstrated possession of a substantial background in both the major and the minor areas of study.

Applicants who do not meet the above requirements and yet wish to pursue the graduate program in Communication Arts may, at the discretion of the graduate committee, be admitted as unclassified students. Such students will be assigned appropriate undergraduate credits which will not count toward the graduate degree.

Graduate credit from other accredited institutions of graduate learning will be reviewed by the graduate committee. Transfer of such credit may be accepted to a maximum of six semester hours.

PROGRAM REQUIREMENTS

PLAN A – COMMUNICATION ARTS

There are two options in the program Plan A, both of them involving Communication Arts courses only. The student may elect to complete either of the following:

1. Twenty-four semester hours of course work and six semester hours of thesis credit (including an oral defense of the thesis),
2. Thirty semester hours of course work followed by an oral comprehensive examination.

The following graduate courses lead to the Master of Arts with a concentration in Communication Arts:

	<i>Semester Hours</i>
COM 506	Ethics of Communication..... 3
COM 511	Persuasion Techniques 3
COM 516	Barriers to Effective Communication..... 3
COM 521	The Investigation of Listening Problems..... 3
COM 526	Studies in Communication Skills..... 3
COM 530	Development of Mass Media 3
COM 531	Problems – Seminar..... 6
COM 536	Communication Theory..... 3
COM 598-599	Thesis..... each 3

A student choosing the second option of Plan A may select six semester hours of courses to fulfill the equivalent of the thesis requirement. The option courses are the following:

	<i>Semester Hours</i>
COM 517	Organizational Communication 3
COM 555	Public Relations Workshop 3
COM 562	Topics in History and Criticism of Public Address..... 6
COM 566	Argumentation..... 3
COM 591	Public Relations Internship..... 3

PLAN B – COMMUNICATION ARTS AND INTERDISCIPLINARY STUDY

Certain offerings from the Business Administration, English, Psychology, and Political Science programs have been designated as appropriate for Communication Arts interdisciplinary study Plan B leading to the Master of Arts. Information on applicable courses may be obtained from the departmental office. There are two options under Plan B. In either option, a consultation with the chairman of the department concerned is required.

1. The student may elect to complete not less than 18 semester hours of study in Communication Arts and not more than 12 semester hours of study in one of the interdisciplinary areas followed by an oral comprehensive examination by a

committee composed of Communication Arts faculty members and a faculty representative from the interdisciplinary area involved, or

2. Twelve semester hours of study in Communication Arts, six semester hours of thesis credit, and 12 semester hours of study in one of the interdisciplinary areas, followed by oral comprehensive examinations on both the course work and the thesis. The oral comprehensive committee for course study will include both Communication Arts faculty and a faculty representative from the interdisciplinary area; the thesis *must* be done in an area of the communication arts, and its oral comprehensive examination committee will be composed of Communication Arts faculty only.

COURSES OF INSTRUCTION

COM 506. ETHICS OF COMMUNICATION: The general ethical principles of persuasion and the special ethics of platform communication, business communications, conference responsibilities, broadcast-journalism reporting, classroom communication, theatric message, and forensic behavior. *3 sem. hrs.*

COM 511. PERSUASION TECHNIQUES: A review of the classical tradition of persuasion from 600 B.C. to the present. The principles of classical rhetoric based on the theories of Aristotle, Cicero, and Quintilian and their effect on modern theories and techniques in oral communication. Analysis of the modern approach to persuasion supplemented by research projects in the area of business and industry. *3 sem. hrs.*

COM 516. BARRIERS TO EFFECTIVE COMMUNICATION: Circumstances that prevent effective personal and group communication. Problems of language, semantics, and the lack of factual knowledge in private conversation, business, industrial management, inter-departmental communications, and politics. *3 sem. hrs.*

COM 517. ORGANIZATIONAL COMMUNICATION: A study of communication activity within organizations: theories and systems of organizational communication, internal communication systems, organizational communication research methods, and the interface of management and communication. Emphasis on the practical application of communication skills. *3 sem. hrs.*

COM 521. THE INVESTIGATION OF LISTENING PROBLEMS: The importance and complexities of listening. The place of listening in society and its direct relationship to the various forms of communication. Analysis of the many related skills in effective listening and the reasons for poor listening habits. Research pursued to demonstrate how listening can be improved. *3 sem. hrs.*

COM 526. STUDIES IN COMMUNICATION SKILLS: For senior majors and graduate students. Development and implementation of the basic skills in oral communication. Comprehensive study of speech situations in business and the professions: the interview, group discussions, the technique of mediation, good will, and the after-dinner situation. Stress on the composition and development of lecture-length speeches. *3 sem. hrs.*

COM 530. DEVELOPMENT OF MASS MEDIA: History and analysis of the development and interdependence of mass media, print and electronic. Emphasis on its role and responsibility in political and economic progress of U.S. *3 sem. hrs.*

COM 531. PROBLEMS SEMINAR: An internship in a business or industry or a specialized area in communication arts such as public address, forensics, radio, and / or television. Progress reports as assigned in the seminar sessions. This seminar offers students the opportunity to gain practical experience that will supplement their theoretical background. May be repeated with change in problem and faculty member. Permission required. *6 sem. hrs.*

COM 536. COMMUNICATION THEORY: Survey of contemporary communication design methods in organizational structures with emphasis on experimental approaches and contributions of major universities. Identification of important personalities and professional literature. Research project. *3 sem. hrs.*

COM 555. PUBLIC RELATIONS WORKSHOP: Application of policy objectives. Students plan and carry out a public relations program for an established organization, working out realistic and efficient solutions to communication and public relation problems. Case studies in public relations in business, industry, and social institutions including schools and communities and in governmental public relations policy. *3 sem. hrs.*

COM 562. TOPICS IN HISTORY AND CRITICISM OF PUBLIC ADDRESS: The application of rhetorical and communication theory to the criticism of public discourse as it affects and reflects social change in selected historical and / or contemporary movements, crises, campaigns, or institutions. May be repeated when topic and content change. *6 sem. hrs.*

COM 566. ARGUMENTATION: Intradisciplinary application of the theories and techniques of argumentation and logic with oral proficiency to the needs of specific disciplines and professions. From reviewed fundamentals, progress to examination of evidence, reasoning, ethics, refutation, and rebuttal with application of formal and inductive logic. *3 sem. hrs.*

COM 591. PUBLIC RELATIONS INTERNSHIP: Participation in a recognized and approved public relations organization. Selected senior or graduate students appointed as interns in public relations departments of business, educational, philanthropic, or governmental agencies work a minimum of eight hours per week supervised by agency staff and school faculty. Analytical report and evaluation required. Prerequisite: COM 555 or permission of chairman. *3 sem. hrs.*

COM 598-599. THESIS: Proposal submitted by the candidate for the Master of Arts must be approved by the director and his graduate committee. *3 sem. hrs. each*

COMPUTER SCIENCE (CPS)

Thomas A. Schoen, S.M., Chairman of the Department

The graduate program in the Department of Computer Science leads to the Master of Computer Science. This is a professional degree program designed primarily for the manager, engineer, educator, or technician involved in computer-related activities. It is assumed that the student's undergraduate education has been in a field other than computer science. The program is not designed as a preparation for the PhD, although it may serve this purpose in certain cases.

A student in the program must be the graduate of an accredited college with a nominal background in mathematical thinking. No specific undergraduate mathematics courses are required; several of the graduate courses, however, have calculus as a prerequisite. Students should have a knowledge of a higher-level programming language such as Fortran, PL/I or COBOL, and knowledge of an assembly language. Deficiencies may be met by private study or by taking undergraduate courses such as CPS 144, Fortran Programming; CPS 145, COBOL Programming; and CPS 245, Assembler Programming. (See the undergraduate issue of the Bulletin for course descriptions.)

The degree requires 30 graduate semester hours, 12 of which may be taken from departments other than Computer Science. There is no foreign language requirement and there is no formal thesis requirement. There are no specific course requirements; each student's program requires only approval of his faculty advisor.

Questions on procedures for admittance to the program should be directed to the Office for Graduate Studies, 229-2343. Other questions may be directed to the Department of Computer Science, 229-3831.

COURSES OF INSTRUCTION

CPS 501. SCIENTIFIC PROGRAMMING: Fortran programming and applications. Not open to MCS students. *3 sem. hrs.*

CPS 502. COMPUTING — GENERAL SURVEY: A nontechnical introduction to the history and organization of digital computers. Survey of the diverse applications of computers in government, business, education, and the arts. Discussion of the psychological and sociological impact of the computer age. Primarily for students in humanities and education. *3 sem. hrs.*

CPS 504. BUSINESS APPLICATIONS OF COMPUTERS: Applications of computers to business. Programming in COBOL. Primarily for MBA students. *3 sem. hrs.*

CPS 510. SYSTEMS ANALYSIS: Basic system analysis tools; identifying requirements, planning, and measuring effectiveness of computer information systems; system life cycle studies. Prerequisite: programming ability. *3 sem. hrs.*

CPS 515. ANALOG COMPUTATION AND SIMULATION: Basic principles of analog computation, analog solution of linear and nonlinear differential equations, simulation, function generation. Applications to science and engineering. Prerequisite: differential equations. *3 sem. hrs.*

CPS 516. PARALLEL HYBRID COMPUTATION: Basic principles of parallel hybrid computers, elementary logic components and their use, combinatorial logic, Boolean operations, sequential logic and synchronization. Microprograms. Prerequisite: analog computation. *3 sem. hrs.*

CPS 525. SYSTEMS OPTIMIZATION TECHNIQUES: Linear programming, network analysis including pert, game theory, queuing theory, inventory theory, Markov chains, simulation, and other topics. *3 sem. hrs.*

CPS 528. DISCRETE STRUCTURES: Set algebra including mappings and relations; algebraic structures including semigroups and groups; elements of the theory of directed and undirected graphs; Boolean algebra and propositional logic. *3 sem. hrs.*

CPS 532. DATA STRUCTURES: Basic concepts of data; linear lists, strings, arrays, and orthogonal lists; representation of trees and graphs; multilinked structures; symbol tables and searching techniques; sorting techniques. *3 sem. hrs.*

CPS 536. OPERATING SYSTEM: Study of OS / 360 or similar systems and the functions of data, job, and task management. *3 sem. hrs.*

CPS 544-545. SYSTEMS PROGRAMMING: Analysis of compilers and their construction; programming techniques discussed in the current literature; advanced computer applications in both mathematical and nonnumeric areas. Prerequisites: data structures, operating system. *3 sem. hrs.*

CPS 553-554. NUMERICAL METHODS: Solution of nonlinear equations, interpolation and approximation, differentiation and integration, systems of linear equations, eigenvalues, eigenvectors, and introduction to solution of ordinary differential equations. Emphasis placed on applications. Prerequisite: calculus. *6 sem. hrs.*

CPS 555-556. NUMERICAL ANALYSIS: Quadrature methods, the numerical solution of ordinary and partial differential equations; matrices and large scale systems, modern iterative matrix methods, minimax approximation, orthogonal functions, and data smoothing. Prerequisite: linear algebra. *6 sem. hrs.*

CPS 577. COMPUTER ORGANIZATION: Minimization of Boolean functions, error-detecting and error-correcting codes, principles of design for arithmetic operations, including a survey of functional units for implementation; memory devices, central processing units, and input / output equipment. Prerequisite: discrete structures. *3 sem. hrs.*

CPS 582. AUTOMATA THEORY: Finite automata, sequential machines, turing machines, computability, existence of self-reproducing machines. *3 sem. hrs.*

CPS 591. SPECIAL RESEARCH PROBLEMS: Individual readings and research in a specialized area. (See CPS 592.) May be taken more than once for additional credit. Prerequisite: permission of the department. By arrangement. *1-3 sem. hrs.*

CPS 592. SPECIAL TOPICS: Lectures and / or laboratory experience in such specialized areas as those listed below. May be taken more than once for additional credit. Prerequisite: permission of the department. By arrangement.

1. Artificial Intelligence
2. Computer Architecture
3. Information Retrieval
4. Linguistic Analysis

5. Logical Design
6. Microprogramming
7. Numerical Analysis
8. Programming Languages

9. Sequential Machines
10. Simulation Languages
11. Supervisory Systems
12. Utility Programs

1-3 sem. hrs.



ENGLISH (ENG)

Bernard J. Bedard, Chairman of the Department

The program leading to the Master of Arts with a major in English offers the opportunity for an intensified study of English and American literature and develops in the student a competence in independent research and in the exercise of sound literary judgment. It is particularly useful for teachers in secondary schools and community colleges.

Courses will be offered in the late afternoon or evening and on Saturday morning during the first and second terms and the first half of the third term and in both the evening and the day during the second half (the summer session) of the third term.

ADMISSION REQUIREMENTS

The student seeking admission must have completed studies in English and American literature which will enable him to pursue his graduate studies with distinction. He will ordinarily have completed, with a grade point average of at least 3.00, 24 semester hours in literature, of which at least 18 are in upper-division courses. Graduate Record Examination scores may be required.

PROGRAM REQUIREMENTS

Normally 30 semester hours are required. Every applicant, after 12 semester hours of graduate courses with a grade-point average of at least 2.75, will be given a diagnostic examination and interview. Exceptionally well qualified students may earn the master's degree in less than 30 semester hours; students with deficiencies may be required to take up to 36 semester hours of graduate study.

ENG 595, Research and Bibliography, and either ENG 587, Studies in the History of Criticism, or ENG 588, Studies in Criticism, are required of each applicant for the degree. The remainder of the student's program should be equally divided between courses from sequence 514-542 and sequence 546-582.

A thesis upon a topic approved by the graduate committee of the Department, for which six semester hours of credit are granted, can be accepted if the interview committee recommends this option.

COURSES OF INSTRUCTION

Prerequisite for enrolling in any of the following courses for graduate credit is at least 24 semester hours in literature. All 500-level courses normally meet for two hours but yield three semester hours of credit. The starred courses (*) may be repeated for graduate credit when the topics or contents change.

ENG 505. CREATIVE WRITING*: Supervised practice in various literary forms. Both group discussions and individual conferences and critiques. Permission of chairman required.
3 sem. hrs.

- ENG 507. STUDIES IN WRITING*: Special topics in composition. 1-6 sem. hrs.
- ENG 514. STUDIES IN MEDIEVAL LITERATURE*: The principal forms and movements in the literature of the Middle Ages, usually read in translation. 3 sem. hrs.
- ENG 516. CHAUCER I: Intensive analysis of *The Canterbury Tales*. 3 sem. hrs.
- ENG 517. CHAUCER II: Study of *Troilus and Criseyde* and the minor poems of Chaucer. 3 sem. hrs.
- ENG 516 is not a prerequisite.
- ENG 522. STUDIES IN SIXTEENTH-CENTURY LITERATURE*: The nondramatic literature of the English Renaissance. 3 sem. hrs.
- ENG 526. SHAKESPEARE I: The development of Shakespeare's art from the beginning to *Twelfth Night*, including the early comedies and tragedies, the histories, and the romantic comedies. 3 sem. hrs.
- ENG 527. SHAKESPEARE II: Shakespeare's development from *Hamlet* to *The Tempest*, including the major tragedies, problem plays, and dramatic romances. ENG 526 is not a prerequisite. 3 sem. hrs.
- ENG 532. STUDIES IN SEVENTEENTH-CENTURY LITERATURE*: A consideration of principal poets and prose writers of the Stuart, Commonwealth, or Restoration Periods. 3 sem. hrs.
- ENG 536. STUDIES IN DRAMA TO 1642*: A survey of English drama from the beginning to the closing of the theatres. 3 sem. hrs.
- ENG 538. STUDIES IN MILTON*: A treatment of major and minor poems and related prose of Milton. 3 sem. hrs.
- ENG 542. STUDIES IN EIGHTEENTH-CENTURY LITERATURE*: A study of the writers of the Augustan, Post-Augustan, and Pre-Romantic Ages. 3 sem. hrs.
- ENG 546. STUDIES IN THE NOVEL*: A consideration of the development and the characteristic forms of the novel. 3 sem. hrs.
- ENG 552. STUDIES IN ROMANTICISM*: The nature and progress of English Romanticism as revealed in the principal poets of the early part of the 19th century. 3 sem. hrs.
- ENG 556. STUDIES IN NINETEENTH-CENTURY LITERATURE*: A treatment of the significant poets and essayists of the Victorian Age. 3 sem. hrs.
- ENG 562. STUDIES IN TWENTIETH-CENTURY LITERATURE*: A study of significant movements, forms, and writers in the literature of the 20th century. 3 sem. hrs.
- ENG 566. STUDIES IN DRAMA SINCE 1660*: A selective study of significant developments in drama from the Restoration to the present. 3 sem. hrs.
- ENG 570. STUDIES IN EARLY AMERICAN LITERATURE*: A study of the cultural and literary roots of American literature. 3 sem. hrs.
- ENG 572. THE ROMANTIC AGE IN AMERICAN LITERATURE: A consideration of the writers of the mid-19th century. 3 sem. hrs.
- ENG 576. MAJOR AMERICAN WRITERS*: An intensive comparative study of two or three American writers. 3 sem. hrs.

ENG 582. STUDIES IN AMERICAN LITERATURE SINCE THE CIVIL WAR*: A consideration of the principal movements in poetry, fiction, or drama of the late 19th or the 20th century. *3 sem. hrs.*

ENG 587. STUDIES IN THE HISTORY OF CRITICISM*: A consideration of significant developments in the history of critical thought. *3 sem. hrs.*

ENG 588. STUDIES IN CRITICISM*: A treatment of significant topics in theoretical and / or practical criticism. *3 sem. hrs.*

ENG 590. TEACHING OF COLLEGE ENGLISH*: Discussion, instruction, and practice in the methods of teaching composition and literature. Required of and open only to assistants. *1 sem. hr.*

ENG 591. STUDIES IN LITERATURE*: An analysis of selected literary problems or areas. *1-6 sem. hrs.*

ENG 593. SURVEY OF LINGUISTICS: A study of the concepts and procedures of general linguistics, with emphasis on the relationships between linguistics and other disciplines. *3 sem. hrs.*

ENG 595. RESEARCH AND BIBLIOGRAPHY: An introduction to the methods and tools of literary scholarship. Required of all degree applicants. *3 sem. hrs.*

ENG 599. THESIS *3-6 sem. hrs.*



HISTORY (HST)

Leroy V. Eid, Chairman of the Department

The graduate program in the Department of History leads to the Master of Arts. It seeks to develop in the student that combination of mature judgment and scholarly competence associated with the ability to make, compare, test, and evaluate historical conclusions and interpretations. As a secondary purpose, the program is designed to prepare the student for a successful career in teaching, government services, or specific fields of private endeavor.

For the convenience of teachers and other employed persons, courses will be offered in the late afternoon and evening hours except during the third term, second session, when they will be offered primarily in the morning hours.

PROGRAM REQUIREMENTS

A research seminar (HST 601) is required of all students in the master's program. In addition, the candidate must take at least three other 600-level courses. No more than two independent study courses (HST 696) may be taken with the same professor.

Up to six semester hours of work may be taken outside the History Department with the approval of the chairman.

A proficiency examination in a foreign language is required of all graduate assistants and of all others wanting recommendations for further graduate work. The student may choose to show his competence in any foreign language that is pertinent to his major area.

The master's program may be completed under either of the two following options.

OPTION A

Thirty semester hours of acceptable course work and research are required. These must include three semester hours for the research seminar (HST 601), six semester hours for the thesis (HST 699), and at least nine semester hours earned in other 600-level courses.

The thesis should be 80 to 160 pages in length, and stylistically it should conform to Turabian. Three years from the time it is begun are to be allowed for the completion of the thesis, though, in case of extenuating circumstances, the time allotment can be extended. Three copies of the thesis are required, and approval is by the director and two readers chosen by the director.

An oral comprehensive examination in the field of the thesis is taken concurrently with an oral examination on the major area chosen by the student.

OPTION B

Thirty-three semester hours of acceptable course work are required, including three semester hours for the research seminar (HST 601) and at least nine semester hours earned in other 600-level courses. The student does not write a thesis. Option B is recommended for students who do not plan to enter doctoral studies.

COURSES OF INSTRUCTION

Courses numbered in the 500s appear also in the undergraduate catalog. Enrollment is open to both graduate students and advanced undergraduate students. Courses numbered in the 600s are restricted to graduate students. The particular emphases of 600-level courses will be announced each term. These courses may be repeated for graduate credit when topics and content change. HST 601 (Graduate Research Seminar) is required of all students.

HST 502. MAIN CURRENTS IN ANCIENT HISTORY: Aspects of the civilizations of ancient Near Eastern countries, Greece, and Rome selected because of their integration into Western civilization. Emphasized topics: Hebrew world view and value system, Greek democracy, Roman political and social institutions. *3 sem. hrs.*

HST 505. MEDIEVAL EUROPE: The development of European history from the 4th to the 14th century: birth of the Middle Ages; development of Christianity; Byzantine, Islamic, and Carolingian Empires; feudalism; Crusades; rise of universities; birth of national cultures. *3 sem. hrs.*

HST 507. RENAISSANCE AND REFORMATION: The development of European history from the 14th century to the middle of the 17th. Emphasis on the economic, political, social, and religious aspects of the Renaissance, Protestant Revolution, and Catholic Reformation. *3 sem. hrs.*

HST 511. ERA OF ABSOLUTISM, ENLIGHTENMENT: Intellectual and cultural developments between the later Reformation and the era of the French Revolution, with emphasis on political, economic, and social trends of the Old Regime. *3 sem. hrs.*

HST 513. THE REVOLUTIONARY ERA, 1789-1918: Analysis of the European nations and peoples emphasizing the themes of war and revolution as well as ideological, scientific, and technological developments. *3 sem. hrs.*

HST 514. TWENTIETH-CENTURY EUROPE: Causes and outcome of World War I; internal policies of nations between the two World Wars; diplomatic actions leading to World War II; and the impact of World War II. *3 sem. hrs.*

HST 515. SOVIET UNION SINCE 1917. A detailed survey and analysis of the U.S.S.R. from the Revolution of 1917 to the present. *3 sem. hrs.*

HST 518. MILITARY HISTORY: The evolving concept and philosophy of war; the development and interrelationships of weapons, tactics, and strategy; and the role of military affairs in politics. *3 sem. hrs.*

HST 524. THE PARLIAMENTARY CONCEPT IN ENGLISH HISTORY: The origins and development of common law and parliamentary government in England, stressing the medieval period. *3 sem. hrs.*

HST 525. BRITISH LEGAL HISTORY: Origin of the common law; the forms of action and the development of the land law and of tortious and contractual actions; the legal position of women; *Blackstone's Commentaries*. 3 sem. hrs.

HST 526. TUDOR-STUART ENGLAND: Economics, diplomacy, society, and culture in England from 1485 to 1714. For the Tudor period, emphasis on the development of the national state, royal absolutism, and the Reformation; for the Stuart period and Cromwellian Interregnum, the evolution of the constitutional question. 3 sem. hrs.

HST 528. MODERN ENGLAND — 1815 TO PRESENT: The development of England as an industrialized nation and as a 19th-century empire; the results of industrialization, urbanization, and loss of empire due to two world wars. 3 sem. hrs.

HST 532. NORTH AFRICA IN MODERN TIMES: Study of Morocco, Algeria, Tunisia, and Libya since the 16th century, with stress on the history of the institutions of these countries which enabled them ultimately to expel European imperialism. 3 sem. hrs.

HST 536. SOUTH AFRICA IN MODERN TIMES: The establishment of the Bantu people and institutions and their subjection to assaults by Boers and British. Study seeks to illuminate the present dominant governmental policy of apartheid. 3 sem. hrs.

HST 537. WEST AFRICA IN MODERN TIMES: West Africa's significance since the 18th century, with special reference to the slave trade, the commercial revolution, religious ferment, imperialistic rivalry, and the recent independence movement. 3 sem. hrs.

HST 538. THE MIDDLE EAST, NINETEENTH AND TWENTIETH CENTURIES: Survey of the Ottoman Empire, Iran, Egypt, and the modern states of the Middle East in international politics. 3 sem. hrs.

HST 543. MODERN CHINA: The political, cultural and international developments in China from the 18th century to the present. 3 sem. hrs.

HST 547. DIPLOMATIC HISTORY OF THE FAR EAST SINCE 1840: Survey of the diplomatic relations of China, Korea, and Japan among themselves and with other powers. Emphasis on major diplomatic events. 3 sem. hrs.

HST 548. JAPAN SINCE PERRY: The economic, social, and political developments of modern Japan, from the end of the "Seclusion" to the present. 3 sem. hrs.

HST 551. AMERICAN COLONIAL HISTORY: The foundations of American nationality: European background of America, development of the colonial system, transplanting of ideas and institutions from the Old World, growth of democratic tendencies. 3 sem. hrs.

HST 552. REVOLUTION AND CONFEDERATION: The problems of empire relationships since 1754; the causes, conduct, and consequences of the American Revolution; the postwar problems leading to the adoption of the Federal Constitution. 3 sem. hrs.

HST 554. THE AGE OF JEFFERSON AND JACKSON: From the 1790s to the 1850's, the range of historical, cultural, social, and political trends traditionally associated with the Presidencies of Jefferson and Jackson. 3 sem. hrs.

HST 555. THE OLD SOUTH: A study of political, social, economic, and cultural history, emphasizing pre-Civil War Southern life — ruralism, cotton culture, extractive economics, slavery, developing political minority status in the nation. Prerequisite: a general knowledge of American history. 3 sem. hrs.

- HST 556. CIVIL WAR AND RECONSTRUCTION: Remote and immediate causes of the Civil War, especially from 1850 to 1861; problems of North and South during the war; consequences of the war; efforts to create a new Union, 1865-1877; problems resulting from those efforts. *3 sem. hrs.*
- HST 572. APPALACHIA AND THE NEW SOUTH: A study and appraisal of the internal and external forces that have shaped the Southern states since the Civil War. All aspects of Southern life will be considered. *3 sem. hrs.*
- HST 574. THE GILDED AGE, 1877-1900: A study in the political, diplomatic, economic, social, and cultural developments of the age. The rise of big business, organized labor, and the Populist revolt will be studied. *3 sem. hrs.*
- HST 575. THE PROGRESSIVE PERIOD, 1900-1920: The major historical trends in these years which saw the universal acceptance of America's claim to world power. Due attention to cultural as well as political developments. *3 sem. hrs.*
- HST 576. BETWEEN THE WARS: Intensive study of United States history from 1919 to 1941, emphasizing Normalcy, the Depression, the evolving New Deal, and the approach to World War II. *3 sem. hrs.*
- HST 577. CONTEMPORARY AMERICAN HISTORY: Diplomatic and domestic history of the United States since the beginning of World War II, including the War, wartime conference diplomacy, Russia and the Cold War, cultural trends of mid-century, social equality, and the politics of protest. *3 sem. hrs.*
- HST 578. INTERPRETATIONS IN AMERICAN HISTORY: Specific topics for investigation and interpretation as determined by the instructor. The objective is to study new interpretations of historical events. Prerequisite: a general knowledge of American history. *3 sem. hrs.*
- HST 582. HISTORY OF MEXICO: Mexico since 1820, with emphasis on the revolution of 1910 and the struggle for democracy. Consideration of diplomatic and cultural relations between Mexico and the U.S. *3 sem. hrs.*
- HST 584. CARIBBEAN SINCE 1801: The cultural, social, economic, and political history of the islands and the northern shore of South America in modern times, stressing areas that have gained independency or autonomy. *3 sem. hrs.*
- HST 600. HISTORIOGRAPHY: A study of the principal historians and the chief contributions to the development of historical writing. Some familiarity with historical method required in research papers. *3 sem. hrs.*
- HST 601. GRADUATE RESEARCH SEMINAR: Investigation and synthesis of primary research materials in the student's field of concentration. The seminar is unified around methodological solutions to problems in research and writing. Required of all students. *3 sem. hrs.*
- HST 610. STUDIES IN EARLY EUROPEAN HISTORY: Selected developments in government, law, urban life, and learning from Rome's decline to the 15th century. Byzantine and Islamic contributions are included. *3 sem. hrs.*
- HST 620. STUDIES IN MODERN EUROPEAN HISTORY *3 sem. hrs.*
- HST 631. STUDIES IN AFRICAN HISTORY *3 sem. hrs.*
- HST 632. STUDIES IN MIDDLE EASTERN HISTORY *3 sem. hrs.*

- HST 640. STUDIES IN ASIAN HISTORY 3 sem. hrs.
- HST 650. THE PHILOSOPHY OF HISTORY: Survey of the various metaphysical interpretations of the meaning of history; analysis of literature concerned with the epistemological problems of writing history. 3 sem. hrs.
- HST 660. STUDIES IN U.S. HISTORY BEFORE 1877 3 sem. hrs.
- HST 670. STUDIES IN U.S. HISTORY AFTER 1877 3 sem. hrs.
- HST 680. STUDIES IN LATIN AMERICAN HISTORY 3 sem. hrs.
- HST 696. SPECIAL STUDIES: Tutorial readings or research in special fields. By permission of the chairman only. 1-3 sem. hrs.
- HST 698. TEACHING OF COLLEGE HISTORY: Discussion, instruction, and practice in the methods of teaching history and leading discussions. Required of and open only to graduate assistants. Credit does not count toward graduation. 1 sem. hr.
- HST 699. THESIS 3-6 sem. hrs.



MATHEMATICS (MTH)

Harold G. Mushenheim, S.M., Chairman of the Department

The Department of Mathematics offers graduate studies in order to give properly prepared persons an opportunity to acquire skills in those branches of mathematics normally studied after the baccalaureate degree. The graduate program leads to the Master of Science. The curriculum is intended to serve as a firm basis for doctoral studies and research.

ADMISSION REQUIREMENTS

In addition to the undergraduate preparation required for admission to graduate work at the University of Dayton, the Department of Mathematics has these prerequisites to admission into its graduate program:

MTH 361 Introduction to Abstract Algebra (or equivalent)
 MTH 421-422 Advanced Calculus (or equivalent)

PROGRAM REQUIREMENTS

Thirty semester hours of 500-level courses are required. These may include a maximum of six semester hours of approved courses outside the department and a maximum of six semester hours for a thesis in special cases.

The student must successfully pass a written examination covering the content of his area of concentration, as well as an oral examination, within three months of the expected date of graduation.

COURSES OF INSTRUCTION

MTH 519-520. STATISTICAL INFERENCE: Sample spaces, Borel fields, random variables, distribution theory, characteristic functions, exponential families, minimax and Bayes procedures, sufficiency, efficiency, Rao-Blackwell theorem, Neyman-Pearson Lemma, uniformly most powerful tests, multi-variate normal distributions. *3 sem. hrs. each*

MTH 521. REAL VARIABLES I: The topology of the real line, continuity and differentiability, Riemann and Stieltjes integrals, Lebesgue measure, relationship between Riemann integrability-Jordan content and measure, Lebesgue integral. *3 sem. hrs.*

MTH 522. REAL VARIABLES II: Absolute continuity, differentiation and integration, the classical Banach spaces, Fourier series, extensions of the Lebesgue integral. Prerequisite: MTH 521. *3 sem. hrs.*

MTH 523. MEASURE THEORY AND INTEGRATION I: General theory of measure and integration over abstract spaces, abstract L_p spaces; product measures, Fubini's theorem, finite signed measures, Jordan-Hahn decomposition, Radon-Nikodym theorem, Riesz Representation theorem. Prerequisite: MTH 521. *3 sem. hrs.*

- MTH 524. MEASURE THEORY AND INTEGRATION II: Integration over locally compact spaces, Baire measures, Borel measures, regular measures, content, Riesz-Markov theorem, advanced topics. Prerequisites: MTH 522, 523, and 571. *3 sem. hrs.*
- MTH 525. COMPLEX VARIABLES I: Fundamental concepts, analytic functions, integration, singularities, and series. *3 sem. hrs.*
- MTH 526. COMPLEX VARIABLES II: Entire, meromorphic, periodic, and multiple-valued functions; analytic continuation, conformal mapping, and other topics. Prerequisite: MTH 525 or equivalent. *3 sem. hrs.*
- MTH 531. ADVANCED DIFFERENTIAL EQUATIONS I: Existence and uniqueness theorems, linear equations and systems, self-adjoint systems and boundary value problems, numerical methods. Prerequisite: MTH 403 or equivalent. *3 sem. hrs.*
- MTH 532. ADVANCED DIFFERENTIAL EQUATIONS II: Asymptotic behavior and stability, Liapounov's theorems, perturbation theory. Prerequisite: MTH 531. *3 sem. hrs.*
- MTH 535. PARTIAL DIFFERENTIAL EQUATIONS I: Classification of partial differential equations; methods of solution for the wave equation, Laplace's equation, and the heat equation; numerical solutions, applications. Prerequisite: MTH 402 or equivalent. *3 sem. hrs.*
- MTH 536. PARTIAL DIFFERENTIAL EQUATIONS II: Existence and uniqueness theorems, canonical form, Green's theorems and operational methods, boundary value problems. Prerequisite: MTH 535. *3 sem. hrs.*
- MTH 545. SPECIAL FUNCTIONS: The special functions frequently encountered in engineering and the physical sciences. Use of the hypergeometric function and generating functions throughout to develop the theory. The theories of infinite products and asymptotic expansions. Prerequisite: MTH 404 or 461. *3 sem. hrs.*
- MTH 551. METHODS OF MATHEMATICAL PHYSICS I: Linear transformations and matrix theory, linear integral equations, calculus of variations, eigenvalue problems. Prerequisite: MTH 403 or equivalent. *3 sem. hrs.*
- MTH 552. METHODS OF MATHEMATICAL PHYSICS II: Linear and nonlinear oscillators, partial differential equations and potential theory, functional transformations, special functions. Prerequisite: MTH 551. *3 sem. hrs.*
- MTH 555-556. ADVANCED NUMERICAL ANALYSIS: Quadrature methods and the numerical solution of ordinary differential equations; matrices and large-scale linear systems; norms and spectral radii of matrices; modern iterative matrix methods, including the successive overrelaxation method; numerical solution of partial differential equations. Consideration of methods suitable for use on digital computers. Prerequisite: consent of instructor. *3 sem. hrs. each*
- MTH 561. MODERN ALGEBRA I: Groups, rings, integral domains and fields; extensions of rings and fields; polynomial rings and factorization theory in integral domains; groups with operators; modules and ideals. *3 sem. hrs.*
- MTH 562. MODERN ALGEBRA II: Finite and infinite field extensions, algebraic closure, constructible numbers and solvability by use of radicals, Galois theory, advanced topics in groups and rings. Prerequisite: MTH 561. *3 sem. hrs.*
- MTH 565. LINEAR ALGEBRA: Vector spaces, linear transformations and matrices; determinants, invariant direct-sum decomposition, rational and Jordan canonical forms; inner product spaces, the spectral theorem, bilinear and quadratic forms. *3 sem. hrs.*

MTH 571. TOPOLOGY I: An axiomatic treatment of the concept of a topological space; various operators on a set that define a topology; bases and subbases; connectedness, compactness; continuity, homeomorphisms, separation axioms and countability axioms; convergence in topological spaces. *3 sem. hrs.*

MTH 572. TOPOLOGY II: Compactification theory, paracompactness and metrizability theorems, uniform spaces, function spaces, and other advanced topics of current interest. Prerequisite: MTH 571 or equivalent. *3 sem. hrs.*

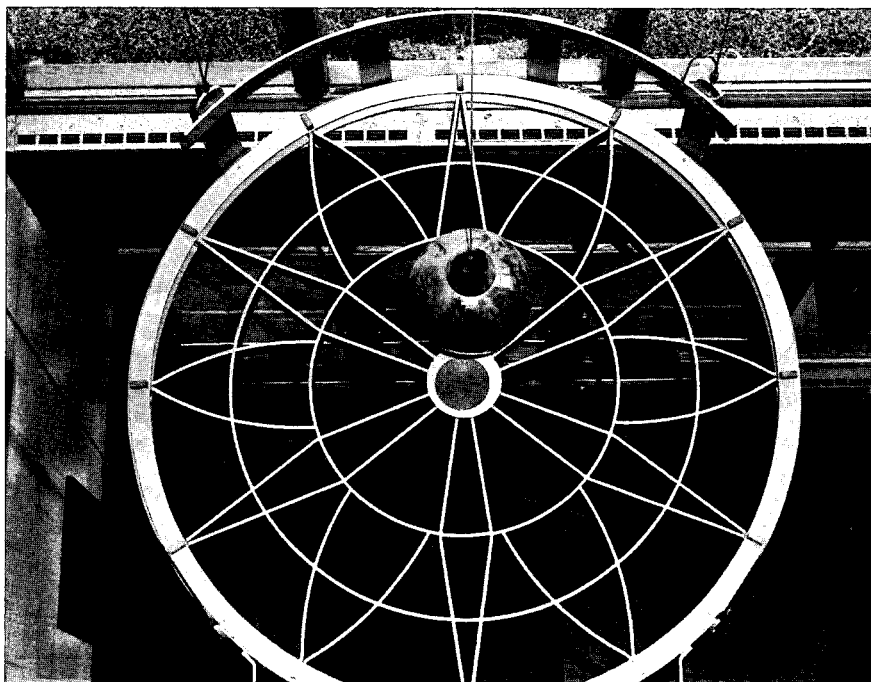
MTH 573. TOPOLOGICAL VECTOR SPACES I: The study of various topologies within linear spaces with emphasis on Banach and Hilbert spaces. The Hahn-Banach theorem and its consequences. Closed graph and open mapping theorems. Prerequisites: MTH 522, 565, and 571, or equivalents. *3 sem. hrs.*

MTH 574. TOPOLOGICAL VECTOR SPACES II: Detailed study of Banach algebras and spectral theory. Prerequisite: MTH 573. *3 sem. hrs.*

MTH 575. DIFFERENTIAL GEOMETRY: Vector and tensor algebra; covariant differentiation. An introduction to the classical theory of curves and surfaces treated by means of vector and tensor analysis. *3 sem. hrs.*

MTH 590. TOPICS IN MATHEMATICS: This course, given upon appropriate occasions, deals with specialized material not covered in the regular courses. May be taken more than once as topics change. Prerequisite: consent of advisor. *3 sem. hrs. each term.*

MTH 598. THESIS *3-6 sem. hrs.*



PHILOSOPHY (PHL)

Raymond M. Herbenick, Chairman of the Department

The graduate program in philosophy leading to the Master of Arts provides the conditions for cooperative study and research in which a student can acquire a more comprehensive knowledge and understanding of major philosophical positions in the history of philosophy and in contemporary philosophy, develop abilities for critical philosophical reflection, and learn to apply philosophical principles to the solution of present-day problems.

