

University of Wisconsin-Green Bay

**Graduate Studies
Catalog**

1988

Contents

| | |
|--|--------------------------|
| Introduction | 2 |
| General Information | 5 |
| Admission | 9 |
| Costs | 10 |
| Financial Aids | 10 |
| Master of Science in Administrative Science | 12 |
| Master of Science in Community Human Services | 18 |
| Master of Science in Environmental Science and Policy | 24 |
| Cooperative Programs | 36 |
| Master of Business Administration | 36 |
| Cooperative Programs in Education | 37 |
| Administrative Leadership and Supervision | 38 |
| Educational Psychology—Counseling | 39 |
| Curriculum and Instruction | 40 |
| Reading | 41 |
| Academic Rules and Regulations | 46 |
| Academic Year Calendar | 51 |
| Campus Map | 52 |
| Index | 53 |
| Administration | inside back cover |

Introuduction

■ Programs and Degrees Offered

The University of Wisconsin-Green Bay offers two types of programs leading to master's degrees.

The first type consists of degrees awarded by UW-Green Bay in three distinct areas of study. They are:

- Master of Science in Administrative Science
- Master of Science in Community Human Services
- Master of Science in Environmental Science and Policy

The second group comprises cooperative programs with the Universities of Wisconsin at Oshkosh and Milwaukee. Course work in these cooperative programs is normally completed on the UW-Green Bay campus, but the degree is awarded by the sponsoring institution. Cooperative programs are:

- Master of Science in Administrative Leadership—Educational Administration and Supervision Emphasis (UW-Milwaukee)
- Master of Science in Curriculum and Instruction (UW-Milwaukee)
- Master of Science in Educational Psychology—Counseling (UW-Milwaukee)
- Master of Business Administration (UW-Oshkosh)
- Master of Science in Education—Reading (UW-Oshkosh)

■ Philosophy and History

The University of Wisconsin-Green Bay is committed to a distinctive academic plan characterized by a strong interdisciplinary education that is grounded in the liberal arts. It is a practical education that prepares students to critically evaluate issues and solve problems. The University has a strong commitment to serve the needs of the region and to extend the learning environment beyond the boundaries of campus.

Graduate programs at UWGB are offered in select areas reflecting particular strengths of the academic program and needs of the region.

UW-Green Bay is one of the newest members of the University of Wisconsin System. It began in 1965 when the Wisconsin legislature authorized a new campus of the University of Wisconsin System to serve the growing urban population in northeastern Wisconsin. Classes began in 1968, and the following year, the University moved to its permanent campus east of the city overlooking the waters of Green Bay. The University is one of 13 degree-granting institutions in the UW System.

With about 4,500 undergraduate students and 250 graduate students, the University is large enough to offer a diversity of programs, and small enough to offer students an individualized educational experience. The diverse student body includes students from most of Wisconsin's counties, half of the states, and about 30 foreign countries. About one-third of the University's students are over the age of 25. The University has more than 150 full-time faculty, 91 percent of whom have earned a doctorate or its equivalent.

■ Accreditation

UWGB is accredited by the North Central Association of Colleges and Schools for the bachelor's degree and for graduate work at the master's degree level. Accreditation is granted after a thorough examination of all aspects of a college or university by a team of faculty and administrators from other established institutions.

■ Academic Calendar

The University operates on a 4-1-4 semester plan with the fall semester beginning in early September and ending in mid-December and the spring semester running from early February to the end of May. January interim is a month in which students can concentrate on a single course, project, or thesis work. An eight week summer session is also offered, along with special summer workshops and other academic programs of varying lengths.

■ Campus

The University is situated on a beautifully landscaped 700-acre site located seven miles from the city center of Green Bay, Wisconsin. All of the University's academic buildings have been built since 1969.

The central landmark on campus is the eight-story Library Learning Center. Clusters of academic buildings are grouped like points of the compass on the north, south, and west around the Library Learning Center. The academic buildings and the student union are connected outdoors by plazas and walkways and indoors by a system of concourses. The concourses and ramps and elevators in every building make the University particularly accessible to handicapped students and visitors.

The Phoenix Sports Center, east of the academic buildings, includes the gymnasium, swimming pool, handball courts, team rooms, and other indoor athletic facilities. Tennis courts, baseball and softball diamonds, and other playing fields are nearby. UWGB's soccer team plays its games at Phoenix Field on the campus' east side.

Student apartments and residence halls are near the union and academic buildings and not far from the gym, swimming pool, and other sports facilities.

Canoes, sailboats, and other recreational equipment are available for rent at the University's dock facility on the bay. Also on the bay is Communiversity Park, a picnic and recreation area.

Since the primary buildings are clustered, much of the campus is left open for recreational use. The nine-hole golf course is used in winter for cross-country skiing. Bicycle, skiing, and pedestrian paths connect all parts of the campus. The Cofrin Memorial Arboretum around the periphery of the University campus includes about 165 acres demonstrating several very different natural areas.

■ Facilities

Facilities used by the graduate program, in addition to general classroom and office space, include laboratories, the library, computer center, and a number of ancillary programs or research centers. Each of these is described below.

Laboratories

The University has devoted a significant portion of its resources to developing laboratory facilities to support the natural and social sciences. A number of these labs are devoted mostly to research and include a water analysis laboratory, a waste management resource recovery lab, and a computer-based cartography lab. Available equipment includes gas and liquid chromatographs, spectrophotometers (UV, IR, visible), microscopes, autoanalyzers, atomic absorption spectrometer, liquid scintillation apparatus, growth chambers, and other equipment. Microcomputers are available in the lab sciences building. A commercial high-pressure briquetting machine is available in the waste management lab for the study of processing coal or other fines. Other spaces available for research use include a herbarium and greenhouse. The University also has boats, a four-wheel drive vehicle and a variety of other equipment for field studies.

Library

The University places high priority on development of excellent library facilities. The library currently contains 260,000 catalogued books; 5,000 serials (magazines, newspapers, journals); 350,000 government documents; 44,000 maps and charts; and a number of special collections. Of particular importance to the master's program is the documents collection. The library is a depository for publications of the United States government, the Rand Corporation and the State of Wisconsin. It also collects documents of the Canadian government, and the United Nations. In addition, the library purchases many publications of inter-governmental organizations, such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Food and Agriculture Organization (FAO), the Organization for Economic Cooperation and Development (OECD), and the World Meteorological Organization (WMO). The library also participates in an excellent inter-library loan system. The library recently installed a LS 2000 computer system replacing the traditional card catalog with an electronic catalog system.

Computer Facilities

The University's mainframe computer supports approximately 100 mainframe-based terminals located across the campus. Twenty-five of these terminals are located in a workroom adjacent to the Computer Center. The University plans to purchase another mainframe computer to keep its equipment current with state-of-the-art. The center includes two microcomputer labs. The terminal workroom and microcomputer labs are available for teaching and walk-in use for over 80 hours per week. Consultants and lab assistants are available to assist students with computing problems. Software capabilities include a variety of computer languages, statistical analysis programs, computer-aided design, and several word processing, data base, and spread sheet programs.

Beyond the computing facilities described above, the University has microcomputing facilities in several science labs and in the library.

Sea Grant Program

UWGB faculty members participate in the University of Wisconsin Sea Grant College Program. The Green Bay program involves public education work and research projects dealing with water quality, fisheries, coastal marshes, and human impact on the bay of Green Bay and the Great Lakes. Several University boats are available for research.

School Services Bureau

The School Services Bureau helps to meet specific educational needs in the larger community with the assistance of faculty and staff at the University of Wisconsin-Green Bay and in local school districts. It works to:

- identify resource persons and programs for classroom and other in-school activities.
- develop and conduct in-service programs.
- serve as a liaison to UWGB departments responsible for credit courses; non-credit conferences, workshops and seminars; and other educational activities.
- participate in cooperative study and research activities.
- arrange for consultant services.

Introduction

Area Research Center

The Area Research Center of the UWGB Library is a depository for municipal and county manuscript records. These records provide a rich source of organizational information for students of history, genealogy, and local culture. This center is one of the most active units in the network established by the State Historical Society.

Richter Natural History Collections

In 1975 the University was honored by the generous gift of the extensive natural history collections of Carl H. Richter from Oconto, Wisconsin. The collection contains over 11,000 sets of bird eggs and is the 11th largest bird egg collection in North America. The Richter Collections also contain over 1,200 scientific skins and 100 mounted bird specimens. Most are from North America with a small series from Mexico and South America and a few species from Europe and New Zealand. Smaller collections of regional mammals, reptiles, and worldwide collections of Mollusks and Lepidoptera are also included.

Natural Areas

UWGB has received three natural areas as gifts, Toft Point (610 acres), Fuller Point (158.7 acres), and the Oconto Aquatic Marsh (7.3 acres), and has the use of two other areas, Point Sable and Lily Lake. The campus has a public arboretum which currently includes about 450 acres around the campus periphery. It is a memorial to John and Austin Cofrin.

Institute for Research

The Institute for Research assists faculty members in obtaining support for research. Graduate students working with faculty can learn to develop proposals for funding from federal agencies, private foundations, and industry. The Institute has access to the latest information on funding sources through the Sponsored Program Information Network of New York as well as the Grants Information Office of the University of Wisconsin System.

Other Facilities

In addition to the above UWGB activities, two other agencies, the Bay Lake Regional Planning Agency and the U.S. Fish and Wildlife Service are housed on the UWGB campus. Students may wish to consider these agencies for possible internships or employment.



General Information

■ Total Credits

A minimum of 30-36 credits, depending upon the chosen area of emphasis and specialization, is required for completion of the master of science degree.

■ Grades

All courses and assigned studies are graded on a 4.0 scale. Thesis credits or internship credits are given an in-progress (PR) grade each semester until the thesis or internship is formally accepted as completed at which time the grade will be changed to pass (P) or no credit (NC). A pass (P) grade must be achieved in order to graduate.

Students are expected to maintain a cumulative grade point average of at least 3.0 and must achieve this GPA to obtain the master's degree. Students who fail to maintain this in their studies are subject to probation and/or drop as specified in the Graduate Academic Rules and Regulations.

■ Academic Rules and Regulations

The Graduate Academic Rules and Regulations are explained in a later section of this catalog. The *Timetable* contains information about registration procedures, fee information, listing of courses offered during that particular session, and other information.

■ Time Limit

Matriculated graduate students have a limit of five years to complete all requirements for the M.S. degree. This time period begins with the first day of the first term of enrollment with a classification of MS5.

■ Course Requirements

A program plan must be developed by the student and his/her graduate committee to satisfy the requirements of an area of emphasis and specialization with the remaining credits to be earned by selecting appropriate elective courses. An acceptable program plan must include:

Graduate Core Courses

(12 credits or more)

Graduate core courses are the courses numbered at the 700 level (700-794, but not including 783). These courses are open only to graduate students.

Thesis Credits (6 credits)

Students are required to register for a minimum of 1 credit of thesis during the semester in which the thesis defense is to occur. A student may earn more than 6 credits for thesis; however, only 6 credits may be applied toward the degree requirements.

Assigned Study Courses

A typical program plan will also include assigned study courses. Assigned study courses provide students with opportunities to gain specialized knowledge, skills, and experiences. The assigned study courses may include dual-listed undergraduate/graduate courses, selected upper-level undergraduate courses, independent study, transfer credits, and internships. Each of these opportunities is described:

Undergraduate/Graduate Courses

(XXX-500 to XXX-595 and XXX-600 to XXX-695): Graduate students may register for specific undergraduate courses designated as undergraduate/graduate (UG/G) without submitting an assigned study card. These courses are identified by course numbers at the 500 and 600 levels.

For each of the following types of assigned study, a graduate assigned study card with approvals of the instructor and graduate adviser must be filed with the study list request. (Specific instructions and sample forms are printed in the *Timetable* for each term.)

Academic standards for awarding graduate credit in graduate/undergraduate courses exceed the standards for awarding undergraduate credit. The increase in standards may be in the form of additional academic work and/or an increase in grading standards.

Independent Study (002, 006, 008, or 009-798): Independent study may be undertaken in the form of reading and research completed under the supervision of a member of the graduate faculty. This type of study should be undertaken only when an approved program plan is filed which includes the independent study course as an integral part of the individual program. Under normal circumstances a maximum of 6 credits of independent study may be applied toward the degree; however, with strong recommendation and rationale provided by the major professor, additional independent study credits may be allowed. To arrange for independent study courses students must prepare a proposal that includes a statement of objectives, a list of readings, and/or projects to be completed, and a statement of how the work is to be evaluated and graded. The proposal is filed in the Graduate Office and will be included in the student's file.

General Information

Internship (002, 006, 008, or 009-797): An internship, usually undertaken outside of the University setting, must be an experience that provides a genuine training ground for the application of knowledge and understanding relevant to the student's area of study.

Furthermore, it must be preplanned and incorporate predetermined criteria for grading. A full description of internship activities, including methods of academic evaluation, must be submitted to the student's major professor and the director of graduate studies for inclusion in the student's file. The internship must be sponsored by a member of the graduate faculty, although day-to-day administration of the experience may be in the hands of a non-faculty supervisor. An internship may be required by some graduate tracks. Experience gained in permanent employment cannot normally be counted as an internship. The amount of credit acquired through an internship (normal maximum is 6 credits) is determined by the student's graduate committee subject to approval by the director of graduate studies. The graduate program will not award credit for prior experience. An internship, however valid, if undertaken prior to enrollment in the program, cannot carry credit toward the M.S. degree.

Seminars, Colloquia, and Other Experiences: From time to time, professors or groups of professors may organize courses, semi-formal seminars, colloquia, field trips, and so on, around some topic of mutual interest. Such experiences are comparable to directed study undertaken as a group rather than as an individual experience, and may carry graduate credit. Graduate students are encouraged to take the initiative in founding and developing such experiences.

The assigned study component of the program plan may also include a maximum of 12 graduate credits earned at other institutions prior to admission. Evaluation of transfer credits is the responsibility of the student's graduate faculty committee at the time the student's program plan is approved. These credits are subject to the review of the director of graduate studies and the registrar.

Any additional courses to be taken at other institutions and to be included as credits toward the degree must receive prior approval from the student's major professor and the director of graduate studies.

■ Admission With Advanced Standing

All graduate coursework completed at UWGB or at other graduate schools prior to admission to the M.S. degree program will be evaluated by the student's graduate faculty committee when the student's program plan is prepared. The total number of credits earned prior to matriculation into the degree program either at other institutions or as a graduate special student (GSP classification) at UWGB cannot exceed 15 credits. Of these, a maximum of 12 credits may be accepted from other institutions.

■ Special Students

Persons holding baccalaureate degrees or higher who wish to enroll in courses at UWGB but do not wish to pursue a graduate degree may enroll as special students. Graduate credit will be awarded provided that the student registers in graduate level courses as a graduate special student (GSP classification) and pays graduate fees. Credits for which no graduate fees were paid nor graduate credit awarded cannot be retroactively converted to graduate credits.

■ Transfer Credit Policy

Transfer credit is defined as credit earned at an institution other than UWGB which is to be applied to master's degree requirements at UWGB. Acceptance of transfer credits is determined by a review of the credits by the office of the Registrar, and development of the program plan which includes the credits as part of a coherent program of study. Acceptance of the transfer credits is subject to review and approval by the director of graduate studies. Following are general guidelines for evaluating potential transfer credits:

- A maximum of 12 semester credits of graduate work may be accepted as transfer credits.
- A letter grade of A or B must be earned in each course transferred.
- The courses must contribute to a coherent program of study.
- The institution granting the credit must be regionally accredited at the master's level.
- The credits must be reasonably recent, usually earned within the five years prior to admission.

- Credits earned through extension courses offered or sponsored by universities outside of the state of Wisconsin will be subject to particular scrutiny.
- Credits earned under conditions (academic classification, time limitation, etc.) that make them unacceptable toward a degree at the institution where the credits were earned will not be accepted by UWGB.

■ Use of Special Petition

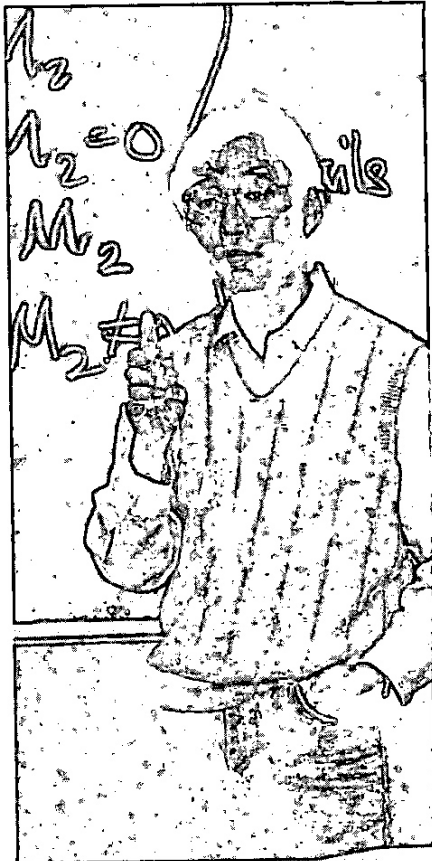
Requirements may be modified or adapted to take into account special educational or program needs of a student. A request to waive or modify an academic requirement of the graduate program is submitted on a special petition form. Special petition forms are available at the Academic Advising Office (Student Services 1930) or the Graduate Office (Theatre Hall 335). If a change in a program requirement is being requested, the petition should include a statement from the major professor or graduate committee regarding the change.