Students have been able to pursue programs of graduate study in philosophy to prepare for doctoral studies in philosophy and other academic areas, as well as for teaching and counseling responsibilities in philosophy at four-year and two-year colleges. Still others have pursued the program out of a general interest in advanced philosophical studies or in conjunction with further professional studies.

A distinctive feature of the graduate program in philosophy is the emphasis on the continuity of philosophic inquiry from the ancient and the medieval eras to the modern and contemporary periods. Each philosophy graduate student initially arranges his program in consultation with the chairman of the Philosophy Department and thereafter in consultation with an assigned academic advisor. A program of study developed in accordance with student objectives normally calls for exposure to areas beyond those of immediate interest to the student.

REQUIREMENTS

Students working toward the Master of Arts with a major in Philosophy are subject to the general graduate policies and requirements of the University and the College of Arts and Sciences. In addition, the following departmental requirements hold.

ADMISSION

A formal statement of a student's objectives in taking the philosophy program is requested along with his or her application. For admission to regular status, a student must have had at least 24 semester hours in undergraduate philosophy or have equivalent competence. Otherwise, the student can apply for conditional or unclassified status.

COURSE WORK

Students pursuing the Master of Arts need a minimum of 30 semester hours of satisfactory graduate work. Six of these may be given for a satisfactory thesis (if the thesis option is chosen), or six may be given for satisfactory graduate or professional course work in nonphilosophy subjects.

READING LISTS

Students pursuing the Master of Arts with a major in Philosophy must show competency in the history of philosophy. Students may take either oral examinations or course work within prescribed guidelines to demonstrate such competency. Reading lists are available through the Department. Students are encouraged to satisfy this requirement early in their programs of study.

CANDIDACY

Each student is formally a candidate for the Master of Arts after

1. demonstrating competency in the history of philosophy by satisfying the reading list requirements;
2. satisfactorily completing 18 semester hours of graduate work; and
3. obtaining official approval of a thesis project, if one is chosen.

OPTIONS

Students working toward the Master of Arts with a major in Philosophy have the following departmental options available to them.

THESIS

A student wishing to engage in a research thesis is to consult the chairman, academic advisor, and prospective thesis advisors and readers so that suitable appointments can be made. Afterwards, the student is to

1. submit in triplicate an outline of a thesis project prepared according to the departmental format available in the chairman's office no later than two months before the end of the term immediately prior to the tentative graduation date;
2. submit three copies of the thesis for review by the first Monday of November for graduation in the fall term, by the first Monday of March for graduation in the spring term and by the first Monday in June for graduation in the summer term;
3. revise the thesis in light of the suggestions of thesis readers and advisors and prepare the final copies in accord with the official manual for these available through the Office for Graduate Studies;
4. successfully defend the thesis orally after all other requirements are fulfilled.

LANGUAGE EXAMINATION

Students wishing to continue their philosophic studies are strongly urged to learn at least one or two foreign languages to improve their professional skills in philosophy. Language examinations may be arranged through the chairman of the Philosophy Department. If they are passed, the results will be noted on the student's official records. But no graduate credit is awarded for passing a language examination.

TEACHING APPRENTICESHIP FOR GRADUATE ASSISTANTS

As part of their contractual obligation, graduate assistants participate in the Teaching Apprenticeship Program in Philosophy (PHL 598). This involves participation in seminars on the teaching of philosophy at the undergraduate level and in the supervised teaching of the lower level course in philosophy, Introduction to Philosophy (PHL 103). This program is open only to graduate philosophy assistants. It is offered each term for one semester hour of academic credit upon satisfactory completion of the apprenticeship in a given term. Satisfactory completion of this internship will be shown on the transcript and the grade K (credit) will be recorded. The grade K does not affect the cumulative point average. Receipt of academic credits for this teaching apprenticeship program in philosophy *does not* reduce the 30 semester hours requirement for the master's degree. The graduate assistant registers each semester for PHL 598.

SPECIAL PROGRAMS

The Department of Philosophy also offers an experimental tutorial program leading to the degree Master of Humanities in Philosophy (MHP) and affords the opportunity to qualified law school students to pursue the Master of Arts jointly with the Juris Doctor at the University of Dayton Law School. For additional information see the department chairman.

COURSES OF INSTRUCTION

PHL 510. PHILOSOPHY OF SCIENCE: A study of contemporary philosophical accounts of scientific explanation, prediction, confirmation, and discovery in the natural, life, and social sciences. 3 sem. hrs.

PHL 513. MORALITY, SOCIAL ETHICS AND LAW: A study of the notion of justice in its relation with law against the background of the classical views on the subject; those principles governing legal reform; how justice itself is served by the eminently Christian principle of charity; the problems of the legislation and enforcement of morals in society. 3 sem. hrs.

PHL 515. PHILOSOPHY OF LAW: A study of the relationship between law and society. Various styles of legal theory such as natural law, legal positivism, legal realism as well as the concept of a legal system, legal reasoning, freedom and responsibility. 3 sem. hrs.

PHL 516. VALUE THEORY: A study of classic and contemporary theories of values in both the Continental and Anglo-American traditions, including methodological issues of value description, the dimensions of value and value classification, rules of valuation, the theory of practical reasoning and deontic logic, the theory of preference, the logic of preference, and the fact-value distinction. 3 sem. hrs.

PHL 520. PHILOSOPHY OF AUGUSTINE: The moral, social, political, legal, religious, epistemological, and metaphysical issues raised by St. Augustine in his own writings and those raised by his commentators, and their bearing on problems in recent philosophy. 3 sem. hrs.

PHL 525. PHILOSOPHY OF AQUINAS: A study of the moral, social, political, legal, religious, epistemological, and metaphysical issues raised by St. Thomas in his own writings, as they are developed in those of his commentators, and as they bear on problems in recent philosophy. 3 sem. hrs.

- PHL 540. **MEDIEVAL STUDIES:** A study of the writings of a particular medieval philosopher and / or a particular problem in medieval philosophy. May be repeated for credit when the philosopher or problem varies. 3 sem. hrs.
- PHL 541. **PHILOSOPHY OF PLATO:** A detailed analysis of selected texts of Plato. May be repeated for credit when the topics and texts vary. 3 sem. hrs.
- PHL 542. **PHILOSOPHY OF ARISTOTLE:** A detailed examination of selected works of Aristotle. May be repeated for credit when texts and topics vary. 3 sem. hrs.
- PHL 545. **MODERN FRENCH PHILOSOPHY:** An examination of the leading philosophical movements in France with particular emphasis on Descartes, Pascal, and Malebranche. 3 sem hrs.
- PHL 553. **PHILOSOPHY OF KANT:** An examination of the *Critique of Pure Reason* with emphasis on its metaphysical implications or a study of Kantian ethics in *Foundations of the Metaphysics of Morals* and the *Critique of Practical Reason*, with emphasis on the questions of law, freedom, happiness, and God. May be repeated for credit when the topic and texts vary. 3 sem. hrs.
- PHL 555. **MODERN GERMAN PHILOSOPHY:** A study of the post-Kantian influences in modern Germanic philosophy through the idealistic developments of Fichte, Schelling, and Hegel, with emphasis on their rational theological thought, their return to metaphysics, and their varying intellectual intuitionisms. 3 sem. hrs.
- PHL 556. **PHILOSOPHY OF HEGEL:** A study of that part of the *Phenomenology of Spirit* in which Hegel rejects a formalistic explanation of the categories of understanding in favor of the dialectic of reason culminating in Absolute Reason. Additional reference may be made to his *Science of Logic*, *Lectures on the Philosophy of Religion*, and *Lectures on the History of Philosophy*. 3 sem hrs.
- PHL 560. **MODERN BRITISH PHILOSOPHY:** A study of 17th and 18th century empiricists such as Bacon, Hobbes, Locke, Berkeley, or Hume. Their psychological-epistemological approach to experience, facts, ideas, knowledge, substance, and causality and their relation to positivism. 3 sem. hrs.
- PHL 565. **AMERICAN PRAGMATISM:** An investigation of the major writings of C. S. Peirce, William James, or John Dewey in the pragmatic tradition. May be repeated for credit when topic varies. 3 sem. hrs.
- PHL 570. **EXISTENTIALISM:** A study of existentialism as an original view on man and his world by one major existential philosopher. May be repeated for credit when topic varies. 3 sem. hrs.
- PHL 571. **PERCEPTION AND KNOWLEDGE:** A survey of some fundamental neuro-physiological, psychological, and phenomenological studies on perception with emphasis on the various epistemological issues. 3 sem. hrs.
- PHL 575. **CONTEMPORARY PHILOSOPHIES OF EVOLUTION:** A study of the influence of evolutionary thought in Bergson, James, Dewey, Whitehead, Marxism, or contemporary Christian thought as in Teilhard de Chardin. 3 sem. hrs.
- PHL 576. **CONTEMPORARY PROBLEMS IN THE PHILOSOPHY OF GOD:** An examination of the works of contemporary religious philosophies. 3 sem. hrs.
- PHL 577. **RECENT CHRISTIAN PHILOSOPHY:** A study of the most recent attempts of some Catholic thinkers and theologians to develop approaches and solutions to the perennial problems of a Judaeo-Christian philosophy. 3 sem. hrs.

PHL 578. PHILOSOPHY OF RELIGION: The problems arising in contemporary philosophy of religion. Naturalistic and supernaturalistic responses to the central question "What is religion?" The classical arguments for God's existence, the problem of evil, the cognitive value of mystical experience, revelation and reason, meaning (or symbol) and verification in religious discourse. *3 sem. hrs.*

PHL 580. PHILOSOPHY OF BERTRAND RUSSELL: The main philosophical positions of Russell especially his epistemological empiricism, logical atomism, philosophic analysis of language, philosophy of religion, morality and political philosophy. *3 sem. hrs.*

PHL 585. PHENOMENOLOGY: A critical analysis of the phenomenological method as defined and applied by Husserl, Merleau-Ponty, Sartre, Ricoeur, or other major phenomenologists. May be repeated for credit when content varies. *3 sem. hrs.*

PHL 590. DIRECTED STUDIES: To augment the graduate student's previous training or to allow advanced study on a particular problem, philosopher, or historical era. Arrange through the chairman. *3 sem. hrs.*

PHL 591. SEMINAR: Topics, authors, and / or problems in philosophy selected by the professor. *3 sem. hrs.*

PHL 592. PHILOSOPHY OF ORDINARY LANGUAGE: A study of the objectives and methods of recent language-oriented philosophers such as Strawson, Ryle, J. L. Austin, Quine, Chomsky, and Wittgenstein. *3 sem. hrs.*

PHL 594. SYMBOLIC LOGIC: A study of the techniques and rationales of propositional and predicate, inductive and ordinary, modal and many-valued logics as practical tools for philosophers; selected topics in the philosophy of logic. *3 sem. hrs.*

PHL 598. TEACHING APPRENTICESHIP IN PHILOSOPHY: Participation each term as a teaching apprentice to faculty and in the direct teaching of lower-level undergraduate philosophy courses. Required of and open only to graduate philosophy assistants. *3 sem. hrs.*

PHL 599. THESIS *3-6 sem. hrs.*

PHYSICS (PHY)

James R. Schneider, Chairman of the Department

The Master of Science program in the Department of Physics seeks to provide the student with a thorough understanding and appreciation of the discipline. Advanced study in physics may be used to develop competence for involvement in research and development programs in industry and government, to enrich the background for teaching physics on the junior college or secondary school level, or to prepare for advanced degree (PhD) academic programs.

ADMISSION REQUIREMENTS

Applicants will be admitted to advanced study in physics if the graduate admission committee of the department determines they are qualified for the degree program. A series of examinations covering basic physics subjects on the intermediate level are available to candidates entering the program. These assist the student and the department to choose the courses appropriate to the student's needs. The applicant will be required to make up any deficiencies which the department deems necessary to attain the level of the graduate course. In general, a properly prepared student should have the following background:

1. Physics courses which are approximately the equivalent of the following University of Dayton courses:

- PHY 303 Intermediate Mechanics
- PHY 408 Intermediate Electricity and Magnetism
- PHY 301 Thermodynamics
- PHY 390 Introduction to Quantum Mechanics

2. Mathematics through differential equations and preferably advanced calculus.

3. Additional upper-level undergraduate physics courses relating to the area of the student's interest, such as electronics, optics, solid state, or atomic and nuclear physics.

PROGRAM REQUIREMENTS

The formal requirement for the degree is 30 semester hours of course work properly distributed. Eighteen of these must be graduate physics courses. No foreign language competency is necessary for the Master of Science with a major in Physics. Each student's program, tailored to his own interests and career plans, is determined after consultation between the student and the advisory committee in accord with the following guidelines:

1. A core sequence is required of all degree students:		<i>Semester Hours</i>
PHY 511	Classical Mechanics	3
PHY 515	Statistical Mechanics.....	3
PHY 523	Electromagnetic Theory I.....	3
PHY 525	Quantum Mechanics I.....	3

2. An area of concentration is accomplished through special topics courses and involvement in the current research activities of the faculty and staff of the Department of Physics. These activities include experimental and theoretical solid state physics with emphasis on optical, electrical, and magnetic properties of material, laser interactions with materials, semiconductors, optical spectroscopy, surface phenomena, resonance studies, and environmental applications of physics.

3. By the end of the first term, students are expected to be sufficiently familiar with computer programming to solve basic problems in physics using the computer. This requirement can be fulfilled on an *ad hoc* basis or by taking a formal programming course.

4. Courses in such related disciplines as mathematics, chemistry, and engineering may be chosen up to a maximum of 12 semester hours with the approval of the chairman of the department.

5. A maximum of six semester hours of graduate credit may be granted for advanced undergraduate courses (300-400 level) with the approval of the graduate committee of the department.

NOTE: Courses for which undergraduate credit has been allowed may not be repeated for graduate credit.

6. The master's thesis is recommended for those students who have no comparable experience. An oral examination before a committee designated by the chairman of the department must be passed before credit can be given. A maximum of six semester hours towards a degree can be given for thesis work.

COURSES OF INSTRUCTION

PHY 505. MODERN PHYSICS FOR ENGINEERS: Special topics in atomic physics, the solid state, and nuclear physics; elementary quantum mechanics and application to the free particle and the one-electron atom; to some extent, X-rays, elementary particles, and cosmic rays. 3 sem. hrs.

PHY 511. CLASSICAL MECHANICS: Analytical dynamics; variational techniques; Hamilton's Principle; the Lagrangian, the Hamiltonian, Hamilton-Jacobi and Poisson Bracket formulations of mechanics; Galilean and Lorentz invariance; and relativistic dynamics. Prerequisite: PHY 303-304 or equivalent. 3 sem. hrs.

PHY 512. CLASSICAL THEORY OF FIELDS: Hamilton's Principle extended to fields; Lagrangian formulation used to obtain conservation laws, symmetry and invariance principles; the Klein-Gordon, Maxwell, and Dirac equations cited as examples of scalar, vector, and spinor fields; interacting fields and radiative solutions. Prerequisite: PHY 511 or consent of instructor. 3 sem. hrs.

PHY 515. STATISTICAL MECHANICS: Basic assumptions; statistics of independent particles; the Maxwell Boltzman distribution; Fermi-Dirac, Bose-Einstein statistics; applications of distribution laws. 3 sem. hrs.

PHY 518. THEORETICAL PHYSICS I: Topics can include calculation techniques in modern physics, complex variable theory, dispersion relations, linear vector spaces, operators, matrix mechanics, eigenvalue equations. Prerequisites: MTH 403-404 or consent of instructor. 3 sem. hrs.

PHY 519. THEORETICAL PHYSICS II: Topics can include orthogonal functions, Dirac delta function, Laplace's equation, Poisson's equation, D'Alembert's equation, transformation theorems, Green's function, group theory. Prerequisite: PHY 525 or consent of instructor.

3 sem. hrs.

PHY 520. ADVANCED SOLID STATE PHYSICS: Crystal structure, thermal properties of solids; insulators; band theory of solids; semi-conductors; luminescence. Prerequisite: PHY 525 or consent of instructor.

3 sem. hrs.

PHY 521. ADVANCED NUCLEAR PHYSICS: Basic properties of the nucleus; the deuteron; nuclear binding energies; scattering; nuclear forces; high energy particles. Prerequisite: PHY 525 or consent of instructor.

3 sem. hrs.

PHY 523. ADVANCED ELECTRICITY AND MAGNETISM I: The boundary value problems of electrostatics and magnetostatics in material media; conservation laws; existence and nature of electromagnetic radiation derived from Maxwell's equations.

3 sem. hrs.

PHY 524. ADVANCED ELECTRICITY AND MAGNETISM II: Radiating systems, interference and diffraction; wave guides and resonant cavities; Cherenkov radiation, bremsstrahlung, and multipole fields; special applications of electromagnetic theory. Prerequisite: PHY 523.

3 sem. hrs.

PHY 525. QUANTUM MECHANICS I: The physical basis of quantum mechanics, wave packets, free particle motion; Schrodinger's equation applied to potential problems; harmonic oscillator and the hydrogen atom; three-dimensional extrapolation and scattering.

3 sem. hrs.

PHY 526. QUANTUM MECHANICS II: Linear vector spaces and spin; time dependent and time independent perturbation theory; development of the formal theory of scattering; discussion of the importance of symmetries and rotations. Prerequisite: PHY 525.

3 sem. hrs.

PHY 531. ADVANCED GRADUATE LABORATORY: Advanced experiments in classical mechanics, electricity, magnetism, and atomic, nuclear, and solid state physics. Prerequisite: Approval of graduate advisor.

3 sem. hrs.

PHY 540. INTRODUCTION TO POLYMER SCIENCE: An introduction to polymers. A largely nonmathematical survey of the field. Prerequisites: college chemistry and calculus.

3 sem hrs.

PHY 541. PHYSICAL PROPERTIES OF POLYMERS: An intensive discussion of the interrelations between molecular and gross physical properties of polymers. Prerequisites: PHY 540 or equivalent, background in differential equations.

3 sem. hrs.

PHY 590. GRADUATE THESIS: A research problem in a selected topic of physics resulting in a written thesis.

0-6 sem. hrs.

PHY 595. GRADUATE SEMINAR: Weekly seminars presented by graduate students, faculty, and guest lecturers on current topics.

No credit.

PHY 599. SPECIAL PROBLEMS IN (NAMED AREA): Lecture, seminar, laboratory, or library work in designated areas of topical interest in physics. May be taken more than once.

1-3 sem. hrs.

POLITICAL SCIENCE (POL)

Antonio E. Lapitan, Chairman of the Department

Henry J. Anna, Director of the Master of Public Administration Program

The Department of Political Science offers two graduate programs; each one is designed to accomplish a particular objective.

The Master of Arts with a major in Political Science is primarily an academic degree leading toward increased knowledge of the political process, teaching, or advanced study. For this preparation, the department stresses thorough knowledge of some of the subareas of political science rather than attempting a superficial acquaintance with all of them.

The Master of Public Administration is a professional degree which is designed to prepare students for administrative careers in contemporary society, or for further graduate study in the area.

ADMISSION REQUIREMENTS

For admission to the program leading to the Master of Arts the department requires the following:

1. Baccalaureate degree from an accredited college or university.
2. Undergraduate concentration in one of the fields of the social sciences.
3. Sufficient academic preparation and experiences that would indicate the student's ability to pursue graduate studies.
4. Candidates who have earned their degree in a pass-fail grading system must supply the department with their scores in the general section of the GRE.

NOTE: If the candidate's concentration has been outside of the social science areas, or deficiencies in academic records are indicated, the department may admit the student *probationally* or require additional work in topics where he / she is considered deficient. Courses considered prerequisite by the department may not later be included within the candidate's graduate program. In all cases, the standard University requirements of 2.5 will apply.

For admission to the program leading to the Master of Public Administration, the department requires the following:

1. Baccalaureate degree from an accredited college or university.
2. Cumulative average of 2.5 in a 4.0 grading system.
3. Students applying from schools operating on a Pass-Fail grading system are required to submit GRE scores taken in the field of political science. Other applicants are encouraged to submit GRE scores as additional evidence of their competence to do graduate work.

NOTE: In addition, consideration will be given the following:

1. Letters of recommendation from persons in a position to judge the applicant's capacity for graduate work.
2. The applicant's work experience and statement of career objectives.
3. The applicant's undergraduate academic preparation and achievements in disciplines related to the public service: undergraduate courses in political science are particularly desirable.

REQUIREMENTS OF THE POLITICAL SCIENCE PROGRAM

After consultation with the graduate advisor and in accordance with the student's long range academic objectives, a candidate for the Master of Arts must complete the following requirements:

1. Thirty semester hours consisting of 18 semester hours of required courses and 12 semester hours of electives.

Semester Hours

Required Courses (18 semester hours)

POL 501	Scope and Methods of Political Science	3
POL 514	Development of Political Theory	3
POL 502	Colloquium in American Politics	3
POL 503	Colloquium in Comparative Politics.....	3
POL 590	Research Seminar in Political Science.....	3
POL 597	Research Project	3

Electives (12 semester hours)

These must be selected from elective graduate courses in political science, 400-level undergraduate courses in political science, and / or graduate courses in cognate fields.

2. Oral defense of the research paper before students and faculty of the department at the completion of 30 semester hours of course work.
3. Students must achieve a minimum B (3.0) cumulative average in all courses. Their progress will be evaluated at the completion of 12 semester hours of credit. They must have a minimum of B average to obtain the degree.

CURRICULUM

General Courses

POL 501	Scope and Methods of Political Science
POL 567	Independent Study in Political Science
POL 590	Research Seminar in Political Science (new course)
POL 597	Research Project (new course)

American Political Processes

POL 502	Colloquium in American Politics
POL 521	Seminar: Intergovernmental Relations
POL 545	Seminar: Urban Politics and Policy
POL 546	Seminar: Public Opinion and Political Behavior

- POL 557 Seminar: State Government and Politics
 POL 579 Seminar: Selected Topics in Public Policy
Comparative Politics
 POL 503 Colloquium in Comparative Politics
 POL 522 Seminar in Asian Politics
 POL 529 Seminar in European Politics
 POL 582 Seminar in Comparative Public Administration
Political Theory and Public Law
 POL 514 Development of Political Theory
 POL 569 Seminar: Selected Topics in Political Theory
 POL 571 Seminar: Judicial and Constitutional Politics

REQUIREMENTS OF THE PUBLIC ADMINISTRATION PROGRAM

To receive the Master of Public Administration the student must satisfactorily complete 30 semester hours of course work with a cumulative grade point average of 3.0 or better.

The 30 semester hours of course work must include POL 510, POL 580 or 581, at least one course under the heading Analytical and Conceptual Skills, and at least one course under the heading Societal Context of Administration. POL 510 may be waived for students with appropriate academic background in public administration.

The remainder of the 30 semester hours of course work must consist of courses selected from the MPA curriculum. Exceptions will be made by the program director in case the student's interests and career objectives make other courses particularly useful. No more than six semester hours of courses outside the MPA curriculum may be taken at the 400 level.

Within the general requirements above, the student may select one of three options:

- A. The student may take 24 semester hours of academic courses and six semester hours of POL 595, Internship. A student taking this option is encouraged to begin the internship only after completing 15 semester hours of other courses.
- B. The student under certain conditions may take 24 semester hours of academic course work and 6 semester hours of POL 596, Public Service Project. This option is available only to students employed in administrative positions in public or quasi-public agencies other than internship positions. Students may enroll in POL 596 only after completing 15 semester hours of other courses.
- C. The student may take the full 30 semester hours in regular academic courses. Students selecting this option must complete at least three semester hours of POL 578, Independent Study in Public Administration.

Upon the completion of 15 semester hours of course work, including semester hours transferred from other schools or programs, each student must apply to the chairman of the graduate committee of the Department of Political Science for a certifying examination. The examination provides an opportunity to discuss with each student (a) performance in the program to date, (b) strengths and weaknesses in mastering the discipline of public administration, and (c) potential for a

career in the public service. During the course of the examination, the following characteristics of the student will be evaluated specifically:

1. Knowledge of subject matter important for a career in public administration.
2. Skills in interpersonal relationships, problem analysis, and oral and written communication.
3. The appropriateness of the student's values to an administrative career in the public service.

The examining committee will consist of three faculty members from the University of Dayton. The committee will take one of three actions:

1. Certify the student for further course work without prescribing particular courses.
2. Certify the student for further course work and at the same time prescribe those courses which the student must take in order to complete a satisfactory program.
3. Refuse to certify the student for further course work in the public administration program.

CURRICULUM

General Courses

POL	510	Public Administration
POL	521	Seminar: Intergovernmental Relations
POL	540	Problems in Public Administration
POL	578	Independent Study in Public Administration
POL	595	Internship
POL	596	Public Service Project

Organizational Leadership and Management

POL	535	Fiscal Administration
POL	576	Public Personnel Administration
POL	580	Organizational Systems
POL	581	Organizational Theory
MBA	541	Labor Relations and Labor Economics
MBA	581	Administrative Management Practices
MBA	582	Organizational Behavior
COM	517	Organizational Communication

Analytical and Conceptual Skills

POL	552	Government Planning
POL	579	Selected Topics in Public Policy
POL	511	Quantitative Methods in Public Administration
ENM	551	Policy Analysis and Planning in Public Systems

Societal Context of Administration

POL	502	Colloquium in American Politics
POL	514	Development of Political Theory
POL	545	Seminar: Urban Politics and Policy
POL	557	Seminar: State Government and Politics
POL	546	Seminar: Public Opinion and Political Behavior

POL	572	Administrative Law
POL	555	Urban and Local Administration
POL	583	Seminar: Comparative Public Policy

COURSES OF INSTRUCTION

Graduate students in Political Science and Public Administration may take no more than two 400-level courses for graduate credit, with the permission of the Chairman of the Graduate Committee. Undergraduate courses specified as a condition for admittance to the graduate program do not count as graduate credit.

POL 501. SCOPE AND METHODS OF POLITICAL SCIENCE: Analysis of theoretical approaches to the study of politics and the techniques and methodologies currently employed in political science research. *3 sem. hrs.*

POL 502. COLLOQUIUM IN AMERICAN POLITICS: An examination of the various theoretical and empirical approaches developed in the study of American politics. Special consideration will be given to the works considered critical in the formation of a scientific study of American political life. *3 sem. hrs.*

POL 503. COLLOQUIUM IN COMPARATIVE POLITICS: A examination of various theoretical and empirical approaches in the study of comparative politics and political development with special emphasis on cross-national comparison and the use of aggregate data in comparative analysis. *3 sem. hrs.*

POL 510. PUBLIC ADMINISTRATION: Study of the administrative organization, systems, processes, and methods as applied to governmental programs and operations, with a comparison of structural and behavioral approaches. *3 sem. hrs.*

POL 511. QUANTITATIVE METHODS IN PUBLIC ADMINISTRATION: Introduction to research techniques involving quantitative methods and analyses applicable to the formulation and implementation of public programs. Examples from applications to current organizational operations, program and policy analysis and planning, measuring and forecasting social trends, and related public policy and organizational developments. Aimed at an understanding of appropriate application and interpretation of quantitative methods, rather than competence in practical or scholarly use. Prerequisite: MTH 207 or permission of the instructor. *3 sem. hrs.*

POL 514. DEVELOPMENT OF POLITICAL THEORY: Study of the Western political heritage as fashioned by the great Western political thinkers from Plato through Marx and Lenin. *3 sem. hrs.*

POL 521. SEMINAR: INTERGOVERNMENTAL RELATIONS: Study of the interaction process of various levels of government in the United States, including problems of federalism, inter-state cooperation, and federal-urban relations. *3 sem. hrs.*

POL 522. SEMINAR IN ASIAN POLITICS: Systematic analysis of the political structures and processes of two or more countries in the Far East and two or more in Southeast Asia, with emphasis on their capabilities to maintain political stability. May be repeated once when focus changes. *3 sem. hrs.*

POL 529. SEMINAR IN EUROPEAN POLITICS: Systematic analysis of the political structures and processes of two or more countries in Western Europe and two or more in the Soviet Union and Eastern Europe, with emphasis on selected contemporary political, economic, and social problems. May be repeated once when focus changes. *3 sem. hrs.*

POL 535. FISCAL ADMINISTRATION: Study of governmental expenditures and revenues, budgetary and financial reporting, fiscal policy, and other areas of fiscal management, with emphasis on current practices and problems. *3 sem. hrs.*

POL 540. PROBLEMS IN PUBLIC ADMINISTRATION: Seminar on selected problems in public administration. May be repeated once when topic changes. *3 sem. hrs.*

POL 545. SEMINAR: URBAN POLITICS AND POLICY: A study of the political processes and governmental structures in urban areas with emphasis on the relations among governmental units, community power structure, and the formulation and execution of public policy. *3 sem. hrs.*

POL 546. SEMINAR: PUBLIC OPINION AND POLITICAL BEHAVIOR: Study of conventional and unconventional modes of political behavior; attitudes, opinions, and beliefs which are useful in explaining political behavior. Emphasis on the political socialization of children and post-adolescents and on political information processing. *3 sem. hrs.*

POL 552. GOVERNMENTAL PLANNING: Consideration of the planning function in the administrative process and the role of planning agencies in decision making and problem solving. Evaluation of trends and changing characteristics of planning in the United States. *3 sem. hrs.*

POL 555. URBAN AND LOCAL ADMINISTRATION: Study of the structures, processes, programs, policies, and problems of administrative agencies of local governments, with particular emphasis on metropolitan areas. *3 sem. hrs.*

POL 557. SEMINAR: STATE GOVERNMENT AND POLITICS: A comparative study of the political institutions and processes of state governments in the United States, with emphasis on current issues. *3 sem. hrs.*

POL 567. INDEPENDENT STUDY IN POLITICAL SCIENCE: Reading and research on special topics in political science under the direction of a faculty member. Research paper. May be repeated once when topic changes. *1-3 sem. hrs.*

POL 569. SEMINAR: SELECTED TOPICS IN POLITICAL THEORY: An examination of selected issues or writers in political thought. Examples of topics: political concepts of authority, freedom, contemporary political theorists, modern ideologies. May be repeated once when the content changes. *3 sem. hrs.*

POL 571. SEMINAR: JUDICIAL AND CONSTITUTIONAL POLITICS. Special topics, including aspects of the judicial process such as the actors within it (lawyers, juries, judges, prosecutors, police, etc.) and judicial policy making, its substance, the underlying philosophy, and the values, attitudes, prejudices, and behavior of its makers. May be repeated once when content changes. *3 sem. hrs.*

POL 572. ADMINISTRATIVE LAW: Study of the judicial functions and activities of federal agencies; formal and informal processes in administrative hearings; basic principles of administrative law; judicial interpretation; the question of increased judicialization of the administrative process. *3 sem. hrs.*

POL 576. PUBLIC PERSONNEL ADMINISTRATION: Survey of the development of personnel administration in the federal government and some state and municipal governments, focusing on such questions as selection, training, and labor relations. *3 sem. hrs.*

POL 578: INDEPENDENT STUDY IN PUBLIC ADMINISTRATION: Intensive independent research under the direction of a faculty member. Research paper. May be repeated once when topic changes. *3 sem. hrs.*

POL 579. SEMINAR: SELECTED TOPICS IN PUBLIC POLICY: Policy process, policy outcomes, and policy impact in an area or areas of public policy varying among such topics as transportation, education, welfare, national defense, science, civil rights, and urban and community development. May be repeated once when topic changes. *3 sem. hrs.*

POL 580. ORGANIZATIONAL SYSTEMS: Application of systems theory to the operation of governmental, business, and educational organizations. Conventional theories are related to the systems approach to an understanding of organizations. *3 sem. hrs.*

POL 581. ORGANIZATIONAL THEORY: Survey of current literature and research on the theory of complex organizations. Rationality in decision-making; problems of authority; behavioral, political, and technical influences on organizations. *3 sem. hrs.*

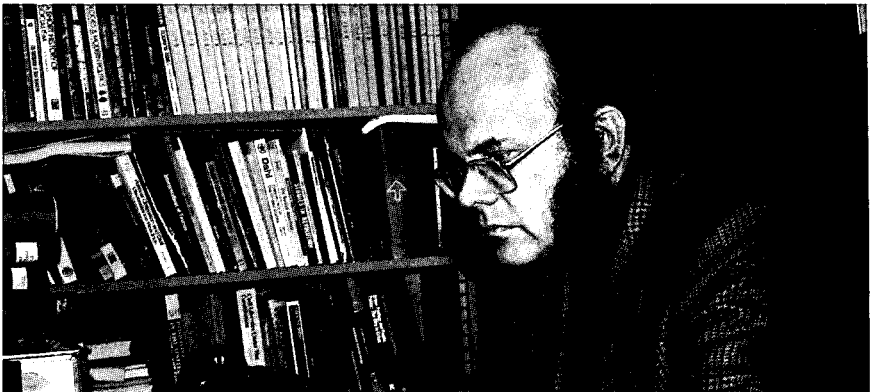
POL 583. SEMINAR: COMPARATIVE PUBLIC POLICY: Study of the applicability and limitations of current approaches in public policy analysis for cross-national and / or cross-cultural comparison. Emphasis on the analysis of how such public policy issues as defense, welfare, education, and economic development are determined by select political systems in the developed and developing world. *3 sem. hrs.*

POL 590. RESEARCH SEMINAR IN POLITICAL SCIENCE: Directed research on a selected topic in American or comparative politics which requires the application of a specific approach, generation and analysis of data which would result in a major research paper. *3 sem. hrs.*

POL 595. GOVERNMENT INTERNSHIP: Assignment to appropriate government agencies or units for the purpose of gaining wide experience with the administrative system through a rotating program of work experiences. *3-6 sem. hrs.*

POL 596. PUBLIC SERVICE PROJECT: For students currently employed in administrative positions in public or quasi-public agencies. Completion of a written project relating theories and information from the field of public administration to the student's work experience and career objectives. *6 sem. hrs.*

POL 597. RESEARCH PROJECT: Required of all MA students. Completion of the research paper begun in POL 590; evaluation of the substance, methodology, and findings of the paper by the professor; and presentation of the paper before students and faculty of the Political Science Department. *3 sem. hrs.*



PSYCHOLOGY (PSY)

Richard J. Popp, Chairman of the Department

The Department of Psychology offers five Master of Arts programs:

Clinical Psychology
Developmental Psychology
Experimental-Cognitive Psychology
Social Psychology
General Psychology

In all programs emphasis is on integrating theory and literature with appropriate applied experience and on competence in the development of appropriate and original research. This is the product of individual supervision and a low student-to-faculty ratio. The aim of the department is to prepare the student for further graduate work at the PhD level and / or for functioning at the MA level of specialization in an applied / community setting or through teaching and research.

ADMISSION REQUIREMENTS AND PROCEDURE

Under normal circumstances a grade point average of 3.0 or better (based on a 4.0 system) is required for admission to the graduate program. In addition, a minimum of 3.0 average in undergraduate course work in psychology is required. Graduate work is normally expected to be completed in four semesters.

It is expected that the applicant will have completed the requirements of a four-year undergraduate college, normally in liberal arts or science, and that the student will have completed a minimum of 15 semester hours in psychology. These psychology courses must include a course in psychological statistics, a course in experimental psychology, and six semester hours in upper-level psychology courses. For students in clinical psychology, one of these courses should be Theories of Personality.

All applicants must have the equivalent of one course in college algebra and have received a grade of C or better in that course.

Acceptance within a specific program is competitive, based upon the student's academic ability and the number of positions available.

APPLICATIONS

Application forms can be obtained from the Office for Graduate Studies at the University of Dayton and all correspondence concerning the completion of the application should be directed to that office. Inquiries concerning the master's program, its curriculum, and the Department of Psychology should be directed to Dr. Richard J. Popp, Chairman, Department of Psychology, University of Dayton,

Dayton, Ohio 45469. It is the applicant's responsibility to obtain all information necessary for the completion of an application.

A completed application consists of the following:

1. The completed application form.
2. Official transcript of all undergraduate schooling (and graduate schooling when appropriate).
3. Three letters of recommendation concerning the applicant's academic ability (usually from professors at schools previously attended).
4. The Millers Analogy Test score, M.A.T.
5. The graduate Record Examination Score, G.R.E. (both aptitude and advanced scores).

Under special circumstances the chairman of the department may waive application requirements.

STUDENT STATUS

Each student admitted to the graduate program is placed in one of the following categories:

1. Regular standing: Students meeting all the entrance requirements of the department.
2. Conditional standing: Students who are required to complete admission requirements as determined by the department. Such students are considered as probationary pending the results of 9 to 15 semester hours of graduate work.
3. Unclassified: Students enrolled in graduate courses of the department who may not be necessarily working for a degree.

MASTER'S PROGRAM REQUIREMENTS

All students enrolled in any of the five programs leading to the Master of Arts with a major in Psychology are subject to the following general requirements of the Department of Psychology:

1. The number of semester hours and required courses as specified by the individual programs described below.
2. Minimum average of B (3.0) in course work.
3. Attendance at regularly scheduled extra-course seminars on selected issues in psychology and at occasional specialized workshops.
4. Thesis dealing with an approved research problem, incorporating an appropriate review of theory and literature, and demonstrating originality and competence in the application of research methodology.
5. Time limit of seven years in which to complete the program (period of service in the Armed Forces not included).

CLINICAL PSYCHOLOGY

In addition to a broad academic background and competence in the application of research methodology, the Clinical Psychology program provides the student with thorough exposure in the areas of personality, psychopathology, and psy-

chotherapy, extensive training in the assessment of intelligence and personality, and supervised practice in individual, group, and behavior therapy techniques. Through traineeships in various community and clinical settings affiliated with the University, the student can translate classroom learning into practicum experience. The program is designed to prepare the student for competence as an MA-level psychologist or for pursuing a PhD in clinical psychology.

The Master of Arts with a major in Psychology (Clinical) requires 44 semester hours, consisting of 39 semester hours of academic course work, including thesis, and five clerkships, as listed.

	<i>Semester Hours</i>
<i>Research – Quantitative</i>	
PSY 501 Advanced Statistics I.....	3
PSY 502 Advanced Statistics II.....	3
PSY 599 Thesis.....	3
<i>Research – Methods: One of the following.</i>	
PSY 521 Advanced Research Design.....	3
PSY 568 Research in Clinical Psychology.....	3
PSY 585 Experimental Social Psychology.....	3
<i>Theoretical</i>	
PSY 553 Theory and Research in Psychopathology.....	3
PSY 555 Theories of Personality and Psychotherapy.....	3
<i>Psychodiagnosis</i>	
PSY 555 Techniques of Interviewing.....	1
PSY 551 Assessment of Intelligence.....	3
PSY 552 Internship in Intelligence.....	1
PSY 556 Assessment of Personality.....	3
PSY 557 Clerkship in Projective Techniques.....	1
<i>Techniques of Therapy: Two of the following courses plus clerkships.</i>	
PSY 558 Group Psychotherapy.....	3
PSY 559 Clerkship in Group Psychotherapy.....	1
PSY 560 Childhood Psychopathology and Psychotherapy.....	3
PSY 561 Clerkship in Child Therapy.....	1
PSY 562 Behavior Therapy: Theory and Techniques.....	3
PSY 563 Clerkship in Behavior Therapy.....	1
PSY 564 Individual Psychotherapy: Theory and Practice.....	3
PSY 565 Clerkship in Individual Psychotherapy.....	1
PSY 566 Child-Family Psychotherapy.....	3
PSY 567 Clerkship in Family Therapy.....	1
<i>Clinical Psychology elective: One three-semester-hour course.</i>	
<i>Prescribed courses in outside areas: Two courses to equal six semester hours from two of the areas below.</i>	
<i>Developmental</i>	
PSY 571 Experimental Child Psychology.....	3
PSY 572 Perceptual and Attentional Development in Children.....	3
PSY 573 Developmental Psychology.....	3

	<i>Experimental-Cognitive</i>	
PSY 522	Advanced Cognitive Processes	3
PSY 525	Basic Processes in Learning and Memory.....	3
PSY 528	Psychophysiology.....	3
PSY 529	Perception.....	3
	<i>Social</i>	
PSY 585	Experimental Social Psychology.....	3

DEVELOPMENTAL PSYCHOLOGY

The graduate program in developmental psychology offers the student intensive preparation for a profession in teaching and research. The aim of the program is to provide a broad background of knowledge of psychology in general and developmental psychology in particular, in addition to cultivating research competence for the investigation of developmental processes. Toward these ends, the program consists of (1) a core curriculum of courses and (2) collaborative research with a faculty member in the student's second term, followed by original research leading to the thesis. Emphasis is on the study of the development of perceptual, attentional, and cognitive processes in children as revealed by changes in learning, memory, problem solving, language, and social and emotional behavior. In addition, students may have the opportunity to apply knowledge in these areas in affiliation or research with schools and social agencies.

The Master of Arts with a major in Psychology (Developmental) requires 36 semester hours, including thesis, as listed.

	<i>Semester Hours</i>	
PSY 501	Advanced Statistics I.....	3
PSY 502	Advanced Statistics II.....	3
PSY 599	Thesis.....	3
PSY 571	Experimental Child Psychology.....	3
PSY 572	Perceptual and Attentional Development in Infants and Children.....	3
PSY 573	Developmental Psychology.....	3
PSY 452	Cognitive Development in Children.....	3
— — —	Free electives.....	6

Prescribed courses in outside areas: One course from each of the areas below to equal nine semester hours.

	<i>Clinical</i>	
PSY 553	Theories and Research in Psychopathology.....	3
PSY 555	Theories of Personality and Psychotherapy	3
	<i>Experimental-Cognitive</i>	
PSY 522	Advanced Cognitive Processes	3
PSY 525	Basic Processes in Learning and Memory.....	3
PSY 528	Psychophysiology.....	3
PSY 529	Perception.....	3
	<i>Social</i>	
PSY 585	Experimental Social Psychology.....	3

EXPERIMENTAL-COGNITIVE PSYCHOLOGY

The master's program in Experimental-Cognitive Psychology is designed to prepare the student for further graduate study at the PhD level, for teaching, and / or for a career as a research-applied scientist. The curriculum includes an exposure to the basic theoretical issues and quantitative research methodology – including the use of extensive computer facilities and other scientific equipment – associated with perception, cognition, language, memory, thinking / problem solving, psychophysiology, and other human learning processes. Emphasis is on the integration of course work with research. Students have the opportunity to collaborate with faculty members in their current research programs and, where applicable, to observe their research consultation for outside agencies, in addition to receiving preceptorial instruction through supervised original research and classroom teaching.

The Master of Arts with a major in Psychology (Experimental-Cognitive) requires 36 semester hours, including thesis, as specified below.

	<i>Semester Hours</i>
PSY 501	Advanced Statistics I..... 3
PSY 502	Advanced Statistics II..... 3
PSY 522	Advanced Cognitive Processes 3
PSY 527	Current Theories of Human Learning and Memory..... 3
PSY 528	Psychophysiology..... 3
PSY 529	Perception..... 3
PSY 599	Thesis..... 3
Two courses from the following to equal six semester hours.	
PSY 503	Advanced Quantitative Methods in Psychology..... 3
PSY 505	Computer Applications to Behavioral Science..... 3
PSY 521	Advanced Research Design..... 3
PSY 524	Human Information Processes..... 3
PSY 525	Basic Processes in Learning and Memory..... 3
PSY 526	Psychology in Perspective..... 3
PSY 597	Readings..... 3
<i>Prescribed courses in outside areas: One course from each area to equal nine semester hours.</i>	
<i>Clinical</i>	
PSY 553	Theories and Research in Psychopathology..... 3
PSY 555	Theories of Personality and Psychotherapy..... 3
<i>Developmental</i>	
PSY 571	Experimental Child Psychology..... 3
PSY 572	Perceptual and Attentional Development in Children..... 3
PSY 573	Developmental Psychology..... 3
<i>Social</i>	
PSY 585	Experimental Social Psychology..... 3

SOCIAL PSYCHOLOGY

The master’s program in Social Psychology offers the student the opportunity to combine experimental and theoretical knowledge with applied experience. In addition to basic content such as group dynamics, attitudes, and interpersonal attraction, courses are offered in current areas of interest such as community problems and women’s studies. Students are encouraged to further their knowledge of social psychology through designing and conducting their own experiments and through work with various community agencies. The aims of the program are to prepare the student for further graduate work at the PhD level and / or for an MA-level career in work or consultation with social-community agencies.

The Master of Arts with a major in Psychology (Social Psychology) requires 36 semester hours, including thesis, as specified below.

	<i>Semester Hours</i>
PSY 501	Advanced Statistics I..... 3
PSY 502	Advanced Statistics II..... 3
PSY 585	Experimental Social Psychology..... 3
PSY 596	Experimental Research..... 3
PSY 599	Thesis..... 3
— —	Elective..... 3
Three courses from the following four to equal nine semester hours.	
PSY 586	Social Psychology Applied to Community Problems 3
PSY 587	Social Influences and Group Dynamics 3
PSY 588	Interpersonal Processes..... 3
PSY 589	Attitudes 3
<i>Prescribed courses in outside areas:</i> Three courses (including one clinical and one experimental-cognitive) to equal nine semester hours.	
<i>Clinical</i>	
PSY 553	Theories and Research in Psychopathology 3
PSY 555	Theories of Personality and Psychotherapy 3
<i>Developmental</i>	
PSY 571	Experimental Child Psychology..... 3
PSY 572	Perceptual and Attentional Development in Children 3
PSY 573	Developmental Psychology..... 3
<i>Experimental-Cognitive</i>	
PSY 522	Advanced Cognitive Processes 3
PSY 525	Basic Processes in Learning and Memory..... 3
PSY 528	Psychophysiology..... 3
PSY 529	Perception..... 3

GENERAL PSYCHOLOGY

For a limited number of students with specific and specialized career goals, the Master of Arts with a major in General Psychology is offered. Before matriculation into the program, the student and a faculty advisor specify objectives and

design a curriculum tailored to the individual student. Courses selected reflect the student's needs in interaction with overall graduate program requirements and the resources available within the Department of Psychology and the University community.

The Master of Arts with a major in Psychology (General) requires 36 semester hours, including thesis, as specified below.

	<i>Semester Hours</i>
PSY 501	Advanced Statistics I..... 3
PSY 502	Advanced Statistics II..... 3
PSY 599	Thesis..... 3
	<i>Required courses and electives as specified by advisor..... 18</i>
	<i>Prescribed courses in outside areas: Three courses (including one clinical and one experimental-cognitive) to equal nine semester hours.</i>
	<i>Clinical</i>
PSY 553	Theories and Research in Psychopathology..... 3
PSY 555	Theories of Personality and Psychotherapy..... 3
	<i>Developmental</i>
PSY 571	Experimental Child Psychology..... 3
PSY 572	Perceptual and Attentional Development in Children..... 3
PSY 573	Developmental Psychology..... 3
	<i>Experimental-Cognitive</i>
PSY 522	Advanced Cognitive Processes..... 3
PSY 525	Basic Processes in Learning and Memory..... 3
PSY 528	Psychophysiology..... 3
PSY 529	Perception..... 3
	<i>Social</i>
PSY 585	Experimental Social Psychology..... 3

COURSES OF INSTRUCTION

500-519 QUANTITATIVE METHODS

PSY 501. ADVANCED STATISTICS I: A survey of the principles of sampling, estimation, and hypothesis-testing as applied to bivariate regression, simple analysis of variance, and sturdy statistics. Prerequisite: undergraduate statistics. 3 sem. hrs.

PSY 502. ADVANCED STATISTICS II: Application of the general linear model in complex factorial designs and selected multivariate techniques, including multiple regression, principle-components and canonical correlation. Prerequisite: PSY 501. 3 sem. hrs.

PSY 503. ADVANCED QUANTITATIVE METHODS IN PSYCHOLOGY: Quantitative techniques used in mathematical models and theories with applications to particular psychological theories. Emphasis on the breadth of applications of quantitative methods in psychology. 3 sem. hrs.

PSY 504. SEMINAR IN STATISTICS: To gain a working knowledge of specialized statistical techniques such as analysis of variance, nonparametric statistics, correlational methods. The specific technique may vary from one offering to the next. Prerequisite: PSY 501. 3 sem. hrs.

PSY 505. **COMPUTER APPLICATIONS TO BEHAVIORAL SCIENCE:** Survey of several psychological studies in which the use of the computer was critical to the experimental design. Prerequisites: PSY 501, permission of instructor. *3 sem. hrs.*

520-529 EXPERIMENTAL PSYCHOLOGY

PSY 521. **ADVANCED RESEARCH DESIGN:** Theory of scaling; concepts on the transformation of data as applied to problems of sensory and cognitive functions. Prerequisites: PSY 501, permission of advisor. Two hours of lecture and one two-hour laboratory period per week. *3 sem. hrs.*

PSY 522. **ADVANCED COGNITIVE PROCESSES:** Basic research paradigms for the experimental investigation of cognitive processes, with attention to the current information-processing theories of cognition. Topics include selective attention, visual short-term memory, pattern recognition, encoding processes, imagery, search and retrieval processes, theories of human memory, and cerebral dominance. *3 sem. hrs.*

PSY 524. **HUMAN INFORMATION PROCESSING:** Current psychological and artificial intelligence models of cognition. Topics include coding mechanisms in the central nervous system; simulation of sensory processes and recognition; computer models of human memory; semantic information processing by man and machines; fast retrieval theories; recent theories of language comprehension and problem solving. *3 sem. hrs.*

PSY 525. **BASIC PROCESSES IN LEARNING AND MEMORY:** The fundamental paradigms, concepts, and findings in the study of human learning, including recall, recognition, serial learning, paired-associate learning, transfer of training, short-term memory, and language processing. *3 sem. hrs.*

PSY 526. **PSYCHOLOGY IN PERSPECTIVE:** Examination of the major systems and theories since 1850 to achieve a historical synthesis of modern psychology and to place it in a context of the other arts and sciences. *3 sem. hrs.*

PSY 527. **CURRENT THEORIES IN LEARNING AND MEMORY:** Investigation of recent theoretical contributions to the study of human learning. *3 sem. hrs.*

PSY 528. **PSYCHOPHYSIOLOGY:** The neurophysiology of attention, sensation, perception, emotion, learning, memory, and motor control. Emphasis on electrophysiological indicants and cybernetical analyses. *3 sem. hrs.*

PSY 529. **PERCEPTION:** A systematic study of methods and research findings in the field of human perception, with an evaluation of theoretical interpretations. Prerequisites: PSY 501, permission of instructor. *3 sem. hrs.*

550-569 CLINICAL PSYCHOLOGY

PSY 550. **TECHNIQUES OF INTERVIEWING:** Supervised experience in clinical interviewing as a preliminary to assessment, diagnosis, and / or treatment in addition to developing an understanding of the individual. Prerequisite: Permission of the instructor. *1 sem. hr.*

PSY 551. **ASSESSMENT OF INTELLIGENCE:** The basic instruments for assessment of intelligence including the Stanford-Binet, WAIS, WISC, and WPPSI. Discussion of theories of intelligence, test development, clinical interpretation, and current research with the instruments. *3 sem. hrs.*

PSY 552. INTERNSHIP IN INTELLIGENCE: Supervised experience in the use and interpretation of intelligence tests with the aim of providing exposure to a wide variety of subjects. Corequisite: PSY 551. *1 sem. hr.*

PSY 553. THEORIES AND RESEARCH IN PSYCHOPATHOLOGY: Survey of major theories on the etiology of the various behavior disorders, using the standard classification system. Theoretical and empirical research on the symptoms and dynamics of these disorders. *3 sem. hrs.*

PSY 555. THEORIES OF PERSONALITY AND PSYCHOTHERAPY: Survey and critical analysis of the major current theories of psychotherapy integrating their contributions into a diversified, functional, and adaptable approach to therapy. Prerequisite: PSY 553. *3 sem. hrs.*

PSY 556. ASSESSMENT OF PERSONALITY: Survey and evaluation of the use and interpretation of the major tests used to assess personality and psychopathology including MMPI, Rorschach, TAT. Discussion of test development, theoretical rationale, and research on the instrument. Prerequisite: PSY 553. *3 sem. hrs.*

PSY 557. CLERKSHIP IN PROJECTIVE TECHNIQUES: Supervised experience in the use and interpretation of the various personality assessment instruments. Prerequisite: PSY 553. Corequisite: PSY 556. *1 sem. hr.*

PSY 558. GROUP PSYCHOTHERAPY: A study of group theory, its origins and applications, and specific techniques related to group therapy, including a review of literature and research in the field. Prerequisite: PSY 555. *1 sem. hr.*

PSY 559. CLERKSHIP IN GROUP PSYCHOTHERAPY: Supervised experience in various techniques of group psychotherapy. Prerequisites: PSY 555, permission of the instructor. Corequisite: PSY 558. *1 sem. hr.*

PSY 560. CHILDHOOD PSYCHOPATHOLOGY AND PSYCHOTHERAPY: Survey from various theoretical perspectives of the major behavior disorders of childhood, their description, causes, treatment, and prevention. *3 sem. hrs.*

PSY 561. CLERKSHIP IN CHILD THERAPY: Supervised experience in psychotherapy and / or behavior modification with preadolescent children. Prerequisites: PSY 560, permission of instructor. *3 sem. hrs.*

PSY 562. BEHAVIOR THERAPY – THEORY AND PRACTICE: Survey of the various behavioral therapy techniques and their theoretical and experimental origins. Prerequisite: PSY 555. *3 sem. hrs.*

PSY 563. CLERKSHIP IN BEHAVIOR THERAPY: Supervised experience in the use and application of behavioral therapy techniques. Prerequisites: PSY 555, permission of the instructor. Corequisite: PSY 562. *1 sem. hr.*

PSY 564. INDIVIDUAL PSYCHOTHERAPY – THEORY AND PRACTICE: Survey approach to individual psychotherapy with emphasis on specific therapeutic skills developed from empirical findings and related to theoretical and ethical issues inherent in various views of psychotherapy. Prerequisite: PSY 555. *3 sem. hrs.*

PSY 565. CLERKSHIP IN INDIVIDUAL PSYCHOTHERAPY: Supervised experience in the use and application of various techniques used in individual psychotherapy. Prerequisites: PSY 555, permission of the instructor. Corequisite: PSY 564. *1 sem. hrs.*

PSY 566. CHILD-FAMILY PSYCHOTHERAPY: Survey of the various therapeutic techniques, theoretical orientations, and research appropriate to child-family psychotherapy. Prerequisite: PSY 555. *3 sem. hrs.*

PSY 567. CLERKSHIP IN FAMILY THERAPY: Supervised experience in the use and application of various techniques associated with child-family psychotherapy. Prerequisite: permission of the instructor. *1 sem. hr.*

PSY 568. RESEARCH IN CLINICAL PSYCHOLOGY: Based on a systematic study of the theoretical constructs of psychology and their applications to clinical research, including problems of inference and methodology, the course provides an exposure and evaluation of research in the major areas of clinical psychology. Prerequisite: PSY 501. *3 sem. hrs.*

570-579 DEVELOPMENTAL PSYCHOLOGY

PSY 571. EXPERIMENTAL CHILD PSYCHOLOGY: Evaluation of some current theoretical issues in developmental psychology and the experimental methods useful in attempts toward their solution, along with a survey of data from such research. Prerequisite: PSY 306 or equivalent (PSY 403 recommended). *3 sem. hrs.*

PSY 572. PERCEPTUAL AND ATTENTIONAL DEVELOPMENT IN INFANTS AND CHILDREN: Research methodology and findings relating to perceptual and attentional development beginning with birth. Emphasis on visual capacities, the influence of variables on perceptual development, individual differences and the effects of early experience on perceptual-cognitive functioning, and the relationship of sensory integration to reading. Prerequisites: PSY 302, 306, 310, or permission of instructor. *3 sem. hrs.*

PSY 573. DEVELOPMENTAL PSYCHOLOGY: Theory and research in psychological development from conception to adolescence. Emphasis on personality and social development including attachment and dependency, aggression, sex-role learning, moral development, and cross-cultural socialization. Prerequisite: PSY 306 or equivalent or permission of instructor. *3 sem. hrs.*

580-589 SOCIAL PSYCHOLOGY

PSY 585. EXPERIMENTAL SOCIAL PSYCHOLOGY: Study of scientific method in general and social psychology methods in specific to develop and demonstrate an ability to plan, conduct, and report on investigations in social psychology. Stress on applying design methods to concepts and issues in social psychology. Prerequisites: PSY 302, 310, 408. *3 sem. hrs.*

PSY 586. SOCIAL PSYCHOLOGY APPLIED TO COMMUNITY PROBLEMS: The nature of community problems with crime, drug abuse, alcoholism, poverty, race relations, and mental health; what social psychologists can contribute to their solution. Each student will spend a few hours weekly in field work with a community organization addressing itself to one or more of these problems. Readings; written report on field experience. Prerequisite: PSY 585. *3 sem. hrs.*

PSY 587. SOCIAL INFLUENCES AND GROUP DYNAMICS: Two major areas of social psychology, social influence and group dynamics, covering such topics as group problem-solving, behavioral and hysterical contagion, the classic conformity research, and social facilitation. Students will be required to design an experiment in the form of a research proposal. Prerequisite: PSY 585. *3 sem. hrs.*

PSY 588. INTERPERSONAL PROCESSES: Some prominent subareas of social psychology, including interpersonal attraction, attribution, social exchange theories, person perception, the acquaintanceship process, and ingratiation. Prerequisite: PSY 585 or permission of the instructor. *3 sem. hrs.*

PSY 589. ATTITUDES: This seminar surveys definitions of attitudes and related concepts (e.g., beliefs), standard scales (e.g., equal-interval), recent scaling models (e.g., unfolding), and artifacts of persuasion research (e.g., suspicion). Both classical and recent studies of attitude formation and change are critically examined for their support of dominant theories of persuasion. Prerequisite: PSY 585. *3 sem. hrs.*

590-599 INDEPENDENT STUDY AND RESEARCH

PSY 595. SEMINAR IN SPECIAL TOPICS IN PSYCHOLOGY: Various topics of special interest to the faculty and students. An intensive critical evaluation of the appropriate literature. *1-3 sem. hrs.*

PSY 596. EXPERIMENTAL RESEARCH: Individual graduate students explore particular research areas. Under guidance of the instructor, research projects are formulated and conducted. Project reports are required. May be repeated. Prerequisite: permission of instructor. *1-3 sem. hrs.*

PSY 597. READINGS: Designed for individual, student-faculty study in a specialized area of interest. Topic and criteria for evaluation to be specified prior to registration. *1-3 sem. hrs.*

PSY 599. THESIS: An original research project incorporating an appropriate review of theory and literature and demonstrating competence in the application of research methodology. Required of all graduate students. *3 sem. hrs.*



RELIGIOUS STUDIES (REL)

Reverend Matthew F. Kohmescher, S.M., Chairman of the Department
Richard A. Boulet, Director of the Program

The Graduate Department of Religious Studies is an ecumenical community of students and professors engaged in the study, research, and interpretation of religious issues. It considers these issues from the context of the more classical disciplines of the Judaeo-Christian traditions as well as the burgeoning areas of multi-cultural and cross-disciplinary concerns. It offers a Master of Arts individualized to meet each student's need, whether it be for vocational or advanced degree preparation.

The master's program in Theological Studies is conceived as a broad comprehensive approach to the study of religion and theology. Its major concern is to develop in the degree candidate a methodology whereby the student may approach the field from a number of perspectives: the contribution of the biblical sources, the historical development of Western theological thought, especially the Roman Catholic tradition, the comparative study of world religious phenomena, an ecumenical awareness, and the establishment of an interdisciplinary mentality. Unique facilities are afforded by the Marian Library, which has an exceptional collection of rare books offering the opportunity for original research.

The master's program in Pastoral Ministries offers the student an opportunity to prepare for a variety of service careers emerging in the contemporary church. It is intended to prepare the students for pastoral positions as teachers of catechetics and religious education, directors of religious education, parish ministers, campus ministers, etc. It is expected that students will draw upon the resources of other departments of the University and other schools in the consortium in the construction of their programs.

The programs leading to each degree may be pursued in summer sessions or full time, i.e., throughout the year. They must be completed within seven calendar years from the time of matriculation. Another program in Theological Studies is offered conjointly by the University of Dayton and St. Leonard College for seminarians enrolled at St. Leonard College. Details of this program along with the descriptions of the courses offered at St. Leonard can be found in the catalog of St. Leonard College, Centerville, Ohio.

The University is an active member of the Consortium for Higher Education Religion Studies (CHERS) and of the All-Ohio and Dayton Cluster of Seminaries. This membership makes possible dialogue with students of other institutions, interchange of facilities, sharing of library resources, and cooperative innovative programming. Through cross-registration, it makes available to the students the courses at the member institutions and thus provides the opportunity for even more flexible construction of their degree programs.

ADMISSION REQUIREMENTS

An applicant is admitted to graduate study if the admitting committee of the department is satisfied that the applicant is fully qualified to undertake graduate study. A minimum of 24 semester hours in philosophy and theology with a 3.0 grade-point average is recommended. Graduate Record Examination scores are recommended as a part of the applicant's materials.

PROGRAM REGULATIONS

Both Master of Arts programs are to be pursued in a personally individualized manner. Upon admission to the program each student (in conjunction with an appointed advisor and taking into consideration the student's needs, interests, and background) is to draw up a proposal for the program to be followed. This program proposal is then submitted to the graduate committee for its approval. The graduate committee is responsible for the final approval and/or amendment of the proposal in consultation with the student and the student's advisor. The same procedure is followed for any modification of the original proposal during the course of the student's pursuit of the program.

COURSE WORK

The candidate must take 36 semester hours of course work or 30 semester hours of course work and 6 semester hours of thesis credit. In the construction of a program it is expected that the majority of the student's course work will be taken in the Department of Religious Studies.

LANGUAGE PROFICIENCY

For both programs a working knowledge of a modern language is recommended. For specialization in the biblical or historical areas a working knowledge of the language employed in the area, e.g., Hebrew, Greek, or Latin, may be required. The language requirement is particularly recommended to those students preparing for doctoral work.

THEOLOGICAL COMPETENCY

At the completion of the program of studies the degree candidate must manifest theological competency. This will usually be done by the written and oral presentation of a theological position on a topic chosen by the student and approved by the project advisor and the graduate committee. The student may elect to take a written and oral examination instead of the foregoing.

THESIS

A student desiring to do so may, with approval, write a thesis for six semester hours of work and do 30 semester hours of course work. An oral defense of the thesis will be required.

REL 549. **MARIAN QUESTION TODAY:** Detailed treatment of selected issues of contemporary interest relating to the role of the Virgin Mary in the history of salvation. May be taken more than once. *3 sem. hrs.*

CHRISTIAN ETHICS

REL 561. **APPROACHES TO MORALITY:** An attempt to establish the foundations of Christian morality, consisting of an historical survey of approaches and developments from the New Testament period to the present. *3 sem. hrs.*

REL 562. **CONTEMPORARY MORAL PROBLEMS:** An open approach to contemporary moral issues within theological perspectives. *3 sem. hrs.*

REL 568. **EVOLUTION AND ETHICS:** The contemporary theology of Christian existence as a whole, stressing the conscious unity of existence; the implications of evolution for theology and ethics. *3 sem. hrs.*

RELIGION AND CULTURE

REL 571. **THE IMAGINATION AND MODERN THEOLOGY:** An attempt to show the role of reason and the imagination in the formulations of various approaches to theological issues. *3 sem. hrs.*

REL 575. **THEOLOGY AND THE FILM:** Focus on the mutual issues of film and religion as both reflect and affect the values and images of a culture. *3 sem. hrs.*

REL 576. **THEOLOGY AND ART:** An investigation into the relationship between religion and art with a treatment of Renaissance and post-Renaissance painting and sculpture as manifestations of Christian apocalyptic and humanistic world-views at given times. *3 sem. hrs.*

REL 577. **THE RELIGIOUS QUEST IN LITERATURE:** Study of the religious quest as found in various modes of poetry, novel, and drama with emphasis on the form of literary expression. *3 sem. hrs.*

PASTORAL MINISTRIES

REL 581. **THEOLOGY OF REVELATION:** Study of God's self-disclosure to His people as found in scripture, tradition, and the living experience of the Church immersed in history. *3 sem. hrs.*

REL 582. **MODELS OF CATECHESIS:** An investigation of the theory behind and the use of models in catechesis with emphasis on the implications various models of the Church have for understanding the task of catechesis. *3 sem. hrs.*

REL 583. **RELIGIOUS PSYCHOLOGY:** Study of the human response to God in the light of contemporary psychology. The implications for catechesis in the various stages of human development, in the process of conversion and commitment, and in the crises of faith. *3 sem. hrs.*

REL 584. **CONTEMPORARY CATECHETICAL PROCESSES:** Study of the role of structure in catechesis in the light of those structures used by effective centers of catechesis, especially in the U.S.A. An approach to the understanding and evaluation of life experiences and intuitional insights as to content and method in the relationship established by structure. *3 sem. hrs.*

REL 585. PASTORAL COUNSELING: Brief study of the methods of counseling with emphasis on those modes most in practice today. Concentration on the major problems faced by a counselor in the pastoral area. *3 sem. hrs.*

REL 586. LEADERSHIP IN PARISH MINISTRY: Study of the traditional parish structure as seen against the background of biblical and historical perspectives of the local church. An examination of the forces for change in the contemporary parish with an effort, out of the theoretical framework of leadership and administration, to assist the student to develop a philosophy and strategy of leadership. *3 sem. hrs.*

REL 587. RELIGIOUS STUDIES AS AUTOBIOGRAPHY: An invitation to reflect systematically on the religious dimension of one's own life story by asking questions about meaning, purpose, values, identity, etc., through the study of the lives of great religious figures. An assessment of the potential of this autobiographical approach for religious education. *3 sem. hrs.*

GENERAL COURSES OF INSTRUCTION

REL 590. SELECTED QUESTIONS: A study of specific questions and developments in biblical, historical, systematic, or catechetical theology. May be taken more than once. *3 sem. hrs.*

REL 592. CONTEMPORARY ISSUES: A graduate workshop and/or seminar investigating and analyzing a specific area of theology and interdisciplinary scholarship concerning contemporary issues. *1-6 sem. hrs.*

REL 593. DIRECTED STUDY: A directed study of a particular theologian, problem, or historical period. May be taken more than once. *1-3 sem. hrs.*

REL 599. THESIS *6 sem. hrs.*



VII School of Business Administration

William J. Hoben, Dean

Walter L. Wilson, Assistant Dean and Director of the Program

The University recognizes that a society characterized by heavy industrialization and organized activity requires increasing numbers of skilled managers and administrators. It also recognizes that the increased complexities of enterprise and organization demand of managers and administrators more exacting mastery of the business disciplines.

The Master of Business Administration program is predicated on the view that managing is a professional activity demanding a combination of conceptual, behavioral, and technical skills (technical referring to the particular methods and processes of accounting, marketing, operations systems, decisions methods, etc.). The base for developing these skills is mastery of the essentials of certain related disciplines. At the same time, professionalism in management must not ignore entrepreneurship and creative leadership. These require the ability to integrate, to synthesize, and to apply balanced judgment.

While specialization is valued and made available in the MBA program, the emphasis is on solid grounding in several fundamental disciplines. "Core courses," required of all students, provide a grasp of and insight into each segment of the "total system." The interrelationships are emphasized in each core course as well as in certain courses which are designed specifically to facilitate integration.

The basic objective of the MBA program is to enable the student to develop, integrate, and apply the following conceptual, behavioral, and technical skills necessary for effective and creative management:

1. Management Analysis and Decision Methods
2. Management Functional and Information Systems
3. Management Organizational Processes
4. Management and the Environment
5. Management Integration.

ADMISSION

The program is designed for holders of the bachelor's degree from accredited colleges or universities. The degree may be in business administration or any other field. Those whose degrees are in fields other than business administration

normally find it necessary to take graduate survey courses in accounting, economics, statistics, management, and marketing in addition to the regular 30 semester hours of graduate courses required for the degree. Those with business administration degrees normally do not need the graduate survey courses. In either case, graduate survey course requirements are determined on the basis of course deficiency in these five areas in the undergraduate program.

Applicants for admission to the Master of Business Administration program should demonstrate a readiness for graduate study, personal integrity, and aptitude for successful managerial performance. The following are carefully evaluated:

1. Undergraduate and other collegiate records as indicated by official transcripts from all universities and colleges previously attended by the applicants.
2. Results of the Graduate Management Admission Test (GMAT).
3. A review of work experience and other experiences which may be indicative of success in the program.

All applicants are required to take the Graduate Management Admission Test (GMAT). The results must be submitted along with application and transcripts, before the beginning of course work. Applications for the test are available from the Office for Graduate Studies and the School of Business Administration and must be completed and forwarded to the Educational Testing Service, Princeton, New Jersey, thirty days before the examination date.

TRANSFER OF CREDITS

A maximum of six semester hours of appropriate graduate courses earned at another approved graduate school of business may be applied toward the MBA at the University of Dayton. No graduate credit earned at either the University of Dayton or another school may be applied to the MBA if such course work was completed more than five years prior to the date of graduation.

JOINT DEGREE PROGRAM

In cooperation with the School of Law, the School of Business Administration offers a joint program leading to the simultaneous conferment of the Juris Doctor and the Master of Business Administration. See Chapter V; see also Chapter X, and consult the directors of both programs.

PROGRAM OF STUDIES

Course Work

MBA courses are grouped under three categories: Group I – prerequisite survey courses; Group II – core courses; Group III – elective courses. Before taking core and elective courses, the student should have acquired a basic knowledge in five business areas: accounting, economics, marketing, management, and statistics. Students with the undergraduate degree in business adminis-

tration normally have met all the prerequisites and may proceed immediately with Group II and III – core and elective courses.

Thirty semester hours of core and elective courses are required for the MBA degree. Where prerequisite survey courses are required because of deficiency in one or more of the five areas specified above, the total number of hours required will be accordingly greater. All MBA courses are three-semester-hour courses, with the exception of one elective, MBA 595 – Individual Research, which may vary from one to six semester hours. All graduate courses, exclusive of prerequisite surveys, must be completed within five calendar years.

Group I. Prerequisite Survey Courses: A deficiency in any one of the five areas indicated above necessitates taking the appropriate graduate survey course for that area. The graduate survey courses are as follows:

MBA 500-A	Graduate Survey in Economics
MBA 500-B	Graduate Survey in Accounting
MBA 500-C	Graduate Survey in Marketing
MBA 500-D	Graduate Survey in Management
MBA 500-E	Graduate Survey in Statistics

Whenever a student's undergraduate program is deficient in the prerequisite courses, he may satisfy this requirement by passing a proficiency test in that area. A sufficient score on the proficiency test will waive the requirement in that area. Attempting to meet these requirements through proficiency tests is normally advisable when the student has had some course work in areas related to the five prerequisite courses, but not sufficient work to warrant acceptance of those courses as fulfilling the Group I requirement.

Whenever prerequisite survey courses are required, they must be completed before proceeding to core courses. However, a student may take core courses during the term in which he is completing his last required prerequisite survey. For example, if the student has only the graduate survey in accounting to take, and he wishes to carry a six-semester-hour load, he may take one of the core courses (except the accounting core course, MBA 501) simultaneously with the last remaining survey course.

Graduate survey courses carry graduate credit. Grades received for the survey courses are computed in the student's cumulative point average for the MBA degree.

Group II. Core Courses: The core plan entails 21 semester hours of courses, prescribed as follows:

A. Five of the following six courses:

MBA 501	Managerial Accounting
MBA 510	Quantitative Methods for Business Decisions
OR	
MBA 511	Application of Management Science in Business

- MBA 520 Financial Policies of Enterprise
- MBA 530 Marketing Management
- MBA 540 Managerial Economics
- MBA 560 Operations Management

Either MBA 510 or MBA 511 may be selected for the core course in the quantitative area. MBA 510 should be selected by those whose quantitative background includes only statistics. MBA 511 should be selected by those whose quantitative background includes, in addition to statistics, some calculus – differentiation and integration. Students should consult with their advisors to determine the appropriate quantitative course. Also, students with a heavy background in accounting (normally a major or very strong minor in the undergraduate program) may be permitted to use an MBA accounting elective course in lieu of MBA 501 to satisfy the core requirement in that area.

B. *One* of the following *two* courses:

- MBA 550 Government and Business
- MBA 570 Business and Society

C. MBA 590 Business Policies and Administrative Management

This course may be taken only after the student has completed 21 semester hours of graduate courses exclusive of prerequisite surveys. This course assumes the completion of most of the core course requirements.

Group III. Elective Courses: Three elective courses are required. The student may choose from among all other MBA courses or may take extra core courses as electives. For example, he may take both MBA 550 and MBA 570 and count one as an elective. In addition to the MBA courses described in this chapter, the School of Business Administration offers a number of courses that can carry either graduate or undergraduate credit. These amplify the range of electives in management, marketing, finance, accounting, economics, and quantitative analysis. Consult with the director of the MBA program. With the permission of the director of the MBA program, students may elect courses from the college and other schools of the University when these are appropriate to their career plans.

The student should note carefully these requirements regarding sequence: Prerequisite survey courses must be completed before proceeding to core and elective courses, with the exception of combining core courses with a last remaining prerequisite survey course as explained above.

MBA 501, Managerial Accounting, should be taken before MBA 520, Financial Enterprise.

MBA 510, Quantitative Methods for Business Decisions, or MBA 511, Application of Management Science in Business, should be taken before MBA 540, Managerial Economics. This sequence requirement may be waived where the student's undergraduate quantitative background is strong.

MBA 590, Business Policies and Administrative Management, may be taken only after the completion of 21 semester hours of core and elective courses. The 21 semester hours should include at least 12 semester hours of the courses under Group II-A.

(These are the only sequence requirements. The student thus has considerable flexibility in the order in which courses are taken.)

Comprehensive Examination

Successful completion of a comprehensive examination is required for graduation. The examination covers basically the core course areas. The required areas on the comprehensive examination include the following: Managerial Accounting, Managerial Economics, Finance, Marketing Management, and Management. In each area, the scope of the examination corresponds generally with the content of the core courses.

The comprehensive examination is given once during each of the three regular terms. It is normally taken during the student's last term of course work. The student may, however, take it during the term following his last term of course work.