■ Thesis Registration

Only students with a MS7 classification are allowed to register for thesis writing credits (799). These classifications are assigned to a matriculated graduate student following acceptance of an approved graduate program plan and thesis proposal. Enrollment for thesis credits (799) may be for one to six credits per term and may be spread over several terms as appropriate. A student must be registered for a minimum of one thesis credit during the final semester in which the thesis defense has been scheduled.

□ Progress Toward the Degree

This section is a guide to the necessary steps to be taken and forms to be completed from admission to completion of the program and final graduation.



Selection of a Graduate Committee

The student's major professor and graduate committee members make final decisions about the acceptability of the program plan and quality of the student's thesis. Therefore, it is important that a student select a major professor and committee early in the program. For students in a specific area of emphasis, the coordinator or adviser for a specialization normally assists in this process. The committee is comprised of three graduate faculty members, approved by the appropriate track coordinator, one of whom is requested by the student to act as the major professor. Students are encouraged to ask a person from outside the University to join their committees.

The committee is responsible for supervising the student's program of study and should:

- Guide the student in appropriate selection of courses and assigned studies to ensure that the student is aware of all relevant material necessary to a complete understanding of the chosen field of study.
- Determine whether the student has accumulated and demonstrated sufficient ability to engage in the analytic process of problem solving.
- Make certain that the student's thesis project is consistent with the degree, confronts the interdisciplinary relationships of the subject area, and focuses on problem-solving methodology rather than narrowly approaching it within the framework of a conventional discipline.

If a change is desired in a committee, it is the student's responsibility to explain to the committee members why the change is desirable or necessary. If the change is acceptable to the outgoing and incoming professors, the student should then notify the Graduate Office.

Graduate Student Program Plan

The primary responsibility for ensuring that each student's program plan conforms to the requirements and regulations of the M.S. program rests with the student's graduate committee. The student meets with his/her committee to discuss the program plan and to gain the committee's approval. The program plan is subject to final approval by the coordinator of the emphasis area and the director of graduate studies who may suggest amendments to ensure that the plan conforms to the overall philosophy and requirements of the M.S. program. The Graduate Office will contact the major professor and student if corrections are necessary for approval. *The program must be submitted to the Graduate Office prior to registration for courses for a second term as a degree-seeking student.* Changes in the plan may be made, but are subject to further review by the director of graduate studies. *All changes must be submitted to the Graduate Office so that the student's file remains current.*

Documents explaining why certain course work is listed should accompany the program plan to the director of graduate studies, if appropriate. These may include:

- Documents of transfer credits accepted by the student's committee.
- Petition for changes in graduate program requirements.

At this time, the student also files an intent to graduate form listing the earliest possible graduation date.

In preparing the program plan, the student should use the *Guidelines for Completing the Graduate Program Plan*, available in the Graduate Office.

General Information

Thesis Proposal

The thesis proposal is the formal document which provides an overview of the thesis project. The proposal includes an explanation of the research problem, issue, or situation to be addressed, its relevance to environmental studies, and the methods and resources to be used in developing the thesis.

In preparing the thesis proposal, the student should use *Guidelines for Preparing the Thesis Proposal*, a copy of which may be obtained in the Graduate Office.

After the student has completed 15 credits of coursework and prepared the thesis proposal for approval at a formal meeting with the major professor and committee. If the thesis proposal is approved, the major professor and committee members sign form GR-2 and forward it, with a copy of the thesis proposal to the Office of Graduate Studies. It is the responsibility of the graduate committee to supervise and evaluate the thesis and assure completeness of all thesis materials.

The thesis is a formal document and must be prepared to conform to UWGB library requirements. General information about these requirements is available from the Office of Graduate Studies. *It is the student's responsibility to prepare and present the thesis in an acceptable format.* Several writers' guides and style manuals are commercially available.

Thesis Defense

The thesis defense is an open event attended by the candidate's graduate committee, and also open to the general public. The primary purpose of the defense is for the committee to ascertain whether the student has adequately understood and seriously attempted a solution of the thesis problem.

The GR-3 form is a request to schedule the thesis defense. This form must be completed and submitted to the Graduate Office at least one week in advance of the proposed date for the defense. Unless there are specific arrangements acceptable to all parties, the student should schedule the thesis defense during one of the academic terms, preferably during the fall, January, or spring terms.

Before attending the thesis defense, the candidate should obtain a GR-4 form from the Graduate Office. This form should be given to the major professor, whose responsibility it is to have the form completed, signed by the appropriate parties, and returned to the Graduate Office upon satisfactory completion of the thesis defense. A dissenting signature must be accompanied by an explanation from the dissenting member. The director of graduate studies has the right to grant or withhold approval of the thesis defense pending resolution of such differences. A candidate is considered to have passed his or her thesis defense only after all issues have been resolved and the completed GR-4 has been returned to the office of Graduate Studies.

Deposition of the Thesis

Upon satisfactory conclusion of the thesis defense and an acceptable graduate summary from the Registrar's Office, the candidate is expected to supply two copies of the thesis, including two copies of all audio/visual aids where appropriate, to the Graduate Office. After appropriate signatures are obtained, two copies are forwarded with a binding fee (\$6 per copy at the time of printing, but subject to change), collected from the student, to the UWGB library as a permanent record of the student's scholarly or creative activity. If the student desires, additional copies may be bound at the same per copy fee payable to UWGB. Diplomas are not awarded until all the requirements listed above have been met.

Commencement Deadlines

UWGB holds two commencements each year at the end of the fall and spring semesters. For graduation in the fall a student must schedule his/her thesis defense before December 1. For spring the thesis defense must be scheduled before May 1. A request to graduate form must be completed and submitted to the Registrar's Office prior to December 1 and May 1 respectively. Students who complete their work during the summer session and wish to participate in commencement ceremonies may participate in the following fall ceremony.

Degrees

The degree awarded is determined by the student's program of study, M.S. in Community Human Services, M.S. in Environmental Science and Policy, or M.S. in Administrative Science. Students enrolled in the cooperative programs (with UW-Milwaukee and UW-Oshkosh) will receive a degree from one of those institutions.

Course Descriptions

In the course descriptions in this catalog, commonly used abbreviations include:

| | |
|-----------|-----------------------------------|
| cr | credits |
| P | prerequisite course or experience |
| Rec | recommended course or experience |
| gr st | graduate standing |
| fr | freshman |
| soph | sophomore |
| jr | junior |
| sr | senior |
| cons inst | consent of instructor |

Admission

■ Admission Information

Admission to a UWGB graduate degree program is a decision by the director of graduate studies and the faculty for the area of emphasis identified by the student on the application form. The decision is a judgment of the student's suitability, based on educational background and educational objectives, to succeed in graduate degree work at the University of Wisconsin-Green Bay.

■ Admission Requirements

While UWGB has a basic admission policy for graduate study, a philosophy of personalized admission assures that each applicant will be considered on an individual basis. Entry requirements for full admission include:

1. A baccalaureate degree from an accredited institution.
2. A 3.0 grade point average, measured on a 4.0 scale, for the final two years of study. Students from schools not using a grading system will be evaluated on an individual basis.
3. Specific prerequisites for entrance to the area of emphasis specified on the application.

Students who do not meet the 3.0 GPA requirement or have other deficiencies may be admitted on a provisional basis. Provisionally admitted students who maintain a 3.0 GPA through 9 credits of graduate work subsequently will be fully admitted.

International students must be prepared to submit a minimum score of 500 on the Test of English as a Foreign Language (TOEFL). International student applicants must show official evidence of having financial resources which are adequate to provide for their educational expenses.

■ The Application

An application form can be obtained on campus at the Office of Graduate Studies. Forms will be mailed in response to telephone requests, (414) 465-2484, or written requests directed to: Office of Graduate Studies, University of Wisconsin-Green Bay, 2420 Nicolet Dr., Green Bay, Wisconsin 54311-7001.

The following documents are required:

1. The application, completed in full.
2. A 200-300 word statement describing principal areas of academic interest, capabilities, experience, and reasons for pursuing the M.S. degree.
3. Official undergraduate and graduate transcripts from each previous college or university attended, sent directly to UWGB from these institutions.
4. Three letters of recommendation from persons who can assess the academic potential of the prospective student.

Under the requirements of the Buckley Amendment to the Family Educational Rights and Privacy Act of 1974, student files are open to their inspection except for letters of recommendation for which the right of inspection has been waived.

Other supporting documentation such as personal records of professional or community achievement may also be submitted.

■ The Admission Process

The admission process is initiated by submitting the completed application form to the Office of Admissions. The Admissions Office notifies applicants whose files are incomplete. When the file is complete, the transcripts of previous undergraduate work and of all graduate courses are examined by the Office of the Registrar. Factors which may affect either admission to the graduate program or the acceptance of transfer credits are noted.

The file is forwarded to the Office of Graduate Studies where the director of graduate studies, on the advice of the Admissions Committee for the area of emphasis specified on the admissions form, either admits the applicant to the graduate program and area of emphasis, provisionally admits the applicant, or denies admission.

In the event that a student is denied admission, a reason for the denial will be provided along with an explanation of available options. Students denied admission may request reconsideration by writing to the director of graduate studies. The request should include a rationale for reconsideration. Applicants who have been denied admission may reapply after the lapse of one semester.

■ Permit Information

A permit to register is sent to each student upon his/her admission to the graduate program. The following information appears on the permit:

Student Number

The permanent student number of each applicant is his/her social security number or a University assigned identification number.

Classification and Year

The status of each student is designated by one of these abbreviations:

MSC5, MSE5, MSA5 First semester M.S. student without approved program plan.

MSC6, MSE6, MSA6 M.S. student with approved program plan. A degree seeking student may not register for classes in a second term without an approved program plan.

MSC7, MSE7, MSA7 M.S. student with approved program plan and approved thesis proposal. A student may not register for thesis credits without the MS7 classification.

GSP Graduate special student. This classification indicates that course work is being taken for graduate credit, however, the student is not participating in the UWGB degree program. A graduate special student who decides to pursue a UWGB graduate degree is required to submit an application form to enter the degree program. Often the credits earned as a graduate special student may be applied toward the M.S. degree; however, there is no guarantee of this.

■ Application Fee

A non-refundable twenty dollar (\$20) application fee is required of all students who apply for admission to the graduate program of the University of Wisconsin-Green Bay or any other graduate school within the University of Wisconsin System. The \$20 fee does not apply to students who wish to be admitted as special students (i.e. non-degree students). The fee does not apply to students seeking readmission after a period of inactivity or students seeking reconsideration for admission provided that reconsideration is sought within a period of two years, measured from the first day of that term for which the original admission was sought.

■ Application Deadline

Application, undergraduate transcripts, and letters of recommendation should be submitted no later than July 1 for entry into the M.S. degree program for the fall semester. The application deadline for the spring semester is December 1. Students who do not meet these deadlines may take courses as graduate special students and apply for admission to the degree program for the next semester.

■ Active/Inactive Status

Students who have been admitted into the graduate program and have earned credits in the program, who subsequently earn no graduate credit at UWGB for four consecutive semesters without notifying the Graduate Studies Office by filing a request to leave, are considered inactive and must be formally readmitted before they can re-enroll. Inactive students who are required to reapply must meet admission standards in effect at the time of readmission and are expected to meet degree requirements in effect at that time. The \$20 application fee does not apply to students seeking readmission after a period of inactivity.

For students admitted into the program who do not enroll for classes, UWGB will maintain their records for two years. If the student wishes to enroll after that two year period, he or she will have to reapply for admission and pay another \$20 application fee.

■ Costs

Tuition and fees for full-time graduate study (9 credits or more) for the 1987-88 academic year were \$987.00 per semester for residents of Wisconsin and \$2802.00 per semester for non-residents. Part-time students were assessed a fee of \$110.25 per credit for residents of Wisconsin and \$311.75 for non-residents. Fees and tuition are subject to change by action of the University of Wisconsin Board of Regents and the Wisconsin Legislature. The actual costs for each academic year are announced in advance in the *Timetable* or on fee information sheets and are available on request from the office of the Registrar.

■ Reciprocity

A reciprocity agreement exists between Minnesota and Wisconsin. Minnesota students may pay Minnesota in-state tuition and fees to attend public universities in Wisconsin. Students must apply directly to the Minnesota Higher Education Coordinating Commission, Suite 901, Capitol Square, 550 Cedar Street, St. Paul, MN 55101.

■ Graduate Assistantships

Graduate assistantships are available on a competitive basis. Graduate assistantships carried a stipend of \$6040 in 1987-88. Students receiving assistantships are expected to devote approximately 20 hours per week performing assigned duties. Typical duties are: to serve as a teaching assistant in a laboratory or discussion class; tutor students in the Skills Learning Program; assist in a staff office; or serve as a research assistant.

To be eligible for graduate assistantships students must:

- be fully admitted to the M.S. degree program;
- be enrolled for a minimum of six credits of course work each semester and no less than 15 credits during the academic year.

Applications for a graduate assistantship should be filed before March 15 for the following September. Applications received after this date or at other times of the year will be considered for unfilled assistantships or assistantships funded from grant monies. Students who wish information on availability of assistantships should inquire at the Graduate Office.

■ Non-Resident Tuition Waivers

A limited number of non-resident tuition waivers are available on a competitive basis to recipients of graduate assistantships. International students may also apply for waiver of non-resident fees.

■ Other Financial Aid

In addition to graduate assistantships, students may apply for several other grant or aid programs, such as National Direct Student Loans, Wisconsin Guaranteed Student Loans, or University work/study awards. Minority students may apply for Advanced Opportunity Grants or Wisconsin Indian Student Assistance Grants. For more information, contact the Financial Aids Office, (414) 465-2075.

A Master of Science in **Administrative Science**

Administrative Science is concerned with the effective management of formal organizations. To that end, students focus their attention on two critically important topics. First, they work to develop a thorough understanding of organizations so that they can design, manage, and change those organizations to improve their effectiveness. Second, they focus on understanding organizational decision and policy-making processes and methods, in order to improve both the processes and the decisions that come from them.

A principal objective of Administrative Science is to prepare skilled and imaginative individuals for middle-management and policy-making positions in government, nonprofit organizations, and the private sector. The program offers areas of emphasis in public and private management, policy analysis and planning, and decision science and systems analysis. It can prepare individuals to:

- identify and analyze policy-relevant problems of major importance;
- design, evaluate, and implement strategies and programs for addressing such problems; and
- design, manage, and evaluate project teams and organizational systems concerned with such problems, policies, programs, and strategies.

The Public and Private Management emphasis is intended for students who wish to pursue primarily management careers in public, private, or nonprofit organizations. Students complete a set of courses designed to provide them with problem solving and management skills, and with a thorough understanding of organizational processes and environments.

The Policy Analysis and Planning emphasis is for students who want to focus their graduate studies on substantive policy issues associated with contemporary public problem-solving activities, on characteristics of the public policy system, and on methods of policy analysis and planning.

The Decision Science and Systems Analysis emphasis is for quantitatively oriented students who wish to engage in sophisticated, professional systems planning and analysis, making use of the perspectives and tools of the contemporary fields of management and policy sciences.

Courses of study within Administrative Science will meet the needs of:

- recent graduates in the social or natural sciences, engineering, liberal arts, or other fields who lack adequate preparation for entry into administrative, managerial, planning, and policy analysis positions at the professional level;
- full-time professional employees of government, regulatory agencies, nonprofit organizations, or business and industrial organizations who live within commuting distance of the campus and who must pursue their graduate studies on a part-time basis; and
- persons with undergraduate or graduate degrees who wish to develop exceptional skills and understanding in a selected aspect of organizational or policy analysis or in managing organizations involved in environmental analysis or regulation.

■ Prerequisites

Students who are adequately prepared when they enter the program may earn the degree by satisfactorily completing 30 credits of coursework and independent study and a six-credit thesis. Students who lack appropriate prerequisites or technical knowledge will have additional requirements.

Each student's prior academic and work experience is evaluated when he or she enters the program. Students must have a baccalaureate degree, and are expected to have knowledge equivalent to that obtained in lower-level undergraduate courses in American government and political science, mathematics, statistics, and economics. They also are expected to have adequate writing and computer skills. Lack of appropriate background in any of these areas may be remedied by taking relevant undergraduate courses or by demonstrating competency in those areas to the faculty. Undergraduate courses taken to gain such skills do not count as part of the master's degree program.

■ Degree Requirements

The degree consists of 30 credits of coursework and independent study and a six-credit thesis. Students must maintain at least a B average in their coursework.