Individual Research

The MBA program does not require a thesis. Students who have an interest in doing the kind of intensive research and investigation usually involved in a thesis should note MBA 595, Individual Research. This course may be taken for one to six semester hours. The course may be repeated in taking the maximum six semester hours. For example, the student may do one project for three semester hours credit and a second project on another topic for another three semester hours credit. In all cases, the student contemplating taking MBA 595 must have the project approved by the course coordinator indicated by the schedule for each term. The director of the MBA program normally serves as course coordinator for MBA 595. Approval is obtained by first completing a project proposal form available in the MBA office or from MBA faculty members and arranging for a meeting with the course coordinator to discuss the proposed project. Approval for the MBA 595 project must be obtained before registering for the course. It is advisable for the student to obtain approval during the term preceding that in which he plans to register for the course.

COURSES OF INSTRUCTION

MBA 500A. GRADUATE SURVEY IN ECONOMICS: Basic economics principles and their application. Consumer behavior, production theory, and the interaction of buyers and sellers in various kinds of markets; national income, monetary policy, fiscal policy, and the economic role of the government in the United States. *3 sem. hrs.*

MBA 500B. GRADUATE SURVEY IN ACCOUNTING: The basic principles and concepts of accounting and of financial statements, with emphasis on understanding accounting terminology and the reasons for accounting conventions and practices; introduction to management uses of accounting data and reports. *3 sem. hrs.*

MBA 500C. GRADUATE SURVEY IN MARKETING: Development of a framework within which the marketing process can be critically examined, including analysis of the societal and legal constraints on the marketing process. Introduction to a variety of concepts associated with the macro character of marketing including consumption systems, distribution systems, promotional activities, product development, and pricing. *3 sem. hrs.*

MBA 500D. GRADUATE SURVEY IN MANAGEMENT: Interrelationship of various management functions; planning, organizing, directing, staffing, and controlling; principles of general and production management and management of international operations. Introduction to the various schools of management (scientific, classical, and behavioral), classical and modern organizational theories, and the elements of decision making. *3 sem. hrs.*

MBA 500E. GRADUATE SURVEY IN STATISTICS: Applied statistics. Measures of central tendency and dispersion, frequency distributions, probability, sampling, hypothesis testing, and simple correlation; introduction to regression analysis. *3 sem. hrs.*

MBA 501. MANAGERIAL ACCOUNTING: Practical emphasis on the accountant's role in business measurement techniques, communication, prediction, and decision making based on accounting information. *3 sem. hrs.*

MBA 503. INFORMATION SYSTEMS: Latest concepts, methods, and developments in information systems emphasizing the implementation of office automation; the business survey, selection of methods, designing the system, and preparing the report; the problems of communication with technical staff specialists. Prerequisite: MBA 501. *3 sem. hrs.*

MBA 504. TAX FACTORS IN BUSINESS DECISIONS: An organized review of the provisions of the Federal Income Tax Code and tax laws on business decisions, including selection of the legal form of the business entity, corporate reorganization, acquisitions, mergers, employee compensation and benefits, alternative methods of capital gains and ordinary income, and interactions of income, estate, and gift taxes. Prerequisite: MBA 501. *3 sem. hrs.*

MBA 505. CONTEMPORARY ACCOUNTING ISSUES: Seminar covering important or controversial issues for the student who has a strong accounting background. The business and financial situations which underlie accounting problems and controversies; alternative accounting techniques which are accepted or proposed; the consequences of various accounting practices. *3 sem. hrs.*

MBA 510. QUANTITATIVE METHODS OF BUSINESS DECISIONS: Development and application of quantitative models such as linear programming, Markov, queuing, inventory in the field of management, marketing and production, and finance. Prerequisite: MBA 500E or equivalent. *3 sem. hrs.*

MBA 511. APPLICATION OF MANAGEMENT SCIENCE IN BUSINESS: Integrated application of quantitative and qualitative concepts and models of management science such as decision theory, linear programming, Pert, and queuing theory to business decision making in capital budgeting, quality control, systems and subsystems, and related areas. Prerequisite: MBA 510 or permission of instructor. *3 sem. hrs.*

MBA 520. FINANCIAL POLICIES OF ENTERPRISES: Study of finance with emphasis on the financial policies and problems of business, especially within the corporation. Consideration to institutions and other investors as supplying funds for enterprise. Prerequisite: MBA 501. *3 sem. hrs.*

MBA 521. PROBLEMS OF FINANCE: Application of principles of finance to selected problems. Topics vary; e.g., the emphasis may be on investments, financial institutions, or financing expansion. May be taken more than once when topics change. Prerequisite: MBA 520. *3 sem. hrs.*

MBA 530. MARKETING MANAGEMENT: Examination of concepts, theories, facts, and analytical procedures associated with marketing management. Market analysis: consumer behavior, competitor analysis, marketing information systems, marketing research, and demand forecasting; marketing strategy: product, distribution, promotion, and pricing decisions. *3 sem. hrs.*

MBA 533. SEMINAR IN MARKET ANALYSIS: For the decision maker who wants to be aware of available market analysis procedures and forecasting techniques. Topics include how to perform a market analysis; how to obtain the information necessary for the market analysis; the major forecasting techniques and their applications to typical management decisions. Prerequisite: MBA 530. *3 sem. hrs.*

MBA 534. SEMINAR IN MARKETING STRATEGY: Formulating and implementing marketing strategy. The problem of deciding what kind of business to be in and of translating the decision into marketing plans and program for action. An analytic approach to strategic marketing decisions applied to practical examples of problems that firms now face and will face given current trends. Prerequisite: MBA 530. *3 sem. hrs.*

MBA 540. MANAGERIAL ECONOMICS: Examination of the scope and method of managerial methods in demand analysis, forecasting demand, short-run cost analysis; long-run costs and production functions; pricing, selected topics in pricing; risk and uncertainty. Analysis of macroeconomic trends and their impact on the firm. Prerequisites: MBA 500 A or equivalent and MBA 510 or 511. *3 sem. hrs.*

MBA 541. LABOR RELATIONS AND LABOR ECONOMICS: Collective bargaining, wage determination, structure and operation of labor markets, direction of the labor movement, theories of industrial peace and conflict; current problems and trends in labor relations. *3 sem. hrs.*

MBA 545. NATIONAL ECONOMIC POLICY AND FORECASTING: The general economic environment in which a business firm operates. The movement and interrelationships of economic aggregates such as employment, prices, income, and the money supply. Contemporary policy issues that affect the business community: stagflation, cost-push inflation, monetary vs. fiscal policy, wage and price controls and structural unemployment. Prerequisites: Principles of Economics or MBA 500A. *3 sem. hrs.*

MBA 550. GOVERNMENT AND BUSINESS: Analysis of the economic aspects and consequences of government regulations over social and business activities; a study of government and business relations. *3 sem. hrs.*

MBA 560. OPERATIONS MANAGEMENT: Analysis of the principles of organization and management; theory of organization and principles of planning, directing and controlling product development, plant layout and location, equipment, inventory, and production standards. *3 sem. hrs.*

MBA 570. BUSINESS AND SOCIETY: Business as a private and quasi-public institution between community and society with definite functions of its own as well as those which foster the dignity of man and the interests of the common good. *3 sem. hrs.*

MBA 580. ORGANIZATION THEORY: Analysis of the parts of an organization and the processes which connect and integrate them into a functioning entity in pursuit of maximum growth, stability, and ultimately survival. Emphasis on modern organization theory. Extensive reading, exploratory research, and seminar discussion. *3 sem. hrs.*

MBA 584. MULTI-NATIONAL BUSINESS POLICY: Changes in the structure, organization, and policies of multi-national business firms and international trade in general. Their implications relative to the composition of exports, international marketing processes, terms of trade, and determinants of payments and exchange-rate movements. *3 sem. hrs.*

MBA 585. ORGANIZATIONAL SYSTEMS: The application of systems theory to the operation of governmental, business, and educational organizations. Conventional theories related to the systems approach to an understanding of organizations. *3 sem. hrs.*

MBA 586. INTERPERSONAL DYNAMICS IN ORGANIZATIONS: The nature, various types, formation, and characteristics of groups; the interaction within an organization — communication networks, division of labor, hierarchy, and their influence on communication; organizational factors (e.g. structure and goals) that influence interpersonal and superior-subordinate relationships; the behavioral implications of decision making at various levels of organization. Lectures, outside reading, research, cases, and simulation exercises.

3 sem. hrs.

MBA 587. ORGANIZATIONAL BEHAVIOR: Individual behavior and interrelationships in the organizational setting and management's practices to promote organizational effectiveness. Basic psychological concepts such as perception, motivation, leadership, and organizational climate; the application of various organizational development techniques for individual growth and the accomplishment of the organizational goal. Lectures, reading, cases, consulting techniques, problem-solving sessions through simulation methods, and guest speakers.

3 sem. hrs.

MBA 588. SEMINAR IN CURRENT ORGANIZATIONAL BEHAVIOR TOPICS: Reading, analysis, and interpretation of research studies as applied to management. Problem areas such as interpersonal conflict resolution, resistance to change, managerial development, organizational growth, effects of size and technology, emergence of new control systems. Role playing, small group exercises, sensitivity training, attitudinal opinion survey, and simulations.

3 sem. hrs.

MBA 589. PLANNING FOR PURPOSEFUL ORGANIZATIONS: The design and use of formal systems for comprehensive long-range planning and in large organizations — both profit and nonprofit. Focus is not on the substance of management's decisions but on the decision-making process and the design of a formal planning system for improving that process.

3 sem. hrs.

MBA 590. BUSINESS POLICIES AND ADMINISTRATIVE MANAGEMENT: The correlation of theory and practice in the development of business policies. Emphasis on the problems of executive management, decision making, and administrative action. Required of all students.

3 sem. hrs.

MBA 595. INDIVIDUAL RESEARCH: Individual research and study in subjects encompassed by the MBA curriculum under the guidance and direction of faculty. Meetings arranged for presentation and discussion of individual research projects.

1-6 sem. hrs.

VIII School of Education

Ellis A. Joseph, Dean

The general objectives of the School of Education coincide with the purposes of the University. Accepting the Christian world-view as its distinctive orientation and seeking to foster principles and values consonant with a caring attitude, the School assists in carrying out the four essential tasks of the University: teaching, research, serving as a critic of society, and rendering public service. The particular objective of the School of Education is to develop those special capabilities of students which enable them to become effective practitioners in the field of professional education.

The Education programs leading to the master's degree are designed primarily to meet the following purposes:

1. To develop advanced proficiency in elementary and secondary school teachers who have completed recognized baccalaureate teacher education programs.
2. To enable teachers with at least three years' successful teaching experience to qualify for certification as principals, supervisors, executive heads, or local superintendents.
3. To prepare qualified school counselors, school psychologists, and counselors for social agencies.
4. To develop personnel for student services in higher education.
5. To prepare educational research specialists.
6. To enable students with nonprofessional baccalaureate degrees and above-average academic records to gain teacher certification on the secondary level.

The Master of Science in Education is the degree to which most of the graduate programs lead. The Master of Science in Teaching is also offered. The awarding of these degrees means that the candidates have completed programs of graduate work designed to give them the following characteristics:

1. Broader knowledge of an advanced nature of the tested psychological and philosophical theories of education.
2. Essential understandings and skills necessary for intelligent consumption of educational research.
3. More extensive knowledge and skill involved in teaching, or in school counseling, or in school administration.
4. Ability to contribute toward the improvement of school conditions and / or professional practice through consumer research.

The University of Dayton has traditionally given special consideration to those training for the education professions. In the spirit of this tradition, the Graduate School of Education changed from the semester-hour to the quarter-hour credit unit effective June 17, 1974. The quarter-hour credit system, within a trimester

calendar, permits professionally employed graduate students to begin and to finish courses and other program work at times and dates congruent with those of their other responsibilities. Students are encouraged to consult program directors and course schedules each term for details.

AUTHORIZATION

The University of Dayton's offerings in graduate work leading to the Master of Science in Education have the official approval of the State of Ohio Department of Education, of the North Central Association of Colleges and Secondary Schools, and of the National Council for the Accreditation of Teacher Education.

The programs in School Counseling, in School Psychology, in School Administration, and in Educational Research lead to Provisional Certification by the State of Ohio.

The Master Teacher programs may lead to Eight-Year Professional Certification or to Permanent Certification depending on the years of successful teaching performed under the previous provisional certificate held.

ADMISSION

General Requirements

The School of Education accepts into its graduate programs applicants who can present undergraduate records showing them capable of meeting the standards of graduate work. An applicant (1) must hold a teacher's certificate on a bachelor's degree from an accredited institution (at least state accreditation), unless specific exceptions are granted by the dean of the School of Education; and (2) must have attained an undergraduate quality-point average of at least 2.5 of a possible 4.0. An exception to the latter requirement may be made if the department in which the applicant seeks enrollment recommends it and if the recommendation is endorsed by the School's graduate review board. If the exception is granted, the applicant will be placed on conditional status, pending the successful completion of approximately 15 to 18 graduate quarter hours. All applicants must submit references from qualified professionals in appropriate fields.

An applicant who is not a graduate of the University of Dayton must submit complete official transcripts of all previous college studies. These transcripts should be sent directly to the Dean, School of Education, from the degree-granting institution.

Admission to graduate study on regular, special, or conditional status does not imply admission to candidacy for a degree.

Special Requirements: School Psychologist

Besides meeting the above requirements, an applicant for the School Psychologist Program must receive a favorable recommendation from the Department of Counselor Education and Human Services. In deciding whether or not to

make such a recommendation to the admissions committee, the staff will take into account the applicant's physical and mental health, personality adjustment as determined by appropriate tests, and general character as determined by reference appraisals solicited from former professors and employers.

Special Requirements: Master of Science in Teaching

Option three of this program leading to the Master of Science in Teaching is restricted to the student who (1) holds a nonprofessional bachelor's degree; (2) has earned the degree within a period of ten years prior to application to the program; (3) has an undergraduate cumulative point average of 2.5 or higher (on a 4.0 scale); (4) desires certification to teach in secondary school; (5) has a major teaching field which can be serviced by graduate courses offered at the University of Dayton. (Students who desire high school certification but cannot meet these requirements may take Program E-9 on the undergraduate level. See the Undergraduate Issue of this Bulletin.)

MASTER'S DEGREE PROGRAMS

Advisement

The graduate student has access to three sources for official advisement:

1. The Office of the Dean of the School of Education serves as an initial advisory source for students regardless of the program they are following.
2. The chairmen of the departments or the coordinators of the programs act as special advisors to students enrolled in programs under their jurisdiction. They counsel them with regard to their professional objectives, their selection of courses, and the options that are available in their programs. In the case of specialized programs within the department they may delegate these functions to the program directors. The student is urged to confer with his chairman and / or director in the first term of enrollment.
3. The project or internship advisor, chosen by mutual agreement of the student, the department chairman, and the prospective advisor, guides the student to the successful completion of the research project or the approved internship.

Candidacy

A student becomes a candidate for the master's degree in Education if his cumulative point average for graduate work, the preliminary plan for his research project or the approved plan for his internship experiences, and his reference appraisals are judged to be acceptable by the graduate committee of the School of Education.

The most important consideration in the admission of a student to candidacy is the graduate work to date. He must give evidence of being able to meet all the graduation requirements. Applicants who are deemed unqualified at this point will be advised to discontinue their programs.

Students should apply for admission to candidacy after the completion of approximately 20 quarter hours of graduate work, including at least two courses

in the area of concentration and EDF 503, Research Methodology and Statistics, or EDA 513, Evaluation of Educational and Organizational Systems. Application is made by filing the official candidacy form with the dean. The applicant should be sure that all the required credentials are in order and that the preliminary plan for the research project or the approved plan for the internship experiences is ready for evaluation.

The applicant with a concentration in Administration must ordinarily present evidence of at least three years of successful teaching and recommendations to the program from administrators in positions to judge his potential for educational leadership.

A student following Plan C in the School Counseling program should apply for candidacy upon completion of approximately 30 quarter hours. Approval of the plan for the research paper is required.

Academic Standing

In order to qualify for graduation, a student must achieve an average of at least 3.0 (B) in all work undertaken toward the degree.

Research Project or Internship Report

At least ten days before graduation, the student must submit, according to the requirements of the specific program, three acceptable copies of the research project and two copies of an abstract of the project; OR one acceptable copy of a formal report on the internship experiences; OR, in the case of Plan C in the School Counseling program, one copy of the research paper.

Departmental Conference

During the final term preceding graduation, the student must participate in a formal "Departmental Conference" as arranged by the appropriate departmental chairman.

JOINT PROGRAMS

The Schools of Education and Law offer mature students the opportunity to earn the Master of Science in Education and the Juris Doctor in three to three and one half calendar years. Prospective students must satisfy admission requirements for graduate work in the School of Education and for acceptance in the School of Law. See also Chapters V and X.

COUNSELOR EDUCATION AND HUMAN SERVICES (EDC)

Eugene K. Moulin, Chairman of the Department

The purpose of the Department of Counselor Education and Human Services is to prepare elementary school counselors, secondary school counselors, student service personnel in higher education, school psychologists, visiting teachers, directors of pupil personnel services, guidance supervisors for state, county and local systems, and counselors for community and other agency settings.

Courses in counseling, personality, and vocational theories; principles and techniques of pupil services; individual and group counseling; psychometrics; individual personality evaluation; educational, occupational and social information; community resources; test administration and interpretation; organization, administration and program development of pupil and student services; evaluation of educational and organizational systems; and research methodology and statistics are applicable to departmental emphases. In addition, selected courses in behavioral and social science and other related disciplines lead to provisional certification as a school counselor, visiting teacher, and school psychologist by the various state departments of education.

The ultimate goal of the graduate program is to develop fully functioning human service specialists capable of implementing a role consistent with the philosophy reflected in their training. Essentially, this role is to assist children, youth, and adults from varying socio-economic backgrounds in reaching their full academic and personal development in various educational and organizational settings. This ultimate goal is met by attending to three sets of activities: (1) those which build skills and develop understandings relative to the role of the various human service specialists in assisting children, youth, and adults from varying socio-economic backgrounds; (2) those which develop a method for conceptualizing the settings in which these skills are to be implemented; and (3) those which allow the graduate student to test and develop capacities for implementing these skills in practicum and internship experiences within new kinds of co-operating school and community agencies.

1. Toward the first end the students are assisted in developing skills in counseling. They learn to conduct group process sessions with clients of various ages and learn when and how to utilize consultative services within educational and organizational settings as well as those social services available to children, youth, and their parents living in an urban setting. They are assisted in developing competencies related to their specializations.

Graduate students are assisted in integrating essential understandings out of which these skills and techniques can continue to develop beyond their formal training. These understandings include those associated with the impact of family, poverty, and institutions on child and adolescent development, the nature

of the learning process, the impact of the specific learning setting upon learning efficiency and upon the total development of students from varying backgrounds, and thus the potential impact of the human service specialist on students, parents, teachers, administrators, and other professionals. Toward this end, the department provides opportunity for activities to clarify the values, increase the self awareness, and improve the interpersonal skills of the graduate student.

2. A second set of activities is directed toward assisting the graduate student to develop skills in examining school, community, government, and other institutional settings and in building models of those settings with particular emphasis upon factors significantly affecting children, youth, teachers, administrators, and other professionals. In brief, he formulates perceptions of the complex institutional structure within which he will function as a human service specialist and in which he will utilize his skills.

3. Toward the third end, the graduate student is provided the opportunity to test and further refine in an institutional setting his style of implementing skills gained in the course of didactics and specifically planned practica and internships. The unique perceptions and applications of techniques of the graduate student are the concern of this process. His own style of implementation will be the focus of these activities, and through individualized supervision his own system of performing many diverse professional duties will be tested and developed. The result of this phase will be to provide the graduate student a realistic experience in developing his ability to implement his skills in situations he will most likely encounter during his professional career.



INSTRUCTIONAL AND LABORATORY FACILITIES

Excellent facilities serve the instructional, conference, practicum, and internship needs of the graduate program in human services. The space assigned includes classrooms with adjacent group conference rooms, audio-visual rooms, an administration and clerical area, faculty offices, and graduate student facilities. The facilities of the department are continually available to serve observation and supervision practicum needs in counseling and testing. Eight observation rooms are equipped with one-way vision mirrors and sound recording instruments with a central console, making possible any desirable listening or recording combination. Audio-visual equipment is utilized in imaginative approaches in courses, practica and internships. A guidance materials center, adjacent to the counseling suite, contains educational and occupational information and a specimen set of standardized tests. All of the student service facilities of the University of Dayton, Sinclair Community College, Afro-American Studies Center, Model Cities Educational Center, Montgomery County Joint Vocational School, Vandalia Butler City Schools, and numerous other elementary and secondary schools and community and social agencies are available resources.

PROGRAM REQUIREMENTS

There are three plans for fulfilling the requirements of the Master of Science in Education in the Department of Counselor Education and Human Services:

Plan A: 45 quarter hours; Research Project

Plan B: 45 quarter hours ; Internship course

Plan C: 54 quarter hours; Paper, Research Methodology course

SCHOOL COUNSELOR

<i>Core Courses</i>	<i>Quarter Hours</i>
EDF 502 Advanced Philosophy of Education.....	4
EDF 503 Research Methodology and Statistics (Required Plan A)	4
OR	
EDA 513 Evaluation of Educational and Organizational Systems	4

Concentration Courses

One or more courses from each of the following seven areas (Minimum of 36 quarter hours):

1. Guidance

EDC 522 Principles and Techniques of Guidance.....	3
EDC 539 Administration of Pupil Personnel Services.....	3
EDC 580 Guidance in the Elementary School	3

2. Human Development

EDC 530 Psychology of Individual Differences	4
EDC 531 Dynamics of Personality	4
EDC 532 Learning Disabilities	4
EDF 501 Advanced Psychology of Learning.....	4

EDF 504	Advanced Child and Adolescent Psychology.....	4
3. Individual and Group Appraisal		
EDC 533	Psychometrics	3
EDC 534	Individual Psychological Evaluation of Exceptional Children.....	3
EDC 535	Practicum 1: Test Interpretations and Case Studies	3
4. Counseling		
EDC 543	Counseling Theories	4
EDC 581	Counseling in the Elementary School	4
5. Group Methods		
EDC 583	Group Process.....	4
6. Guidance Information		
EDC 524	Educational and Occupational Information.....	3
EDC 525	Use of Community Resources.....	3
EDC 528	Career Education	3
7. Practicum		
EDC 545	Practicum in Counseling Techniques	4
<i>Other Work</i>		
EDI 591	Research Project (Plan A).....	4
EDC 599	Internship in Pupil Personnel Services (Plan B).....	4
— —	Electives (Plan C)	
EDC 574	Independent Studies in Pupil Personnel Services	1-6

VISITING TEACHER

<i>Core Courses</i>	<i>Quarter Hours</i>	
EDF 502	Advanced Philosophy of Education.....	4
EDF 503	Research Methodology and Statistics.....	4
OR		
EDA 513	Evaluation of Educational and Organizational Systems.....	4

Concentration Courses

One or more courses from each of the following seven areas (minimum of 36 quarter hours):

1. Human Growth and Development		
EDC 531	Dynamics of Personality	4
EDF 504	Advanced Child and Adolescent Psychology.....	4
2. Psychology of Exceptional Children		
EDC 530	Psychology of Individual Differences	4
EDC 532	Learning Disabilities	4
3. Educational Psychology		
EDF 501	Advanced Psychology of Learning.....	4
4. Testing and Measurement		
EDC 533	Psychometrics	3
EDC 534	Individual Psychological Evaluation of Exceptional Children.....	3
EDC 535	Practicum 1: Test Interpretations and Case Studies	3

5. Pupil Personnel Services

EDC 522	Principles and Techniques of Guidance.....	3
EDC 539	Organization and Administration of Pupil Personnel Services	3

6. Counseling Principles

EDC 543	Counseling Theories	4
EDC 581	Counseling in the Elementary School	4

7. Ohio School Law, Family Counseling, Community Organizations, or Juvenile Delinquency

EDA 515	School Law	4
EDF 518	Cultural Foundations: School and the Social Order.....	4
EDC 525	Use of Community Resources	3

Other Work

EDC 545	Practicum in Counseling Techniques	4
EDC 599	Internship in Pupil Personnel Services (Plan B).....	4
—	Electives (Plan C)	
EDC 574	Independent Studies in Pupil Personnel Services	1-6

COLLEGE SERVICE PERSONNEL

General Requirements: 45 quarter hours; research study during internship.

<i>Core Courses</i>	<i>Quarter Hours</i>	
EDF 502	Advanced Philosophy of Education.....	4
EDF 503	Research Methodology and Statistics.....	4
EDF 504	Advanced Child and Adolescent Psychology.....	4
OR		
EDC 531	Dynamics of Personality	4

Concentration Courses

EDC 533	Psychometrics	3
EDC 543	Counseling Theories	4
EDC 545	Practicum II: Counseling Techniques	4
EDC 551	Student Personnel Services in Higher Education.....	3
EDC 552	Seminar: College Personnel Service Problems.....	2
EDC 553	Internship in College Personnel Service	9
EDC 583	Group Process.....	4
EDF 550	History of Higher Education in the United States.....	4

SOCIAL AGENCIES COUNSELOR

General Requirements: 45 quarter hours; report, internship course.

<i>Core Courses</i>	<i>Quarter Hours</i>	
EDF 502	Advanced Philosophy of Education.....	4
EDF 503	Research Methodology and Statistics.....	4
OR		
EDA 513	Evaluation of Educational and Organizational Systems	4

Concentration Courses

EDC 524	Educational and Occupational Information.....	3
OR		
EDC 525	Use of Community Resources	3
EDC 543	Counseling Theories	4
EDC 545	Practicum in Counseling Techniques	4
EDC 599	Internship in Pupil Personnel Services.....	4
EDC 574	Independent Studies in Pupil Personnel Services.....	4
EDC 583	Group Process.....	4

Electives

EDC 530	Psychology of Individual Differences	4
EDC 531	Dynamics of Personality	4
EDC 532	Learning Disabilities	4
EDC 533	Psychometrics	3
EDC 534	Individual Psychological Evaluation of Exceptional Children.....	3
EDC 535	Practicum I: Test Interpretations and Case Studies.....	3
EDF 501	Advanced Psychology of Learning.....	4
EDF 504	Advanced Child and Adolescent Psychology.....	4
EDA 515	School Law	4
EDF 518	Cultural Foundations: School and the Social Order.....	4

SCHOOL PSYCHOLOGIST

Core Courses

Quarter Hours

EDF 502	Advanced Philosophy of Education.....	4
EDF 504	Advanced Child and Adolescent Psychology.....	4
EDF 593	Interpretation of Statistics and Research.....	4

Concentration Courses

EDC 531	Dynamics of Personality	4
EDC 532	Learning Disabilities	4
EDC 533	Psychometrics	3
EDC 534	Individual Psychological Evaluation of Exceptional Children	3
EDC 543	Counseling Theories	4
OR		
EDC 581	Counseling in the Elementary School	4
EDC 545	Practicum II: Counseling Techniques	4
EDC 572	The School Psychologist: Role and Function	3
EDC 576	Child and Adolescent Personality Evaluation I.....	4
EDC 577	Child and Adolescent Personality Evaluation II	4
EDF 501	Advanced Psychology of Learning.....	4
EDC 594-595	Internship (for those wanting certification in Ohio).....	16

Upon successful completion of the above program the student will be awarded the master's degree. For those students who prefer to obtain the master's degree before the internship, the following courses are required:

EDF 590	Research Design	4
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EDI 591 Research Project 4

Students from outside Ohio are responsible for initiating and completing the internships and certification requirements of their respective states.

COURSES OF INSTRUCTION

EDC 522. PRINCIPLES AND TECHNIQUES OF GUIDANCE: Introduction to the scope, aims, and techniques of guidance; introductory treatment of the basic guidance services and how the counselor and the teacher can make efficient use of them. *3 qtr. hrs.*

EDC 524. EDUCATIONAL AND OCCUPATIONAL INFORMATION: Selection, utilization, and evaluation of educational and occupational information materials; familiarization with standard labor market data, current requirements for admission into college curricula, and available sources of placement; printed and personal reference sources in these fields. *3 qtr. hrs.*

EDC 525. USE OF COMMUNITY RESOURCES IN GUIDANCE: Familiarization with availability of services in appraisal, guidance; local information and placement (methods of procedure and cooperation with medical, pastoral, social welfare, mental, educational, industrial, labor, commercial, governmental, and recreational agencies). *3 qtr. hrs.*

EDC 528. CAREER EDUCATION: Assistance for teachers, counselors, administrators and social agency personnel in improving their career education functions through a coordinated and concerted effort of occupational guidance integrated within the total elementary and secondary school curriculum; and in increasing their educational vocational self awareness and value clarity as they are related to career development. *3 qtr. hrs.*

EDC 530. PSYCHOLOGY OF INDIVIDUAL DIFFERENCES: Nature, extent, and significance of variability; hereditary and cultural influences; theories of intelligence; trait organization; group differences. *4 qtr. hrs.*

EDC 531. DYNAMICS OF PERSONALITY: Personality theory and abnormal psychology are discussed with emphasis on dynamics of personal behavior. *4 qtr. hrs.*

EDC 532. LEARNING DISABILITIES: Etiological, diagnostic, theoretical, and remedial factors and practical application to learning disabilities. *4 qtr. hrs.*

EDC 533. PSYCHOMETRICS: Lectures and demonstrations in the principles and application of psychological measurement, with emphasis on standardized group tests of intelligence and scholastic achievement, interest tests, personality tests, etc. Practicum in test selection, use, and interpretation. *3 qtr. hrs.*

EDC 534. INDIVIDUAL PSYCHOLOGICAL EVALUATION OF EXCEPTIONAL CHILDREN: The implications of individual developmental and psychological evaluation of exceptional children for classroom management, instructional materials, and teaching methodology. Laboratory experience in administering the Illinois Test of Psycholinguistic Abilities and the Gesell Developmental Scale. Direct application to teaching children experiencing developmental immaturity or learning disabilities. Principally for counselors, school psychologists, and teachers. *3 qtr. hrs.*

EDC 535. PRACTICUM I: TEST INTERPRETATIONS AND CASE STUDIES: Supervised experiences in typical school guidance policies and practices, to include vocational guidance, educational guidance and curriculum structures, cumulative folder, test and profile interpretations. *3 qtr. hrs.*

EDC 536W. CONFLICT IN THE CLASSROOM: THE EDUCATION OF CHILDREN WITH PROBLEMS: Workshop to assist teachers, counselors, and administrators to understand more fully and to improve their function as educators of "children in conflict." Consulting specialists work with participants to explore techniques, approaches, and school and community programs which respond to the academic and personal needs of children with problems. 2 qtr. hrs.

EDC 539. ADMINISTRATION OF PUPIL PERSONNEL SERVICES: The effective planning, developing, and administering of a totally balanced and co-ordinated program of pupil personnel services. 3 qtr. hrs.

EDC 543. COUNSELING THEORIES: Development of skills in counseling through an analysis of five models (relationship, behavioral, social-psychological, reality model, and rational-cognitive) for the behavior change process. An integrated approach for modifying the behavior of children and adults through individual and system change. 4 qtr. hrs.

EDC 545. PRACTICUM II: COUNSELING TECHNIQUES: Supervised experience in counseling, using role-playing and actual counseling cases. Both group and individualized instruction and supervision. Prerequisites: EDC 524, 533, 543. 4 qtr. hrs.

EDC 551. PERSONNEL SERVICES IN HIGHER EDUCATION: A study of personnel services in higher education; development and principles, theory and practice of administration, trends and research. 3 qtr. hrs.

EDC 552. SEMINAR: COLLEGE PERSONNEL SERVICE PROBLEMS: Problems encountered during the internship and present-day problems of campus life. This course is integrated with the internship in College Personnel Service. 2 qtr. hrs.

EDC 553. INTERNSHIP IN COLLEGE PERSONNEL SERVICES: A three-trimester experience in three college personnel services under the instruction and supervision of staff members of the same services working closely with the coordinator of College Personnel Work. Given in blocks of 3 quarter hours each over three terms. 9 qtr. hrs.

EDC 572. THE SCHOOL PSYCHOLOGIST: ROLE AND FUNCTION: Topics of current significance in the profession of school psychology, with emphasis on ethics, inter-personal relationships in the school and community, research methodology, and current practices in the field. 3 qtr. hrs.

EDC 573. OBSERVATION AND PARTICIPATION IN THE SCHOOL PROCESS: Directed observation of and participation in the usual school process under supervision within the school. Required of all school psychologist candidates who do not have teaching certificates. 6 qtr. hrs.

EDC 574. INDEPENDENT STUDIES IN PUPIL PERSONNEL SERVICES: Independent study undertaken with permission of the chairman. 1-6 qtr. hrs.

EDC 576. CHILD AND ADOLESCENT PERSONALITY EVALUATION I: Evaluation and interpretation of intelligence tests. Intensive experience in administering the Wechsler tests, Standard-Binet test, and individual achievement tests. (Course limited to those students in Psychology programs.) 4 qtr. hrs.

EDC 577. CHILD AND ADOLESCENT PERSONALITY EVALUATION II: Evaluation and interpretation of projective tests. Instruction in the administration and use of the Rorschach, Bender Gestalt, TAT, and such other tests commonly used by the psychologist. Laboratory experience. (Course limited to those students in Psychology programs.) 4 qtr. hrs.

EDC 580. GUIDANCE IN THE ELEMENTARY SCHOOL: A study of the most important concepts and techniques of guidance, with emphasis on the functions and responsibilities of the elementary teacher and counselor. *3 qtr. hrs.*

EDC 581. COUNSELING IN THE ELEMENTARY SCHOOL: An introduction to the principles and techniques of counseling elementary school children *4 qtr. hrs.*

EDC 583. GROUP PROCESS: This course has two purposes: to enable the counselor to work effectively with groups; and to achieve deeper counselor self-understanding, through participation in the group process. (One fourth of class time is devoted to lectures and three fourths to participation.) *4 qtr. hrs.*

EDC 594-595. INTERNSHIP FOR SCHOOL PSYCHOLOGISTS: A job-related program for nine months under the immediate supervision of a trained school psychologist. The internist will receive a stipend, made available from the State of Ohio Foundation funds. *16 qtr. hrs.*

EDC 599. INTERNSHIP EXPERIENCES IN PUPIL PERSONNEL SERVICES: Extensive directed experience in professional functions within new kinds of cooperating schools and community organizations. May be repeated three times. Prerequisite: permission, Chairman of Department of Counselor Education and Human Services. *4 qtr. hrs.*

EDI 591. RESEARCH PROJECT: Action research initiated after consultation with advisor. Systematic study of a specific problem. Prerequisite: EDF 503, Research Methodology and Statistics, and approval of Preliminary Plan. *4 qtr. hrs.*



EDUCATIONAL ADMINISTRATION (EDA)

John R. O'Donnell, Chairman of the Department

The Department of Educational Administration offers programs which lead to the Master of Science in Education and / or certification as principal, supervisor, executive head, and local superintendent. Programs are geared to meet the requirements of the State of Ohio and the needs of individual graduate students.

All students must complete 45 quarter hours for the master's degree and participate in the Departmental Conference. Requirements for the degree include the following offerings.

<i>Core Courses</i> (12 quarter hours):	<i>Quarter Hours</i>
EDF 502 Advanced Philosophy of Education.....	4
EDF 501 Advanced Psychology of Learning.....	4
OR	
EDF 504 Advanced Child and Adolescent Psychology.....	4
OR	
EDC 530 Psychology of Individual Differences	4
EDF 503 Research Methodology and Statistics.....	4
OR	
EDA 513 Evaluation of Educational and Organizational Systems.....	4
<i>Area Concentration</i> (23 quarter hours):	
EDA 506 School Administration.....	4
EDA 507 Planned Field Experience	4
EDA 509 School Supervision.....	4
EDA 511 Elementary School Curriculum	4
EDA 512 Secondary School Curriculum.....	4
EDC 522 Principles and Techniques of Guidance.....	3
<i>Electives</i> (10 quarter hours):	
EDA 514 Individual Study in Administration	1-3
EDA 515 School Law	4
EDA 516 School Plant.....	4
EDA 517 School Finance.....	4
EDA 521 School Public Relations	4
EDA 526 Educational Staff Personnel Administration.....	4
EDC 532 Learning Disabilities	4
EDC 583 Group Process.....	4
EDA 585 Organizational Systems.....	4
EDI 591 Research Project	4

Other electives may be taken in the Departments of Counselor Education and Human Services, Foundations of Education, Elementary Education, Secondary Education, and Physical Education or other departments of the University with the chairman's permission.

COURSES OF INSTRUCTION

EDA 506. SCHOOL ADMINISTRATION: General principles governing the administrative functions of planning, organizing, and controlling. Applications in the administration of both elementary and secondary schools. *4 qtr. hrs.*

EDA 507. PLANNED FIELD EXPERIENCE: Internship to give educational administration majors opportunities to associate with people in various administrative positions in both public and parochial school systems for the purpose of becoming aware of on-the-job problems, duties, responsibilities, and challenges. The student develops a planned series of experiences with the assistance of an advisor and submits written evaluations for each experience. Prerequisite: advisor's approval. *4 qtr. hrs.*

EDA 509. SCHOOL SUPERVISION: Planning, organizing and administering instructional supervision in public and private (parochial) school systems. Field observation required. *4 qtr. hrs.*

EDA 511. ELEMENTARY SCHOOL CURRICULUM: A fundamental course in curriculum development to prepare the student for effective participation in cooperative efforts to improve the curriculum. Attention to curriculum issues and to desirable instructional practices in the major areas of curriculum. *4 qtr. hrs.*

EDA 512. SECONDARY SCHOOL CURRICULUM: A fundamental course in curriculum development to prepare the student for effective participation in cooperative efforts to improve the curriculum. Attention to curriculum issues and to desirable instructional practices in the major curriculum areas. *4 qtr. hrs.*

EDA 513. EVALUATION OF EDUCATIONAL AND ORGANIZATIONAL SYSTEMS: Criteria for selecting and assessing sources of educational information. Supervised experience in finding, interpreting, and evaluating information needed to make appropriate decisions. Specific attention to evaluation of programs, preparation of proposals, and techniques for using evaluation to promote change. *4 qtr. hrs.*

EDA 514. INDIVIDUAL STUDY IN ADMINISTRATION: Opportunity to study a problem which has relevance to one's own specific educational position. Extent of the study and requirements in the course will be related to the credit requested by the student. *1-3 qtr. hrs.*

EDA 515. SCHOOL LAW: Problems in school administration which may give rise to court action. *4 qtr. hrs.*

EDA 516. SCHOOL PLANT: Types of school facilities, considerations in working with architects, remodeling and new construction, site selection, government financing, space utilization, and other aspects of the educational plant. *4 qtr. hrs.*

EDA 517. SCHOOL FINANCE: Principles of school finance, technical problems of budgeting, source of income, purchasing, accounting, and debt service. For school administrators. *4 qtr. hrs.*

EDA 521. SCHOOL PUBLIC RELATIONS: Philosophy and techniques of school-community relations for educational leaders. Parent contacts, citizens' participation, press, radio, television, printed material, etc. *4 qtr. hrs.*

EDA 526. EDUCATIONAL STAFF PERSONNEL ADMINISTRATION: The various aspects of selection, evaluation, and utilization of staff personnel in relation to the overall educational program. *4 qtr. hrs.*

EDA 585. ORGANIZATIONAL SYSTEMS: The application of systems theory to the operation of government, business, and educational organizations. Conventional theories related to the systems approach to an understanding of organizations. *4 qtr. hrs.*

EDI 591. RESEARCH PROJECT: Action research initiated after consultation with advisor. Systematic study of a specific problem. Prerequisite: completion of EDF 503, Research Methodology and Statistics, and approval of Preliminary Plan. *4 qtr. hrs.*



ELEMENTARY EDUCATION (EDE)

Simon J. Chavez, Chairman of the Department

For the Master of Science in Education, the Department of Elementary Education offers a career-oriented program that stresses development and refinement of a repertoire of teaching competencies.

The department makes a very special attempt to serve as a facilitating agency for each student's professional development. Each applicant is asked to meet with the chairman for initial advisement. All students receive individual attention in planning their programs. They are encouraged to select courses and course activities that will evolve cumulatively into programs best suiting their own perceived needs and interests by providing opportunities for the correlation of educational theory with their own school situations.

A minimum of 45 quarter hours is required to fulfill degree requirements.

CORE REQUIREMENTS

All students are required to take four core courses as follows:

	<i>Quarter Hours</i>
1. EDF 502 Advanced Philosophy of Education	4
2. EDE 591 Research Project.....	4
3. EDF 501 Advanced Psychology of Learning.....	4
OR	
EDE 561 Evaluation of Teaching Strategies	4
4. EDF 503 Research Methodology and Statistics.....	4
OR	
EDE 558 Independent Study-Research Seminar.....	4

AREAS OF CERTIFICATION

The student may wish to incorporate into the master's program those courses required for certification in a specific area. These courses would be in addition to core courses listed above. The following courses meet the requirements for the certificates as indicated.

READING SUPERVISOR (BOTH ELEMENTARY AND SECONDARY)

<i>Courses required for certification</i>	<i>Quarter Hours</i>
EDE 567 Survey of Research in Reading Instruction	4
EDE 568 Diagnosis of Reading and Other Academic Skills	4
EDE 569 Advanced Developmental Reading.....	4
EDE 570 Supervision and Curriculum in Reading.....	4
EDE 571 Practicum in Diagnosis of Reading and Other Academic Skills.....	3
<i>Recommended Courses</i>	
EDE 557 Library Materials for Children and Adolescents	4

EDE 566	Innovations and Trends in Language Arts.....	4
EDE 573	Preparing Materials for Personalized Instruction	4

ELEMENTARY SCHOOL SUPERVISOR

Courses required for certification *Quarter Hours*

EDA 511	Elementary School Curriculum	4
EDA 507	Planned Field Experience	4
EDA 509	School Supervision.....	4

Recommended courses

EDE 559	Research and Materials in Mathematics Instruction	4
EDE 560	Research in Social Studies Instruction	4
EDE 564	Advanced Science in Elementary School.....	4
EDE 569	Advanced Developmental Reading.....	4

SPECIAL EDUCATION (EMR – K-12)

Quarter Hours

EDE 580	Psychology and Education of the Mentally Retarded and Learning Disabled.....	4
EDE 590	Learning and Behavior Disorders.....	4
EDE 587	Occupational Orientation and Job Training.....	3
EDE 411	Student Teaching – EMR	4
EDE 592	Materials, Methods and Curriculum – EMR.....	5
EDE 569	Advanced Developmental Reading.....	4

SPECIAL EDUCATION (LD – K-12)

Quarter Hours

EDE 568	Diagnosis of Reading and Other Academic Skills	4
EDE 569	Advanced Developmental Reading.....	4
EDE 571	Practicum in Diagnosis of Reading and Other Academic Skills	3
EDE 590	Learning and Behavior Disorders.....	4
EDE 596	Behavior Management – LD.....	4
EDE 594	Field Experiences in LD.....	4

EARLY CHILDHOOD (KINDERGARTEN-PRIMARY, K-3)

Quarter Hours

EDE 550	Introduction to Pre-Kindergarten Education	4
EDE 578	Practicum in Pre-Kindergarten	4
EDE 579	Kindergarten-Primary Curriculum and Instruction.....	4
EDE 590	Learning and Behavior Disorders.....	4
EDE 622	Materials for Kindergarten-Primary Instruction.....	4

AREAS OF CURRICULUM INSTRUCTION

MATHEMATICS-SCIENCE CONCENTRATION

Recommended courses (no certificate)

Quarter Hours

EDE 500	Mathematics in the Elementary School.....	4
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EDE 559	Research and Materials in Mathematics Instruction	4
EDE 460	Science in the Elementary School.....	4
EDE 564	Advanced Science in Elementary School.....	4
EDE 565	Practicum in Science Instruction.....	4
EDE 562	Educational Media.....	4

GENERAL

<i>Recommended courses (no certificate)</i>		<i>Quarter Hours</i>
EDE 569	Advanced Developmental Reading.....	4
EDE 560	Research in Social Studies Instruction	4
EDE 562	Educational Media.....	4
EDE 500	Mathematics in the Elementary School.....	4
EDE 564	Advanced Science in Elementary School.....	4
EDE 565	Practicum in Science Instruction.....	4
EDE 566	Innovations and Trends in Language Arts.....	4

OTHER COMBINATIONS

The student may select a combination of courses other than those listed above.

Other electives may be taken in the Departments of Counselor Education and Human Services, Foundations of Education, Secondary Education, and Physical Education or other departments of the University with the chairman's permission.

COURSES OF INSTRUCTION

- EDE 500. MATHEMATICS IN THE ELEMENTARY SCHOOL: Course or workshop for teachers and school supervisors of the Modern Arithmetic Program. Demonstration of how the logical patterns of mathematical thought can be readily acquired by pupils. 4 qtr. hrs.

- EDE 550. INTRODUCTION TO PRE-KINDERGARTEN EDUCATION: A beginning course in early childhood education. Corequisite: EDE 578. 4 qtr. hrs.

- EDE 557. LIBRARY MATERIALS FOR CHILDREN AND ADOLESCENTS: The study and evaluation of literature and other library materials for children and adolescents. Emphasis on familiarization and evaluative criteria. 4 qtr. hrs.

- EDE 558. INDEPENDENT STUDY: Independent study in a specific area, such as reading. Research seminar is available for students ready to begin planning their research study. 1-4 qtr. hrs.

- EDE 559. RESEARCH AND MATERIALS IN MATHEMATICS INSTRUCTION: Study of research and trends in contemporary mathematics. Particular attention to new materials and to action research. 4 qtr. hrs.

- EDE 560. RESEARCH IN SOCIAL STUDIES INSTRUCTION: Study of significant research in social studies instruction at the elementary level. Emphasis on cognitive processes, social and study skills, and evaluation. 4 qtr. hrs.

- EDE 561. EVALUATION OF TEACHING STRATEGIES: To increase awareness of the effect teaching behavior has upon pupils; proficiency in distinguishing between expectations and the resulting pupil behavior; expertise in recognizing and overcoming the natural defensive reaction when pupil behavior differs from teacher expectations. This course correlates theory of learning with application in classroom teaching. 4 qtr. hrs.

- EDE 562. EDUCATIONAL MEDIA: A study of materials, equipment, and technology in education. Actual use and evaluation in the classroom. *4 qtr. hrs.*
- EDE 563. SUPERVISION OF STUDENT TEACHING: Demonstration of procedures and use of instruments to determine the student teacher's readiness and to guide his progress. Prerequisites: EDE 561, 562. *4 qtr. hrs.*
- EDE 564. ADVANCED SCIENCE IN ELEMENTARY SCHOOL: Training to integrate science with all phases of curriculum — by research projects in astronomy, biology, chemistry, geology, physics, and air-age education. Also study and evaluation of visual aids in science. Prerequisite: EDE 460, Science in the Elementary School, or another college course in physical science. *4 qtr. hrs.*
- EDE 565. PRACTICUM IN SCIENCE INSTRUCTION: Application of inquiry and discovery approach to the study of biotic communities, geologic formations, and balance of nature. *4 qtr. hrs.*
- EDE 566. INNOVATIONS AND TRENDS IN LANGUAGE ARTS: Survey of research and trends in language arts instruction, particularly in communication skills, both oral and written. *4 qtr. hrs.*
- EDE 567. SURVEY OF RESEARCH IN READING INSTRUCTION: A basic course for experienced teachers concerned with the psychology of learning reading and with current problems and trends. *4 qtr. hrs.*
- EDE 568. DIAGNOSIS OF READING AND OTHER ACADEMIC SKILLS: Study and use of informal and formal diagnostic tools for determining reading and learning difficulties. Corequisite: EDE 571. *4 qtr. hrs.*
- EDE 569. ADVANCED DEVELOPMENTAL READING: The psychological and sociological basis in reading. Attention to linguistics, materials, skills, and evaluation. The first course in a program designed to prepare specialists in reading. *4 qtr. hrs.*
- EDE 570. SUPERVISION AND CURRICULUM IN READING: Study of selected curricula and the processes of planning a sound curriculum in reading at various levels. Outline of the role of the reading supervisor, providing guidelines for effective implementation of programs. Prerequisite: EDE 568, 571. *4 qtr. hrs.*
- EDE 571. PRACTICUM IN DIAGNOSIS OF READING AND OTHER ACADEMIC SKILLS: Laboratory portion of EDE 568. Corequisite: EDE 568. *3 qtr. hrs.*
- EDE 573. PREPARING MATERIALS FOR PERSONALIZED INSTRUCTION: A practical course in preparing classroom materials for individual and small group activities. Extra fee for materials. *4 qtr. hrs.*
- EDE 578. PRACTICUM IN PRE-KINDERGARTEN: Observation in campus childhood center and in other centers. Corequisite: EDE 550. *4 qtr. hrs.*
- EDE 579. KINDERGARTEN-PRIMARY CURRICULUM AND INSTRUCTION: Considerations to designing and teaching the various areas of the curriculum to interrelate meaningful learning experiences for young children. *4 qtr. hrs.*
- EDE 580. EDUCATION AND PSYCHOLOGY OF THE MENTALLY RETARDED AND LEARNING DISABLED: Study of the mentally retarded child, the learning disabled child, and inter-intra factors with their environment. Prerequisite: EDE 590. *4 qtr. hrs.*
- EDE 586. CONTEMPORARY ISSUES IN ELEMENTARY EDUCATION: Study of societal changes, cultural values, characteristics, ways of living, and educational expectations which affect curriculum and instruction in elementary schools. *4 qtr. hrs.*

EDE 587. OCCUPATIONAL ORIENTATION AND JOB TRAINING: Principles, methodology for training, guidance, and placement for the pre-adolescent, adolescent, and young adult retardate. Prerequisite: EDE 580, 590, 592. *3 qtr. hrs.*

EDE 590. LEARNING AND BEHAVIOR DISORDERS: Survey of general and specific learning disabled, with accompanying behavior disorders in the context of the contemporary school structure. *4 qtr. hrs.*

EDE 591. RESEARCH PROJECT: Action research initiated after consultation with advisor. A systematic study of a specific problem. *4 qtr. hrs.*

EDE 592. MATERIALS, METHODS AND CURRICULUM – EMR: Development of strategies for implementation of curriculum; preparation, selection, and adaptation of materials for academic, social studies, and social skills for the EMR. Prerequisites: EDE 580, 590, 569. *5 qtr. hrs.*

EDE 594. FIELD EXPERIENCES IN LD: Student teaching of the specific learning disabled; supervised field or clinical experience with the specific learning disabled. Prerequisites: EDE 590, 592, 568, 569, 571. *4 qtr. hrs.*

EDE 596. BEHAVIOR MANAGEMENT – LD: Behavior management for children with specific and general learning disabilities and behavior problems; emphasis of theoretical and pragmatic implementation. Prerequisites: EDE 590, 569, 568, 571. *4 qtr. hrs.*

EDE 598. THE USE OF MEDIA – THE NEWSPAPER IN THE CLASSROOM: Course or workshop to show pre-service and in-service teachers how a newspaper can be used to teach “media literacy” and academic skills to elementary, junior high, and senior high school students; also how a newspaper is published. Co-sponsored by the Dayton Journal Herald. *3 qtr. hrs.*

EDE 622. MATERIALS FOR KINDERGARTEN-PRIMARY INSTRUCTION: Course or workshop devoted to the study and development of curriculum materials used in kindergarten-primary instruction. (\$15.00 materials fee.) *4 qtr. hrs.*

FOUNDATIONS OF EDUCATION (EDF)

M. Audrey Grob, Chairman of the Department

EDUCATIONAL RESEARCH PROGRAM

The objectives of the program leading to the Master of Science in Education with a concentration in Educational Research include understanding educational research and evaluation, implementing research projects, and drawing correct conclusions from research data. To meet these objectives, courses focusing on educational theory, research design, problems in education, research methodology, statistics, computer usage and programming, psychometrics, and school evaluation are offered. Students also participate in an internship program (up to 18 quarter hours) through which they gain by practical and personal involvement knowledge of the research and evaluation problems in elementary and secondary schools. To provide ultimate benefit, the research experiences offered through the internship will be carefully monitored and evaluated. A research project is required of all students.

The program provides an excellent basis for doctoral work in research and evaluation and is a practical preparation for positions involved with evaluation in governmental, educational, and other professional areas.

Recent graduates with teacher certification and / or those who wish to earn the educational administrative specialist certificate with a speciality in educational research are invited to consider this program which in the educational field is gaining recognition and respect. The applicant must

1. Evidence an interest in educational research and evaluation, and demonstrate a level of undergraduate preparation which merits acceptance by the graduate school;
2. Demonstrate an interest in education by a dedication to teaching or to work in administration or service areas, or by any other strong commitment to education as a career;
3. Ordinarily possess a valid teacher certificate.

The program requirements for the Master of Science in Education with a concentration in Educational Research are the following:

	<i>Quarter Hours</i>
EDF 501	Advanced Psychology of Learning 4
EDF 502	Advanced Philosophy of Education..... 4
EDA 513	Evaluation of Educational and Organizational Systems..... 4
EDC 533	Psychometrics..... 3
EDF 590	Educational Research Design 4
EDF 593	Interpretation of Statistics and Research 4
EDF 596-597	Internship in Educational Research 18
— — —	Elective 4

INTERDISCIPLINARY PROGRAM

Graduate students who want to investigate the world of education in special ways can plan individualized programs leading to the Master of Science in Education with a concentration in Interdisciplinary Studies. Courses from other departments can enhance and support, for example, a study of the psychological or cultural aspects of education. This degree program offers a challenge to the serious student and at the same time provides a firm basis for doctoral work. See also Chapter V.

COURSES OF INSTRUCTION

EDF 501. **ADVANCED PSYCHOLOGY OF LEARNING:** An effort to relate learning theories and current issues in the psychology of learning to major aspects of growth and development. *4 qtr. hrs.*

EDF 502. **ADVANCED PHILOSOPHY OF EDUCATION:** Analysis of underlying educational assumptions of philosophers, educators, and agencies of society in an attempt to aid the student in developing a coherent and consistent philosophy of education. *4 qtr. hrs.*

EDF 503. **RESEARCH METHODOLOGY AND STATISTICS:** The nature of research: methods, research techniques, sources, evaluation of research studies, basic statistics. Students develop under guidance research in areas of personal interest. *4 qtr. hrs.*

EDF 504. **ADVANCED CHILD AND ADOLESCENT PSYCHOLOGY:** The principal areas of growth and development through adolescence with emphasis on mental development. *4 qtr. hrs.*

EDF 505. **TEST CONSTRUCTION AND MEASUREMENT:** Basic elements of test construction and analysis and classroom-related statistical procedures as a way of better meeting the needs of pre-adolescents. Preparation of test questions, evaluation of test items, interpretation of standardized test scores, and application of elementary statistics such as averages, variability, standard scores, and correlation. *2 qtr. hrs.*

EDF 518. **CULTURAL FOUNDATIONS: SCHOOL AND THE SOCIAL ORDER:** The relationship of the school to the total cultural pattern and the interaction between school and community. The nature of the individual child and his relations with society and culture; the special culture of the school and its accompanying social world; school, teacher, and community relations. *4 qtr. hrs.*

EDF 550. **HISTORY OF HIGHER EDUCATION IN THE UNITED STATES:** The growth and development of American colleges and universities: multiplication and variety; methods of instruction; aims; administration; innovations and conflicts; value of students, faculty and administrators; public opinion. *4 qtr. hrs.*

EDF 554. **CULTURAL FOUNDATIONS: HISTORY OF EDUCATION IN THE UNITED STATES:** The progress of education in the United States from the rise of the "Common" School to education as an international influence; the educational system within the social, cultural, religious, and political milieu; the influences of industry, finance, technology, progressivism, accreditation, etc. *4 qtr. hrs.*

EDF 578. **CULTURAL FOUNDATIONS: POLITICS OF EDUCATION:** Public and non-public elementary, secondary, and higher educational policies as they are influenced by the political process. Educational policies, financial allocations, etc., decided through the national, state, and local political levels; the political participants seeking to influence educational policies, financial allocations, etc.; the general environmental influences and "rules" governing outcomes. *4 qtr. hrs.*

EDF 579. CULTURAL FOUNDATIONS: COMPARATIVE EDUCATION: Comparative study of education in countries selected by students for research. Emphasis on an educational system's partaking of and being an integral part of its country's culture. *4 qtr. hrs.*

EDF 590. EDUCATIONAL RESEARCH DESIGN: This course has two major emphases: Part I, basic processes of scientific inquiry into educational problems; Part II, selected techniques which stress in detail specific methodological problems. *4 qtr. hrs.*

EDF 593: INTERPRETATION OF STATISTICS AND RESEARCH: Emphasis on descriptive statistics for observations of groups and on inferential statistics for determining parameters in observed samples and for making valid inferences and interpretations. *4 qtr. hrs.*

EDF 596-597. INTERNSHIP IN EDUCATIONAL RESEARCH: Investigation of the literature of educational research; experiences in developing research design; applications of data processing; conduct of major research activity. Area schools are used as a focus of operations. *18 qtr. hrs.*

EDF 591. RESEARCH PROJECT: Action research initiated after consultation with advisor. A systematic study of a specific problem. Prerequisite: Completion of EDF 503, and approval of Preliminary Plan. *4-6 qtr. hrs.*



EDP 519	Sport and Society	3
EDP 523	Curriculum Development of Physical Education.....	3
EDP 529	Innovative Practices in Physical Education.....	3
EDP 537	Mechanical Analysis of Motor Skills.....	4
EDP 538	The Nature and Basis of Motor Skill Acquisition.....	3
EDP 546	Scientific Principles of Athletic Conditioning.....	4
EDP 547	Administration of Interscholastic and Intramural Athletics.....	3
EDP 548	Human Movement Theories in Physical Education.....	3
EDP 555	Survey of Research in Physical Education.....	3
EDP 556	Issues in Physical Education (Seminar).....	3
EDP 575	Individual Studies in Physical Education	1-4
EDP 582	Internship in Physical Education.....	1-4
<i>Electives (9 quarter hours)</i>		
Courses selected from general, professional, physical, or health education.		
<i>Options: (6 quarter hours)</i>		
EDI 591	Research Project	6
OR		
EDP —	Additional course work in physical education.....	6

COMBINED PROGRAMS

There is an opportunity to obtain an elementary or secondary principal's certificate with this degree. An opportunity is also available to obtain a supervisor's certificate with additional course work.

COURSES OF INSTRUCTION

EDP 508. PHYSICAL EDUCATION WORKSHOPS: Workshops designed for study of special topics of current interest in physical education. May focus attention on substantive material or operational problems. May be repeated up to a maximum of 2 courses.

1-4 qtr. hrs.

EDP 510. HISTORY OF PHYSICAL EDUCATION: Study of the development of sport and physical education from early cultures to the present time. Emphasis on the United States.

3 qtr. hrs.

EDP 519. SPORT AND SOCIETY: A study of the cultural patterns, socializing process, and other psychosocial parameters of American sport.

3 qtr. hrs.

EDP 523. CURRICULUM DEVELOPMENT OF PHYSICAL EDUCATION: Principles and procedures for curriculum construction and revision; criteria for selecting activities and judging outcomes; the place of physical education within the total curriculum.

3 qtr. hrs.

EDP 529. INNOVATIVE PRACTICES IN PHYSICAL EDUCATION: Practical and theoretical study of innovative methods of teaching physical activities.

3 qtr. hrs.

EDP 537. MECHANICAL ANALYSIS OF MOTOR SKILLS: Investigations of physical principles operative in the performance of physical education activities with attempts to analyze for methods of greater effectiveness and improved performance.

4 qtr. hrs.

EDP 538. THE NATURE AND BASIS OF MOTOR SKILL ACQUISITION: A study of psychological factors which affect the acquisition of motor skills. Perceptual-motor development theories. Motor behavior. *3 qtr. hrs.*

EDP 546. SCIENTIFIC PRINCIPLES OF ATHLETIC CONDITIONING: Study of the factors which affect maximum human performance in athletic competition. Application of scientific principles in preparing the athlete for maximum performance. Methods and theories of training, conditioning, and reconditioning. *4 qtr. hrs.*

EDP 547. ADMINISTRATION OF INTERSCHOLASTIC AND INTRAMURAL ATHLETICS: Organization of high school athletic and intramural programs, staff, program, budget, health and safety, and other phases of administration. *3 qtr. hrs.*

EDP 548. HUMAN MOVEMENT THEORIES IN PHYSICAL EDUCATION: Individual and group study of problems and theories related to the scientific variables of human movement. *3 qtr. hrs.*

EDP 555. SURVEY OF RESEARCH IN PHYSICAL EDUCATION: Survey and critical analysis of research and other pertinent materials in the field. *3 qtr. hrs.*

EDP 556. ISSUES IN PHYSICAL EDUCATION (SEMINAR): A seminar to investigate and report on a specific issue in physical education. *3 qtr. hrs.*

EDP 575. INDIVIDUAL STUDIES IN PHYSICAL EDUCATION: Individual investigations of a problem in physical education or health. (With approval of advisor.) *1-4 qtr. hrs.*

EDP 579. SEMINAR IN HEALTH EDUCATION: A problems course for experienced teachers. *3 qtr. hrs.*

EDP 582. INTERNSHIP IN PHYSICAL EDUCATION: A job-related experience under the immediate supervision of personnel from a local school or community organization. *1-4 qtr. hrs.*

EDI 591. RESEARCH PROJECT: Action research initiated after consultation with advisor. A systematic study of a specific problem. Prerequisite for registration: Completion of EDF 503, Research Methodology and Statistics, and approval of Preliminary Plan. *6 qtr. hrs.*

SECONDARY EDUCATION (EDS)

Robert E. Kriegbaum, Chairman of the Department
Helen B. Frye, Coordinator of Graduate Studies

TEACHING IN SECONDARY SCHOOLS

The program for the Master of Science in Teaching (MST) in Secondary Education gives teachers of secondary school subjects an opportunity to gain greater depth in their teaching fields and to gain in application of pedagogical skills in practical settings.

Three options are available to those who wish to pursue the Master of Science in Teaching in Secondary Education. The essence of the three options is EDS 589, Seminar and Practicum in the Study of Learning Environments. Emphasis is on developing teaching competencies in practical settings. Students are asked to become proficient in assessing the verbal climate in an educational setting, to be able to elicit certain behaviors from students, and to be able to engage in a kind of self examination which results in personal growth.

OPTION ONE

Option One is designed for experienced, certificated teachers who desire improvement in their teaching fields and who desire to keep up to date in strategies of instruction. Requirements are as follows:

		<i>Quarter Hours</i>
EDS 589	Seminar and Practicum in the Study of Learning Environments	9
— —	Subjects selected from one or from related teaching fields	36

OPTION TWO

Option Two is designed for experienced, certificated teachers who desire greater depth in both teaching fields and the application of instructional strategies. Teachers choosing Option Two can prepare themselves for positions of instructional leadership as department heads, facilitators, etc. Requirements are as follows:

		<i>Quarter Hours</i>
EDF 501	Advanced Psychology of Learning.....	4
EDF 502	Advanced Philosophy of Education.....	4
EDF 503	Research Methodology and Statistics.....	4
EDF 504	Advanced Child and Adolescent Psychology.....	4
EDS 588	Personal Knowledge.....	4
EDS 589	Seminar and Practicum in the Study of Learning Environments	9
— —	Subjects selected from teaching fields or education.....	16

OPTION THREE

Option Three is designed for students who have earned the bachelor's degree and who desire to become certificated teachers while pursuing post-baccalaureate studies. Requirements are as follows:

		<i>Quarter Hours</i>
EDF	501	Advanced Psychology of Learning..... 4
EDF	502	Advanced Philosophy of Education..... 4
EDS	625	Secondary School, Self, and Society 4
—	—	Special Methods in Principal Teaching Field..... 4
EDS	589	Seminar and Practicum in the Study of Learning Environments 9
EDS	598	Internship in Teaching..... 15
EDS	611	Secondary School Reading Improvement – Content Areas..... 4
—	—	Electives

NOTE: If the student needs additional work in the teaching field for certification, courses in the teaching field will be suggested. Graduate level courses in teaching fields are available in the following areas: biology, business, chemistry, communication arts, English, history, mathematics, physics, political science, social psychology, and theological studies.

TEACHING IN JUNIOR HIGH AND MIDDLE SCHOOLS

The purpose of the Master of Science in Teaching (MST) in Junior High and Middle School Education program is to give teachers, both elementary and secondary certificated, the special skills and knowledge necessary to understand and work with young adolescents. Emphasis is on developing teaching competencies in practical settings.

Quarter Hours

Required Courses (23 quarter hours):

EDF	502	Advanced Philosophy of Education..... 4
EDS	614	Junior High and Middle Schools – Theory and Implications 4
EDS	615	Interdisciplinary Teaching and Evaluation of Curriculum Materials... 4
OR		
EDS	611	Secondary School Reading Improvement – Content Areas..... 4
EDS	589	Seminar and Practicum in the Study of Learning Environments 9
EDF	505	Test Construction and Measurement..... 2

Electives (22 quarter hours):

On the basis of experience, needs, and interests, electives may be taken in content areas or appropriate professional education courses offered by the Departments of Counselor Education and Human Services, Educational Administration, Elementary Education, Foundations of Education, Physical and Health Education, and Secondary Education.

COURSES OF INSTRUCTION

EDS 527W. BUSINESS SYSTEMS AND DATA PROCESSING: A workshop in business automation, related procedures, and equipment, to develop a program of approach the secondary schools can use in educating students in office automation and business data processing. Explanation of the Business Office Education Program of the Department of Education, State of Ohio. This workshop fulfills a requirement for IOE certification. Prerequisite: High School Certification in Business Education. *4-5 qtr. hrs.*

EDS 588. PERSONAL KNOWLEDGE: The understanding and development of subjectivities through personal encounter and reading. Students are encouraged to explore personal meanings which are not discursive, not nomothetic, and not repeatable. *4 qtr. hrs.*

EDS 589. SEMINAR AND PRACTICUM IN THE STUDY OF LEARNING ENVIRONMENTS: Study and participation in writing behavioral objectives and appropriate evaluation items, classifying objectives and questions according to cognitive level, analyzing classroom verbal communication, using teaching strategies, and microteaching. *4-9 qtr. hrs.*

EDS 598. INTERNSHIP IN TEACHING: A full semester of directed teaching experiences under the supervision of a faculty advisor and of master teachers in local schools. Weekly seminars on campus. *15 qtr. hrs.*

EDS 600. SUPERVISING THE STUDENT TEACHER IN THE URBAN SCHOOL: To equip the cooperating teacher with skills for gaining insight into the student teacher's problems in urban schools and to improve expertise of cooperating teachers as supervisors of student teachers. *2-3 qtr. hrs.*

EDS 604. COLLEGE TEACHING SEMINAR: To assist graduate teaching assistants and beginning college teachers in acquiring information, understandings, and skills which are seen as important components of effective teaching; to provide experienced college faculty with a means of professional development. *1-4 qtr. hrs.*

EDS 606. INDEPENDENT STUDY: Individual (or group) pursuit of special interests in the field of education through self-directed learning. *1-5 qtr. hrs.*

EDI 607. THE TEACHER IN THE INDIVIDUALIZED CLASSROOM: The teacher's role and functions where the goal is individualized instruction; behavioral objectives, learning styles, and assessment procedures; implementing these concepts in the classroom. *5 qtr. hrs.*

EDS 609. PREPARATION OF COMPUTER-AIDED INSTRUCTION: Study of computer-aided instruction used in the schools: problem solving, CAI-written courses, and CAI student authorized courses. Material now being used in CAI; the formation of educational objectives for CAI. *4 qtr. hrs.*

EDS 611. SECONDARY SCHOOL READING IMPROVEMENT – CONTENT AREAS: To provide middle, junior high, and senior high school teachers with knowledge and selected skills for improving reading and other language-arts skills of their students in the content areas. Causes and diagnosis of reading problems. *4 qtr. hrs.*

EDS 614. JUNIOR HIGH AND MIDDLE SCHOOLS – THEORY AND IMPLICATIONS: The development and rationale of schools designed for the emerging adolescent; procedures by which these theories can be implemented in the classroom. *4 qtr. hrs.*

EDS 615. INTERDISCIPLINARY TEACHING AND EVALUATION OF CURRICULUM MATERIALS: Study of the basic principles, problems, and alternatives in team teaching and interdisciplinary education; exploration and evaluation of curriculum materials. *4 qtr. hrs.*

EDS 623. CURRENT STRATEGIES IN TEACHING SOCIAL STUDIES: A seminar to explore current strategies in the teaching of secondary school social studies. Participants may share in shaping the course content so their special needs and interests are met. 4 qtr. hrs.

EDS 624. CURRENT STRATEGIES IN TEACHING ENGLISH: A seminar to explore current strategies in the teaching of secondary school English. Participants may share in shaping the course content so their needs and interests are met. 4 qtr. hrs.

EDS 625. SECONDARY SCHOOL, SELF AND SOCIETY: Examination of the inter-relationships between school, self, and society, utilizing group procedures when possible. Prerequisite: EDF 501. 4 qtr. hrs.

EDS 626. BUSINESS EDUCATION IN THE SECONDARY SCHOOL: Principles and techniques of business education, including social, business, and secretarial subjects. Students devote one half day each week to practicum. Prerequisite: EDF 501. First term, each year. 4 qtr. hrs.

EDS 627. LATIN IN THE SECONDARY SCHOOL: The functions and values of the study of Latin, courses of study, organization of materials, conventional and progressive methods. Students devote one half day each week to practicum. Prerequisite: EDF 501. 4 qtr. hrs.

EDS 628. ENGLISH AND SPEECH IN THE SECONDARY SCHOOL: Ways and means whereby the teacher can make his teaching more functional in the lives of students. Students devote one half day each week to practicum. First and second term each year. Prerequisite: EDF 501. 4 qtr. hrs.

EDS 629. SOCIAL STUDIES IN SECONDARY SCHOOL: Aims and values of social studies in high school. General method and special techniques. Students devote one half day each week to practicum. Prerequisite: EDF 501. First and second term, each year. 4 qtr. hrs.

EDS 630. MODERN LANGUAGE IN THE SECONDARY SCHOOL: The functions and values of language study, courses of study, organization of materials, conventional and progressive methods. Students devote one half day each week to practicum. Prerequisite: EDF 501. 4 qtr. hrs.

EDS 631. MATHEMATICS IN THE SECONDARY SCHOOL: The goals of junior and senior high school mathematics; methods and materials; individualizing instruction. Students devote one half day each week to practicum. Prerequisite: EDF 501. First and second term, each year. 4 qtr. hrs.

EDS 632. RELIGION IN THE SECONDARY SCHOOL: Modern methods of instruction with a view to the practical needs of adolescents. Prerequisite: EDF 501. 3 qtr. hrs.

EDS 633. SCIENCE IN THE SECONDARY SCHOOL: Instructional methods and materials with emphasis on inquiry; individualizing instruction. Students devote one half day each week to practicum. Prerequisite: EDF 501. First and second term, each year. 4 qtr. hrs.

IX School of Engineering

David C. Kraft, Dean

Jay D. Pinson, Associate Dean for Graduate Studies and Research

The School of Engineering offers programs leading to master's and doctor's degrees in various areas of engineering. These graduate programs permit both departmental and interdisciplinary study to meet the specialized and continuing educational needs of the engineer. Sufficient flexibility allows the student to specialize or to pursue a broad field of study. Current graduate programs in the School of Engineering lead to the following degrees:

Master of Science in Aerospace Engineering
Master of Science in Chemical Engineering
Master of Science in Civil Engineering
Master of Science in Electrical Engineering
Master of Science in Engineering
Master of Science in Engineering Management
Master of Science in Materials Engineering
Master of Mechanical Engineering

Doctor of Engineering
Major in Aerospace Engineering
Major in Electrical Engineering
Major in Materials Engineering
Major in Mechanical Engineering

Doctor of Philosophy in Engineering
Major in Aerospace Engineering
Major in Electrical Engineering
Major in Materials Engineering
Major in Mechanical Engineering

Programs and the courses appropriate to each of these degrees are described later in this chapter under subject designations, which are alphabetical.

FINANCIAL AID

Assistantships and industrial fellowships are available at the University of Dayton for the encouragement of graduate work and the promotion of research. These are administered by the academic departments. Detailed information relative to application may be secured from the director of graduate engineering.

MASTER'S DEGREE REGULATIONS

Admission

To be considered for admission to graduate study in the School of Engineering, a student must have received an undergraduate degree with emphasis in engineering, physics, chemistry, or applied mathematics. The normal qualification for admission is graduation from an accredited engineering curriculum with 2.7 or better cumulative grade point average based on a 4.0 grading system. Those with lower grade point averages will be considered for acceptance on a probationary status, in which case particular attention will be given to the last 60 semester hours of their undergraduate programs, to recommendations, and to engineering experience. They may also be required to take a limited amount of undergraduate work. Students who have degrees in physics, chemistry, applied mathematics, or related sciences are encouraged to apply, but they too may be required to take a limited amount of undergraduate work to complete their preparation for graduate study in the School of Engineering. The minimum mathematics requirement for admission is three semester hours in differential equations. Undergraduate courses are available through the Bachelor of Engineering program.

Unclassified Status

Students may also be accepted in unclassified graduate status. They will be considered as students of the School of Engineering who have not been admitted in a graduate degree program. A student can transfer a maximum of only two courses taken in this status to a program of study for a degree without pre-enrollment approval from the director of graduate engineering. An unclassified student planning to seek a degree should complete an application for graduate studies to assure that the courses he takes are acceptable and compatible with degree requirements.

Advisor

Each candidate for the master's degree shall be assigned to an advisor by the departmental chairman or the program director. The advisor shall be agreed upon by the student and approved by the director of graduate engineering. The duties of the advisor are to assist the student in the preparation of his plan of study and to advise him during his period of graduate work. An advisor should be appointed prior to initial registration for graduate studies but no later than the end of the first semester. A change of advisor at a later date is permissible upon the request of the student and approval of the departmental chairman or program director and the director of graduate engineering.

Plan of Study

The individual plan of study for the degree shall include the specific courses the student is expected to complete and reflect all other requirements of the particular master's degree he is seeking. The plan of study must be filed with the director of graduate engineering prior to the pre-enrollment date for the 16th graduate semester hour. All copies must be approved by the advisor, the program director, and the director of graduate engineering.

Thesis

Each student whose plan of study requires a thesis must prepare the thesis in accordance with the general format outlines in the Guide for Preparation of Thesis, copies of which are available in the departmental offices. Students who have completed registration in all courses but who have not completed the thesis must request approval for continuance in the graduate program by means of a Graduate Student Program Approval form each term until graduation. In general, the thesis will be based on work accomplished in research in the primary area of study. Joint authorship is not permitted. A regular grade will be assigned upon satisfactory completion of the thesis and will be included in the final cumulative grade point average.

Oral and Written Examinations

A final examination is required at the completion of the thesis. The examination may be oral or written or both. It must be given by a committee of no fewer than three. A student who fails to pass it cannot be given another examination in the same semester. No student shall be allowed to take the examination more than three times.

FIVE-YEAR MASTER'S PROGRAM

Undergraduate students who have shown above average scholastic performance during their first three years of undergraduate work are eligible to pursue the five-year master's program. This program allows the senior engineering student the opportunity of taking selected graduate courses, making it possible to complete the requirements for a master's degree with only two semesters of additional work beyond the bachelor's degree. Undergraduate students who are interested in this program should contact their department chairmen during the last semester of their junior year.