Students are required to file a graduate program plan after completing nine credits, or one full time semester of graduate study. Students must consult their advisers before filing the plan.

The three Administrative Science emphases share a common core of courses that must be completed before the student engages in significant additional study. The core consists of four courses—three that all students take and one course chosen from among three methodology courses. Each student also selects an emphasis consisting of five courses. A capstone seminar is required of students who have completed at least 21 graduate credits.

Summarized, degree requirements are:

| | |
|-------------------------------|----------------------|
| Core | 12-13 credits |
| Emphasis and electives | 15-16 credits |
| Seminar | 3 credits |
| Thesis | 6 credits |
| Total | 36-38 credits |

Core Courses

All Administrative Science students take these three courses:

- 002-753 Administrative Theory and Behavior
- 002-760 Social Research Methods
- 950-651 Decision Theory and Methods

Take one of the following:

- 008-768 Multivariate Statistical Analysis
- 002-765 Evaluating Social Programs
- 002-741 Survey and Field Research Methods

Courses taken to meet a core requirement may not be used to meet emphasis requirements.

Areas of Emphasis

Public and Private Management

Students choosing this emphasis are required to take:

- 002-757 Management of Complex Organizations

Choose two courses from group A and two more from either group A or group B:

Group A

- 002-755 Organizational Analysis
- 002-758 Politics and Power in Organizations
- 002-770 Organizational Change and Development

Group B

- 216-585 Management of Nonprofit Organizations
- 216-624 Marketing Research
- 216-643 Financial Planning and Control
- 216-662 Seminar in Personnel Management
- 950-606 Administration of Local Government
- 950-608 Public Policy Analysis
- 950-615 Public and Nonprofit Budgeting
- 950-652 Planning Theory and Methods
- 009-737 Community Human Services

Policy Analysis and Planning

Group A

- choose two courses:
- 950-608 Public Policy Analysis
- 950-652 Planning Theory and Methods
- 002-765 Evaluating Social Programs
- 009-703 Community Organization and Planning

Group B

- choose one course:
- 002-752 Environmental Policy and Administration
- 002-712 Science, Technology and Public Policy
- 002-713 Energy, Natural Resources and Public Policy

Group C

- choose two additional courses from group A or group C:
- 678-660 Resource Management Strategies
- 834-621 Techniques and Methods of Regional Planning
- 950-506 Regulatory Policy and Administration
- 950-670 Capital Projects Planning and Programming

Decision Science and Systems Analysis

Group A

choose two courses:

- 008-704 Discrete Multivariate Statistical Analysis
- 008-764 Mathematics of Operations Research and Management Science
- 008-767 Statistical Design and Analysis of Experiments
- 008-768 Multivariate Statistical Analysis

Group B

choose two courses:

- 216-451 Design of Computer-Assisted Systems
- 950-652 Planning Theory and Methods
- 002-755 Organizational Analysis

Group C

choose one additional course from group A, B, or C:

- 216-643 Financial Planning and Control
- 600-555 Applied Mathematical Optimization
- 950-670 Capital Projects Planning and Programming
- 002-757 Management of Complex Organizations
- 002-770 Organizational Change and Development
- 002-765 Evaluating Social Programs

Capstone Seminar

All students must take this course, but not until completing 21 units of coursework.

- 002-750 Seminar in Executive Decision Making

Thesis

- 002-799 Thesis

■ Faculty

Alesch, Daniel J., Professor, Business Administration. B.S. (1962), M.S. (1964) UW-Madison; M.A. (1969), Ph.D. (1970) University of California-Los Angeles.

Planning and decision theory and methods, policy science, quantitative methods and systems modeling, budgeting, program planning and evaluation, management of state and local government and nonprofit organizations.

Baba, Ronald K., Associate Professor, Urban and Public Affairs (Art). B.A., Architecture (1967) University of Southern California; Ph.D. (1975) University of Texas.

Urban planning theory, architecture and urban design, quantitative methods, history of contemporary art and architecture.

Bernaski, Kimberly D., Instructor, Urban and Public Affairs. B.S. (1980) University of Wyoming; M.P.A. (1982), Ph.D. (anticipated 1987) Texas Tech University.

Policy analysis, environmental law, environmental and energy policy.

Harris John H., Associate Professor, Business Administration (Management). B.B.A. (1969) UW-Madison; M.B.A. (1973) American; Ph.D. (1981) Kentucky.

Management, organizational behavior, and organizational theory.

Hazen, Mary Ann, Assistant Professor, Business Administration (Management). A.B. (1967) Ursuline College for Women; M.S.W. (1969) University of Michigan; Ph.D. (1984) Case Western Reserve.

Management, organizational behavior, organization theory.

Hutchison, Ray, Assistant Professor, Urban and Public Affairs. B.A. (1975) Harper College, State University of New York-Binghamton; M.A. (1977), Ph.D. (1985) University of Chicago.

Research methods, urban studies, race ethnicity, Hispanic groups in U.S., street gangs.

Johnsen, Per K., Associate Professor, Urban and Public Affairs (Psychology). B.S. (1966), Ph.D. (1971) University of Washington.

Social Science research methods, urban behavior systems, behavioral reactions to the built environment, the psychology of sports.

Jowett, David, Professor, Natural and Applied Science. B.Sc. (1956) University College of North Wales; Ph.D. (1959) Wales.

Statistics, statistical computing. Design of experiments, multivariable analysis, especially as applied to practical applications in science and technology. Systems analysis, computer modeling of systems, process control and quality control.

Knaap, Gerrit J., Assistant Professor, Urban and Public Affairs. B.S. (1978) Willamette; M.A., Ph.D. (1982) Oregon.

Urban and regional economics, public finance, environmental economics, statistics, health economics.

Kraft, Michael E., Professor, Urban and Public Affairs (Political Science). A.B. (1966) University of California-Riverside; M.A. (1967), Ph.D. (1973) Yale.

American politics and government; public policy analysis; congressional behavior and legislative processes; environmental and population policy; the utilization of public policy analysis and social science research by political decision makers, especially in the environmental and population policy areas, the political context of policy implementation; risk assessment in the policy process; politics of nuclear waste disposal.

Littig, David M., Associate Professor, Urban and Public Affairs (Political Science). B.A. (1960) Indiana; M.A., Ph.D. (1974) UW-Madison.

Urban politics and public policy. Impact of federalism on public policy outcomes. U.S. mass transportation policy. Comparative study of urban policy in advanced industrial nations.

Murray, James M., Professor, Regional Analysis (Economics, Business Administration). B.S., M.A. (1958) University of North Dakota; Ph.D. (1962) University of Oregon.

Applied economics, location analysis, waste energy systems, long range and strategic planning, feasibility analysis, benefit-cost analysis, impact analysis.

Obenberger, Robert W., Associate Professor, Business Administration (Marketing). B.S. (1964) UW-Whitewater; M.S. (1966) Northern Illinois; Ph.D. (1974) Louisiana State University.

Marketing strategy, marketing for nonprofit organizations, macromarketing.

Pollis, Nicholas P., Professor, Urban and Public Affairs (Psychology). B.A. (1951) Johns Hopkins; Ph.D. (1964) Oklahoma.

Small group formation and functioning, basic theory and cross-cultural applications. Social judgment and attitude change as related to specific social issues. Collective behavior as mediated by behavior settings and normative factors. Analysis of organizational structures with emphasis on organization development. Socio-cultural aspects of urban stress. The relationship of conformity and compliance to social change. Altruism and helping behavior.

Strock, James F., Assistant Professor, Business Administration. A.B. (1970) Wooster; M.B.A. (1979) Shippensburg; D.B.A. (1987) Kent State.

Human resources management, compensation and benefits planning, manpower planning, business policy.

Swinerton, E. Nelson, Associate Professor, Urban and Public Affairs (Political Science). B.A. (1960), M.A. (1964) University of Massachusetts; Ph.D. (1967) University of Kentucky.

Presidential leadership, American state executives, strategic planning, decision-making, organizational analysis, public policy, migrational studies. Educational planning in the Philippines.

Troyer, Michael D., Associate Professor, Business Administration. B.A. (1966) Cornell; M.A. (1971), Ph.D. (1975) Duke.

Strategic management, planning and control, problem-solving and decision-making, creative thinking, management of service and nonprofit organizations.

Wenger, Robert B., Professor of Natural and Applied Science (Mathematics) B.S. (1958) Eastern Mennonite; M.A. (1962) Pennsylvania State; Ph.D. (1969) Pittsburgh.

Systems analysis. Theory and applications of mathematical optimization and operations research. Resource recovery and solid waste management problems. Energy use in solid waste systems. Mathematical models for management.

■ Course Descriptions

002-712 Science, Technology, and Public Policy 3 cr.

An examination of the role of science and technology in public policy. Topics include the capacity and performance of governing institutions such as science advisory bodies to the President and Congress, the role of science and technology in administrative decision making, public knowledge and participation in decision making involving science and technology, communication of technological issues in the media, mechanisms for resolving scientific disputes such as science courts and mediation, and cases and controversies in science and technology policy. P: gr st. Rec: At least one course in public policy and administration.

002-713 Energy, Natural Resources and Public Policy, 3 cr.

An examination of energy policy issues in advanced industrial societies, with a special emphasis on the United States. Topics include the nature of energy sources and their patterns of use, energy economics, energy politics, and issues and controversies in public policy on energy both within the United States and internationally. P: gr st. Rec: 950-608 and 008-752.

002-741 Survey and Field Research Methods 3 cr.

Survey of theoretical background and methodological skills necessary to conduct field methods and survey research. Includes logic and theory of scientific inquiry; purposes of ethnography and ethno-methodology; methods of field research; survey research and sampling design; and methods of multivariate and data analysis (including multiple regression and path analysis). Emphasis on applied experience in the analysis of quantitative and qualitative data generated by different research methodologies.

002-750 Seminar in Executive Decision Making 3 cr.

Examines the theory of individual and group decision making, the process and consequences associated with alternative decision making styles and systems, and develops skill in the use of the major decision assisting tools. Uses case studies and examples from the fields of environmental management, public administration, and business or industrial management. P: gr st and 002-753 or 002-757; Rec: 950-651.

002-752 Environmental Policy and Administration 3 cr.

Analyzes environmental policy making and implementation; with emphasis on advanced industrialized societies, and a special focus on the United States. Topics include the nature of environmental problems; indicators of environmental quality and change; the political and administrative context of environmental problems; policy making and implementation at federal, state, and local levels—with comparisons to other nations and to international efforts; political, organizational, legal, and technical constraints on environmental administration; policy and program evaluation; and selected problems and issues in environmental policy and administration. The particular focus reflects students' needs and interests. P: gr st.

002-753 Administrative Theory and Behavior 3 cr.

The structure and internal system maintenance processes of formal organizations, with an emphasis on the roles of supervisors, team leaders, executives, managers, administrators, and administrative staff specialists. The major theories and schools of thought in the fields of administrative behavior, organizational theory and leadership are examined. Attention is given to major factors which influence the success of organizational activity and administrative behavior, and to effects associated with a range of organizational and administrative practices and behavior. P: gr st.

002-755 Organizational Analysis 3 cr.

Examination of organizations, clusters of organizations, and other complex systems where there is interdependency among persons, technologies, and natural systems for the purpose of accomplishing stated objectives. The emphasis is prescriptive. The approach is intended to result in more effective analysis, design, and intervention in such systems to achieve objectives. The approach is applicable for planners, managers, and change agents in private, non profit, and public sectors. P: gr st and 002-753 or cons inst.

002-757 Management of Complex Organizations 3 cr.

Advanced concepts and methods of managing project teams, complex organizations, and multi-organizational systems in the public, nonprofit, and private sectors. Major topics include administrative leadership, constraints on organizational managers, internal control and management processes, problems and philosophies of public and private enterprise management, and others. Course uses a central text, separate readings for students depending on their interest in the public, nonprofit, or private sectors, and a variety of learning methods, including case studies. P: gr st and 002-753 or cons inst.

002-758 Politics and Power in Organizations 3 cr.

Examines organizational politics and power in corporate America and public bureaucracies at the local, state, and national levels, including executive leadership and ability to bring about changes in organizational culture and the external environment. Topics include: power and authority in organizations, control and ideology in organizations, external influences on organizations, the nature of organizational conflict, the individual vs. the organization, organizational culture and bureaucracy, prospects for organizational democracy, the effectiveness or ineffectiveness of organizational development, organizational pathologies, and the effective executive.

002-760 Social Research Methods 3 cr.

An introduction to theory and methods of research in the social sciences. Topics include the philosophy of science, role of theory, research designs, types of data collection and program evaluation. Emphasis is on problems of field research, especially in the administrative and policy sciences. P: gr st.

002-765 Evaluating Social Programs 3 cr.

Since the early 1960's there has been a growing trend to ask programs providing social or educational services to provide evidence that they are effective. A new field—evaluation research—has emerged in response to this trend by adapting the methods of social research to the problem of assessing program quality. This course provides an introduction to evaluation research. It emphasizes such issues as identifying program goals, choosing outcome measures, defining appropriate samples, data collection strategies, and evaluating and disseminating results. Political, administrative, and ethical problems of evaluation are considered throughout. Course procedure is informal with much of the class time spent in developing and discussing model evaluation studies. P: introductory statistics.

002-770 Organizational Change and Development 3 cr.

Focuses on practical applications of being an organizational change agent. Main areas of emphasis include facilitation, team building, process vs. expert consultation, sociotechnical systems theory, large scale systems change, quality of worklife, and so on. It is assumed that students come to the course with an understanding of organizational processes since the focus concerns manipulating these processes to achieve organizational effectiveness and satisfaction of individual needs. Capstone course for Organizational Analysis and Management of Complex Organizations. P: gr st., 002-755 and 002-757, or cons inst.

Administrative Science

002-783X Experimental Courses

This course number is used to designate courses and seminars offered by graduate faculty in response to special demand or on an experimental basis. Topics may be chosen to address current issues of general concern, special interests of student groups or faculty members, or special resources of visiting faculty. The title of the special topics course as announced in the *Timetable* will appear on transcripts of the students who enroll. Credits earned in the 783X courses may not be applied toward the graduate core requirement.

002-797 Internship 1-6 cr.

Supervised work experience in an appropriate program or agency. Students may enroll for internship credits only when such activity is included in the approved program plan. A description of activities including criteria for grading must be submitted to the student's major professor and director of graduate studies. P: student classification of MS6 or higher.

002-798 Independent Study 1-3 cr.

Reading and research under the supervision of a member of the graduate faculty. Independent study credits may only be earned when this activity is included as part of an approved program plan. P: student classification of MS6 or higher.

002-799 Thesis 1-6 cr.

Research and preparation of thesis document. Enrollment may be for 1-6 credits per term. All students are expected to include 6 thesis credits in their program plan. Although additional thesis credits may be earned, a maximum of 6 credits can be applied toward a degree. P: student classification of MS7.

008-704 Discrete Multivariate Statistical Analysis 2 cr.

The statistical analysis of categorical data by log-linear models. Categorical data arises in circumstances when members of a population are characterized as either possessing or not possessing a particular property. For example, *members of a human population may be characterized by sex, socio-economic status, medical status, presence of disease, opinion on current political events, behavior in specified circumstances, etc.* Customarily this leads to two-way cross classifications where the cell entries are counts of subjects, and analysis is by *chi-squared*. Should three, four or more criteria of classification be used, analysis becomes vastly more complex. This course discusses techniques for analyzing and interpreting such complex situations.

008-764 Mathematics of Operations Research and Management Science 3 cr.

Mathematical models which are frequently and extensively used in analyzing environmental, public sector, management, and business problems. These models include allocation, network, location, scheduling, and queuing models. An important part of the course is a study of applications of models through case studies or other examples. P: undergraduate courses in calculus and matrix algebra, or cons inst.

008-767 Statistical Design and Analysis of Experiments 4 cr.

Review of the common principles underlying the design of experiments and methods of analysis for such experiments. The purpose is to enable students to design and analyze their own experiments, for any degree of experimental complexity, and to understand the description and analysis of such experiments in the literature. Topics include the principles of replication, error, linear models and least squares, hierarchical models, blocking and factorial designs. Complex designs such as Latin squares, incomplete blocks, split plots, and the concepts of expectation of mean squares are developed as justification for the statistical tests applied. Non-parametric statistical methods, particularly as applied to designed experiments, concepts of ordinal and nominal data and chi-square contingency analysis are discussed. The principles are motivated through-out by reference to the theory and practice of scientific experimentation, and illustrated by examples. Laboratory analyses are performed on actual experimental data. P: elementary course in statistics.

008-768 Multivariate Statistical Analysis 4 cr.

Analysis of multifactorial data. Regression, multiple regression, curvilinear regression, nonlinear regression, correlation, multiple and partial correlation, path analyses, principle components, factor analysis, discriminant analysis. Emphasis on the computer analysis of actual data. P: elementary statistics and cons inst.

009-703 Community Organization and Planning 3 cr.