DOCTORAL DEGREE REGULATIONS

The School of Engineering offers programs leading to two degrees at the doctoral level, the Doctor of Philosophy in Engineering and the Doctor of Engineering. The programs are restricted to those who have demonstrated superior abilities in scholarship and research. The Doctor of Philosophy in Engineering (PhD) is granted in recognition of high achievement in scholarship and independent research. Graduate programs leading to it currently encompass major fields of study in Aerospace, Electrical, Materials, and Mechanical Engineering. The Doctor of Engineering (DE), granted in recognition of high achievement in scholarship and superior ability to apply the fundamentals of engineering to the solution of technical problems, is comparable in rigor to the PhD. It requires a broad program of course work, a year of internship in engineering, and a

practice-oriented dissertation. (These last two can be accomplished at the same time.) The areas of concentration for the DE are Aerospace, Electrical, Materials, and Mechanical Engineering with major support from Chemical Engineering, Civil Engineering, and Engineering Management. Interdisciplinary study and applied research activities are required.

For either degree, the student must satisfactorily complete a specified number of semester hours of course work with a 3.0 or better cumulative grade point average (based on a 4.0 grading system). The student must also (1) pass the candidacy examination, (2) meet the period of concentrated study requirements, (3) complete an acceptable dissertation, (4) complete the tools of research requirement, (5) demonstrate the ability to accomplish independent study, (6) pass a final examination, and (7) complete other requirements as specified by his advisory committee and the Graduate School of Engineering.

Semester-Hour Requirements

The minimum time required for the PhD or DE degree is six semesters of full-time graduate study (a minimum of 90 semester hours) beyond the bachelor's degree, or four semesters of full-time graduate study (a minimum of 60 semester hours) beyond the master's degree. This includes the credit for the doctoral dissertation *with either degree* (a minimum of 30 semester hours). Registration for the dissertation hours is the same as for other courses; however, only those students who have passed the candidacy examination are eligible. A minimum of 48 semester hours must be taken at this University. Also, a minimum of 12 semester hours in graduate mathematics beyond the bachelor's degree is required for both doctoral degrees.

For the PhD, a student must complete a minimum of 30 semester hours, excluding his dissertation credit, in his major area of study beyond his bachelor's degree.

For the DE, a student is required to have a major and a minor area of study. The minor must be in an area outside the major field. A minimum of 21 semester hours in the major and 12 semester hours in the minor is required beyond the bachelor's degree.

Admission

Admission means only that the student will be permitted to enroll for graduate courses. It does not necessarily imply that he will be admitted to a program leading to a doctor's degree or that he will be able to achieve the PhD or the DE.

Normally, a student must earn a master's degree in engineering or science before being granted permission to continue graduate study work for the doctorate. Outstanding students, however, may be permitted to work for either doctoral degree directly without the master's degree.

Qualifying Examination

After the completion of his master's degree or 30 semester hours of graduate study, the student will take a qualifying examination (which may be waived for

the exceptional student). The purpose of the examination is to determine the student's qualifications to continue graduate study and to assist the advisory committee in planning the program of study. The examination shall be written and oral and shall cover the subject matter of graduate courses taken and the student's ability to conduct research, to express himself, to reason, and to integrate his knowledge. The student is required to provide evidence of personal research accomplishments (e.g., thesis, research projects, science and engineering technical reports) as part of the examination.

Notice of Intention

Before taking additional courses after completing the requirements for a master's degree or equivalent graduate hours, a student who expects to work for the PhD or DE is required to file a "Notice of Intention" in the Graduate School of Engineering. Unless this is accomplished, the courses taken beyond the master's degree requirement may not be accepted toward a doctoral degree. The Notice of Intention must be filed prior to mid-term of the first semester of enrollment. The proper form may be obtained in the Graduate School of Engineering.

Temporary Advisor

After receipt of the notice of intention of a student to become a candidate for either the PhD or the DE, and upon recommendation of the program director, the director of graduate engineering will designate a member of the graduate faculty to serve as temporary advisor to the student and assist in the initial selection of courses for the first semester of enrollment.

Advisory Committee

Before the end of the first semester, the student should consult with the program director and select a major professor to serve as the chairman of his advisory committee and to direct his research. An advisory committee of at least three graduate faculty members from the School of Engineering will then be recommended for approval to the director of graduate engineering. The composition of the committee will generally reflect the student's area of course study and research interest. At least one person having graduate faculty status will be appointed by the director of graduate engineering. The duties of the advisory committee shall consist of (1) advising the student, (2) assisting the student in preparing the complete program of study, (3) preparing and administering the candidacy examination, (4) assisting in the planning and conducting of the research, (5) approving the dissertation, and (6) conducting and reporting the results of the final examination. Appointment of additional members of the committee from outside the School of Engineering (i.e., other University faculty, adjunct professors, prominent researchers in industry or government) is encouraged. The majority of the committee, however, must be members of the School of Engineering graduate faculty.

Plan of Study

The plan of study shall include all the graduate work the student is expected to complete as determined by his advisory committee. The plan of study is to be submitted before the end of the first semester or prior to the pre-enrollment date for the 16th graduate hour beyond the master's degree or its equivalent. The plan shall include the specific courses and all other requirements (seminars, tools of research, research, etc.) which the student is expected to complete, indicating the time and manner in which these requirements are to be met.

Tools of Research

The needs of the student may differ with the educational objectives chosen. Therefore, the tools of research requirement will be determined by the advisory committee and approved by the department chairman or the program director. One from the following will be selected:

1. Command of one approved language, as evidenced by a satisfactory score on the Graduate Foreign Language Tests (GSFLT) in French, German or Russian.
2. Completion of 6 semester hours of selected and approved 400-level or higher courses in computer science and / or instrumentation measuring techniques with at least a B average.
3. Completion of 6 semester hours of graduate courses in a defined area of humanities and / or social sciences, related to his program of study objectives, with the grade of B or higher.

Courses taken in completing the tools of research requirement will not carry credit toward the degree. The method selected in satisfying this requirement is to be listed in the plan of study. This requirement must be satisfied prior to the candidacy examinations.

Period of Concentrated Study

After a student has filed a notice of intention, he must complete a period of concentrated study in order to be considered for the candidacy examination. This requirement can be met in either of two ways:

1. During three consecutive semesters, the student completes a minimum of 21 semester hours of graduate course work.
2. In any two of three consecutive semesters, the student completes a minimum of 18 semester hours of graduate course work.

Internship for DE

The DE internship is a minimum of one year of high level practicing engineering experience, and is normally conducted after the student has passed his candidacy examination. The internship phase of the program must be fully described in the proposal submitted as part of the candidacy examination. The candidate's internship advisor (generally his supervisor at his interning organization) will be added as a member of his advisory committee. The internship, as

part of the DE program of study, must be approved by the candidate's advisory committee, program director, and the director of graduate engineering. From 15 to 21 semester hours can be credited for the internship as part of the dissertation requirement for the Doctor of Engineering.

Candidacy Examination

The candidacy examination for either the PhD or the DE is generally to be taken when most of the course work as outlined on the approved plan of study has been completed. Its purpose is to determine the student's eligibility to become a candidate for the doctoral degree. The examination is comprehensive, covering the entire area of the student's graduate study. It will be both written and oral. The oral portion must follow the written portion by a minimum of two weeks. At least three members of the School of Engineering graduate faculty must participate in the preparation and the administering of the examination under the direction of the advisory committee. The director of graduate engineering has the right to appoint additional members to the examining committee. He must be informed of the date and place of the examinations and the membership of the committee at least two weeks before the examinations are given.

As part of the examination, the student must have completed a proposal outlining in detail the proposed area of dissertation study and research (for the PhD) or of the applied research dissertation project (for the DE). The proposal should clearly show the review of the literature in the area, the need for and the uniqueness of the research and / or investigation, the general approach to accomplishing the effort, results expected, detailed costs, the laboratories and / or other facilities needed, and a schedule of completion. In addition, the proposal by the candidate for the DE will explain the interdisciplinary role of the investigation. The student in either degree program must make a copy of this proposal available to each committee member prior to the written examination. (Note: the University of Dayton is not obligated to provide financial support for the research or investigation.)

The student must pass all parts of the examination (proposal, written examination, and oral examination) to be admitted to candidacy. He is considered to have passed only when the decision of the examining committee is unanimous. All members must sign the examination report form with an indication of their decision noted prior to its being submitted to the director of graduate engineering. If the student fails any part of the examination, he will be notified in writing of the conditions for another examination. No student will be permitted to take any part of the examination more than twice. A second examination may not be given earlier than four months after failure.

A student must be admitted to candidacy at least six months prior to receiving his doctor's degree.

Dissertation

A dissertation is required of each doctoral candidate (student who has passed the candidacy examination). The dissertation topic will be determined by the student in consultation with the advisor and approved by the advisory committee,

the program director, and the director of graduate engineering. *The PhD dissertation* presents the results of the student's research investigation. It is expected to make an original contribution to technical knowledge, of sufficient importance to merit publication. Also, an abstract not to exceed 600 words will be prepared for submittal to sources for possible acceptance of a publication. A list of technical journals should be attached as possible sources of publication. *The DE dissertation* presents the results of an original investigation as applied to engineering practice. Normally, this will be related directly to the candidate's internship or problems relating to his engineering experience or work. It must be a significant contribution of independent engineering work to merit a doctoral level publication. The student will also prepare an abstract.

The dissertation will be prepared in accordance with instructions outlined in the Guide for Preparation of Dissertation, copies of which are available in the Graduate Engineering Office.

The first draft of the dissertation should be in the hands of the advisor a minimum of six weeks before the end of the semester the degree is sought. Four copies of the dissertation in final form and ten copies of the abstract must be submitted to the Graduate School of Engineering at least four weeks before the end of the semester in which the degree is sought. These copies must bear the written approval of the advisor. The original copy of the dissertation and two copies of the abstract shall be filed in the Library one week prior to the end of the semester.

All doctoral dissertations are microfilmed by the University Microfilm, Inc., Ann Arbor, Michigan. The candidate must sign an agreement with the University Microfilm, Inc., which authorizes this firm to sell copies of his dissertation. Microfilmed dissertations may be copyrighted by the candidate. Fees will be assessed for the cost of microfilming and / or copyrights.

The student must obtain approval from his advisory committee to undertake all or part of his dissertation in absentia. A report requesting this permission must be submitted to the director of graduate engineering outlining in detail the relationship between the advisor and the candidate and the name and background of the person who will directly advise the candidate during the accomplishment of this independent research. This person will be added to his advisory committee.

Candidates must be registered for a minimum of two semester hours every semester during their candidacy including the semester the final examination is taken.

Final Examination

After the dissertation has been accepted by the Graduate Engineering Office but no earlier than six months after the successful candidacy examination, the candidate shall take a final oral examination to demonstrate to the examining committee that he has all the capabilities for which the doctor's degree is awarded. This is primarily the defense of the dissertation, though it need not be confined exclusively to it. The examination is open to all members of the

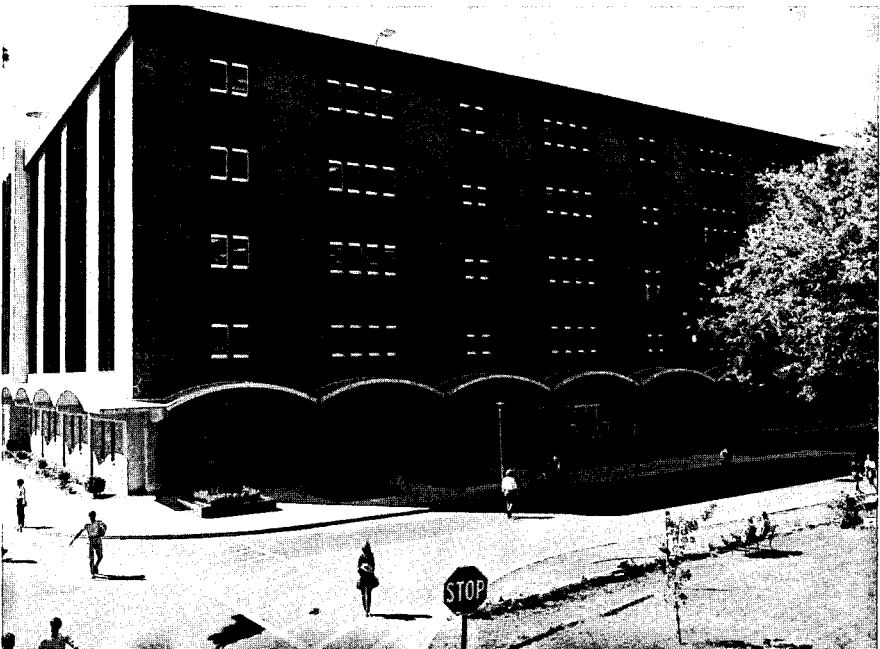
University of Dayton faculty and student body. At least ten days prior to the date of the examination, the candidate must have provided the committee with copies of the dissertation in final form and must have disseminated an announcement of the final examination to interested organizations.

The final examining committee normally includes the members of the candidate's advisory committee, with his advisor acting as chairman. The final examining committee shall consist of at least four members of the graduate faculty, at least one of whom is not directly involved in the program concerned and is appointed by the director of graduate engineering. The director of graduate engineering reserves the right to appoint additional committee members and must be informed of the place and time of the final examination at least ten days in advance.

After the examination, the committee will report its decision to the director of graduate engineering. In order to be satisfactory, the report of the examining committee must be unanimous and must be signed by all members. If the candidate fails by only one vote, the case will be referred to the Graduate Study Committee for appropriate action.

Time Limit

Students are expected to complete the requirements for the doctor's degree within five years after the candidacy examination has been passed. Failure to complete the requirements means that admission to candidacy will be cancelled.



AEROSPACE ENGINEERING (AEE)

Jay D. Pinson, Director of the Program

Aerospace Engineering is a major concentration for both the Doctor of Engineering and the Doctor of Philosophy in Engineering. See Doctoral Degree Regulations in the introductory section of this chapter and consult with the director of the program.

The program of study leading to the Master of Science in Aerospace Engineering must include a minimum of 30 semester hours of credit consisting of the following:

1. Twelve semester hours in the major area. Major areas of study include Flight Mechanics, Stability and Control, Fluid Mechanics, Design and Performance, Simulation, Materials and Structures, Propulsion, Energy Conversion, Heat and Mass Transfer.
2. Twelve semester hours of electives. Electives will be selected from current course offerings which best satisfy the student's requirements and meet with the advisor's approval.
3. Six semester hours of research on an approved project. Research projects may be replaced by 6 semester hours of additional course work with the approval of the advisor and the program director.

See also Master's Degree Regulations in the introductory section of this chapter and consult with the director of the program.

COURSES OF INSTRUCTION

AEE 501. ADVANCED AERODYNAMICS I: Fundamentals of aerodynamics including viscosity and compressibility phenomena for subsonic, supersonic, and transonic flow. Emphasis on force and moment determination for bodies, including theory of lift. *3 sem. hrs.*

AEE 502. ADVANCED AERODYNAMICS II: Advanced analytical development of viscous and compressible fluid theory as applied to vehicle performance in steady flight, accelerated flight, analysis of vehicle flight paths and trajectories. *3 sem. hrs.*

AEE 511. AIRCRAFT DESIGN: Preliminary design of aircraft, including aircraft layout, weight and size estimates, wing section and planform selection, determination of configuration aerodynamics, engine and inlet sizing, corrections to propulsion data, refined fuel estimates, weight and balance, stability and control, and performance determination. *3 sem. hrs.*

AEE 515. CONDUCTION HEAT TRANSFER: Steady state and transient state conduction. Evaluation of temperature fields by formal mathematics, numerical analysis, and analogic experiments. *3 sem. hrs.*

AEE 516. CONVECTION HEAT AND MASS TRANSFER: Development of governing differential equations for convection. Methods of solution including similarity methods, integral methods, superposition of solutions, eigen-value problems. Turbulent flow convection; integral methods, eddy diffusivities for heat and momentum. Extensions to mass transfer. Prerequisite: MEE 410. *3 sem. hrs.*

CIVIL ENGINEERING (CIE)

Seymour J. Ryckman, Chairman of the Department

The program of study for the Master of Science in Engineering must include a minimum of 30 semester hours consisting of the following:

1. Three to six semester hours in basic sciences.
2. Eighteen to 21 semester hours in Civil Engineering, Engineering Mechanics, and / or thesis-related courses approved by the student's advisor.
3. Six semester hours on an approved thesis project. Students engaged in thesis research enroll in CIE 599.

A final examination is required at the completion of the thesis.

See also Master's Degree Regulations in the introductory section of this chapter and consult with the advisor.

COURSES OF INSTRUCTION

CIE 500. ADVANCED STRUCTURAL ANALYSIS: Frames of variable cross section, arches; flat and folded plates; elastic stability of columns, frames, and plates; cylindrical, spherical, and barrel shells; structural dynamics of beam and frames. Prerequisites: CIE 406, EGM 304. *3 sem. hrs.*

CIE 501. STRUCTURAL ANALYSIS BY COMPUTER: Review of force and displacement methods. Introduction to direct element and substructure methods. Students write and execute, using computer terminals, their own programs to analyze plane and space trusses, grids, and plane and space frames. Prerequisite: CIE 406. *3 sem. hrs.*

CIE 502. PRESTRESSED CONCRETE: Discussion of the properties of concrete and prestressing steel. Theory and design of prestressed concrete beams, slabs, columns, frames, ties, and circular tanks. Prerequisite: CIE 407. *3 sem. hrs.*

CIE 503. PLASTIC DESIGN IN STEEL: Analysis and design procedures based on ultimate load capacity applied to steel beams, frames, and their connections. Concept of plastic hinge, necessary conditions for the existence of plastic moment, instability, deformations, repeated and reversed loading, and minimum weight design. Prerequisite: CIE 415. *3 sem. hrs.*

CIE 520. ADVANCED SOIL MECHANICS: Treatment of the theories of conventional soil mechanics. Detailed study and analysis of the static and dynamic properties of soils, with applications to foundation behavior. Prerequisite: CIE 312. *3 sem. hrs.*

CIE 524. FOUNDATION DESIGN: Analysis of earth pressure, stability of natural slopes, and bearing capacity of soil; design of spread foundations, pile foundations, beams on elastic foundations, anchored bulkheads, caissons, and cofferdams. Prerequisite: CIE 312. *3 sem. hrs.*

CIE 540. HIGHWAY GEOMETRIC DESIGN: Design controls and criteria, vehicle capacity, sight distance, intersection and interchange design. Prerequisite: CIE 405. *3 sem. hrs.*

CIE 544. TRAFFIC ENGINEERING: Characteristics of traffic, including the road user, the vehicle, origin, and destination surveys; traffic regulation, control devices and aids, design, administration, and planning. Prerequisite: CIE 405. *3 sem. hrs.*

- CIE 558. TRAFFIC ENGINEERING RESEARCH:** Problems in control or capacity restraints based on studies of local situations. *3 sem. hrs.*
- CIE 560. ADVANCED SANITARY ENGINEERING:** Stream pollution control and design of water and waste treatment plants and sewers. Prerequisites: CIE 433, 434. *3 sem. hrs.*
- CIE 562. INDUSTRIAL WASTE TREATMENT:** Nature and quality of specific industrial wastes and water supplies, treatment and disposal of industrial wastes. Prerequisites: CIE 433, 434. *3 sem. hrs.*
- CIE 580. HYDROLOGY AND SEEPAGE:** The deposition, movement, and infiltration of water as related to the hydrologic cycle and groundwater hydraulics; a study of the theory of flow in porous media with application to dams, excavations, and other foundation problems. Prerequisites: CIE 307, 312. *3 sem. hrs.*
- CIE 582. ADVANCED HYDRAULICS:** Problems and study involving open channel flow, draw down curves, hydraulics of dams, spillway, models, and water distribution systems. Prerequisites: CIE 307. *3 sem. hrs.*
- CIE 595. SPECIAL PROBLEMS IN CIVIL ENGINEERING:** Special assignments in civil engineering subject matter to be arranged and approved by the student's advisor and the department chairman. *2-6 sem. hrs.*
- CIE 599. THESIS:** Thesis topic to be arranged by student with approval of thesis advisor. Student must enroll for this course with total credit of 6 semester hours. *3-6 sem. hrs.*

SUPPORTING COURSES OF INSTRUCTION

- EGM 501. EXPERIMENTAL STRESS ANALYSIS:** A study of the experimental analysis of stress as an aid to design for strength and economy with emphasis on electrical strain gauges. Also photoelasticity, brittle coatings, photoelastic coatings, analogies, structural similitude. Two hours lecture and one three-hour laboratory period per week. Prerequisite: EGM 304. *3 sem. hrs.*
- EGM 519. ANALYTIC DYNAMICS:** Kinematics, relative motion, constraints and generalized coordinates, Hamilton's principle, Lagrange's equations, variational principles. Applications to particle dynamics and rigid body motion. Prerequisites: EGM 301, MTH 219 or equivalent. *3 sem. hrs.*
- EGM 530. APPLIED ELASTICITY:** Equations of equilibrium and continuity; solution of two-dimensional problems in rectangular and curvilinear coordinates by means of stress functions; St. Venant's principle; energy methods; stress concentrations; introduction to three-dimensional and thermal stress problems; application of finite difference equations. Prerequisite: EGM 304. *3 sem. hrs.*
- EGM 539. THEORY OF PLASTICITY:** Fundamentals of elasticity and plasticity, yield criteria, plastic stress-strain relations, theories of work hardening. Extremum principles. Application to problems of bending, torsion, plane stress, and plane strain. Slip line and limit analysis. Prerequisite: MEE 533. *3 sem. hrs.*
- EGM 595. SPECIAL PROBLEMS IN ENGINEERING MECHANICS:** Particular assignments to be arranged and approved by the chairman of the Department of Civil or Mechanical Engineering. *2-6 sem. hrs.*

ELECTRICAL ENGINEERING (ELE)

Bernhard M. Schmidt, Chairman of the Department

Electrical Engineering is a major concentration for both the Doctor of Engineering and the Doctor of Philosophy in Engineering. See Doctoral Degree Regulations in the introductory section of this chapter and consult with the departmental chairman and the director of the programs.

The program of study leading to the Master of Science in Electrical Engineering must include a minimum of 30 semester hours of credit consisting of the following:

1. Six semester hours in basic and engineering sciences. It is possible to combine three semester hours from separate areas. Selected courses must meet with the approval of the advisor.
2. Twelve semester hours in Electrical Engineering at the graduate level.
3. Six semester hours in thesis-supporting courses approved by the advisor.
4. Six semester hours on an approved thesis project. Students engaged in thesis research enroll in ELE 599.

A final examination is required at the completion of the thesis.

See also Master's Degree Regulations in the introductory section of this chapter, and consult with the advisor.

COURSES OF INSTRUCTION

ELE 502. NETWORK SYNTHESIS: Synthesis of linear passive networks using classical pole-zero techniques; conditions for physical realizability approximating network functions and design to meet specific requirements; analysis and synthesis of linear active networks. Prerequisites: ELE 332, 413. *3 sem. hrs.*

ELE 505. QUANTUM ELECTRONICS – PRINCIPLES: Principles of quantum theory; classical and quantum statistics; many-particle systems; electromagnetic interactions with materials. Applications to lasers and Q.M. communication theory. Prerequisite: ELE 440 or equivalent. *3 sem. hrs.*

ELE 506. SOLID STATE DEVICES: Introduction to the theory of solid state electron devices. Bulk devices, junction devices, devices involving electric, magnetic, optical, and acoustical interactions. *3 sem. hrs.*

ELE 507. ELECTROMAGNETIC FIELDS I: Fundamental concepts; introduction to waves; theorems of electromagnetics; plane wave function; cylindrical wave functions. Applications to extremely low frequency through optical frequency systems. Prerequisite: ELE 334. *3 sem. hrs.*

ELE 508. ELECTROMAGNETIC FIELDS II: Spherical wave functions; perturbational and variational techniques; radiative systems; microwave networks. Prerequisite: ELE 334. *3 sem. hrs.*

ELE 509. ANALYSIS OF LINEAR SYSTEMS: A study of Fourier series, finite trigonometric series, Fourier transforms, and their applications in the analysis of linear systems.

3 sem. hrs.

ELE 513. COMMUNICATION THEORY: The application of Fourier series and integrals to the analysis of communication problems; theory of random signals, autocorrelation, power density spectra, and optimum filters. Prerequisite: ELE 413.

3 sem hrs.

ELE 514. ANALYSIS OF NONLINEAR SYSTEMS: An advanced study of methods of analysis of nonlinear systems with applications in the fields of electric circuit theory and control systems. Prerequisite: ELE 509.

3 sem hrs.

ELE 515. AUTOMATIC CONTROL THEORY: Analysis and synthesis of feedback control systems; graphical frequency-response techniques; establishing performance criteria; state-space techniques. Prerequisite: ELE 432.

3 sem. hrs.

ELE 517. RANDOM PROCESSES IN SYSTEM THEORY I: A coherent, semiformal introduction to the theory of probability and random processes as applied to system theory. The axioms of probability; the concept of random variable, distributions, density; function of random variables; stochastic processes; stationary processes; linear mean square estimation; Markov processes. Prerequisite: ELE 331 or consent of instructor.

3 sem. hrs.

ELE 518. ESTIMATION THEORY AND ITS APPLICATIONS: A unified approach to the theory of estimation as applied to engineering problems of communication and control. Review of probability and linear dynamical systems, analysis of discrete and continuous linear stochastic systems; frequency and time domain solution of the linear estimation problem; applications to current engineering problems of communication and control. Prerequisite: ELE 517.

3 sem. hrs.

ELE 521. CONDUCTORS AND DIELECTRICS: Ionic and metallic conduction; thermo-electric phenomena; conductors for various engineering application; physics of "nonconductors"; ferro-electricity; electrets; piezoelectricity; optical properties; specialty materials. Prerequisite: ELE 505.

3 sem. hrs.

ELE 522. MAGNETIC MEASUREMENTS AND INSTRUMENTS: Magnetic material properties; quantities and units. Field generation; measurement of field strength, magnetic moment and induction. A.C. permeability, iron losses, waveforms. Permanent magnet properties. Static and dynamic hysteresis loops. Magnetic domain observation. Thermomagnetic analysis. Two weekly lecture hours and five laboratory sessions of 4 hours each. Prerequisite: ELE 524 or consent of instructor.

3 sem hrs.

ELE 523. PERMANENT MAGNETS: Basic properties and description. Magnetic circuit design. Magnet material types and properties. Physics and metallurgy of permanent magnets. Property measurement. Engineering applications. Present research activities. Three weekly lecture hours and five laboratory sessions of 4 hours each. Field trip to magnet manufacturer. Prerequisite: ELE 524 or consent of instructor.

4 sem hrs.

ELE 524. MAGNETIC MATERIALS – PHYSICAL PRINCIPLES: Description of magnetic material properties. The magnetic circuit. Atomic magnetism. Types of magnetic order and spin structures. Intrinsic magnetization. Molecular field concept. Anisotropy. Magnetostriction. Magnetic resonances. Prerequisite: ELE 333 or consent of instructor.

3 sem. hrs.

ELE. 531. DIGITAL SYSTEMS THEORY I: Switching circuit theory: number systems, truth functions, Boolean algebra, switching devices, codes, relay circuits, and an introduction to sequential circuits. Prerequisite: ELE 313 or consent of instructor.

3 sem. hrs.

ELE 532. DIGITAL SYSTEMS THEORY II: Sequential circuit theory; clocked sequential circuits, incompletely specified sequential circuits, pulse-mode circuits, fundamental mode circuits. Prerequisite: ELE 531. *3 sem. hrs.*

ELE 533. DIGITAL SYSTEMS THEORY III: Digital computer design: digital arithmetic, switching matrices, digital computer elements, arithmetic and control units, the logic design of a simple digital computer. Prerequisite: ELE 532. *3 sem. hrs.*

ELE 534. DIGITAL SYSTEMS THEORY IV: Advanced sequential machine theory; finite state machines, regular expressions, lossless machines, bilateral analysis and synthesis procedures, sequential iterative systems. Prerequisite: ELE 532. *3 sem. hrs.*

ELE 535. CODING THEORY: The theory of error-correcting, error-detecting codes as applied to the design of reliable digital data systems. Prerequisite: ELE 532. *3 sem. hrs.*

ELE 536. MICROCOMPUTERS I: Basic computer architecture, arithmetic logic units, calculator chips, micro-processors, timing and instruction cycles, system architecture, programming, cross assembly. Prerequisite: ELE 533 or digital design experience. *3 sem. hrs.*

ELE 537. MICROCOMPUTERS II: Advanced microcomputer design, teletype I/O, asynchronous receiver-transmitters, interface design, control topics, cross assembly, high order languages, system considerations. Prerequisite: ELE 536 or equivalent design experience. *3 sem. hrs.*

ELE 541. POWER ELECTRONICS: Applications of power semiconductors to power conversion, control amplification, and regulation, in the light of an integrated, quantitative treatment of mechanical, thermal, and electrical characteristics and ratings; modeling for linear, nonlinear and switching modes; and thermal and electric circuit interactions. Prerequisite: ELE 313 or equivalent. *3 sem. hrs.*

ELE 551. ELECTRICAL POWER SYSTEM DYNAMICS: Basic structure of the electrical power transmission system; criteria for system stability; symmetrical components; synchronous machine equations of motion, transients and dynamics; transmission line surges, short circuit calculations. Prerequisites: ELE 334, 431. *3 sem. hrs.*

ELE 555. SYSTEM DYNAMICS I: The methodology for modeling the dynamics of complex social-economic systems. Use of these models to study organizational policies and design for higher order multiple-loop, nonlinear feedback structures. *3 sem. hrs.*

ELE 595. SPECIAL PROBLEMS IN ELECTRICAL ENGINEERING: Particular assignments to be arranged and approved by the chairman of the department. *2-6 sem. hrs.*

ELE 599. THESIS: Students engaged in thesis research must enroll for this course for a total of six semester hours. *3-6 sem. hrs.*

ELE 602. MAGNETIC EXCHANGE INTERACTION THEORIES: Molecular field theory of ferro-, ferri-, and antiferromagnets. Direct, indirect, and super-exchange interactions. Localized-ion vs. band-model theories. Complex magnetic spin structures. Emphasis on physical concepts rather than detailed mathematical development. Prerequisite: ELE 524 or consent of instructor. *2 sem. hrs.*

ELE 603. MAGNETIC ANISOTROPY AND MAGNETOSTRICTION: Mathematical description of magnetic anisotropy and magneto-elastic phenomena. Physical causes of magneto-crystalline anisotropy and magnetostriction. Relationship to theory of magnetic exchange. Prerequisite: ELE 524 or consent of instructor. *2 sem. hrs.*

ELE 626. SYSTEM DYNAMICS II: The continuation of System Dynamics I with special emphasis on the study of large scale corporate, urban, educational, and ecological systems. Prerequisite: ELE 555. *3 sem. hrs.*

ELE 690. SELECTED READINGS IN ELECTRICAL ENGINEERING: Directed readings in electrical engineering areas to be arranged and approved by the chairman of the student's advisory committee and the department chairman. May be taken more than once. *1-3 sem. hrs.*

ELE 695. SPECIAL PROBLEMS IN ELECTRICAL ENGINEERING: Special electrical engineering topics not covered in regular courses. Course sections arranged and approved by chairman of the student's advisory committee and the department chairman. May be taken more than once. *1-3 sem. hrs.*

ELE 698. DE DISSERTATION: An original investigation as applied to engineering practice. Results must be of sufficient importance to merit publication. *1-15 sem. hrs.*

ELE 699. PhD DISSERTATION: An original research effort in electrical engineering which makes a definite contribution to technical knowledge. Results must be of sufficient importance to merit publication. *1-15 sem. hrs.*



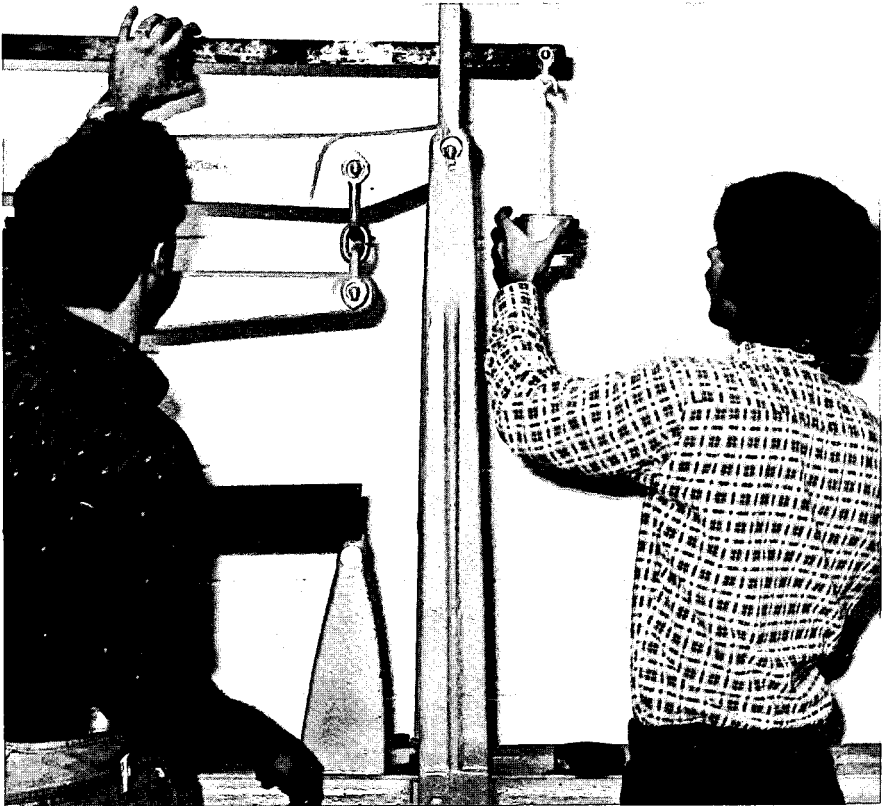
ENGINEERING (EGR)

Jay D. Pinson, Director of the Program

The Master of Science in Engineering allows flexibility for general or specialized program construction according to the needs of the individual student in conformance with the requirements of the School of Engineering and the University of Dayton. The program of study leading to the Master of Science in Engineering must include a minimum of 30 semester hours of the following:

1. Twelve semester hours in a major area.
2. Twelve semester hours of electives.
3. Six semester hours of research on an approved project.

See also Master's Degree Regulations in the introductory section of this chapter, and consult with the director of the Master of Engineering program.



ENGINEERING MANAGEMENT (ENM)

John R. Fraker, Director of the Program

The program of study leading to the Master of Science in Engineering Management is designed to prepare the practicing engineer for the management of engineering activities in any environment – industry, government, business, the military. It must include a minimum of 36 semester hours consisting of the following:

1. Eighteen to 21 semester hours of hours of core courses in Engineering Management. These are ENM 505, 530, 535, 582, 585, and 590. (ENM 590 is a variable-credit course; it requires an engineering report of a project in engineering management.)
2. Nine semester hours of engineering electives. This requirement will normally be satisfied by nine semester hours of courses in the student's own field of engineering.
3. Six to nine hours of electives as approved by the advisor and the program director.

See also Master's Degree Regulations in the introductory section of this chapter, and consult with the advisor.

COURSES OF INSTRUCTION

ENM 505. MANAGEMENT OF ENGINEERING SYSTEMS: Introduction to the functions and tools of engineering management, the specific roles and relationships of engineering activities in the total enterprise, the techniques of systems analysis, engineering system design, and system optimization. 3 sem. hrs.

ENM 506. ENGINEERING MANAGEMENT AND SOCIETY: Important governmental and societal dimensions affecting the design, fabrication, and production of engineering systems. 3 sem. hrs.

ENM 530. COST AND ECONOMIC ANALYSIS FOR ENGINEERS: Principles and methods of economic analysis of engineering activities. The time value of money, short-and-long-term investments, comparison of alternatives, replacement analysis, and minimum cost models. 3 sem. hrs.

ENM 535. ENGINEERING DECISION-MAKING: Introduction to rational decision-making with applications in the analysis and design of engineering systems. Decision-making under uncertainty and risk as well as under certainty. Corequisite: MTH 368 or equivalent. 3 sem. hrs.

ENM 541. PRODUCTION ENGINEERING: The design of systems of men and machines for the production process: forecasting, scheduling, production and inventory control, staffing, plant layout, and equipment replacement. Prerequisite: ENM 535 or equivalent. 3 sem. hrs.

ENM 551. POLICY ANALYSIS AND PLANNING IN PUBLIC SYSTEMS I: General introduction and conceptual framework for discussing the diagnosis, design, and management of complex large scale public systems. An attempt to integrate the disciplines and tools

MATERIALS ENGINEERING (MAT)

Alden E. Ray, Director of the Program

Materials Engineering is a major concentration for both the Doctor of Engineering and the Doctor of Philosophy in Engineering. See Doctoral Degree Regulations in the introductory section of this chapter and consult with the director of the programs.

The program of study leading to the Master of Science in Materials Engineering must include a minimum of 30 semester hours consisting of the following:

1. Twelve semester hours in the major field.
2. Twelve semester hours of approved electives from current course offerings which best suit the student's requirements.
3. Six semester hours of research on a Materials Engineering project or thesis. Upon the request of the student and with the approval of the advisor and the program director, this may be replaced by six semester hours of additional course work.

See also Master's Degree Regulations in the introductory section of this chapter, and consult with the advisor.