Reviews and examines community organization and social planning and the problems inherent in their practice. A community problem solving model aimed at social change is developed. Other elements of social planning and community organization examined include: setting priorities in a community, doing research studies, the politics of planning, developing and implementing plans of action, the strategy and tactics of social action, goal analysis, decision making analysis, feedback mechanisms and planning management. P: gr st.

009-737 Community Human Services 3 cr.

The insights and methods of many fields of study are used to provide an integrated picture of the nature and functioning of human service agencies and programs. It examines them through the concerns that shaped them—e.g., mental health, social problems, community development—and through organizational, ecological and general systems theory. Specific topics include the community mental health movement, crisis theory, social movements, economic and political forces affecting human service delivery, planning, and methods of intervention to increase program effectiveness. The course is team taught by members of the Community Human Services emphasis area. P: gr st.

Undergraduate/Graduate Courses (500-699 Level)

216-451 Design of Computer-Assisted Systems 3 cr.

Approaches to and methods of designing computer-assisted processes in organizations, with emphasis on feasibility analysis, design, implementation and evaluation. Special attention given to management information and decision support systems. Includes fundamentals of socio-technical systems design.

216-585 Management of the Nonprofit Organization 3 cr.

The operation and management of organizations that operate within our society for purposes other than generating profit for owners or shareholders. Models such as the hospital and the university focus on the operational principles, optimizing criteria, and management control techniques characteristic of such institutions. In addition to examining the areas of accounting, finance, marketing, organization, and personnel, the nonprofit organization is discussed in terms of its social responsibility and the political and economic conditions in which it operates. Case studies used in a seminar format. P: 216-382 or equivalent experience or cons inst.

216-624 Marketing Research 3 cr.

The techniques of obtaining and analyzing information about marketing problems; obtaining data from primary and secondary sources, and interpreting them for marketing decisions. Development of target market determination plans to test the feasibility and relevance of a proposed new small business or the expansion of an existing enterprise. P: 216-322 or cons inst.

216-643 Financial Planning and Control 3 cr.

The efficient management of working capital; analysis and projection of financial data for planning, control, and for dealing effectively with the financial dimensions of management decisions P: 216-343.

216-662 Seminar in Personnel Management 3 cr.

Provides a foundation through discussion of personnel problems and experiences which can be translated into developing corporate personnel policies. Case studies related to urban, cultural, and legal realities along with making decisions which affect the administration and development of personnel policies are included.

600-555 Applied Mathematical Optimization 3 cr.

Analytical and numerical optimization techniques; linear, nonlinear, integer, and dynamic programming. Techniques applied to problems of water, forest, air, and solid waste management. P: 600-202 and 320, or concurrent enrollment in 320.

678-660 Resource Management Strategy 3 cr.

Applications of principles of system analysis to designing resource management systems and to developing strategies for maintaining optimum environmental utilities. Decision models and the role of economic systems in resource management. P: sr st and some background in economics or conservation.

834-621 Techniques and Methods of Regional Planning 3 cr.

The use and application of basic tools for urban and regional planning; source of data and other information; techniques and methods of population, economics, land use, housing, and transportation analysis and projects. P: jr st.

950-506 Regulatory Policy and Administration 3 cr.

An examination of the purposes, structure, legal aspects, and operation of public regulatory agencies and programs in the United States. Topics include theories and controversies underlying regulatory policy, issues in contemporary regulatory policy and administration, and rational models and methods for risk analysis and decision making. Case studies and exercises will cover a variety of regulatory processes, including those associated with public health, consumer protection, product safety, environmental quality, and energy development and use. P: 778-101 or 350-102 or cons inst.

950-606 Administration of Local Government 3 cr.

Covers the contemporary mechanisms in local government management and policy implementation focusing on the basic authority, limitations, financing, and rights of local government. Introduces the participant to the authority structures of local government and their limitations, with emphasis on comparison of national models and opportunities to analyze those models against specific local government systems and functions.

950-608 Public Policy Analysis 3 cr.

An introduction to public policy analysis and to the policy making process in American government. Topics include approaches to the study of public policy, the nature of public problems, the policy agenda, policy formulation, assessment of policy alternatives, policy adoption, policy implementation and evaluation, and the use of policy analysis in decision making. Special attention is given to political aspects of policy analysis, to models and methods for critical analysis and rational design of public policies, and to practical applications of policy studies. Develops skills in legislative research, preparation of position papers and other policy development documents, and methods of policy analysis and evaluation. P: gr st. Rec: one course in American government or cons inst.

950-615 Public and Nonprofit Budgeting 3 cr.

Covers the history; philosophy, purposes, attributes, types, and operational elements of major public budgetary systems used in the United States, with emphasis on object, performance, program, and PPB systems and their applicability to various programs, organizations, and governmental jurisdictions. Examines principles and methods used in designing and managing public budgeting systems and relationship between program planning, policy planning, and budgetary operations. Develops skill in applying analytic and decision-assisting tools to public budgetary operation. P: gr st and 350-102. Rec: course in American government.

950-651 Decision Theory and Methods 3 cr.

Provides fundamental skills in decision theory and quantitative analysis. Theory is introduced to explain practical application. Emphasis is on building skills and understanding; includes decision making under risk and uncertainty, linear models, queuing, monte carlo, payoff matrices, probability considerations, and introductory modeling. Relevant for those interested in government business, or nonprofit organizations. P: one course in statistics or cons inst.

950-652 Planning Theory and Methods 3 cr.

Focuses on planning for complex socio-technical systems in the public sector, including analysis, design, evaluation, and control. Covers the theory of planning, general systems theory, the political and administrative setting of public planning operations, and methods of planning analysis, such as cost effectiveness analysis and model building. Emphasizes practical application of theory and methods through case studies and projects, and provides both a theoretical and methodologic basis for study of specialized fields of planning, including those concerned with urban, regional, land use, environmental policy, and resource planning.

950-670 Project Planning and Management 3 cr.

Methods for determining demand for selected kinds of capital projects emphasizing public sector and environmentally related facilities. Preparation of capital projects budgets, pre-architectural plans and specifications, and capital project programs. The logic of capital budgeting decisions, and of project funding alternatives, especially in public sector projects. Role of retirement funds, revenue, and general obligation bonds in public sector capital project programs. P: none; Rec: 950-451.

C Master of Science in **Community Human Services**

Community human services is a generic term for a large, diverse group of mostly nonprofit organizations which have the general goal of ameliorating personal and social problems and assisting individuals to develop their skills and potentials.

The Community Human Services program seeks to contribute to this goal by providing knowledgeable professionals who can function as planners, administrators, researchers, program developers and/or system interveners. To develop these organizational roles requires a full understanding of human service organizations and the communities in which they exist since these communities legitimize the organizations and provide their resources. Organizations and communities are therefore the central foci of this program.

To fulfill the above roles, students will need to develop or augment skills in:

- community and organizational analysis and development;
- creating, or conceptualizing ways to create, new organizations and modifying existing organizations to address new and recurrent problems;
- anticipating social trends and problems and developing solutions or ways of responding to them;
- discovering new facts about, and relations relevant to, organizations and communities and disseminating such knowledge; and,
- understanding ways organizations can assist communities to help their members lead more satisfying lives.

■ Admission Requirements

Admission to Community Human Services is determined by the applicant's previous academic record, letters of recommendation, the match of the applicant to program orientation and goals and, when needed, a personal interview. The interview is scheduled after the coordinator receives the completed application file. Significant experience with a human service agency may be taken into account. Some students enter with prior human services work experience in such roles as counselors, planners, administrators, and educators in agencies such as mental health centers, schools, social services, residential treatment facilities, police departments, hospitals, religious organizations, and personnel departments. Such students often intend to stay in their present work settings using their education for job advancement, to attain credentials, or to become more effective.

Students come with a wide variety of educational backgrounds. Their educational and occupational diversity contributes significantly to program quality and enables students and faculty to learn from each other. Many students attend part-time.

■ Degree Requirements

The program aims to develop the above skills through a curriculum that delineates the structure and operation of human service organizations and their associated communities. It maximizes student choice and responds to individual interests. The interdisciplinary faculty is drawn from the fields of psychology, sociology, political science, human development, communications, economics, management, social work, and anthropology.

The program has four groups of requirements: a set of required core courses, a specialization, an internship, and a thesis. Each specialization contains a required course. A total of 36 credits is required. Students lacking some academic background may have to complete additional work.

In the first semester, each student forms a graduate committee comprised of a major professor and two other graduate faculty members, and may add a person from the community. This committee and the student design the student's program of study and approve all major program decisions.

Required Core Courses (15 credits)

The five core courses develop the common substance of the program—its values, skills, and knowledge. The emphasis is on basic concepts, theory, field and research skills, and change methodologies.

Core courses are:

- 009-744 Proseminar in Community Human Services, 3 cr.
- 009-737 Community Human Services, 3 cr.
- 009-760 Social Research Methods, 3 cr.
- 009-769 Seminar in Community Human Services, 3 cr.
- 009-774 American Society, 3 cr.

Specializations (9-14 credits)

The structure of Community Human Services permits the development of specializations from relevant academic areas of the University. The following are present specializations and their associated courses, including the required Community Human Services course. A minimum of three courses (9 credits) is needed for a specialization. It is expected that students will develop their internship and thesis in settings and on topics that support and enhance the specialization.

New graduate courses and specializations may be added. Through a cooperative agreement with the University of Wisconsin-Oshkosh, the Community Human Services program is also offered in Oshkosh. This makes additional specializations available to Green Bay students. Those tentatively identified at UW-Oshkosh are developmental disability and gerontology. Oshkosh will also offer administration. In addition to graduate courses, undergraduate courses can be used for graduate credit if approved by the major professor.

Evaluation of Human Services Programs Specialization:

- 008-768 Multivariate Statistical Analysis, 4 cr.
- 009-702 Principles and Practices of Consultation, 3 cr.
- 009-741 Survey and Field Research Methods, 3 cr.
- 009-760 Social Research Methods, 3 cr.
- 009-765 Evaluating Social Programs, 3 cr.

Administration and Management of Human Services Specialization:

- 002-750 Executive Decision Making, 3 cr.
- 002-753 Administrative Theory and Behavior, 3 cr.
- 002-757 Management of Complex Organizations, 3 cr.
- 009-702 Principles and Practices of Consultation, 3 cr.
- 216-382 Introductory Management, 3 cr.
- 216-585 Management of Nonprofit Organizations, 3 cr.

Counseling Specialization:

(Courses marked UWM are UW-Milwaukee courses offered on the UWGB campus.)

- 009-702 Principles and Practices of Consultation, 3 cr.
- UWM 265-603 Essentials of Counseling Practice, 3 cr.
- UWM 265-604 Awareness: Counseling, Poverty and Urban Cultures, 3 cr.
- UWM 265-710 Counseling: Theory and Issues, 3 cr.
- UWM 265-800 Group Counseling Theory, 3 cr.
- UWM 265-900 Clinical Studies in Counseling, 3 cr.
- 481-636 Counseling with Children and Adolescents, 3 cr.
- 481-637 Counseling with Adults and the Aged, 3 cr.

Planning Human Services Programs Specialization:

- 009-703 Community Organization and Planning, 3 cr.
- 216-482 Management Planning and Control, 3 cr.
- 216-643 Financial Planning and Control, 3 cr.
- 950-652 Planning Theory and Methods, 3 cr.

Organizational Development Specialization:

- 007-770 Organizational Change and Development, 3 cr.
- 009-702 Principles and Practices of Consultation, 3 cr.
- 009-726 Skills Training for Coping in the Professional World, 3 cr.
- 820-615 Organizational Psychology, 3 cr.
- 820-638 Group Dynamics, 3 cr.
- 246-335 Organizational Communication, 3 cr.

Community Resources and Development Specialization:

- 009-703 Community Organization and Planning, 3 cr.
- 009-798 Independent Study, 3 cr.
- 950-331 Urban Politics and Policy, 3 cr.

Internship (1-6 credits)

The internship supports and enhances the specialization. It is a variable-credit, supervised field experience in a community setting linked to the delivery of human services. There is a required program goal and an optional goal:

1. The required program goal is an organizational study and analysis, in written form.
2. The optional goal is an individual learning experience in which the student and the internship site contract to provide specific learning experiences in particular areas and work out a mutually beneficial professional exchange.

Internship sites have included mental health centers, Native American programs, counseling agencies, planning organizations, health agencies, police departments, university advising offices, centers for the developmentally disabled, hospitals, and child care centers.

Students must spend sufficient time in their internship to carry out the analysis. Hence, there must be time for extensive interaction with a variety of persons and time for observation, reflection, and analysis. Therefore, the internship usually lasts between four months and one year on a part-time basis. It is evaluated primarily on the basis of a written report that demonstrates an understanding of the characteristics of the system, informed by theory. The internship is also frequently used to help the student develop specific skills such as counseling techniques, research design, administration, planning and so on.

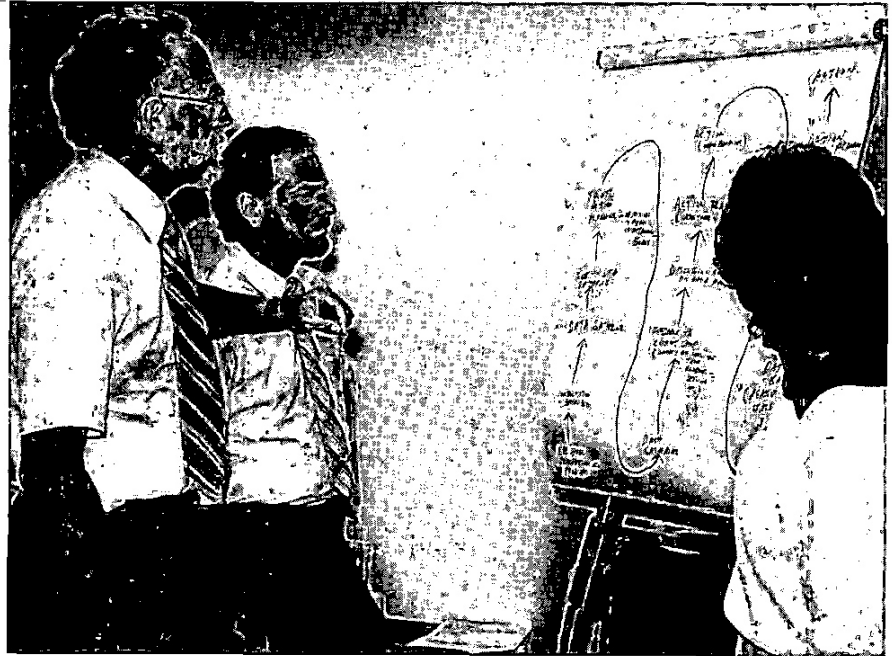
Employed students may use their work setting for their internship site if approved by their graduate committees. Regular duties, however, do not qualify for the internship.

Community Human Services

Thesis (6 credits)

The thesis is the culmination of a student's research of a problem area relevant to his or her program of study and a demonstration of scholarship, writing ability, and systematic thinking. Applied research in the community is encouraged, often in conjunction with the internship. The student may choose one of three thesis types. They are:

1. Collecting new data and its subsequent analysis in the form of a research report with a prior problem statement and literature review. This is a traditional thesis. Previous theses have included a study of the effectiveness of counseling agencies, an intervention designed to increase the effectiveness of a board of directors, the prospects for developing services for the frail elderly, and the determinants of funding decisions of mental health boards.
2. Developing and implementing a new program within the internship site, including a prior problem statement and literature review. For example, a police officer might design referral procedures between the police department and counseling agencies, monitor their development and evaluate the results.
3. Studying a social problem with an analysis of the responses of the human services system to the problem, again with a prior problem statement and literature review. For example, the problem might be unmet needs of the severely and permanently disabled once the acute phase of their disability is resolved. The way in which rehabilitative agencies provide services and their responsiveness to the clients' changing patterns of needs over time along with the degree and effectiveness of agency coordination could be evaluated.



■ Faculty

Baker, Bela O., Associate Professor of Social Change and Development (psychology). B.A. (1950), San Jose; Ph.D. (1961), UC-Berkeley.

Personality assessment, especially biographical and case study techniques. Program evaluation methods. Innovation in higher education. Cultural and individual variations in temporal perspectives. Social psychology, social change, motivation and thinking.

Clampitt, Phillip G., Associate Professor, Communication and the Arts (Communication Processes). B.A. (1976) University of Oklahoma; M.A. (1978) Southwest Texas State University; Ph.D. (1983) University of Kansas.

Communication audits, communication competency, appraisal interviews.

Galaty, David H., Associate Professor of Humanistic Studies. B.A., Trinity; Ph.D. (1971), Johns Hopkins.

History of science and technology, history of impacts on environments, human values, values implications of social services.

Groves, Walter B., Associate Professor of Social Change and Development. M.S., Ph.D., State University of New York-Albany.

Criminology, criminal justice, social change, and social theory.

Harris, John H., Associate Professor of Managerial Systems. B.B.A., UW-Madison; M.B.A., American; D.B.A., (1981), Kentucky.

Management, organizational behavior, performance appraisal, organizational theory.

Hazen, Mary Ann, Assistant Professor of Managerial Systems. B.A., Ursuline College; M.S.W., Michigan; Ph.D., Case Western Reserve.

Management, organizational behavior, organizational theory.

Hutchison, Ray, Assistant Professor of Urban and Public Affairs (Sociology). B.A. (1975), Harper College State University of New York-Binghamton; M.A. (1978); Ph.D. (1985), University of Chicago.

Research methodology, minority groups, race and ethnic relations; street gangs, Hispanics in the United States.

Johnsen, Per, Associate Professor of Urban and Public Affairs (Psychology). B.S. (1966), Ph.D. (1971), University of Washington.

Social and environmental psychology, urban behavior systems, social science research methods, survey research.

Littig, David M., Associate Professor of Urban Studies (political science), and Co-Director of Local Government Systems Program. B.A. (1960), Indiana; M.A., Ph.D. (1974), UW-Madison.

Urban politics and public policy—neighborhood government and social welfare policy. Analysis of public policy. Impact of federalism on public policy outcomes. U.S. mass transportation policy. Comparative study of urban policy in advanced industrial nations. Current research on intellectual and ethical development in the college years. Latin American politics.

Mendelsohn, Robert A., Associate Professor of Social Services (psychology) and Coordinator, Community Human Services. B.A. (1954), Cornell; M.A. (1958), Ph.D. (1963), Michigan.

Community psychology and community mental health; social psychology of human service delivery; social psychology; social planning.

Pollis, Nicholas P., Professor of Urban Studies (psychology). B.A. (1951), Johns Hopkins; Ph.D. (1964), Oklahoma.

Small group formation and functioning, basic theory and cross-cultural applications. Social judgment and attitude change as related to specific social issues. Collective behavior as mediated by behavior settings and normative factors. Analysis of organizational structures with emphasis on organization development. Socio-cultural aspects of urban stress. The relationship of conformity and compliance to social change. Altruism and helping behavior.

Rodeheaver, Dean, Assistant Professor of Human Development. B.A., M.A., Ph.D. (1983), West Virginia.

Aging, adult development, social and personality development, gender roles.

Troyer, Michael D., Associate Professor of Managerial Systems. B.A. (1966), Cornell; M.A. (1971), Ph.D. (1975), Duke.

Strategic management, planning and control, problem-solving and decision-making, creative thinking, management of service and nonprofit organizations.

Walter, Lynn, Associate Professor of Social Change and Development (Anthropology) and Chair, Anthropology. A.B. (1962), University of Illinois; M.A. (1970), Ph.D. (1976), University of Wisconsin-Madison.

International women's movements, ethnicity and theories of ethnicity, family studies.

White, Rolfe E., Associate Professor Social Services. B.A., M.S.W., Case Western Reserve; Ph.D. (1978), Lawrence.

Social work, counseling methods, evaluation of practice, development of self-help support systems.

■ Course Descriptions

Graduate-Only Courses (700-Level)

009-702 Principles and Practices of Consultation 3 cr.

Examines the kinds of consultation most in use with special emphasis on process consultation. Stages of carrying out a consultation, personal qualities and skills desirable in a consultant, and methods of determining consultation outcomes are discussed. The first part of the course focuses on the literature and includes role plays and guest lectures. Students then plan and carry out an actual consultation with class activity focused on facilitating these field experiences and conferring with the consultants. A final report concludes the course. P: gr st.

009-703 Community Organization and Planning 3 cr.

Reviews and examines community organization and social planning and the problems inherent in their practice. A community problem-solving model aimed at social planning and community organization is examined including: setting priorities in a community, doing research studies, the politics of planning, developing and implementing plans of action, the strategy and tactics of social action, goal analysis, decision-making analysis, feedback mechanisms and planning management. P: gr st.

009-726 Skills Training for Coping in the Professional World 3 cr.

This course assists the student in developing skills in communication, assertion, time management, emotional awareness, and rational management. It will also help the student be more effective in the interaction between external aspects and the self, using the self in more creative ways. In addition, the class will discuss and work with a method to analyze the students' skills and experiences with a focus on developing job descriptions that maximally use the students' special interests, talents, and strengths. P: gr st.

009-737 Community Human Services 3 cr.

Provides an examination of the structure and function of human service organizations and programs in context in the communities. Attention is paid to the concerns and forces that shape human service systems—social problems, economic and political forces, changes in community dynamics and characteristics, and the professionalization of helping. Specific topics include the nature of communities, the interaction of society and personality, the nature of human service organizations and organizations in general, planning, and organization and community intervention methods. P: gr st.

009-741 Survey and Field Research Methods, 3 cr.

Survey of theoretical background and methodological skills necessary to use field methods and conduct survey research. Topics include: logic and theory of scientific inquiry; purposes of ethnography and ethno-methodology; methods of field research; survey research and sampling design; and methods of multivariate data analysis (including multiple regression and path analysis). Emphasis is on applied experience in the analysis of quantitative and qualitative data generated by different research methodologies. P: gr st; 255-205, 009-760.

009-744 Proseminar in Community Human Services, 3 cr.

The proseminar is to be taken in the first semester of graduate study. It provides an orientation to the Community Human Services program and begins the skill development required by it. Emphasis will be on the identification and analysis of emerging or persisting social problems and the development of proposals for constructive responses to them. Each student will write and defend a problem statement and research proposal, which may have an empirical or conceptual focus and which may, in some instances, serve as a first draft of a thesis proposal. P: gr st.

009-760 Social Research Methods, 3 cr.

The course is an introduction to research in the social sciences. Although statistics and a social science background would be helpful for the student, the course is designed for the beginning student. P: gr st.

009-765 Evaluating Social Programs 3 cr.

Since the early 1960's there has been a growing trend to ask programs providing social or educational services to provide evidence that they are effective. A new field—evaluation research—has emerged in response to this trend by adapting the methods of social research to the problem of assessing program quality. This course provides an introduction to evaluation research. It emphasizes such issues as identifying program goals, choosing outcome measures, defining appropriate samples, data collection strategies, and evaluating and disseminating results. Political, administrative, and ethical problems of evaluation are considered throughout. Course procedure is informal with much of the class time spent in developing and discussing model evaluation studies. P: introductory statistics.

009-769 Seminar in Community Human Services 3 cr.

Primarily for students enrolled in the Community Human Services program, this seminar logically precedes the internship. Students study aspects of organizational functioning intensively for the first third of the course, leading to an all day workshop on organizational structure and function. The remainder of the course is spent doing a field study of a specific human service organization, culminating in a written class organizational analysis. The analysis is guided by one or more organizational theories. Program faculty and practicing human services personnel will attend many of the class sessions. P: 009-737 and admission to Community Human Services or cons inst.

009-770 Organizational Change and Development 3 cr.

Focuses on practical applications of being an organizational change agent. Main areas of emphasis include facilitation, team building, process vs. expert consultation, sociotechnical systems theory, large scale systems change, quality of worklife, and so on. It is assumed that students come to the course with an understanding of organizational processes since the focus concerns manipulating these processes to achieve organizational effectiveness and satisfaction of individual needs. Capstone course for Organizational Analysis and Management of Complex Organizations. P: gr st., 002-755 and 002-757, or cons inst.

009-774 American Society, 3 cr.

This course will study American Society, focusing on its various socioeconomic and cultural groups, on intergroup relations, and on predominant American values and culture. Of the various sources of diversity within American society, we will concentrate on ethnic, racial, gender and class, and explore the impact of this diversity of what it means to be American. Certain paired ideas—individual and community, equal opportunity and redistributive justice, pluralism and national integration—will be central to our discussion of diversity and consensus within American culture and society. P: gr st., 009-737.

009-783X Experimental Courses

This course number is used to designate courses and seminars offered by graduate faculty in response to special demand or on an experimental basis. Topics may be chosen to address current issues of general concern, special interests of student groups or faculty members, or special resources of visiting faculty. The title of the special topics course as announced in the *Timetable* will appear on transcripts of the students who enroll. Credits earned in the 783X courses may not be applied toward the graduate core requirement.

009-797 Internship 1-6 cr.

Supervised work experience in an appropriate program or agency. Students may enroll for internship credits only when such activity is included in the approved program plan and all required course work is satisfactorily completed. Students write a contract with their major professor and complete a major report on the organization. P: Student classification of MSC6, MSE6, MSA6 or higher.

009-798 Independent Study 1-3 cr.

Reading and research under the supervision of a member of the graduate faculty. Independent study credits may only be earned when this activity is included as part of an approved program plan. P: Student classification of MSC6, MSE6, MSA6 or higher.

009-799 Thesis 1-6 cr.

Research and preparation of thesis document. Enrollment may be for 1-6 credits per term. Although more than six thesis credits may be earned, a maximum of six credits can be applied toward a degree. P: Student classification of MSC7, MSA7, or MSE7.

Undergraduate/Graduate Courses (500-699 Level)

216-585 Management of the Nonprofit Organization 3 cr.

The operation and management of organizations that operate within our society for purposes other than generating profit for owners or shareholders. Models such as the hospital and the university focus on the operational principles, optimizing criteria, and management control techniques characteristic of such institutions. In addition to examining the areas of accounting, finance, marketing, organization, and personnel, the nonprofit organization is discussed in terms of its social responsibility and the political and economic conditions in which it operates. Case studies used in seminar format.

216-662 Seminar in Personnel Management 3 cr.

Provides a foundation through discussion of personnel problems and experiences which can be translated into developing corporate personnel policies. Case studies related to urban, cultural and legal realities along with making decisions which affect the administration and development of personnel policies are included.

302-610 Introduction to Education of Exceptional Children 3 cr.

A survey of the many types and/or kinds of exceptionalities that are found in the school population, the needs of such children and some methodologies towards meeting the individual needs of these exceptionalities (and others). Provides information that will enable the teacher or parent to recognize and understand the gross exceptionalities that exist, along with many subtleties that are unique and deserving specific attention and methodologies in the educational population and general population of children.

302-615 Counseling Role of the Classroom Teacher 3 cr.

Provides teachers and future teachers with the knowledge of specific counseling and guidance skills necessary to enhance their counseling effectiveness. The course will focus on becoming more aware of these skills and how one best implements them in the classroom.

302-662 The Adult Learner 3 cr.

Helps the student (1) acquire knowledge of various physiological, psychological, and sociological factors relevant to adult development throughout the life span and of their implications for learning; (2) develop an understanding of the key elements involved in the teaching-learning process; (3) develop an understanding of some of the important research in adult learning; and (4) develop a personalized learning theory.

481-620 Tests and Measurements 3 cr.

Methods and problems of measuring human characteristics, including determination of validity, reliability, and interpretive schemas for such measures. Examination of selected tests in intelligence, achievement, attitudes, interests and personality. Typical uses of tests and methods for reviewing tests.

481-629 Theories of Personality 3 cr.

Major ideas and systematic statements about the organization, function, change, and development of human personality. Readings acquaint the student with a variety of personality theorists such as Freud, Adler, Jung, Sullivan, Erikson, Dollard and Miller, Skinner, and selected existentialists.

481-631 Cognitive Development 3 cr.

The development of cognitive functioning from infancy to adulthood. The stimulus-response, cognitive, and psychoanalytic approaches to intellectual development are analyzed. Current issues and research are critically examined.

481-635 Abnormal Behavior 3 cr.

Deviations from normal intellectual, physical, emotional, and social development (e.g. retardation, psychopathology, emotional problems) throughout the life cycle are covered. Included study of accelerated development, delayed development, and disturbances in development. Biological and environmental origins of deviations are examined.

481-636 Counseling with Children and Adolescents 3 cr.

Introduction to theories and principles of counseling as applied to children and adolescents. Surveys different theoretical approaches and techniques for helping children and adolescents cope with the developmental deviations introduced in 481-435.

481-637 Counseling with Adults and the Aged 3 cr.

Introduction to theories and principles of counseling as applied to adults and the aged. Surveys different theoretical approaches and techniques for helping adults and the elderly cope with the developmental problems of the latter half of the life cycle introduced in 481-435.

481-639 The Social, Behavioral and Biological Implications of Aging 3 cr.

An interdisciplinary overview of older Americans, with emphasis upon creating for them an optimum environment. Physiological change, problems of meeting health care needs, social status, and psychological change, with emphasis upon individual difference. Historical and anticipated future changes in the older population will be discussed.



820-615 Organizational Psychology 3 cr.

Relation between social structure and psychological behavior, problems of bureaucracy, leadership styles, communication networks, decision-making processes, and group productivity.

820-638 Group Dynamics 3 cr.

Psychological principles as they apply to the individual in social groups, experimental analyses of group formation, maintenance of morale, and productivity.

E Master of Science in Environmental Science and Policy

Environmental Science and Policy is appropriate for students with interests in the scientific and/or public policy and administration aspects of environmental problems. Two tracks are available within the program to accommodate these interests:

- Environmental science
- Environmental policy and administration

Students choose to emphasize one of the tracks depending in part on future career interests.

Students who study Environmental Policy and Administration typically enter governmental agencies at the national, state or local level, or nonprofit organizations where their work involves policy analysis, planning, or administration. Some prefer positions in legislative bodies, environmental organizations, or industry where administrative or analytic work is combined with politics, public relations, education or advocacy.

Students who complete the Environmental Science track will be prepared for positions of responsibility dealing with a variety of environmental problems in industry, consulting, laboratory/engineering firms, and/or governmental agencies. Students are also well prepared for further graduate work in related or similar areas. Emphasis is on developing skills appropriate for designing and conducting scientific investigations, interpreting data, making responsible decisions and communicating the results of environmental studies to other scientists, decision makers and the general public.

□ Admission Requirements

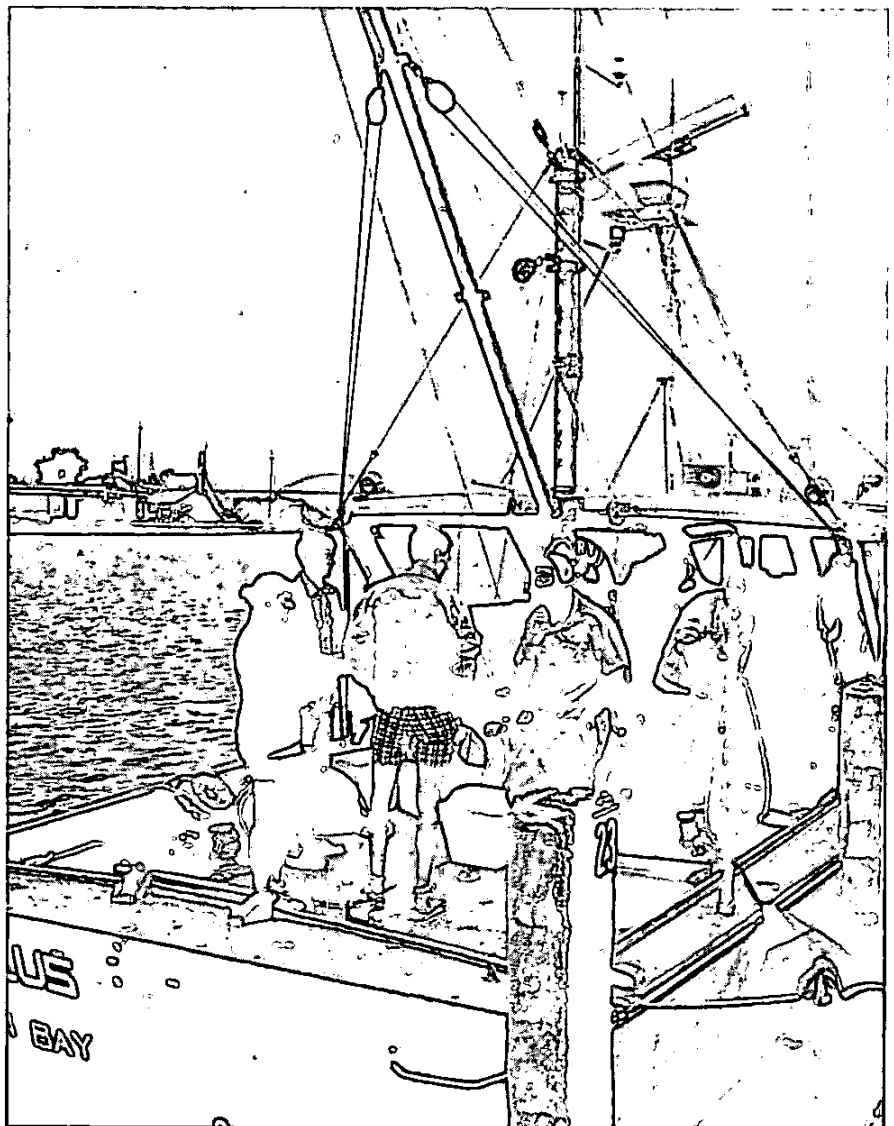
Each student's prior academic work is evaluated when he or she applies. Applicants with interests in the Environmental Science track are expected to have a strong background in the natural sciences including college courses in biology, chemistry, physics, earth science, and mathematics. A knowledge of statistics and computer science must be demonstrated. Additional requirements may be specified by a particular specialization.