COURSES OF INSTRUCTION

MAT 501. PRINCIPLES OF MATERIALS I: The electronic, atomic, submicroscopic, microscopic, and macroscopic structures of crystalline solids, including bonding, electron theory of metals, crystals, dislocations, phase diagrams, phase transformations, and diffusion. Prerequisite: MTH 219. *3 sem. hrs.*

MAT 502. PRINCIPLES OF MATERIALS II: A general introduction to the mechanical and electronic properties of materials. Elasticity; plasticity creep; fracture; electrical and thermal processes; magnetic, dielectric and optical properties. Prerequisite: MAT 501. *3 sem. hrs.*

MAT 503. X-RAY CRYSTALLOGRAPHY: Introduction to the fundamentals of crystallography and x-ray diffraction techniques with application to the study of materials. Two hours lecture and one three-hour laboratory per week. Prerequisite: MAT 501 or consent of instructor. *3 sem. hrs.*

MAT 504. TECHNIQUES IN MATERIALS ANALYSIS: Fundamentals and applications of the traditional analytical methods such as metallography, x-ray analysis, electron microprobe, transmission and scanning electron microscopy. Recent techniques: NMR, EPR, atomic absorption, Raman and Mossbauer spectroscopy, holography, ESCA and Auger spectroscopy. Emphasis on applicability. Prerequisite: MAT 501 or consent of instructor. *3 sem. hrs.*

MAT 505. THERMODYNAMICS OF SOLIDS: Thermodynamic properties of solutions and intermediate phases. Equilibrium behavior of phase mixtures. Representation of multi-component phase diagram. Experimental determination and prediction of phase diagrams. Prerequisite: MAT 502 or consent of instructor. *3 sem. hrs.*

MAT 506. MECHANICAL BEHAVIOR OF MATERIALS: Description of the state of stress and strain in materials, plastic deformation, fatigue, fracture, creep, and rupture. Prerequisite: MAT 502 or consent of instructor. *3 sem. hrs.*

MAT 507. INTRODUCTION TO CERAMIC MATERIALS: Ceramic raw materials, manufacturing processes, and unique properties of ceramic products: glasses, porcelain enamels, ceramic-metal seals, electrical and magnetic ceramics, refractories, and ceramics for special applications. Prerequisite: MAT 501. *3 sem. hrs.*

MAT 508. PRINCIPLES OF MATERIALS SELECTION: Basic scientific and practical consideration involved in the intelligent selection of materials for specific applications. Impact of new developments in materials technology and analytical techniques. Prerequisite: MAT 501 or consent of instructor. *3 sem. hrs.*

MAT 509. INTRODUCTION TO POLYMER SCIENCE: Introduction to polymers. A largely nonmathematical survey of the field. Prerequisites: college chemistry and calculus. *3 sem. hrs.*

MAT 510. PHYSICAL PROPERTIES OF POLYMERS: Intensive discussion of the interrelations between molecular and gross physical properties of polymers. Prerequisites: MAT 509 or equivalent, background in differential equations. *3 sem. hrs.*

MAT 511. PRINCIPLES OF CORROSION: Application of electrochemical principles, corrosion reactions, passivation, cathodic and anodic protection, stress corrosion, and high temperature oxidation. *3 sem. hrs.*

MAT 512. MAGNETIC MATERIALS – PHYSICAL PRINCIPLES: Description of magnetic material properties. The magnetic circuit. Atomic magnetism. Types of magnetic order and spin structure. Intrinsic magnetization. Molecular field concept. Anisotropy. Magnetostriction. Magnetic resonances. Prerequisite: ELE 333 or consent of instructor. *3 sem. hrs.*

MAT 513. MAGNETIC MATERIALS FOR ENGINEERING APPLICATIONS: Magnetic domains. Technical magnetization and domain structure. A.C. properties, losses, eddy currents. Causes of coercivity. Metallic and ceramic materials for transformers, electrical machinery, permanent magnets, HF devices, data recording, computer memories. Metallurgy and crystallography of magnetic materials. Prerequisite: MAT 512 or consent of instructor. Note: Simultaneous attendance in MAT 513S is recommended. *3 sem. hrs.*

MAT 513S. MAGNETIC MATERIALS PROSEMINAR *1 sem. hr.*

MAT 514. APPLIED SUPERCONDUCTIVITY – AN INTRODUCTION: Basic phenomena. Theoretical concepts. Superconductive materials – types, properties, physics, metallurgy. Superconducting magnets. Other present and future engineering applications. Prerequisite: consent of instructor. *2 sem. hrs.*

MAT 515. STATISTICAL THERMODYNAMICS: Microscopic thermodynamics; kinetic theory; virial theorem of Clausius; transport phenomena; Gibbs, Boltzman, Bose-Einstein, Fermi-Dirac statistics. Connection between statistical and thermodynamic quantities. Applications to perfect and real gases, liquids, crystalline solids, and thermal radiation. Information theory, irreversible thermodynamics. Prerequisites: MEE 301, MTH 219. *3 sem. hrs.*

MAT 550. MATERIALS ENGINEERING PROJECT: Student participation in a materials engineering project under the direction of a project advisor. The student prepares a satisfactory written report, as determined by the project advisor, and presents an open seminar on the subject of the project. *1-6 sem. hrs.*

MAT 590. SELECTED READINGS IN MATERIALS ENGINEERING: Directed readings in selected area of materials engineering arranged and approved by the student's advisor and the program director. *1-3 sem. hrs.*

MAT 595. SPECIAL PROBLEMS IN MATERIALS ENGINEERING: Special assignments arranged by the materials engineering faculty. *1-3 sem. hrs.*

MAT 601. SURFACE CHEMISTRY OF SOLIDS: The nature of solid surfaces and their importance to chemical and physical reactions at solid-gas, solid-liquid, and solid-solid interfaces. Prerequisites: MAT 501 and 502 or consent of instructor. *3 sem. hrs.*

MAT 602. MAGNETIC EXCHANGE INTERACTION THEORIES: Molecular field theory of ferro-, ferri-, and antiferromagnets. Direct, indirect, and super-exchange interactions. Localized-ion vs. band-model theories. Complex magnetic spin structures. Emphasis on physical concepts rather than detailed mathematical developments. Prerequisite: MAT 513 (ELE 524) or consent of instructor. *2 sem. hrs.*

MAT 603. MAGNETIC ANISOTROPY AND MAGNETOSTRICTION: Mathematical description of magnetic anisotropy and magneto-elastic phenomena. Physical causes of magneto-crystalline anisotropy and magnetostriction. Relationship to theory of magnetic exchange. Prerequisite: MAT 513 (ELE 524) or consent of instructor. *2 sem. hrs.*

MAT 690. SELECTED READINGS IN MATERIALS ENGINEERING: Directed readings in materials engineering area arranged and approved by the chairman of the student's advisory committee and the program director. May be repeated. *1-3 sem. hrs.*

MAT 695. SPECIAL PROBLEMS IN MATERIALS ENGINEERING: Special assignments in materials engineering subject matter arranged and approved by the student's doctoral advisory committee and the program director. May be repeated. *1-3 sem. hrs.*

MAT 698. DE DISSERTATION: An original investigation as applied to materials engineering practice. Results must be of sufficient importance to merit publication. *1-15 sem. hrs.*

MAT 699. PhD DISSERTATION: An original research effort which makes a definite contribution to technical knowledge. Results must be of sufficient importance to merit publication. *1-15 sem. hrs.*

MECHANICAL ENGINEERING (MEE)

Howard E. Smith, Chairman of the Department

Mechanical Engineering is a major concentration for both the Doctor of Engineering and the Doctor of Philosophy in Engineering. See Doctoral Degree Regulations in the introductory section of this chapter and consult with the departmental chairman and the director of the programs.

For the Master of Mechanical Engineering, major areas of concentration are Materials Engineering, Thermal Engineering, Fluid Mechanics, Solid Mechanics, and Mechanical Design. Each program of study leading to this master's degree must include a minimum of 30 semester hours consisting of the following:

1. Twelve to 15 semester hours in Mechanical Engineering courses to be selected from the following:

Materials Engineering – MEE 501, 502, 505, 506, 508, 590A.

Thermal Engineering – MEE 500, 511, 512, 513, 514, 515, 516, 517, 565.

Fluid Mechanics – MEE 500, 516, 551, 552, 553, 590C, 595.

Solid Mechanics – MEE 500, 533, 535, 537, 538, 539, 590D, 595.

Mechanical Design – MEE 500, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 545, 590E, 595.

2. One to six semester hours of MEE 550, Mechanical Engineering Project. Upon the request of the student and with the approval of the faculty advisor and the department chairmen, the project may be replaced by six semester hours of additional course work.

3. Nine to 12 semester hours of electives, to be chosen from current course offerings which best suit the student's requirements.

See also Master's Degree Regulations in the introductory section of this chapter and consult with the advisor.

COURSES OF INSTRUCTION

Students who have completed work equivalent to the stated prerequisite courses may be enrolled in these courses with the consent of the instructor.

MEE 500. ADVANCED ENGINEERING ANALYSIS: Utilization of fundamental principles from mechanics and thermodynamics along with auxiliary laws from the various engineering disciplines for the analysis of practical problems from industry. Emphasis on the professional engineering approach which includes formulation of problem, assumptions, plan or method of attack, solving the problem, checking, and generalizing the results. *3 sem. hrs.*

MEE 501. PRINCIPLES OF MATERIAL I: The electronic, atomic, submicroscopic, microscopic, and macroscopic structures of crystalline solids. Bonding, electron theory of metals, crystals, dislocations, phase diagrams, phase transformations, and diffusion. Prerequisite: MTH 219. *3 sem. hrs.*

MEE 502. PRINCIPLES OF MATERIALS II: General introduction to the mechanical and electronic properties of materials. Elasticity; plasticity; creep; fracture; electrical and thermal processes; magnetic, dielectric, and optical properties. Prerequisite: MEE 501. *3 sem. hrs.*

MEE 505. THERMODYNAMICS OF SOLIDS: Thermodynamic properties of solutions and intermediate phases. Equilibrium behavior of phase mixtures. Representation of multi-component phase diagrams. Experimental determination and prediction of phase diagrams. Prerequisite: MEE 302, 502, or consent of instructor. *3 sem. hrs.*

MEE 506. MECHANICAL BEHAVIOR OF MATERIALS: Description of the state of stress and strain in materials, plastic deformation, fatigue, fracture, creep, and rupture. Prerequisite: MEE 502 or consent of instructor. *3 sem. hrs.*

MEE 508. PRINCIPLES OF MATERIALS SELECTION: Basic scientific and practical consideration involved in the intelligent selection of materials for specific applications. Impact of new developments in materials technology and analytical techniques. Prerequisite: MEE 501 or consent of instructor. *3 sem. hrs.*

MEE 511. CLASSICAL THERMODYNAMICS: Equilibrium, first law, second law, state principle, and zeroth law; development of entropy and temperature from availability concepts; chemical potential, chemical equilibrium, and phase equilibrium. Thermodynamics of irreversible processes; Onsager reciprocal relations; application of these concepts to diffusion, electronic phenomena in solids, direct energy conversion, and biological problems. *3 sem. hrs.*

MEE 512. STATISTICAL THERMODYNAMICS: Microscopic thermodynamics; kinetic theory; virial theorem of Clausius; transport phenomena; Gibbs, Boltzmann, Bose-Einstein, Fermi-Dirac statistics. Connection between statistical and thermodynamic quantities. Applications to perfect and real gases, liquids, crystalline solids, and thermal radiation. Information theory, irreversible thermodynamics. Prerequisites: MEE 301, MTH 219. *3 sem. hrs.*

MEE 513. PROPULSION: Principles of propulsive devices, aerothermodynamics, diffuser and nozzle flow, energy transfer in turbo-machinery, turbojet, turbo-fan, prop-fan engines, turbo-prop and turboshaft engines, RAM and SCRAM jet analysis and a brief introduction to related materials and air frame-propulsion interaction. Prerequisite: MEE 418. *3 sem. hrs.*

MEE 514. DIRECT ENERGY CONVERSION: Introduction to the principles of direct energy conversion. Irreversible thermodynamics; semiconductors; thermoelectric and photovoltaic devices; magnetohydrodynamics; electrofluid-dynamic energy conversion; fuel cells. Prerequisites: MEE 302, 303. *3 sem. hrs.*

MEE 515. CONDUCTION HEAT TRANSFER: Steady state and transient state conduction. Evaluation of temperature fields by formal mathematics, numerical analysis, and analogic experiments. *3 sem. hrs.*

MEE 516. CONVECTION HEAT AND MASS TRANSFER: Development of governing differential equations for convection. Methods of solution including similarity methods, integral methods, superposition of solutions, eigenvalue problems. Turbulent flow convection; integral methods, eddy diffusivities for heat and momentum. Extensions to mass transfer. Prerequisite: MEE 410. *3 sem. hrs.*

MEE 517. RADIATION HEAT TRANSFER: Fundamental relationships of radiation heat transfer. Radiation characteristics of surfaces. Geometric considerations in radiation exchange between surfaces. Emissivity and absorptivity of gases. Introduction to radiative exchange in gases. *3 sem. hrs.*

MEE 531. KINEMATIC SYNTHESIS OF MECHANISMS: Synthesis of mechanisms generating a predetermined motion. Introduction to spatial mechanisms. *3 sem. hrs.*

MEE 532. ENVIRONMENTAL ACOUSTICS AND VIBRACOUSTICS: Physics of sound propagation. Physiological and legal aspects of sound. Measurement and analysis of sound

and vibrations. Vibration and sound control techniques, source modifications, path modifications, receiver modifications. Acoustic considerations in machine design. 3 sem hrs.

MEE 533. THEORY OF ELASTICITY: Analysis of three-dimensional stress and strain at a point; equations of elasticity in orthogonal curvilinear coordinates and cartesian coordinates, including strain-displacement relations, force balance equations, stress-strain relations, and mechanical and imposed displacement boundary conditions; methods of formulation of equations for solution; plane stress and plane strain; torsion; energy formulations of elasticity problems; numerical solution procedures. Prerequisites: EGM 303, MTH 219. 3 sem. hrs.

MEE 534. THEORY OF PLATES AND SHELLS: Theory of plates: small displacement-no shear deformation; small displacements-shear deformation; large displacement-small strains; buckling; sandwich plate theory. Thin shell theory: topics from the theory of surfaces; thin shell equations in orthogonal curvilinear coordinates; bending, membrane, and shallow shell theories; cylindrical, toroidal, and general shells of revolution; numerical integration applied to stress and vibration problems of shells of revolution. Prerequisite: MEE 533. 3 sem. hrs.

MEE 535. MECHANICAL VIBRATIONS: Multi-degree of freedom systems, Lagrange's equations, transient vibrations, vibrations of continuous systems. Matrix and numerical methods. Introduction to finite element method and to nonlinear vibrations. Prerequisite: MEE 319. 3 sem. hrs.

MEE 536. FEEDBACK CONTROL SYSTEMS: Study of automatic controls involving hydraulic, pneumatic, and mechanical systems; linear state space techniques; stability analysis; nonlinear system analysis and stability, describing functions, and the direct method of Liapunov. Prerequisite: MEE 435. 3 sem. hrs.

MEE 537. MATRIX STRUCTURAL ANALYSIS: Matrix formulations of structures using direct and energy approaches; displacement, force, and combined methods; the finite element technique. Applications to spring-mass systems, bars, beams, trusses, plate, and shells. Computer solution of elected problems. Prerequisite: MEE 534. 3 sem. hrs.

MEE 538. STABILITY OF NONCONSERVATIVE ELASTIC SYSTEMS: Static method of stability prediction for elastic systems subjected to conservative forces. Dynamic method when forces are nonconservative. Follower forces. Stability of flexible shafts, rotors, centrifuges. Aeroelasticity and wing flutter. Panel and membrane flutter in supersonic flow. Galerkin's method. 3 sem. hrs.

MEE 539. THEORY OF PLASTICITY: Fundamentals of elasticity and plasticity, yield criteria, plastic stress-strain relations, theories of work hardening. Extremum principles. Application to problems of bending, torsion, plane stress, and plane strain. Slip line and limit analysis. Prerequisite: MEE 533. 3 sem. hrs.

MEE 540. BEARINGS AND BEARING LUBRICATION: Theoretical aspects of lubrication; determination of pressure distribution in bearings from viscous flow theory; application of hydrodynamic and hydrostatic bearing theories to the design of bearings; high-speed bearing design problems; properties of lubricants; methods of testing. 3 sem. hrs.

MEE 541. ELASTO-HYDRODYNAMIC LUBRICATION: Application of theory of elasticity to contact stresses; elasto-hydrodynamic theory with applications involving various contact geometry including bearings and gears. Experimental apparatus for measurements of film thickness, shape, and pressure distribution. Prerequisite: MEE 540. 3 sem. hrs.

MEE 542. BOUNDARY LUBRICATION: Physical chemistry of lubricants and surfaces; mechanisms of wear; material requirements for sliding and rolling contact; solid lubricants; experimental analysis and techniques. 3 sem. hrs.

- MEE 545. COMPUTER AIDED DESIGN:** Modeling of mechanical systems and structures, analysis by analytical and numerical methods, development of mechanical design criteria and principles of optimum design, selected topics in mechanical design and analysis, utilization of the digital computer as an aid in the design of mechanical elements. *3 sem. hrs.*
- MEE 550. MECHANICAL ENGINEERING PROJECT:** Student participation in a departmental research, design, or development project under the direction of a project advisor. The student must show satisfactory progress as determined by the project advisor and present a written report at the conclusion of the project. *1-6 sem. hrs.*
- MEE 551. VISCOUS FLOW:** Fundamentals of viscous flow. Navier-Stokes and boundary layer equations. Exact and approximate solutions of these equations using modern computational procedures for both laminar and turbulent flows. Prerequisite: MTH 403. *3 sem. hrs.*
- MEE 552. POTENTIAL FLOW:** Fundamental equations, kinematics and dynamics of fluid flow. Principles of irrotational flow. Conformal representation of two-dimensional flow. Prerequisite: MEE 308; corequisite: MTH 404. *3 sem. hrs.*
- MEE 553. COMPRESSIBLE FLOW:** Fundamental equations of compressible flow, introduction to flow in two and three dimensions. Two-dimensional supersonic flow, small perturbation theory, method of characteristics, oblique shock theory. Introduction to unsteady one-dimensional motion and shock tube theory. Prerequisite: MEE 418. *3 sem. hrs.*
- MEE 565. FUNDAMENTALS OF COMBUSTION:** Heat of combustion and flame temperature calculations; rate of chemical reaction and Arrhenius relationship; theory of thermal explosions and the concept of ignition delay and critical mass; phenomena associated with hydrocarbon-air combustion; specific applications of combustion. *3 sem. hrs.*
- MEE 566. COMBUSTION THEORY:** Theory of detonation (Rankine-Hugoniot relationships) and flame propagation rates in pre-mixed gas systems; turbulent flames and the well-stirred reactor; theory of diffusion flames; fuel droplet combustion; steady burning of solid materials; ignition and flame spreading across solid materials. *3 sem. hrs.*
- MEE 567. HEATING AND COOLING ANALYSIS OF BUILDINGS:** Topics dealing with thermal environments and methods of control: psychrometrics; insulation studies; industrial and residential environments; air-conditioning and heating load calculations; energy conservation building structures; refrigeration principles; heat pump and absorption systems; solar radiation; solar heating, cooling, and thermal storage systems. Prerequisite: MEE 302. *3 sem. hrs.*
- MEE 590. SELECTED READINGS:** Directed readings in a designated area arranged and approved by the student's faculty advisor and the departmental chairman. May be repeated. (A) Materials Engineering, (B) Thermal Engineering, (C) Fluid Mechanics, (D) Solid Mechanics, (E) Mechanical Design. *1-3 sem. hrs. each*
- MEE 595. SPECIAL PROBLEMS IN MECHANICAL ENGINEERING:** Special assignments in mechanical engineering subject matter arranged and approved by the student's faculty advisor and the departmental chairman. *1-6 sem. hrs.*
- MEE 690. SELECTED READINGS:** Directed readings in a designated area arranged and approved by the student's doctoral advisory committee and the departmental chairman. May be repeated. (A) Materials Engineering, (B) Thermal Engineering, (C) Fluid Mechanics, (D) Solid Mechanics, (E) Mechanical Design. *1-3 sem. hrs. each*
- MEE 695. SPECIAL PROBLEMS IN MECHANICAL ENGINEERING:** Special assignments in mechanical engineering subject matter arranged and approved by the student's doctoral advisory committee and the department chairman. May be repeated. *1-6 sem. hrs.*
- MEE 698. DE DISSERTATION:** An original investigation as applied to mechanical engineering practice. Results must be of sufficient importance to merit publication. *1-15 sem. hrs.*
- MEE 699. PhD DISSERTATION:** An original research effort which makes a definite contribution to technical knowledge. Results must be of sufficient importance to merit publication. *1-15 sem. hrs.*

X School of Law

Richard L. Braun, Dean
Fred M. Greguras, Assistant Dean

The plan and design of the law program is predicated on a careful consideration of what law demands of those who choose it as a profession: a high level of competence in the knowledge, theory, and practice of law. In order that the student may achieve such competence, the University of Dayton School of Law regards as its primary responsibility the maintenance of a program of studies that is both thorough and exacting.

The program recognizes that the lawyer must fulfill several roles: counselor, advocate, member of a profession, and public servant. As a counselor, the lawyer must be prepared for the reality that legal matters are often interrelated with other factors, sometimes very personal ones, in an attorney-client relationship. As an effective advocate, the lawyer must be capable of securing for the client the rights and privileges the law accords. As a member of a profession, the lawyer has a responsibility to earn the respect and confidence of the public essential to a sound legal and judicial system. As a public servant, the lawyer must realize that the very nature of his training and profession imposes the duty of leadership and service.

Accordingly, the Law School does not stint in its treatment of the substance and procedure of the law, legal institutions, and jurisprudence. The faculty view the substance of the law as involving not only what the law is but also its theory, philosophy, and development. Some courses focus directly on the dimensions of social justice and the underlying values of the legal method and system. Other courses treat thoroughly practice and application. Still others provide for specialized development. Necessary compartmentalizing of courses, however, need not nor does it here result in overlooking the necessity of their integration. The Law School likewise recognizes that not all learning takes place in the classroom. Frequent association with members of the profession and the judiciary, exposure to actual practice, and participation in professional events are important parts of learning law.

In summary, legal education at the University of Dayton is based on the belief that the lawyer must be able to offer his clients and the public the combination of competence in legal knowledge and skill, sensitivity to personal values and behavior, and awareness of moral and ethical responsibility that befit the profession.

ADMISSION REQUIREMENTS

Admission to the School of Law is not based on color, sex, creed, or national origin.

The candidate for admission must have a bachelor's degree from an accredited college or university before admission to the Law School. The candidate must achieve a satisfactory score on the Law School Admissions Test (LSAT). This test is administered periodically by the Educational Testing Services (20 Nassau St., Princeton, N.J. 08540) in a number of testing centers throughout the country, one of which is the University of Dayton. It is advisable to take the test at the earliest possible time. For current testing dates contact the dean's office of the School of Law. Law School Admission Test results should be sent directly to the University of Dayton School of Law as a part of the LSDAS report by the Educational Testing Service. In requesting LSAT scores, indicate the University of Dayton reporting number, R1834.

The School of Law accepts beginning students for the fall term only. Transfer students may be accepted at the discretion of the dean. Application forms for admission may be obtained from the School of Law, University of Dayton, Dayton, Ohio 45469.

APPLICATION PROCEDURE

No application will be considered until all supporting material has been received.

1. The application and any attachments must be completed and sent to the School of Law. Applications should be submitted as early as possible. Applications submitted later than April 1 may not be acted upon.
2. A \$20 nonrefundable application fee must accompany the application.
3. Two letters of recommendation must be sent to the School of Law *directly* by the persons making the recommendations.
4. An LSDAS report must be sent to the School of Law by the Educational Testing Service, Box 944, Princeton, New Jersey, 08540. The current Law School Admission Bulletin provides information on LSDAS.

TUITION AND OTHER EXPENSES

Tuition and expenses, other than living costs, are as follows:

Application fee (payable once, nonrefundable)	\$ 20.00
University fee (per semester)	15.00
Student Bar Association fee (per semester)	10.00
Tuition for full-time student (per semester)	1,200.00
Tuition for part-time student (per semester hour)	80.00

(A course load of twelve semester hours or more classifies a student as full time; eleven hours or fewer as part time.) The estimated cost of required books per year for a full-time student is \$150.00. NOTE: Tuition and fees are subject to change.

FINANCIAL AID

Those students who anticipate having difficulty meeting financial requirements should apply as early as possible for financial aid. For scholarships administered by the School of Law (awarded on the basis of both need and academic achievement), application forms can be obtained from the Law School. For other kinds of financial aid, application forms can be obtained from the Director of the Office of Student Aid, University of Dayton, Dayton, Ohio 45469.

THE JURIS DOCTOR PROGRAM

Eligibility for the degree of Juris Doctor requires the following:

1. Satisfactory completion of all required courses and sufficient electives for a minimum total of 84 semester hours of credit.
2. Attainment of at least a 2.0 point average for all courses taken.
3. Resident requirements as prescribed by the American Bar Association's standards for legal education.
4. Evidence of sound moral character.

The Juris Doctor program is such that the first year and much of the second year are largely prescribed. The first year consists entirely of required courses; the second year provides some opportunity for electives. The third year, however, provides great latitude for electives. The program is designed to insure that the student has covered all areas of study essential in the practice of law and yet to provide ample latitude for courses in particular areas of interest. The student is permitted to elect up to six semester hours of courses in other graduate departments and programs when such interdisciplinary work is suitably related to the individual program of law studies. (These courses must be approved by the Law School.)

Registration

Registration for courses must be completed before the beginning of each term. Deadlines are listed in the calendar in this chapter. It is the policy of the Law School that all first-year students in the day program be enrolled in and examined in all 32 semester hours of first-year work.

Bar Regulations

Students are responsible for acquainting themselves with the regulations for admission to the bar in the states in which they intend to practice. A number of states (e.g., Ohio) require bar registration at the time the student begins the study of law.

Academic Standards

Regular attendance at all classes is required. A faculty member may, at his discretion, disqualify a student from taking his final examination for failure to attend classes regularly.

In recording the quality of academic work, the Law School uses a system of letter grades, granting a specific number of quality points for each semester hour

of a course in which a given grade is earned. The grades, with their equivalents in parentheses, are as follows: A+ (4.3); A (4.0); A- (3.7); B+ (3.3); B (3.0); B- (2.7); C+ (2.3); C (2.0); C- (1.7); D+ (1.3); D (1.0); F (0); I (incomplete); W (withdrawal); K (credit from other institutions or University departments).

Academic averages are computed by dividing the total of the earned quality points by the number of semester hours taken. If a course is failed and repeated, the hours and quality points each time are included in the computation of the average.

An over-all grade point average of 2.0 is required for graduation. Students must maintain a specified grade point average upon completion of each school year in order to remain in good standing. The standards are detailed in the School of Law's Policy Manual, with which students are required to become familiar.

If a student withdraws from a course with the permission of the instructor and the dean, that course will not count as work taken in the computation of the average. If a student withdraws without such permission, a failing grade is recorded and is counted in the determination of the average.

Full-Time Program

Three-Year Program			
First Term	Semester Hours	Second Term	Semester Hours
First Year			
Contracts.....	3	Contracts.....	3
Civil Procedure.....	3	Civil Procedure.....	3
Constitutional Law.....	3	Constitutional Law.....	3
Property.....	3	Property.....	3
Torts.....	3	Torts.....	3
Legal Research.....	1	Moot Court.....	1
	16		16
Second Year			
Uniform Commercial Code ¹	3	Uniform Commercial Code ¹	3
Evidence.....	2	Evidence.....	2
Corporations.....	2	Corporations.....	2
Federal Income Tax ¹	3	Criminal Procedure ¹	3
Criminal Law.....	3	Electives.....	3
	13		13
Third Year			
Wills and Trusts.....	4	Electives.....	13
Professional Responsibility.....	2		
Electives.....	7		
	13		13

¹ May be taken in either the second or the third year to provide flexibility for electives.

Evening Part-Time Program

The part-time program is a complete one in all respects. It maintains the same standards and quality as the full-time program. Designed to accommodate those who must maintain full-time or nearly full-time employment, it normally extends over a period of four years. It should be pointed out to prospective candidates that while the schedule is part-time, it is still a heavy load and requires extensive commitment.

Four-Year Program (Evening Division)			
<i>First Term</i>	<i>Semester Hours</i>	<i>Second Term</i>	<i>Semester Hours</i>
First Year			
Civil Procedure.....	3	Civil Procedure	3
Contracts.....	3	Contracts.....	3
Torts.....	3	Torts.....	3
Legal Research.....	1	Moot Court.....	1
	10		10
Second Year			
Property.....	3	Property.....	3
Constitutional Law.....	3	Constitutional Law.....	3
Corporations.....	2	Corporations.....	2
Criminal Law.....	3	Criminal Procedure.....	3
	11		11
Third Year			
Uniform Commercial Code.....	3	Uniform Commercial Code.....	3
Federal Income Tax	3	Evidence	4
Electives.....	5	Electives.....	4
	11		11
Fourth Year			
Professional Responsibility.....	2	Electives	10
Wills and Trusts.....	4		
Electives.....	4		
	10		10

JOINT DEGREE PROGRAMS

In cooperation with the School of Business Administration, the School of Education, and the Philosophy Department of the College of Arts and Sciences, the Law School offers three joint programs leading to the simultaneous conferment of, respectively, the Juris Doctor and the Master of Business Administration, the Juris Doctor and the Master of Science in Education, and the Juris Doctor and the Master of Arts. See Chapter V; see also Chapters VI, VII, and VIII and consult with directors of the programs.

1976-77 ACADEMIC CALENDAR

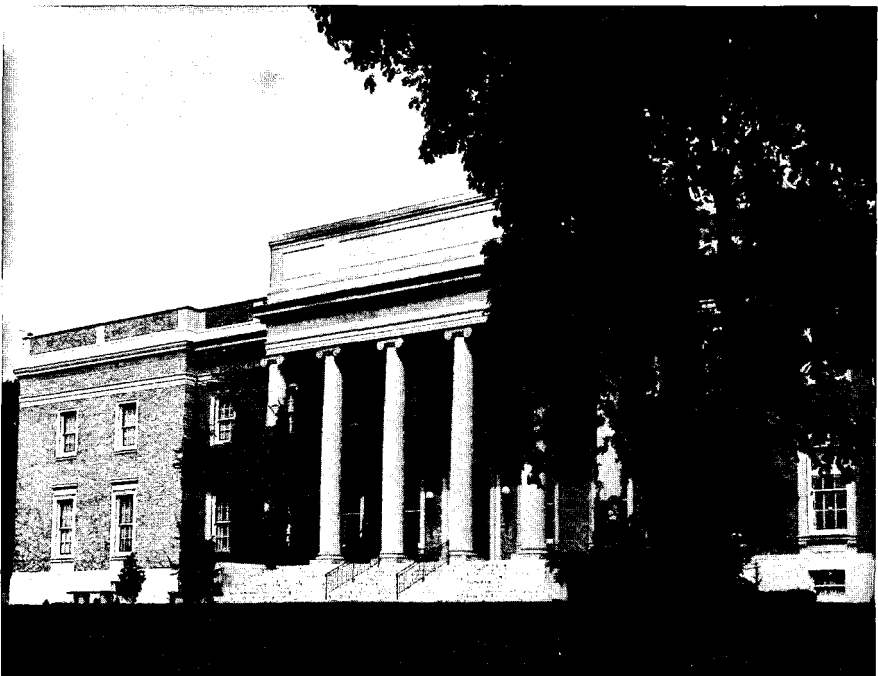
First Term

August 20	Last day to complete registration
August 27	Freshman orientation
August 30	Classes begin
September 6	Labor Day – No classes
November 25-26	Thanksgiving recess
November 29	Classes resume
December 6	Classes end
December 8-21	Examinations

Second Term

January 3	Last day to complete registration
January 4	Classes begin
February 21	Lincoln-Washington Birthday – No classes
April 15	Classes end
April 18-30	Examinations
May 1	Commencement

NOTE: No other holidays will be observed.



COURSES OF INSTRUCTION

Note: The schedule and descriptions of courses are projected for the year 1976-77, and are subject to revision. All courses listed are not necessarily offered every year.

REQUIRED COURSES

CIVIL PROCEDURE: Jurisdiction of courts, venue, parties, joinder of parties and claims, pleadings, pretrial devices, trial by jury and appeal. *6 sem. hrs.*

CONSTITUTIONAL LAW: Judicial function in constitutional cases. Division of power, separation of power, amendments and federal organization. *6 sem. hrs.*

CONTRACTS: A study of the doctrines used to determine those promises that society will enforce. Offer and acceptance, capacity to contract, Statute of Frauds, consideration, assignment, performance and remedies. Other topics appropriate to the contracting process. Impact of Uniform Commercial Code. *6 sem. hrs.*

CORPORATIONS: Introduction to the law concerning the modern business corporation, to include formation, corporation financing, state and federal regulations concerning the issuance of securities, powers, duties and liabilities of directors and officers, shareholders' rights, dissolution, and reorganization. *4 sem. hrs.*

CRIMINAL LAW: Concepts of criminal law, crimes, and parties to crimes; requirements for criminal liability including intent and mental responsibility; justification and excuse. *3 sem. hrs.*

CRIMINAL PROCEDURE: A treatment of criminal prosecution including arrest, bail, indictment, arraignment, pleas, sentencing, and the rights of the accused. *3 sem. hrs.*

EVIDENCE: Rules and principles of exclusion and selection of evidence; examination; cross-examination; competency and privileges of witnesses; judicial notice, burden of proof; presumptions; province of the court and jury; relevancy and materiality; admissions; confessions; the hearsay rule and its exceptions; the "best evidence" rule. *4 sem. hrs.*

FEDERAL INCOME TAX: Basic concepts of federal income taxation: gross income, deductions, exemptions, capital gains and losses, payments and returns. *3 sem. hrs.*

LEGAL RESEARCH AND WRITING: A study of the fundamentals of legal research and writing. *1 sem. hr.*

MOOT COURT: Appellate advocacy. Preparation of appeal brief and oral argument. *1 sem. hr.*

PROFESSIONAL RESPONSIBILITY: Professional responsibility, duties, and privileges of the legal profession. *2 sem. hrs.*

PROPERTY: Real and personal property law: means by which title is obtained, fixtures, estates in land, concurrent ownership, future interests, conveyancing, mortgaging, recording, covenants, adverse possession, landlord and tenant, and easements. *6 sem. hrs.*

TORTS: Intended and unintended interference with the person or property of another and the defenses thereto; negligence, contributory negligence; misrepresentation, defamation, liability without fault. *6 sem. hrs.*

UNIFORM COMMERCIAL CODE: The law of sales, negotiable instruments, and secured transactions considered under the Uniform Commercial Code. *6 sem. hrs.*

ELECTIVE COURSES

ADMINISTRATIVE LAW: Separation of powers and administrative process; rule-making procedure; scope of judicial review. *3 sem. hrs.*

ADVANCED CRIMINAL PROCEDURE: Decision to arrest, prosecutive discretion, bail, the preliminary hearing, right to a speedy trial, discovery, plea bargaining, publicity, post-conviction procedures. *2 sem. hrs.*

AGENCY-PARTNERSHIP: Master-servant relationship, vicarious liability, independent contractor, scope of employment; authority and apparent authority; ratification; undisclosed principal; fiduciary duties. Elements of partnership. *2 sem. hrs.*

ANTITRUST LAW: A study of the federal antitrust laws, including the Sherman Act, Clayton Act, Federal Trade Commission, the Robinson Patman Act, and their amendments. *3 sem. hrs.*

BUSINESS PLANNING: Taxation of corporate entities and the tax consequences of fundamental changes in business forms; changes in business forms as they affect securities. Incorporation of a viable business; corporate distribution; recapitalization; repurchase of share, sale of the corporation, and corporate combination. *3 sem. hrs.*

COMPUTERS, SOCIETY, AND LAW: The computer's implications for law practice, substantive law, and society. No prior knowledge of computer technology required. *3 sem. hrs.*

CONFLICT OF LAWS: Problems involving conflict of laws of various states; foreign judgments; full faith and credit problems and the choice of law. *3 sem. hrs.*

CREDITORS' RIGHTS: State and federal laws concerning creditors' and debtors' remedies: enforcement of money judgments, assignment for benefit of creditors, fraudulent conveyances, tax liens, and bankruptcy. *3 sem. hrs.*

ENVIRONMENTAL LAW: Government control of the environment, solid waste management, water and air pollution control, control of the electric power industry, common law remedies, the urban environment, and transportation problems. *3 sem. hrs.*

EQUITY: The history of equity; equitable remedies; equitable jurisdiction and powers; a consideration of trusts. *3 sem. hrs.*

ESTATE PLANNING: Consideration of the problems of estate planning involving Federal estate and gift taxes; *inter vivos* and testamentary trusts; gift programming; life insurance and the marital deduction. *3 sem. hrs.*

FAMILY LAW: Marriage, divorce, and alimony; parent and child. Lectures in sociology, psychology, and religion in the application of family law. *3 sem. hrs.*

FEDERAL JURISDICTION: The jurisdiction of the Federal courts under the Constitution and the Federal Code including original, removal, and appellate jurisdiction. *3sem.hrs.*

FUTURE INTERESTS: Property interests in future estates; rule against perpetuities. *2 sem. hrs.*

GOVERNMENT CONTRACTS: Survey of basic law underlying government procurement, basic power of and limitations on federal government in entering into contracts, administrative and legislative policies governing these contracts, advertised and negotiated procurement procedures, forms of contracts and clauses used. *2 sem. hrs.*

INTERNATIONAL LAW: An introduction to international law as applied between independent nations and in American courts. Selected problems dealing with the sources, development, authority, and application of international law; the making, interpretation, enforcement, and termination of treaties; recognition; territory; nationality; jurisdiction and immunities; the United Nations and other international organizations; international protection of basic human rights; state responsibility and international claims for wrongs to citizens abroad; and certain aspects of war, including war crimes trials. *3 sem. hrs.*

JURISPRUDENCE: Basic jurisprudential concepts; nature of law; development of legal institutions; jurisprudential schools — natural law, analytical, historical, sociological, functional; law and logic; law and justice; the judicial process; legislative, executive, administrative decision making; impact of politics, economics, and scientific advance on legal systems; contemporary trends in jurisprudential thought. *2 sem. hrs.*

LAW CLINIC (CIVIL): Opportunity for the third-year student to represent actual clients under the supervision of either a faculty member or a practicing attorney. The subject matter of typical cases would include poverty law, contracts, landlord-tenant, and family law. The student is expected to handle all aspects of a case from initial interview, through trial, to final judgment. *3 sem. hrs.*

LAW CLINIC (CRIMINAL): The Criminal Law Clinic is similar to the Civil Clinic, except that third-year students will represent clients in nonfelony criminal cases under the supervision of faculty or practicing attorneys. *3 sem. hrs.*

LAW AND JUDEO-CHRISTIAN ETHICS: Judeo-Christian ethics and its relationship to social and nonsocial justice, commutative and distributive justice, human rights, legal rights, concept of a person and a legal person, privacy, private property, obligations, duties, models of society, values, justice and morality. *3 sem. hrs.*

LEGAL ACCOUNTING: The purpose of the course is to give an understanding of accounting principles with which attorneys should be familiar. *3 sem. hrs.*

LEGISLATION: Legislative organization, the legislative process, and the role and use of statutory materials. This course is intended to develop a greater appreciation and understanding of the role of legislation in the legal system. *3 sem. hrs.*

LEGISLATION SEMINAR: Each student is required to undertake the research and study of a current problem and to draft proposed legislation for its solution. *2 sem. hrs.*

REAL ESTATE AND LAND USE LAW: The legal concepts and institutions in the sale of land, conveyancing, landlord and tenant, and mortgages; land use planning in relation to modern urban concepts. *3 sem. hrs.*

SECURITIES REGULATION: An examination of investment securities, the rights and duties of investors and shareholders, federal and state regulation of business fund-raising techniques including an examination of the basic structure of the state "Blue-Sky Laws," the Federal Securities Act of 1933, and the Securities Exchange Act of 1934. *3 sem. hrs.*

TAX PROBLEMS: Topics of interest and importance. These vary from year to year, but may include tax procedure, tax accounting, and tax reform. *3 sem. hrs.*

TRIAL PRACTICE: Detailed study of preparation for trial. Participation in the trial of hypothetical cases. *3 sem. hrs.*

UNFAIR COMPETITION, PATENTS, TRADEMARKS, AND COPYRIGHTS: A survey of the law of intellectual property rights and unfair competition. *3 sem. hrs.*

U.S. TAXATION OF FOREIGN TRANSACTIONS: The U.S. tax rules which govern income of U.S. persons earned abroad, income of foreign persons earned in the U.S., and related matters. This is a subject of increasing importance and attention. *3 sem. hrs.*

WILLS AND TRUSTS: Testate and intestate succession, powers of appointment; private and charitable trusts, their creation and administration, the obligation of the trustee to the beneficiaries and third persons, resulting and constructive trusts, termination of trusts. *4 sem. hrs.*

WOMEN AND THE LAW: An examination of the treatment of women in all areas of the law. Emphasis on education, public accommodations, employment, and health and welfare services. *2 sem. hrs.*



XI DIRECTORIES

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Vice President for University Relations.....	Thomas J. Frericks
Vice President for Financial Affairs and Treasurer.....	Gerald W. VonderBrink
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Administrative Assistant to the President.....	Wilbur E. Showalter
Secretary to the President.....	Mary Ann Krapf

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Director, Special Sessions.....	Nora Duffy
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Director of the University Library.....	Raymond H. Nartker

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- ALBERS, F. Gerard (1973), *Aerospace Engineering*, Assistant Professor — B.E.E., University of Detroit, 1967; M.E., University of Detroit, 1967; D.E., University of Detroit, 1969.
- ANDERSON, Gladys M. (1960), *Counselor Education and Human Services*, Associate Professor — B.S., Ball State Teachers College, 1945; M.A., Indiana University, 1946; Ph.D., Ohio State University, 1970.
- ANDERSON, Rev. William P. (1968), *Religious Studies*, Associate Professor — A.B., Bloomfield College, 1961; B.D., Princeton Theological Seminary, 1964; Th.D., Princeton Theological Seminary, 1968.
- ANNA, Henry J. (1975), *Political Science*, Associate Professor — B.A., St. Francis College, 1963; M.A., University of Notre Dame, 1965; Ph.D., Syracuse University, 1971.
- ARONS, Peter L. (1965), *English*, Associate Professor — A.B., New York University, 1957; M.A., Yale University, 1958; Ph.D., Yale University, 1964.
- AUGUST, Eugene R. (1966), *English*, Associate Professor — B.A., Rutgers University, 1958; M.A., University of Connecticut, 1960; Ph.D., University of Pittsburgh, 1965.