Applicants with interests in Policy Administration are expected to have a satisfactory background in public policy and administration, political science, public policy or public administration.

□ Degree Requirements

Students who are adequately prepared when they enter the program may earn the degree by satisfactorily completing 24-30 credits of course work, plus a 6-credit thesis. Those who lack appropriate prerequisites may need to take additional courses to strengthen their backgrounds. Credit earned in undergraduate courses numbered at the 100- or 200-level cannot be applied toward the graduate degree.

Credit requirements are determined by the student's chosen specialization and program of study. At least 12 credits of 700-level courses must be included. Each student develops a program plan with the assistance and approval of their major professor and graduate committee.



General Core Requirements

All students are required to successfully complete:

008-701 Perspectives in Environmental Science, 3 cr.

OR

008-752 Environmental Policy and Administration, 3 cr.

And, a 3-credit capstone course, Seminar in Environmental Science and Policy, presently being developed.

008-799 Thesis, 6 cr.

By the time a student has successfully completed 15 credits, he or she should have developed a thesis proposal. The proposal is reviewed and approved by the major professor, the graduate committee, and the director of graduate studies before the student begins the research. Approval of the thesis proposal places the student in candidacy for the degree. Successful defense of the written thesis and completion of all courses in the student's program plan results in awarding of the M.S. degree.

Track Requirements

Students in Environmental Science and Policy may choose one of two tracks: Environmental Science and Environmental Policy and Administration. Each track requires successful completion of required core courses. Within their chosen tracks, students normally select a specialization relating to the specific problem or interest they plan to explore in their theses. Students are not limited to courses listed in only one track. With the aid of advisers, they may choose courses appropriate to their individual interests and programs of study.

Environmental Science Track

Environmental science core courses:

008-701 Perspectives in Environmental Science, 3 cr.

008-762 Natural Sciences Seminar, 1 cr.

• Ecosystems Studies Specialization

Students may address problems of general features of ecosystems such as nutrient regeneration, productivity, or trophic relationships. They can also focus on such specific questions as endangered species, predation, competition. Natural, managed and disturbed ecosystems are examined in classroom and field activities. Studies on aquatic systems can take advantage of the University's location on Green Bay and participation in the University of Wisconsin Sea Grant Program.

All students are encouraged to include, 678-675 Ecological Dynamics, and a planned new course, Ecosystems Management, in their programs of study unless they have completed equivalent ecology courses as part of their undergraduate work. All students are encouraged to complete either 008-767 Statistical Design and Analysis of Experiments, or 008-768 Multivariate Analysis.

Aquatic systems (6-9 credits):

008-749 Wetland Ecology and Management, 3 cr.

678-601 Stream Ecology, 3 cr.

678-603 Limnology, 3 cr.

678-630 Quantitative Hydrology, 3 cr.

678-634 Water Chemistry, 4 cr.

Terrestrial systems (6-9 credits):

008-715 Frontiers in Ecology and Evolution, 1 cr.

203-310 Plant Taxonomy, 3 cr.

204-511 Plant Physiology, 3 cr.

678-307 Ecology of Fire, 2 cr.

678-520 The Soil Environment, 3 cr.

678-563 Plants and Forest Pathology, 3 cr.

678-622 Biogeochemical Cycles and the Environment, 3 cr.

678-666 Vegetation Management, 3 cr.

Electives:

Additional courses may be selected with adviser's assistance.

• Resource Management Specialization

This specialization is for students who wish to study concepts of natural resource management. Emphasis is on elaborating alternative strategies for effective policy implementation and planning for the future. Principles and techniques of quantitative analysis of resources are applied to problems of supply, distribution, and utilization of energy, mineral and bioresources.

Resource utilization and management (9 credits):

008-715 Frontiers in Ecology and Evolution, 1 cr.

008-733 Ground Water: Resources and Regulations, 3 cr.

008-766 Waste Management/Resource Recovery Seminar, 3 cr.

298-602 Resource Economics Analysis, 3 cr.

678-342 Environmental Geology, 3 cr.

678-345 Geology of Energy Resources, 3 cr.

678-520 The Soil Environment, 3 cr.

678-615 Solar and Alternate Energy Systems, 3 cr.

678-660 Resource Management Strategy, 3 cr.

678-666 Vegetation Management, 3 cr.

Methods and techniques (5-7 credits):

008-730 Technology Assessment and Environmental Impacts, 3 cr.

008-764 Mathematics of Operations Research and Management Science, 3 cr.

008-767 Statistical Design and Analysis of Experiments, 4 cr.

008-768 Multivariate Statistical Analysis, 4 cr.

296-620 Soil Classification and Geography, 3 cr.

416-353 Air Photo Interpretation, 3 cr.

416-355 Introduction to Quantitative Methods of Spatial Analysis, 3 cr.

600-551 Data Structures, Storage and Retrieval, 3 cr.

600-555 Applied Mathematical Optimization, 3 cr.

678-654 Remote Sensing of the Environment by Satellite, 3 cr.

834-346 Environmental Impact Analysis, 3 cr.

834-522 Regional Planning, 3 cr.

834-621 Techniques and Methods of Regional Planning, 3 cr.

Additional courses may be selected with adviser's assistance.

Environmental Science and Policy

• **Waste Management and Resource Recovery Specialization**

Courses in this specialization address the recognized need for individuals with the scientific and technical knowledge to plan and evaluate waste treatment systems. Students study the handling, processing, treatment and disposal of municipal, industrial, and agricultural wastes. They use mathematical tools for optimizing treatment costs and develop skills in management that apply to public agencies, consulting firms, and industries.

Waste processing and disposal (9 credits):

008-766 Waste Management and Resource Recovery Seminar, 3 cr.

And, 6 credits from:

008-724 Hazardous and Toxic Materials, 3 cr.

678-335 Water and Waste Water Treatment, 3 cr.

678-518 Industrial Pollution Control Techniques, 2 cr.

678-519 Industrial Pollution Control Field Trips, 1 cr.

The remaining credits may be selected from this suggested list of electives. Choices will be determined by the student's interests (e.g., management, land disposal, mathematical modeling).

Quantitative methods:

008-764 Mathematics of Operations Research and Management Science, 3 cr.

008-767 Statistical Design and Analysis of Experiments, 4 cr.

008-768 Multivariate Statistical Analysis, 4 cr.

Basic science and techniques:

008-701 Perspectives in Environmental Science, 3 cr.

008-730 Technology Assessment and Environmental Impact, 3 cr.

008-733 Ground Water: Resources and Regulations, 3 cr.

204-602 Advanced Microbiology, 3 cr.

225-617 Nuclear Physics and Radiochemistry, 3 cr.

225-618 Nuclear Physics and Radiochemistry Laboratory, 1 cr.

296-620 Soil Classification and Geography, 3 cr.

678-342 Environmental Geology, 3 cr.

678-520 The Soil Environment, 3 cr.

678-615 Solar and Alternate Energy Systems, 3 cr.

678-622 Biogeochemical Cycles and The Environment, 3 cr.

678-630 Quantitative Hydrology, 3 cr.

678-634 Water Chemistry, 4 cr.

678-650 Air Pollution Chemistry and Meteorology, 3 cr.

678-654 Remote Sensing of the Environment by Satellite, 3 cr.

• **Quantitative Methods and Data Analysis Specialization**

Sophisticated analytical techniques are finding increased applications in the environmental sciences. Students interested in studying quantitative methods for processing, analyzing and integrating complex data sets can choose this specialization. Techniques of mathematical and statistical analysis are studied on theoretical and practical levels. Students learn methods of data synthesis, model formulation, and graphic display using various types of computer technology.

Required courses (7 credits):

008-764 Mathematics of Operations Research and Management Science, 3 cr.

008-768 Multivariate Statistical Analysis, 4 cr.

Remaining credits may be chosen from the following courses.

Statistical analysis:

008-704 Discrete Multivariate Statistical Analysis, 2 cr.

008-767 Statistical Design and Analysis of Experiments, 4 cr.

600-560 Theory of Probability, 3 cr.

600-561 Mathematical Statistics, 3 cr.

600-564 Biometrics, 4 cr.

600-665 Business and Industrial Statistics, 4 cr.

Mathematical modeling and mathematics:

600-505 Ordinary Differential Equations, 3 cr.

600-509 Systems of Ordinary Differential Equations, 3 cr.

600-520 Linear Algebra I, 3 cr.

600-550 Numerical Analysis, 3 cr.

600-555 Applied Mathematical Optimization, 3 cr.

600-595 Introduction to Applied Graph Theory and Combinatorics, 2 cr.

Computer science and information processing:

600-551 Data Structures: Storage and Retrieval, 3 cr.

600-552 Computer Graphics, 3 cr.

600-553 Computer Organization and Programming, 3 cr.

600-557 Theory of Programming Languages, 3 cr.

600-650 Theory of Algorithms, 3 cr.

600-651 Database Management Systems, 3 cr.

600-652 Operating Systems, 3 cr.

600-654 Artificial Intelligence, 3 cr.

600-655 Microprocessors and Microcomputer Systems, 3 cr.

600-656 Advanced Topics in Microcomputing, 3 cr.

600-657 Compiler Theory, 3 cr.

Applicable natural science courses (not inclusive):

008-724 Hazardous and Toxic Materials, 3 cr.

008-730 Technology Assessment and Environmental Impacts, 3 cr.

678-475 Ecological Dynamics, 4 cr.

678-518 Industrial Pollution Control Techniques, 2 cr.

678-630 Quantitative Hydrology, 3 cr.

678-650 Air Pollution Chemistry and Meteorology, 3 cr.

678-660 Resource Management Strategy, 3 cr.

754-517 Electromagnetic Radiation, 3 cr.

• **Technology Development and Assessment Specialization**

Persons interested in studying technical approaches to environmental problems and evaluating the impact of technology can choose this specialization. Students study application of physical and mathematical principles in developing and managing technological systems. A skills-based approach to technology assessment is taught. The basis of the thesis project is the development or assessment of a technology. Recent thesis topics have focused on alternative energy systems, solar energy, resource recovery technologies and laser applications. Students in the program typically have an undergraduate major or minor in chemistry, physics, engineering, or equivalent.

Required courses

(at least 9 credits including 008-730):

- 008-730 Technology Assessment and Environmental Impacts, 3 cr.
- 678-518 Industrial Pollution Control Techniques, 2 cr.
- 678-519 Industrial Pollution Control Field Trip, 1 cr.
- 678-615 Solar and Alternate Energy Systems, 3 cr.

Quantitative methods (at least 6 credits):

- 008-764 Mathematics of Operations Research and Management Science, 3 cr.
- 008-767 Statistical Design and Analysis of Experiments, 4 cr.
- 600-509 Systems of Ordinary Differential Equations, 3 cr.
- 600-550 Numerical Analysis, 3 cr.
- 754-315 Classical Mechanics, 3 cr.

Basic science and technology electives:

- 008-701 Perspectives in Environmental Science, 3 cr.
- 008-724 Hazardous and Toxic Materials, 3 cr.
- 008-752 Environmental Policy and Administration, 3 cr.
- 008-766 Waste Management/Resource Recovery Seminar, 3 cr.
- 600-655 Microprocessor and Microcomputer Systems, 3 cr.
- 600-656 Advanced Topics in Microcomputing, 3 cr.
- 678-335 Water and Waste Water Treatment, 3 cr.
- 678-650 Air Pollution Chemistry and Meteorology, 3 cr.
- 754-517 Electromagnetic Radiation, 3 cr.
- 754-520 Thermodynamics and Kinetics, 3 cr.
- 754-604 Electricity and Magnetism, 3 cr.

- 754-605 Electronics for Scientists, 4 cr.
- 754-617 Nuclear Physics and Radiochemistry, 3 cr.
- 754-618 Nuclear Physics and Radiochemistry Laboratory, 1 cr.

• **Environmental Policy and Administration Track**

Environmental policy and administration core courses:

- 008-752 Environmental Policy and Administration, 3 cr.
- 950-608 Public Policy Analysis, 3 cr.

And, a 3-credit capstone course, Seminar in Environmental Science and Policy, presently being developed.

In this track, students must choose at least one course from each of the following specialization areas for their program plan. The program plan is then completed with courses selected from the area that best matches the students' interests and career aspirations.

• **Institutions and Processes Specialization**

(36 credits including thesis)
Students here have the opportunity to focus on the characteristics and operation of governmental institutions and the behavior of individuals involved in decision-making processes.

- 002-757 Management of Complex Organizations, 3 cr.
- 778-410 Intergovernmental Relations in U.S., 3 cr.
- 778-416 American Legislative Process, 3 cr.
- 950-376 Administrative Law, 3 cr.
- 950-606 Administration of Local Government, 3 cr.

• **Management Specialization**

(36 credits including thesis)
Course work in this area emphasizes organizational theory, design, and evaluation. Students have the opportunity to develop administrative skills such as budgeting, personnel management, and decision making.

- 002-750 Executive Decision Making, 3 cr.
- 002-753 Administrative Theory and Behavior, 3 cr.
- 002-755 Organizational Analysis, 3 cr.
- 002-770 Organizational Change and Development, 3 cr.
- 216-585 Management of Nonprofit Organizations, 3 cr.
- 950-615 Public and Nonprofit Budgeting, 3 cr.

• **Methodology Specialization**

(36 credits including thesis)

Students pursuing this specialization focus on skills and methods appropriate to wise decision making on matters of policy and administration. Decision analysis, social science research methods, and statistical analysis are among the topics in the area.

- 002-760 Social Research Methods I, 3 cr.
- 008-764 Mathematics of Operations Research and Management Science, 3 cr.
- 008-767 Statistical Design and Analysis of Experiments, 4 cr.
- 008-768 Multivariate Statistical Analysis, 4 cr.
- 009-741 Survey and Field Research Methods, 3 cr.
- 009-765 Evaluating Social Programs, 3 cr.
- 834-621 Techniques and Methods of Regional Planning, 3 cr.
- 950-412 Urban Planning I, 3 cr.
- 950-651 Decision Theory and Methods, 3 cr.
- 950-652 Planning Theory and Methods, 3 cr.

• **Public Policy Specialization**

(36 credits including thesis)

Study in this area emphasizes substantive policies in regulation, environmental protection, science and technology, and energy and natural resources. Policy-making and administrative processes are dealt with in those same areas. Approaches and methods in policy analysis and evaluation are also studied.

- 008-712 Science, Technology, and Public Policy, 3 cr.
- 008-713 Energy, Natural Resources, and Public Policy, 3 cr.
- 950-378 Environmental Law, 3 cr.
- 950-506 Regulatory Policy and Administration, 3 cr.

■ Faculty

Bernaski, Kimberly D., Instructor, Urban and Public Affairs. B.S. (1980), University of Wyoming; M.P.A. (1982), Ph.D. (anticipated 1987), Texas Tech University.
Policy analysis, environmental law, environmental and energy policy.

Day, Harold Jack, Professor of Natural and Applied Science. B.S. (1952), M.S. (1953), Ph.D. (1963), UW-Madison.
Water resources, fluid mechanics, hydrology and related applications of engineering to society and technology. Regional water quality and associated land management and flood plain management. Resource management.

Dutch, Steven I., Associate Professor of Natural and Applied Science (earth science-geology). B.A. (1969), UC-Berkeley; M. Phil. (1974), Ph.D. (1976), Columbia.
Structural geology, tectonics; mineralogy; petrology. Pre-Cambrian geology.

Fischbach, Fritz A., Professor of Natural and Applied Science (environmental health). B.S. (1959), Ph.D. (1966), UW-Madison.
Community ragweed pollenosis, air quality, small biological particulate structure and function, public health education. Environmental health, aeroallergens, biophysics.

Gandre, Donald A., Professor of Regional Analysis. B.S. (1956), Arizona State; M.S. (1961), Illinois, Ph.D. (1965), UW-Madison.
Great Lakes transportation, movement of coal via the railroads, and freight transportation in Wisconsin.

Girard, Dennis M., Associate Professor of Natural and Applied Science (mathematics and statistics). B.S. (1961), M.A. (1962), Detroit; Ph.D. (1968), Ohio State.
Applications of statistics in the life sciences with emphasis in the area of environmental contaminants, biometrics, biomathematics, multivariate statistical analysis, Fourier analysis, graph theory, econometric modeling, statistical computing.

Goldsby, Alice T., Associate Professor of Natural and Applied Science (microbiology). B.A. (1942), M.S. (1953), Utah State; Ph.D. (1963), UW-Madison.
Parasitic populations of domestic and wild animals. Water microbiology. The interaction of microbes with the environment.

Guilford, Harry G., Professor of Human Biology (human adaptability), (zoology). Ph.B. (1944), Ph.M. (1946), Ph.D. (1949), UW-Madison.