Faculty

- BAJPAI, Praphulla K. (1964), *Biology*, Associate Professor — B. V. Sc. & A.H., Agra University, 1958; M.V.Sc., Agra University, 1960; M.Sc., Ohio State University, 1963; Ph.D., Ohio State University, 1965.
- BAKER, Richard R. (1947), *Philosophy*, Distinguished Service Professor — A.B., University of Notre Dame, 1931; M.A., University of Notre Dame, 1934; Ph.D., University of Notre Dame, 1941.
- BEAUREGARD, Erving E. (1947), *History*, Professor — A.B., University of Chicago, 1942; M.A., University of Massachusetts, 1944.
- BEDARD, Bernard J. (1962), *English*, Professor — A.B., University of Notre Dame, 1949; M.A., University of Michigan, 1950; Ph.D., University of Michigan, 1959.
- BEITZEL, William A. (1973), *Elementary Education*, Assistant Professor — B.S., Kent State University, 1946; M.A., Kent State University, 1949.
- BERGER, Robert M. (1964), *Business Management*, Assistant Professor — B.S., University of Dayton, 1960; M.A., Ohio University, 1963; J.D., Chase School of Law, 1970.
- BIERSACK, George C. (1952), *Communication Arts*, Professor — B.S., University of Dayton, 1952; M.A., Miami University, 1956.
- BOEHMAN, Louis I. (1967), *Mechanical Engineering*, Associate Professor — B.S.M.E., University of Dayton, 1960; M.S.T.E., Illinois Institute of Technology, 1963; Ph.D., Illinois Institute of Technology, 1967; Reg. Prof. Engr.
- BOGNER, Fred K. (1969), *Mechanical Engineering*, Associate Professor — B.S.C.E., Case Institute of Technology, 1961; M.S.E. Mech., Case Institute of Technology, 1964; Ph.D., Case Institute of Technology, 1967.
- BOULET, Richard A. (1968), *Religious Studies*, Associate Professor — A.B., Providence College, 1954; S.T.B., S.T.L., S.T.Lr., Immaculate Conception College, 1956-1958; S.T.D., University of Montreal, 1965.
- BRITT, John F. (1966), *Foundations of Education*, Professor — B.A., St. Paul Seminary, 1950; M.A., St. Louis University, 1954; Ph.D., St. Louis University, 1962.
- BUTTER, Eliot J. (1971), *Psychology*, Assistant Professor — B.A., Brooklyn College 1965; M.A., Brooklyn College, 1969; Ph.D., University of Massachusetts, 1971.
- CAPELLA, Louis M. (1974), *Marketing*, Assistant Professor — B.S., B.A., Xavier University, 1965; M.S., Xavier University, 1967.
- CASEY, Anthony L. (1969), *Business Management*, Assistant Professor — Ph.D., Havana University, 1955.
- CHANTELL, Charles J. (1965), *Biology*, Associate Professor — B.S., University of Illinois, 1961; M.S., University of Notre Dame, 1963; Ph.D., University of Notre Dame, 1965.
- CHAVEZ, Simon J. (1954), *Elementary Education*, Professor — A.B., Adams State College, 1938; M.Ed., University of Colorado, 1947; D.Ed., University of Colorado, 1952.
- CHUANG, Henry N. (1965), *Mechanical Engineering*, Associate Professor — B.S., National Taiwan University, 1958; M.S., University of Maryland, 1962; Ph.D., Carnegie Institute of Technology, 1966.
- CHUDD, Cletus C., S.M. (1974), *Chemistry*, Distinguished Service Professor — B.S., University of Dayton, 1935; M.S., Western Reserve University, 1948; Ph.D., Western Reserve University, 1952.
- CLARK, Willard C., Jr. (1963), *Accounting*, Associate Professor — B.S., University of Dayton, 1959; M.B.A., Miami University, 1960; C.P.A., Ohio, 1962.
- COCHRAN, Bud T. (1958), *English*, Associate Professor — B.A., College of Steubenville, 1955; M.A., Ohio State University, 1957; Ph.D., Ohio State University, 1967.
- COLE, Rev. William J., S.M. (1956), *Religious Studies*, Professor — B.S., University of Dayton, 1947; S.T.B., University of Fribourg, 1952; S.T.L., University of Fribourg, 1954; S.T.D., University of Fribourg, 1955.
- COONEY, Joseph J. (1965), *Biology*, Professor — B.S., Lemoyne College, 1956; M.S., Syracuse University, 1958; Ph.D., Syracuse University, 1961.
- COTHERN, Charles R. (1965), *Physics*, Associate Professor — B.A., Miami University, 1959; M.S., Yale University, 1960; Ph.D., University of Manitoba, 1965.
- CRISP, John N. (1973), *Mechanical Engineering*, Associate Professor — B.M.E., Georgia Institute of Technology, 1958; M.S.E., University of Akron, 1964; Ph.D., Carnegie-Mellon University, 1968; Reg. Prof. Engr.

- DAPOLITO, Frank J. (1970), *Psychology*, Associate Professor – B.A., Bowling Green State University, 1959; Ph.D., Indiana University, 1966.
- DARR, John Walker (1969), *Business Management*, Professor – B.S., Indiana University, 1949; M.B.A., Indiana University, 1950; Ph.D., University of Alabama, 1957.
- DIŠKA, Joseph L. (1960), *Philosophy*, Professor – B.A., State Gymnasium, 1931; M.A., Slovak University, 1939; Ph.D., Slovak University, 1940.
- DIETHORN, Bernard C., S.M. (1966), *Counselor Education and Human Services*, Associate Professor – B.A., University of Dayton, 1942; M.A., Western Reserve University, 1952; D.Ed., Western Reserve University, 1966.
- DREES, Doris A. (1956), *Physical and Health Education*, Professor – B.S., University of Dayton, 1954; M.A., Ohio State University, 1959; Ph.D., University of Iowa, 1968.
- EID, Leory V. (1961), *History*, Associate Professor – B.S. in Ed., University of Dayton, 1953; M.A., St. John's University, 1958; M.A., University of Toronto, 1968; Ph.D., St. John's University, 1961.
- ELEY, Marion J. (1961), *Accounting*, Associate Professor – B.S., University of Dayton, 1959; M.B.A., Xavier University, 1964; C.P.A., Ohio, 1966.
- EVERS, Anthony J. (1966), *Electrical Engineering*, Associate Professor – B.E.E., University of Dayton, 1953; M.S.E.E., University of Notre Dame, 1955; Reg. Prof. Engr.
- EVEFLAG, Sylvester L. (1948), *Chemistry*, Professor – B.S., University of Notre Dame, 1944; M.S., University of Notre Dame, 1945; Ph.D., University of Notre Dame, 1953.
- FAERBER, Louis J., S.M. (1948), *Education*, Distinguished Service Professor – B.A., University of Dayton, 1930; M.A., Catholic University of America, 1938; Ph.D., Catholic University of America, 1948.
- FITZ, Raymond L., S.M. (1969), *Electrical Engineering and Engineering Management*, Associate Professor – B.E.E., University of Dayton, 1964; M.S., Polytechnic Institute of Brooklyn, 1967; Ph.D., Polytechnic Institute of Brooklyn, 1970.
- FOX, B. Lawrence (1966), *Chemistry*, Associate Professor – B.S., John Carroll University, 1962; Ph.D., Ohio State University, 1966.
- FRAKER, John R. (1975), *Engineering Management*, Associate Professor – B.S., University of Tennessee, 1956; M.S., University of Tennessee, 1965; Ph.D., Clemson University, 1971.
- FRASCA, Ralph R. (1972), *Economics and Finance*, Assistant Professor – B.A., C.W., Post College, 1967; M.A., Indiana University, 1971; Ph.D., Indiana University, 1975.
- FRATINI, Albert V. (1967), *Chemistry*, Associate Professor – B.S., University of Rhode Island, 1960; Ph.D., Yale University, 1966.
- FROST, Rev. William P. (1967), *Religious Studies*, Associate Professor – Drs. Th., Carolus Magnus University (Netherlands), 1961; M.A., Loyola University, 1966.
- FRYE, Helen B. (1967) *Secondary Education*, Associate Professor – B.A., Ohio Wesleyan University, 1944; M.Ed., Wittenberg University, 1962; Ph.D., Ohio State University, 1967.
- FUCHS, Gordon E. (1967), *Elementary Education*, Associate Professor – B.S., University of Wisconsin, 1958; M.S., University of Wisconsin, 1961; Ph.D., Ohio State University, 1974.
- GANTNER, Thomas E. (1966), *Mathematics*, Associate Professor – B.S., University of Dayton, 1962; M.S., Purdue University, 1964; Ph.D., Purdue University, 1966.
- GAY, James E. (1968), *Secondary Education*, Associate Professor – B.A., Ohio University, 1951; M.A., University of Wisconsin, 1956; D.Ed., University of Maryland, 1972.
- GEIGER, Donald R., S.M. (1964), *Biology*, Professor – B.S., University of Dayton, 1955; M.S., Ohio State University, 1960; Ph.D., Ohio State University, 1963.
- GEIGER, John O. (1970), *Foundations of Education*, Associate Professor – B.A., Marquette University, 1966; Ph.D., Marquette University, 1972.
- GEPHART, Landis S. (1967), *Management Science*, Professor – B.S., University of Dayton, 1940; M.A., University of Dayton, 1948; M.S., Miami University, 1949; Ph.D., University of Florida, 1955.
- GORTON, Robert B. (1969), *Mathematics*, Associate Professor – B.S., Illinois Institute of Technology, 1964; M.S., Illinois Institute of Technology, 1966; Ph.D., Illinois Institute of Technology, 1970.

Faculty

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- GROB, M. Audrey (1961), *Foundations of Education*, Associate Professor — B.S., University of Dayton, 1942; M.A., University of Dayton, 1948; Ph.D., Catholic University of America, 1961.
- HALVERSON, Richard F. (1972), *Political Science*, Assistant Professor — B.S., University of Wisconsin, 1964; M.A., Columbia University, 1966; Ph.D., Columbia University, 1975.
- HARMER, Richard S. (1971), *Mechanical Engineering*, Assistant Professor — B.S., University of Illinois, 1963; M.S., University of Illinois, 1967; Ph.D., University of Illinois, 1971.
- HARWOOD, Philip J. (1966), *Communication Arts*, Assistant Professor — B.S., Butler University, 1960; M.S., Butler University, 1961; Ph.D., Ohio University, 1972.
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- HERBENICK, Raymond M. (1968), *Philosophy*, Associate Professor — B.A., Duquesne University, 1964; M.A., DePaul University, 1965; M.B.A., University of Pittsburgh, 1968; Ph.D., Georgetown University, 1968.
- HOBEN, William J. (1956), *Accounting*, Professor — B.S., University of Dayton, 1950; M.B.A., Xavier University, 1960; C.P.A., Ohio, 1960.
- HOWARD, W. Kenneth (1971), *Political Science*, Assistant Professor — B.A., Loyola University, 1964; M.A., University of Arizona, 1967; Ph.D., University of Arizona, 1972.
- JACOBSON, Marsha B. (1972), *Psychology*, Assistant Professor — B.A., State University of New York at Buffalo, 1968; Ph.D., New York University, 1972.
- JAFFEE, Oscar C. (1966), *Biology*, Professor — B.A., New York University, 1946; M.S., New York University, 1948; Ph.D., Indiana University, 1952.
- JAIN, Subhash C. (1966), *Marketing*, Associate Professor — B.A., University of Rajasthan, 1957; M.A., University of Rajasthan, 1959; Ph.D., University of Oregon, 1966.
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- KIERNAN, Gene L. (1967), *Communication Arts*, Assistant Professor — B.S., University of Dayton, 1965; M.A., University of Dayton, 1969; Ph.D., Ohio State University, 1971.
- KING, Alan L. (1972), *Marketing*, Associate Professor — B.S., Ohio State University, 1967; M.A., Ohio State University, 1969; Ph.D., Ohio State University, 1972.
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- KNACHEL, Howard C. (1972), *Chemistry*, Assistant Professor — B.S., University of Dayton, 1963; M.S., Ohio State University, 1969; Ph.D., Ohio State University, 1971.
- KOHMESCHER, Rev. Matthew F., S.M. (1951), *Religious Studies*, Professor — A.B., University of Dayton, 1942; S.T.D., University of Fribourg, 1950; M.A., Western Reserve University, 1956.
- KOVACS, Arthur Z. (1968), *Technical Studies and Services*, Associate Professor — A.B., Wabash College, 1957; Ph.D., Duke University, 1963.
- KRAFT, David C. (1965), *Civil Engineering*, Professor — B.C.E., University of Dayton, 1959; M.S., University of Notre Dame, 1961; Ph.D., Ohio State University, 1964.
- KRIEGBAUM, Robert E. (1950), *Secondary Education*, Associate Professor — A.B., Wittenberg College, 1939; M.A., Ohio State University, 1950.
- KUNKEL, Joseph C. (1964), *Philosophy*, Associate Professor — A.B., Loyola University, 1958; A.M. Loyola University, 1962; Ph.D., St. Bonaventure University, 1968.

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- LAPITAN, Antonio E. (1969), *Political Science*, Associate Professor — A.B., University of the Philippines, 1954; M.A., Lehigh University, 1957; Ph.D., University of Oregon, 1968.
- LAVANCHE, James B. (1957), *Physical and Health Education*, Associate Professor — B.A., Emory and Henry College, 1948; M.S., West Virginia University, 1952.
- LEONARD, Mary T. (1956), *Physical and Health Education*, Associate Professor — A.B., Radcliffe College, 1948; M.S., MacMurray College, 1951; D.Ed., Boston University, 1960.
- LEWIS, Donald E. (1965), *Electrical Engineering*, Associate Professor — E.E., University of Cincinnati, 1954; M.S., Ohio State University, 1957; Ph.D., Ohio State University, 1964.
- L'HEUREUX, Conrad E. (1970), *Religious Studies*, Assistant Professor — B.A., St. Paul's College, 1962; M.A., Catholic University of America, 1966; Ph.D., Harvard University, 1972.
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- LUDWIGSEN, Kristina R. (1972), *Psychology*, Assistant Professor — B.S., Florida Presbyterian College, 1967; M.A., Emory University, 1969; Ph.D., Emory University, 1972.
- LUTZ, Paul N. (1970), *Elementary Education*, Assistant Professor — B.S., University of Washington, 1955; B.A., University of Washington, 1955; M.Ed., University of Oregon, 1967; Ph.D., University of Oregon, 1970.
- MC CARTHY, Rev. Adrian J., S.M. (1958), *English*, Associate Professor — A.B., University of Dayton, 1934; M.A., New York University, 1953; Ph.D., Fordham University, 1961.
- MCCLAIN, Richard E. (1973), *Business Management*, Professor — B.S., Ohio State University, 1953; M.B.A., Indiana University, 1954; Ph.D., Ohio State University, 1968.
- McCLOSKEY, John W. (1965), *Mathematics*, Associate Professor — B.S., University of Dayton, 1960; M.S., Michigan State University, 1962; Ph.D., Michigan State University, 1965.
- McDOUGALL, Kenneth J. (1966), *Biology*, Associate Professor — B.A., Northland College, 1957; M.S., Marquette University, 1959; Ph.D., Kansas State University, 1964.
- MARAS, Raymond J. (1959), *History*, Professor — B.A., University of California, 1946; M.A., Catholic University of America, 1948; Ph.D., University of California, 1955.
- MARRE, Kitayun E. (1966), *English*, Associate Professor — B.A., University of Bombay, 1958; M.A., University of Bombay, 1960; Ph.D., State University of New York at Buffalo, 1966.
- MARRE, Louis A. (1965), *English*, Assistant Professor — A.B., University of Notre Dame, 1961; M.A., University of Notre Dame, 1963; Ph.D., University of Notre Dame, 1972.
- MARRINAN, Edward L., Jr. (1965), *Business Management*, Associate Professor — B.A., University of Dayton, 1948; M.S. in Ed., University of Dayton, 1963; M.B.A., University of Dayton, 1967.
- MARTIN, Thomas M. (1965), *Religious Studies*, Associate Professor — B.S., Spring Hill College, 1962; M.A., Fordham University, 1965; Ph.D., Syracuse University, 1972.
- MATHIAS, Frank F. (1963), *History*, Associate Professor — A.B., University of Kentucky, 1950; M.A., University of Kentucky, 1961; Ph.D., University of Kentucky, 1966.
- MATLIN, George E. (1965), *Economics and Finance*, Professor — B.A., St. Francis College, 1942; Ph.D., Pennsylvania State University, 1953.
- MEANS, Michael H. (1963), *English*, Associate Professor — B.A., Wisconsin State College, 1955; M.A., Ohio State University, 1957; Ph.D., University of Florida, 1963.
- MINARDI, John E. (1964), *Mechanical Engineering*, Professor — B.M.E., University of Dayton, 1955; M.S.M.E., University of Southern California, 1957; Ph.D., University of Cincinnati, 1973.
- MONASTERIO, Xavier O. (1966), *Philosophy*, Associate Professor — B.A., Instituto Oriente, Mexico, 1944; M.A., Ysleta College, 1951; Ph.D., Université de Paris, 1964.
- MORGAN, Adrian J. (1948), *Electrical Engineering*, Professor — B.S.E.E., Purdue University, 1948; M.S., University of Cincinnati, 1958; Reg. Prof. Engr.
- MORTON, M. Byron (1967), *Education*, Associate Professor — B.A., Wittenberg University, 1929; M.A., Ohio State University, 1935.

Faculty

- MOULIN, Eugene K. (1968), *Counselor Education and Human Services*, Professor – B.A., Mount Union College, 1956; M.E., Kent State University, 1959; Ph.D., University of Toledo, 1968.
- MURPHY, Harry C. (1950), *Marketing*, Professor – B.B.A., University of Minnesota, 1948; B.S., University of Minnesota, 1949; M.A., University of Minnesota, 1951.
- MUSHENHEIM, Harold G., S.M. (1965), *Mathematics*, Associate Professor – B.S., University of Dayton, 1955; M.A., University of Cincinnati, 1960; Ph.D., University of Cincinnati, 1963.
- NERSOYAN, H. James (1967), *Philosophy*, Associate Professor – Baccalaureate, College Champagnat des Freres Maristes, 1939; S.T.B., Berkeley Divinity School, 1949; Ph.D., Columbia University, 1966.
- NOLAND, George B. (1955), *Biology*, Professor – B.S., University of Detroit, 1950; M.S., University of Detroit, 1952; Ph.D., Michigan State University, 1955.
- O'DONNELL, John R. (1964), *Educational Administration*, Professor – B.S., Pennsylvania State University, 1951; M.Ed., Pennsylvania State University, 1952; Ed.D., Pennsylvania State University, 1958.
- O'HARE, J. Michael (1966), *Physics*, Associate Professor – B.S., Loras College, 1960; M.S., Purdue University, 1962; Ph.D., State University of New York at Buffalo, 1966.
- OYEN, Duane B. (1971), *Economics and Finance*, Assistant Professor – B.A., Luther College, 1966; M.A., University of Iowa, 1969; Ph.D., University of Iowa, 1973.
- PATROUCH, Joseph F. (1964), *English*, Associate Professor – A.B., University of Cincinnati, 1958; M.A., University of Cincinnati, 1960; Ph.D., University of Wisconsin, 1965.
- PATYK, Jozef (1963), *Political Science*, Associate Professor – Certificate, School of Public Administration, Poland, 1935; LL.M. Jagiellonski University, Poland, 1945; Ph.D., University of Colorado, 1965.
- PAYNE, Elmer H. (1961), *Civil Engineering*, Associate Professor – B.S.C.E., Washington University, 1958; M.S., Washington University, 1961; Reg. Prof. Engr.
- PETIT, Sister Loretta M., O.P. (1968), *Foundations of Education*, Associate Professor – B.A., Siena Heights College, 1942; M.A., Catholic University of America, 1949; D.Ed., Western Reserve University, 1966.
- PINSON, Jay D. (1971), *Mechanical Engineering*, Professor – B.S., Ohio University, 1950; M.S., Oklahoma State University, 1965; Ph.D., Oklahoma State University, 1966.
- POLZELLA, Donald J. (1972), *Psychology*, Assistant Professor – B.A., University of Rochester, 1967; M.A., Bucknell University, 1969; Ph.D., University of Michigan, 1974.
- POPP, Richard J. (1973), *Psychology*, Associate Professor – B.S., University of Maryland, 1962; M.A., Hollins College, 1964; Ph.D., University of Pittsburgh, 1969.
- POTOCZNY, Henry B. (1969), *Mathematics*, Assistant Professor – B.A., LaSalle College, 1965; M.A., University of Kentucky, 1967; Ph.D., University of Kentucky, 1969.
- RAMSEY, James M. (1964), *Biology*, Associate Professor – B.S., Wilmington College, 1948; M.S., Miami University, 1951.
- RANEY, Russell R. (1969), *Economics and Finance*, Associate Professor – B.S.M.E., University of Michigan, 1934; M.B.A., University of Chicago, 1949; Ph.D., Ohio State University, 1970.
- RAPP, John E. (1972), *Economics and Finance*, Professor – B.A., University of Missouri, 1959; M.A., University of Missouri, 1960; Ph.D., University of Missouri, 1964.
- RAY, Alden E. (1961), *Mechanical Engineering*, Professor of Materials Engineering – B.A., Southern Illinois University, 1953; Ph.D., Iowa State University, 1959.
- RHEE, Tong-Chin (1967), *History*, Associate Professor – B.A., Seoul National University, 1959; M.P.A., School of Public Administration, Seoul National University, 1961; M.A., Lehigh University, 1962; Ph.D., Clark University, 1967.
- RICHARDS, William M. (1970), *Philosophy*, Assistant Professor – B.A., LeMoyne College, 1966; Ph.D., Georgetown University, 1970.
- RODGERS, Edward W. (1963), *Accounting*, Professor – B.B.A., Northwestern University, 1945; C.P.A., Illinois 1944; M.B.A., University of Dayton, 1967.
- ROTTON, James G. (1973) *Psychology*, Assistant Professor – B.S., Purdue University, 1967; M.S., Purdue University, 1971; Ph.D., Purdue University, 1973.

- RUFF, Lawrence A. (1960), *English*, Associate Professor – B.S., University of Dayton, 1958; M.A., Catholic University of America, 1959; Ph.D., Ohio State University, 1968.
- RUPPEL, George J., S.M. (1956), *History*, Professor – B.A., University of Dayton, 1934; M.A., Catholic University of America, 1947; Ph.D., University of Pittsburgh, 1955.
- RYCKMAN, Seymour J. (1959), *Civil Engineering*, Professor – B.S., Michigan State University, 1939; M.S., University of Missouri, 1942; Reg. Prof. Engr.
- SANDY, Charles W. (1975), *Chemical Engineering*, Assistant Professor – B.S., Pennsylvania State University, 1964; M.S., Pennsylvania State University, 1968; Ph.D., Pennsylvania State University, 1974.
- SANFORD, Robert G. (1970), *Accounting*, Associate Professor – Ph.B., University of Notre Dame, 1940; C.P.A., Wisconsin, 1948; Illinois, 1962; M.B.A., DePaul University, 1968.
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- SCHLEPPI, John R. (1963), *Physical and Health Education*, Associate Professor – B.S., Ohio State University, 1961; M.A., Ohio State University, 1963; Ph.D., Ohio State University, 1972.
- SCHMID, Merle D. (1960), *Technical Studies and Services*, Professor – B.S., University of Washington, 1935; M.S., University of Arizona, 1936; Ph.D., Illinois Institute of Technology, 1959.
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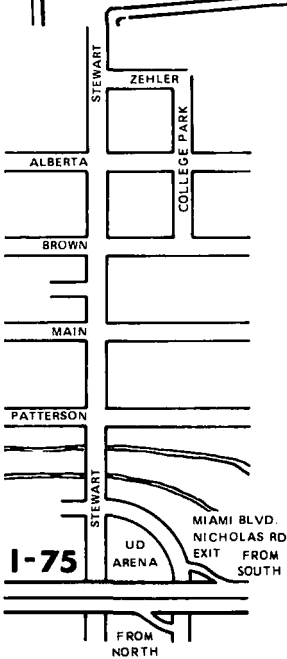
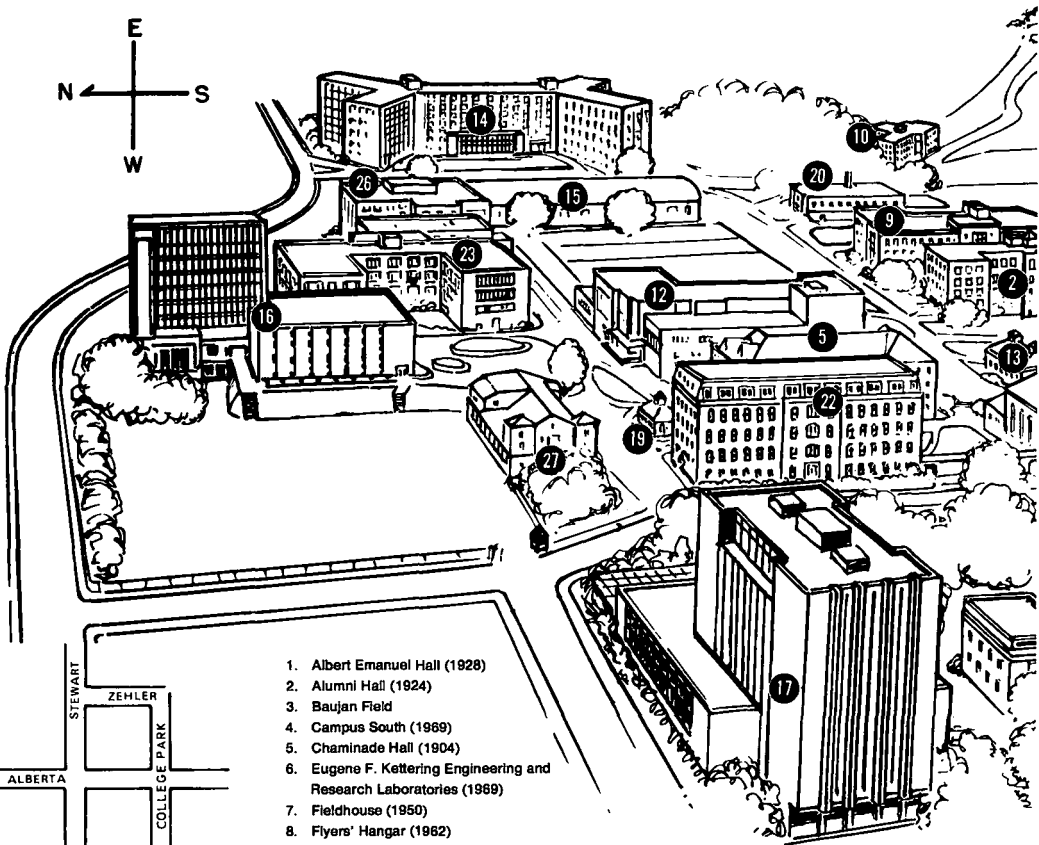
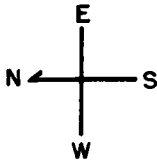
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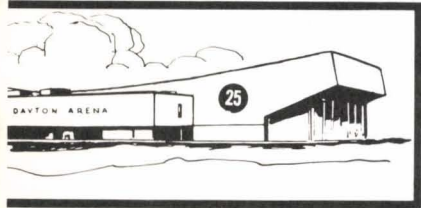
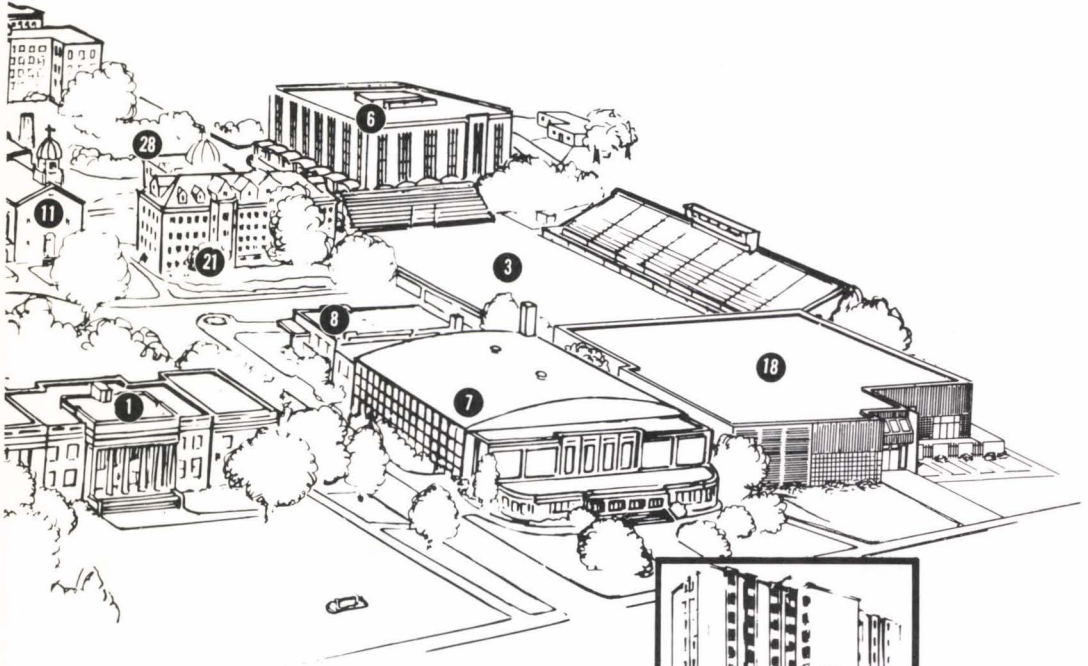
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GRADUATE AND UNDERGRADUATE ACADEMIC CODES

AAS	Afro-American Studies	ICI	Industrial-Chemical Technology
ACC	Accounting	ISE	Technical Studies and Services
ADM	Administrative Science	ITA	Italian
AEE	Aerospace Engineering	ITI	Industrial Engineering Technology
AMS	American Studies		
ANT	Anthropology	JRN	Journalism
ART	Fine Arts	JUD	Judaic Studies
ASI	Interdisciplinary – Arts and Sciences		
		LAT	Latin
BAI	Interdisciplinary – Business Administration	LAW	Law
BEI	Bio-Engineering Technology	LNG	Languages
BEN	Engineering Late Entry		
BIO	Biology	MAT	Materials Engineering
BUS	Business Management	MBA	Business Administration
		MED	Premedical
CHM	Chemistry	MEE	Mechanical Engineering
CIE	Civil Engineering	MET	Medical Technology
CLA	Classics (Languages)	MIL	Military Science
CME	Chemical Engineering	MKT	Marketing
COM	Communication Arts	MLI	Metallurgical Technology
COP	Cooperative Education	MPA	Public Administration
CPS	Computer Science	MSC	Management Science
CRJ	Criminal Justice	MTH	Mathematics
CTI	Chemical Technology	MTI	Mechanical Engineering Technology
		MUS	Music
DAP	Data Processing		
DEN	Pre dental	PHL	Philosophy
		PHO	Photography-Cinematography
ECI	Electronic-Chemical Technology	PHY	Physics
ECO	Economics	POL	Political Science
EDA	Educational Administration	PSC	Physical Sciences
EDC	Counselor Education and Human Services	PSY	Psychology
EDD	Physical and Health Education	PTI	Plastics Technology
EDE	Elementary Education	PVA	Performing and Visual Arts
EDF	Foundations of Education		
EDH	Health Education	REL	Religious Studies
EDI	Interdisciplinary – Education	RUS	Russian
EDP	Physical Education		
EDS	Secondary Education	SCP	Packaging Management
EEL	Environmental Engineering Technology	SDL	Self-Directed Learning
EGM	Engineering Mechanics	SEC	Executive Secretarial Studies
EGR	Engineering	SOC	Sociology
ELE	Electrical Engineering	SPE	Speech
ENG	English	SPN	Spanish
ENI	Interdisciplinary – Engineering	STI	Engineering Technology Service Courses
ENM	Engineering Management	SWK	Social Work
ETI	Electronic Engineering Technology	SYS	Systems Science
FIN	Finance	THL	Theology
FRN	French	THR	Theatre
		TII	Interdisciplinary – Engineering Technology
GCI	Geo-Chemical Technology		
GEN	General Studies	UCD	Urban Community Development
GEO	Geology	UDI	Interdisciplinary – University-wide
GER	German	ULP	Urban Life Program
GRK	Greek		
HEC	Home Economics		
HMS	Humanities Studies		
HST	History		