Parasite diseases of fishes, particularly disease caused by myxosporidia. Life cycles of trematode parasites. Vertebrate anatomy, parasitology, entomology, anatomy. Changes in biota of Wisconsin 1634-1910.

Harris, Hallet J., Professor of Natural and Applied Science; Coordinator of Sea Grant Green Bay Subprogram, Wisconsin Sea Grant Institute. B.A. (1961), Coe College, M.S. (1965), Ph.D. (1966), Iowa State.
Animal and wetland ecology; management of coastal areas, wildlife management.

Howe, Robert W., Assistant Professor of Natural and Applied Science. B.S. (1974), Notre Dame; M.S. (1977), Ph.D. (1981), UW-Madison.
Terrestrial ecology and conversation biology. Bird population dynamics in fragmented forests. Natural history and biogeography of vertebrates. Evolutionary ecology.

Ihrke, Charles A., Associate Professor of Human Biology (population dynamics-biology). B.S. (1960), UW-Oshkosh; M.S. (1966), Nebraska-Omaha; Ph.D. (1969) Oregon State.
Genetics and cytogenetics. Chromosomal recombinations and analysis of factors influencing recombination frequency. Plant breeding and population genetics aspects of food production. Inheritance of disease syndromes in human health. Agricultural genetics; cellular biology.

Jowett, David, Professor of Natural and Applied Science. B.Sc. (1956), University College of North Wales; Ph.D. (1959), Wales.
Statistics, statistical computing. Design of experiments, multivariate analysis, especially as applied to problems in bioscience and social science. Population genetics and population modeling. Computer models of biological systems. Ecological genetics, plant breeding, agriculture. Biometrics, biomathematics, ecosystems modeling.

Knaap, Gerrit J., Assistant Professor of Urban Studies. B.S. (1978), Willamette; M.A., Ph.D. (1982), Oregon.
Urban and regional economics, public finance, environmental economics, statistics.

Kraft, Michael E., Professor, Urban and Public Affairs (political science). A.B. (1966), University of California-Riverside; M.A. (1967), Ph.D. (1973), Yale.
American politics and government; public policy analysis; congressional behavior and legislative processes; environmental and population policy; the utilization of public policy analysis and social science research by political decision makers, especially in the environmental and population policy areas; the political context of policy implementation; risk assessment in the policy process; politics of nuclear waste disposal.

Laatsch, William G., Associate Professor of Regional Analysis (geography). B.S. (1960), Carroll; M.S. (1966), Oklahoma; Ph.D. (1972), Alberta.
Morphology of landscape. The form and process of settlement. Settlement types in Northeastern Wisconsin. Ethnic settlements of North America. Development and community planning in thinly populated regions. Rural land use problems. Cultural geography.

Lanz, Robert W., Associate Professor of Natural and Applied Science (engineering). B.S. (1963), M.S. (1965), Ph.D. (1969), UW-Madison.
Engineering analysis of conventional energy systems used to support urban areas. Energy conservation practices and equipment modification in HVAC (heating, ventilating and air conditioning) and other existing energy intensive systems. Scientific analysis of alternative energy conservation systems such as solar, heat pumps and wind. Alternate fuels for electric power generation such as solid waste or sewage sludge. Theory and fatigue behavior of conventional structural materials. Mechanical engineering.

Mannino, Joseph A., Associate Professor of Human Biology (anthropology). B.S. (1969), Western Michigan; M.A. (1974), Ph.D. (1978), Wayne State.
Human variability, particularly population pharmacogenetics; effects on human populations to man-made mutagens; physiologic adaptations of human populations to environmental stressors; evolutionary biology of primates.

Environmental Science and Policy

Matter, Charles F., Associate Professor of Urban Studies (psychology). A.B. (1969), Lycoming; Ph.D. (1972), Washington.

Community noise and the effects of noise on people. Neurobehavioral consequences of environmental contaminants. Animal behavior. Evolution and behavior. Perceptual processing.

McIntosh, Elaine N., Professor of Human Biology (nutritional sciences). B.A. (1945), Augustana; M.A. (1949), South Dakota; Ph.D. (1954), Iowa State.

Community nutrition. Changing nutritional needs of the life phases. Special nutritional needs of "target" population groups. Problems of food safety, potential toxicity of substances in food. Dietetics, nutrition education.

McIntosh, Thomas H., Professor of Natural and Applied Science (earth sciences) and Senior Adviser to the Chancellor. B.S. (1956), M.S. (1958), Ph.D. (1962), Iowa State.

Soils, agronomic systems, biogeochemical cycles, especially nitrogen, remote sensing.

Mehra, Anjani K., Professor of Natural and Applied Science (chemistry-physics). B.S. (1962), M.S. (1964), Allahabad, India; Ph.D. (1967), I.I.T., Kapur, India.

Solar energy as an alternative source of energy. Astronomy and cosmology. Spectroscopic studies of crystals. Solid state physics.

Mielke, Bruce W., Associate Professor of Natural and Applied Science (computer science). B.S. (1966), M.S. (1967), Ph.D. (1970), UW-Milwaukee.

Implementation of interpreted languages and computer graphics systems. Extensions of object-oriented language environments with special emphasis on visual programming, editors and debuggers.

Moran, Joseph M., Professor of Natural and Applied Science (earth science). B.A. (1965), M.S. (1967), Boston College; Ph.D. (1972), UW-Madison.

Nature of climatic change, air pollution meteorology. Applications of paleoclimatic reconstruction techniques to Glacial-age evidence. Environmental implications of current climatic changes. Quaternary climatology, geology.

Morgan, Michael D., Associate Professor Natural and Applied Science (biology). B.S. (1963), Butler; M.S., Ph.D. (1968), Illinois.

Relations between climatic change and plant production and distribution. Ecological relationships during late Pleistocene. Plant phenology.

Murray, James M., Professor of Regional Analysis (economics). B.S. (1956), M.A. (1958), North Dakota; Ph.D. (1962), Oregon.

Regional economics including industrial and commercial location criteria. Economic development in both developed and less developed regions. Labor and manpower economics. Public finance, especially at local and state levels. Quantitative methods, new planned communities.

Nair, V.M.G., Professor of Natural and Applied Science (forest and plant pathology, mycology) and Director of International Programs. B.Sc. Madras; M.Sc., Aligarh; Associate I.A.R.I., Agricultural Ministry, New Delhi; Ph.D. (1964), UW-Madison.

International quarantine and disease control programs of plant-forest tree diseases. Weedicide-Silvicide applications in the establishment of exotic tree species in developing countries and their after effects on wildlife and fishes. Host parasite interactions of vascular wilt pathogens. Electron and three-dimension electron microscopy.

Niedzwiedz, William R., Associate Professor of Regional Analysis. B.S. (1969), M.S. (1972), Massachusetts; Ph.D. (1981), Virginia Polytechnic.

Three-dimensional projection techniques as tools for research, instruction and public presentation; Remote sensing applications; land use planning; natural resource planning; environmental impact assessment; designing environments.

Norman, Jack C., Associate Professor of Natural and Applied Science (chemistry-physics). B.S. (1960), New Hampshire; Ph.D. (1965), UW-Madison.

Nuclear and radio-chemistry; environmental radioactivity. Distribution and cycling of natural and artificial radionuclides in the environment. Solar and other alternative sources of energy. Appropriate technology applications and education.

Presnell, Richard W., Associate Professor of Education. B.A. (1958), M.A. (1961), Iowa; Ph.D. (1971), Cornell.

Teaching-learning communication, processes and students' environments in elementary and secondary schools. Problem-solving education. Ecological education and outdoor environmental education processes.

Rhyner, Charles R., Professor of Natural and Applied Science (physics). B.S. (1962), M.S. (1964), Ph.D. (1967), UW-Madison.

Applied physics including radiation dosimetry, electronic instrumentation, and acoustical noise. Primary research interest is in modeling solid waste management systems. Radiological physics.

Sager, Dorothea B., Associate Professor of Human Biology (population dynamics and medical technology). B.A. (1959), Lawrence; M.S. (1961), Iowa; Ph.D. (1968), UW-Madison.

Physiology or reproduction: hormonal controls. Developmental and reproductive effects of environmental contaminants. Biological factors in family planning. Reproductive physiology, zoology, embryology.

Sager, Paul E., Professor of Natural and Applied Science. B.S. (1959), Michigan; M.S. (1963), Ph.D. (1967), UW-Madison.

Ecology of aquatic communities including nutrient studies in the phytoplankton of freshwater lakes. Eutrophication of lakes. Ecological effects of nutrient enrichment and water quality deterioration. Limnology.

Schwartz, Leander J., Dean of Natural Sciences and Mathematics, Acting Director of Graduate Studies, and Professor of Natural and Applied Sciences (biology). B.S. (1957), UW-Platteville; M.S. (1959), Ph.D. (1963), UW-Madison.

Resource recovery: anaerobic digestion of organic wastes and/or use as fertilizers and in other applications; bacterial survival in aquatic ecosystems.

Sell, Nancy J., Professor of Natural and Applied Science (chemistry-physics). B.A. (1967), Lawrence; M.S. (1968), Ph.D. (1972), Northwestern.

Industrial resource recovery, pollution control. Industrial energy conservation by raw material and waste recycling and reclamation.

Starkey, Ronald H., Associate Professor of Natural and Applied Science (chemistry). B.A. (1963), Augsburg; M.S. (1965), Ph.D. (1968), Michigan State.

Organic chemistry, natural products, synthesis, spectrometric identification; chromatographic separations; chemical ecology; air pollution chemistry, airborne carcinogens.

Stieglitz, Ronald D., Associate Professor of Natural and Applied Science (earth science-geology). B.S. (1963), UW-Milwaukee; M.S. (1967), Ph.D. (1970), Illinois.

Environmental geology, land capability studies, mineral resources, stratigraphic analysis, depositional systems land use sedimentary geology, applications of geology to land use problems.

Van Koeving, Thomas E., Associate Professor of Natural and Applied Science (science education). B.S. (1962), Western Michigan; M.A. (1965), Michigan; Ph.D. (1969), Western Michigan.

Science and environmental education, particularly at the elementary and secondary school level. Preservice and inservice teacher training in environmental education. Curriculum evaluation. Innovation in teaching high school physics and chemistry. Local and regional health care planning. Chemical education.

Wenger, Robert B., Professor of Natural and Applied Science (mathematics). B.S. (1958), Eastern Mennonite; M.A. (1962), Pennsylvania State; Ph.D. (1969), Pittsburgh.

Systems analysis. Theory and applications of mathematical optimization. Resource recovery and solid waste management problems. Energy usage in solid waste systems. Management models for controlling ragweed pollen. Algebra, operations research.

White, Keith L., Professor of Natural and Applied Science (biology). B.S. (1950), UW-Madison; M.S. (1958), Montana-Missoula; Ph.D. (1962), UW-Madison.

Structure and function of forest and wetland plant communities. Preservation of natural areas. Effects of fire, grazing and logging on ecosystems. Plant ecology and resource management.

Wiersma, James H., Associate Professor of Natural and Applied Science (chemistry). B.S. (1961), UW-Oshkosh; M.S. (1965), Ph.D. (1967), Missouri-Kansas City.

Assessment of effects of water pollutants and water pollution abatement proce-



dures on aquatic ecosystems. Development of new analytical chemical methods with emphasis on techniques applied to environmental problems. General interest areas—water chemistry and hazardous and toxic materials.

■ Course Descriptions

Graduate-Only Courses (700-Level)

002-750 Executive Decision Making 3 cr.

Examines the theory of individual and group decision making, the process and consequences associated with alternative decision making styles and systems, and develops skill in the use of the major decision assisting tools. Uses case studies and examples from the fields of environmental management, public administration, and business or industrial management. P: course in statistics, prior or concurrent registration in 002-758 or 002-754 recommended. (S)

002-753 Administrative Theory and Behavior 3 cr.

The structure and internal system maintenance processes of formal organizations, with an emphasis on the roles of supervisors, team leaders, executives, managers, administrators, and administrative staff specialists. The major theories and schools of thought in the fields of administrative behavior, organizational theory and leadership are examined. Attention is given to major factors which influence the success of organizational activity and administrative behavior, and to effects associated with a range of organizational and administrative practices and behavior. P: gr st. (F)

008-701 Perspectives in Environmental Science 3 cr.

Applications of the scientific method to contemporary problems. Emphasis is on experimental design and data acquisition and interpretation. Major problem areas in the environmental sciences are reviewed through lectures and student research papers. Major areas of concern are aquatic studies, waste management/resource recovery, plant and agricultural ecology, environmental health, and rehabilitation of ecosystems. Students are expected to identify a specific problem, research the literature, formulate a hypothesis, and propose an experimental approach to investigate the problem. This process culminates in formation of a research protocol or "grant proposal." (F)

008-704 Discrete Multivariate Statistical Analysis 2 cr.

The statistical analysis of categorical data by log-linear models. Categorical data arises in circumstances when members of a population are characterized as either possessing or not possessing a particular property. For example, members of a human population may be characterized by sex, socio-economic status, medical status, presence of disease, opinion on current political events, behavior in specified circumstances, etc. Customarily this leads to two-way cross classifications where the cell entries are counts of subjects, and analysis is by chi-squared. Should 3, 4 or more criteria of classification be used, analysis becomes vastly more complex. This course discusses techniques for analyzing and interpreting such complex situations. (J-E)

008-712 Science, Technology, and Public Policy 3 cr.

An examination of the role of science and technology in public policy. Topics will include the capacity and performance of governing institutions such as science advisory bodies to the president and Congress, the role of science and technology in administrative decision-making, public knowledge and participation in decision-making involving science and technology, communication of technological issues in the media, mechanisms for resolving scientific disputes such as science courts and mediation, and cases and controversies in science and technology policy.

008-713 Energy, Natural Resources and Public Policy 3 cr.

An examination of energy policy issues in advanced industrial societies, with a special emphasis on the United States. Topics include the nature of energy sources and their patterns of use, energy economics, energy politics, and issues and controversies in public policy on energy both within the United States and internationally.

008-715 Frontiers in Ecology and Evolution 1 cr.

This graduate course provides a forum for discussion of contemporary ideas in ecology and evolution. Students and faculty discuss weekly readings in an informal atmosphere. Topics are chosen from the current scientific literature; examples from recent semesters include ecosystem stability, competition and coexistence, group selection, trophic dynamics, and complex species interactions.

008-724 Hazardous and Toxic Materials 3 cr.

The handling, processing, and disposal of materials which have physical, chemical, and biological properties presenting hazards to human, animal, and plant life; procedures for worker safety and for compliance with regulations. Topics include organic and inorganic materials, radioactive materials, and pathogenic human, animal, and plant wastes. Required field trip. P: undergraduate courses in chemistry, physics, biorganic chemistry or equivalent. (S)

008-730 Technology Assessment and Environmental Impacts 3 cr.

The purpose of technology assessment is to predict a broad range of impacts on the environment and society due to application of technological advances. Of particular interest are impacts which are indirect and may be unexpected. In addition to science-based impacts, the economic, legal, and social implications of technology are of concern. This course focuses on various methods used for technology assessment. Simulations are done using these strategies on a variety of problems or technologies. One technology, with wide-ranging potential environmental impact, is selected for an in-depth assessment by the class. (S)

008-733 Ground Water: Resources and Regulations 3 cr.

An overview of the geology, properties, flow, and pollution of ground water systems. Techniques of aquifer characterization and water quality monitoring are introduced and evaluated. Regulatory and policy approaches to moderate use and adequate provision for high quality supplies of this valuable resource in the future are reviewed. P: one course each in physical geology and college chemistry.

008-749 Wetland Ecology and Management 3 cr.

Ecological processes and characteristics of wetlands such as primary productivity, hydrology, decomposition and nutrient dynamics are studied. Wetland classification systems are examined and evaluated. Management practices and potential as well as current approaches to values assessment are addressed. P: 862-302 or equivalent.

008-752 Environmental Policy and Administration 3 cr.

Analyzes environmental policy making and implementation, with emphasis on advanced industrialized societies, and a special focus on the United States. Topics include the nature of environmental problems; indicators of environmental quality and change; the political and administrative context of environmental problems; policy making and implementation at federal, state, and local levels—with comparisons to other nations and to international efforts; political, organizational, legal, and technical constraints on environmental administration; policy and program evaluation; and selected problems and issues in environmental policy and administration. The particular focus reflects students' needs and interests. P: gr st. (S-O)

008-762 Natural Science Seminar 1 cr.

A course designed to provide natural science students the opportunity to gain knowledge about a variety of science specialty areas, and to give them experience in public speaking. Requirements include attending the seminars, writing a critique of each, and presenting one seminar on the student's own research. P: gr st in natural science-related program. (F,S)

008-764 Mathematics of Operations Research and Management Science 3 cr.

Mathematical models which are frequently and extensively used in analyzing environmental, public sector, management, and business problems. These models include allocation, network, location, scheduling, and queuing models. An important part of the course is a study of applications of models through case studies of other examples. P: undergraduate courses in calculus and matrix algebra, or cons inst. (S-E)

008-766 Waste Management/Resource Recovery Seminar 3 cr.

Topics include generating, processing, and disposing of municipal, industrial, and agricultural waste materials with emphasis on the technical and economic feasibility of various recycling processes. P: gr st. (F-O)

008-767 Statistical Design and Analysis of Experiments 4 cr.

Review of the common principles underlying the design of experiments and methods of analysis for such experiments. The purpose is to enable students to design and analyze their own experiments, for any degree of experimental complexity, and to understand the description and analysis of such experiments in the literature. Topics include the principles of replication, randomization, error, linear models and least squares, hierarchical models, blocking, and factorial designs. Complex designs such as Latin squares, incomplete blocks, split plots, and the concepts of expectation of mean squares are developed as justification for the statistical tests applied. Non-parametric statistical methods, particularly as applied to designed experiments, concepts of ordinal and nominal data, and chi-square contingency analysis are discussed. The principles are motivated throughout by reference to the theory and practice of scientific experimentation, and illustrated by examples. Laboratory analyses are performed on actual experimental data. P: elementary course in statistics. (F)

008-768 Multivariate Statistical Analysis 4 cr.

Analysis of multifactorial data. Regression, multiple regression, curvilinear regression, nonlinear regression, correlation, multiple and partial correlation, path analyses, principle components, factor analysis, discriminant analysis. Emphasis on the computer analysis of actual data. P: elementary statistics and cons inst. (S)

008-783X Experimental Courses

This course number is used to designate courses and seminars offered by graduate faculty in response to special demand or on an experimental basis. Topics may be chosen to address current issues of general concern, special interests of student groups or faculty members, or special resources of visiting faculty. The title of the special topics course as announced in the *Timetable* will appear on the transcripts of the students who enroll. Credits earned in the 783X courses may not be applied toward the graduate core requirement.

008-797 Internship 1-6 cr.

Supervised work experience in an appropriate program or agency. Students may enroll for internship credits only when such activity is included in the approved program plan. A description of activities including criteria for grading must be submitted to the students' major professor and director of graduate studies. P: Student classification of MSA6, MSC6, MSE6 or higher.

008-798 Independent Study

Reading and research under the supervision of a member of the graduate faculty. Independent study credits may only be earned when this activity is included as part of an approved program plan. P: Student classification of MSA6, MSC6, MSE6 or higher.

008-799 Thesis 1-6 cr.

Research and preparation of thesis document. Enrollment may be for 1-6 credits per term. All students are expected to include 6 thesis credits in their program plan. Although additional thesis credits may be earned, a maximum of 6 credits can be applied toward a degree. P: Student classification of MSA7, MSC7, or MSE7.

009-703 Community Organization and Planning 3 cr.

Reviews and examines community organization and social planning and the problems inherent in their practice. A community problem solving model aimed at social change is developed. Other elements of social planning and community organization examined include: setting priorities in a community, doing research studies, the politics of planning, developing and implementing plans of action, the strategy and tactics of social action, goal analysis, decision-making analysis, feedback mechanisms and planning management. P: gr st. (S-O)

009-765 Evaluating Social Programs 3 cr.

Since the early 1960's there has been a growing trend to ask programs providing social or educational services to provide evidence that they are effective. A new field—evaluation research—has emerged in response to this trend by adapting the methods of social research to the problem of assessing program quality. This course provides an introduction to evaluating research. It emphasizes such issues as identifying program goals, choosing outcome measures, defining appropriate samples, data collection strategies, and evaluating and disseminating results. Political, administrative, and ethical problems of evaluation are considered throughout. Course procedure is informal with much of the class time spent in developing and discussing model evaluation studies. P: introductory statistics. (S)

Undergraduate/ Graduate Courses (500-699 Level)**204-511 Plant Physiology 4 cr.**

General physiology of vascular plants within the context of a plant life cycle. Seed dormancy and germination, metabolism, transport systems, mineral nutrition, patterns of plant growth and development, growth regulators, reproduction, and senescence. P: 204-203, 225-112.

204-602 Advanced Microbiology 3 cr.

Detailed study of microorganisms from virus to fungi in their environment. A study of both free-living and pathogenic organisms and their degrading abilities. P: 204-302.

204-605 Microbial Physiology 3 cr.

A study of microbial, physiological and biochemical adaptations to temperature, oxygen, light, nutrients, and other environmental factors. Primary emphasis is on the bacterial. P: 204-302 and 225-300 or 303.

216-585 Management of the Nonprofit Organization 3 cr.

The operation and management of organizations that operate within our society for purposes other than the generation of profit for owners or shareholders. Models such as the hospital and the university focus on the operational principles, optimizing criteria, and management control techniques characteristic of such institutions. In addition to examining the areas of accounting, finance, marketing, organization, and personnel, the nonprofit organization is discussed in terms of its social responsibility and the political and economic conditions in which it operates. Case studies used in a seminar format. P: jr st or cons inst.

225-530 Biochemistry 3 cr.

Nature and function of the important constituents of living matter, their biosynthesis and degradation. Energy transformation, protein synthesis, and metabolic control. P: 225-303 or 225-300, 301 and 204-202.

225-531 Biochemistry Laboratory 1 cr.

One three-hour laboratory per week. P: credit or concurrent registration in 225-330.

225-613 Instrumental Analysis 4 cr.

A survey of the theory and practice of analysis by instrumental methods including those based on absorption and emission of radiation, electro-analytic methods, chromatographic methods, and radio-chemical methods. P: 226-311 and credit or concurrent registration in 226-321.

226-617 Nuclear Physics and Radiochemistry 3 cr.

Introduction to the properties and reactions of atomic nuclei; the application of the properties of radioactive nuclei to the solution of chemical, physical, biological, and environmental problems. P: 226-112 and either 226-202 or 226-104 and 600-203.

Environmental Science and Policy

226-618 Nuclear Physics and Radiochemistry Laboratory 1 cr.

One three-hour laboratory per week. P: credit or concurrent registration in 226-417.

296-620 Soil Classification and Geography 3 cr.

Morphological properties of soils, major kinds of soil horizons; principles of soil classification, taxonomic systems; soil-landscape relationships; genesis and global distribution of major kinds of soils, soil surveys and their interpretations for agriculture, engineering, and urban planning. Field trips. P: 296-320 or 202.

298-505 Natural Resources Economic Policy 3 cr.

Acquaints the student with policies leading to arrangements for the development, management, and use of natural resources. Emphasizes the longer time horizon required for the conservation of resources and a general concern for the quality of the ecosystem. P: jr st.

298-602 Resource Economics Analysis 3 cr.

Application of tools and concepts in current economic decision-making with special emphasis upon common property resources management (i.e., water and air). P: jr st and 298-202 and 203.

478-602 Human Physiology 3 cr.

The functions of the major organs and organ systems of humans other than the central nervous system and the special senses. P: 204-202, 203 and 226-111, 112, or equivalent.

478-613 Neurophysiology 3 cr.

The nervous system and its functions in perception, interpretation, and the production of physiological and behavioral response: fundamental concepts, neuronal function, sensory systems, and processing mechanisms. Emphasis is on limitations imposed by various environments. P: 204-202, 203 and 226-111, 112, or its equivalent or cons inst.

600-550 Numerical Analysis 3 cr.

Application of computer techniques in solving various mathematical and engineering related problems. Types of problems to be considered are: solutions of equations, factorization of polynomials, solutions of systems of equations, interpolation, curve fitting, differentiation, integration, and solutions of differential equations. In addition to writing computer programs to solve some of these problems, comparisons will be made among various techniques to determine errors involved in approximation schemes, advantages and disadvantages to applying a particular technique to a particular problem, and the unstable nature of some methods. P: 600-203, 600-320 or concurrent registration in 600-320 and FORTRAN ability.

600-551 Data Structures, Storage and Retrieval 3 cr.

An introduction to concepts involved in storage, retrieval, and processing of data for use in computer applications. Included are structures such as arrays, stacks, queues, linked lists, trees, and networks. Particular emphasis is placed on design of efficient algorithms that use these different structures for various processing needs. These include searching, sorting, evaluation of arithmetic expressions, construction of symbol tables, and memory management. P: 600-257.

600-553 Computer Organization and Programming 3 cr.

An introduction to binary, octal, and hexadecimal number systems, and data representation. A study of assembly language programming, including actual programming exercises. Included is an overview of computer software and hardware components. Topics considered are assemblers, loaders, compilers, memory, micro-programming, monitoring, gates, adders, circuits, and applications of Boolean algebra to circuit analysis. P: 600-257 and a background in algebra.

600-555 Applied Mathematical Optimization 3 cr.

Analytical and numerical optimization techniques; linear, non-linear, integer, and dynamic programming. Techniques applied to problems of water, forest, air, and solid waste management. P: 600-202 and 320, or concurrent enrollment in 320.

600-560 Theory of Probability 3 cr.

Probability as a mathematical system, with applications; basic probability theory; combinatorial analysis; distribution functions and probability laws; mean and variance of a probability law; expectation of a function with respect to a probability law; normal, Poisson, and related probability laws; random variables. P: 600-209.

600-561 Mathematical Statistics 3 cr.

Sample moments and their distributions; tests of hypotheses; point and interval estimation; regression and linear hypotheses; nonparametric methods; sequential methods. P: 600-320 and 360.

600-564 Biometrics 4 cr.

Emphasis on life science problems. Analysis of variance techniques, linear regression, correlation analysis and nonparametric techniques; introduction to statistical computation. P: 600-260.

600-610 Complex Analysis 3 cr.

Algebra and geometry of complex numbers; analytic functions, elementary transformations, integration, Taylor and Laurent series, contour integration, residues, conformal mapping. P: 600-209.

600-616 Orthogonal Functions and Partial Differential Equations 3 cr.

Fourier series, Fourier transform; orthogonal functions; Legendre and other polynomial systems; Bessel functions; characteristic functions and values; Green's function; wave equation in one and more dimensions; D'Alembert's solution; separation of variable in various coordinate systems; Dirichlet problem; strings and membranes; heat flow; electricity flow. P: 600-305 and 320.

678-518 Industrial Pollution Control Techniques 2 cr.

This course will first explain general air and water pollution control methods, including the nature of the major existing pollutants and a brief overview of the present government regulations. Then several selected types of industries (for example, paper and pulp making, cement manufacture, iron and steel processing, breweries, foundries, chemical process industries...) will be discussed in detail; the general manufacturing process, how and where the major pollution arises, and the specific techniques used in that industry to control these emissions. P: 226-112.

678-519 Industrial Pollution Control Field Trips 1 cr.

Optional field course to accompany 862-518. Field trips will be scheduled to a variety of local industries including paper mill, foundry, MSD, etc. In addition, each student will be required to prepare a research paper. P: Concurrent registration in 678-518.

678-520 The Soil Environment 3 cr.

The physical, chemical, and biological properties of soil; formation, classification, and distribution of major soil orders; influence of soil on agricultural, engineering, urban, and water systems. Field trip. P: 226-108 or 112; 296-202 recommended.

678-521 The Soil Environment Laboratory 1 cr.

Laboratory and field study of physical, chemical, and biological properties of soils. P: credit or concurrent registration in 678-520.

678-563 Plants and Forest Pathology 3 cr.

Studies of important diseases of forest, shade, and orchard trees and diseases of representative economic plants; fungus deterioration in wood storage and their economic importance with methods of control; field trips. P: 204-203.

678-578 Chemical Ecology 2 cr.

Selected topics concerning the chemical interactions of organisms and the environment. Topics such as chemical communications, chemical defense mechanisms, and sex attractants will be covered. The course is in basic lecture format and each student is asked to prepare a paper on an aspect of chemical ecology which is of interest to him or her. P: cons inst.

678-580 Radiobiology 2 cr.

An introduction to the use of radionuclides (C-14, P-32, etc.) and sources of ionizing radiation in biology, medicine and environmental sciences. Emphasis is on experimental methods currently used in the life sciences. Including tracers in biology, radiation biology, nuclear medicine and radioecology. This course provides the background needed to obtain an NRC license to use radionuclides in most tracer experiments. Credit will not be given for both this course and 226-418.

678-601 Stream Ecology 3 cr.

A study of the structure and function of stream ecosystems. Functional relationships of feeding groups, nutrient spiralling and organic matter processing are examined as responses to stream morphology, stream order and watershed conditions. Extensive field sampling of Northeast Wisconsin streams.

678-603 Limnology 3 cr.

Physical, chemical, and biological interactions in lakes and streams as expressed in the nature and dynamics of aquatic communities; laboratory and field techniques used in characterizing the aquatic environment. P: 204-203 and 226-111.

678-630 Quantitative Hydrology 3 cr.

Quantitative oriented study of the water cycle including precipitation, run off, infiltration, evapotranspiration and ground water. Numerical procedures for various water resource developments including hydrograph prediction in both urban and rural areas, reservoir and stream flow routing and hydrologic uncertainty. P: 600-202, 296-202.

678-634 Water Chemistry 4 cr.

The physical, chemical, and biological factors that alter the composition of surface and ground water. Field and laboratory analysis techniques. Field trip. P: 226-311.

678-650 Air Pollution Chemistry and Meteorology 3 cr.

Chemical reactions and transport phenomena in the unpolluted and polluted atmosphere with emphasis upon dispersal processes and control. P: 226-112.

678-654 Remote Sensing of the Environment by Satellite 3 cr.

Large area, small scale analysis of earth surface features by satellite imagery and data. Major emphasis is on use of LANDSAT (NASA Earth Resources Satellite). Hands on experience in manual interpretation of multispectral images with respect to vegetation, geology, soils, water resources and land use. Introduction to computer assisted analysis. Overview of other satellite systems including weather, passive and active microwave (radar) and thermal infrared. Fundamentals of the electromagnetic spectrum, sensors, and data processing systems. Public access to data and imagery. P: 296-202 or 416-250. See 834-454.

678-660 Resource Management Strategy 3 cr.

Applications of principles of system analysis to designing resource management systems and to developing strategies for maintaining optimum environmental utilities. Decision models and the role of economic systems in resource management. P: sr st and some background in economics or conservation.

678-666 Vegetation Management 3 cr.

An analysis of current practices in managing U.S. vegetation, including establishment, maintenance, control and conversion. An assessment of management tools, such as cutting, grazing, chemical spraying, flooding and burning. Experience with and potential for vegetation management on the UWGB campus is observed and discussed, e.g., prairie and pond establishment, tree and shrub control, erosion control, conversion of forest to park and old field to forest, maintenance of lawns, golf greens and fence rows. The various practices and tools are evaluated in regard to their effectiveness, economic cost and environmental impact. P: 204-203.

678-675 Ecological Dynamics 4 cr.

An advanced course exploring the key forces within ecological systems and the relevance of these forces to current ecological problems. Ecological dynamics are considered at four levels: evolutionary ecology, population ecology, community ecology, and systems ecology. The central theme uniting these topics is the interaction between organisms and their biological and physical environments. Practical applications of lecture topics are demonstrated by field trips, computer simulations, and lab exercises.

834-522 Regional Planning 3 cr.

The concepts of planning, the history of its use in the development of regions, and the present status of planning in the United States with some international comparisons. P: jr st.

834-621 Techniques and Methods of Planning Analysis 3 cr.

The use and application of basic tools for urban and regional planning; source of data and other basic information; techniques and methods of population, economics, land use, housing, and transportation analysis and projects. P: jr st.

950-306 Regulatory Policy and Administration 3 cr.

An examination of the purposes, structure, legal aspects, and operation of public regulatory agencies and programs in the United States. Topics include theories and controversies underlying regulatory policy, issues in contemporary regulatory policy and administration, and rational models and methods for risk analysis and decision making. Case studies and exercises will cover a variety of regulatory processes, including those associated with public health, consumer protection, product safety, environmental quality, and energy development and use. P: 778-101 or 350-102 or cons inst.

950-415 Public and Nonprofit Budgeting 3 cr.

Covers the history, philosophy, purposes, attributes, types, and operational elements of major public budgetary systems used in the United States, with emphasis on object, performance, program, and PPB systems and their applicability to various programs, organizations, and governmental jurisdictions. Examines principles and methods used in designing and managing public budgeting systems and relationship between program planning, policy planning, and budgetary operation. Develops skill in applying analytic and decision-assisting tools to public budgetary operations. P: 350-102, or another course in American government, or cons inst.

950-408 Public Policy Analysis 3 cr.

An introduction to public policy analysis and to the policy-making process in American government. Topics include approaches to the study of public policy, the nature of public problems, the policy agenda, policy formulation, assessment of policy alternatives, policy adoption, policy implementation and evaluation, and the use of policy analysis in decision making. Special attention is given to political aspects of policy analysis, to models and methods for critical analysis and rational design of public policies, and to practical applications of policy studies. Develops skills in legislative research, preparation of position papers and other policy-development documents, and methods of policy analysis and evaluation. P: 778-101 or 350-102 or cons inst.

**Undergraduate Courses
(300 and 400 Level)**

Graduate credit for the undergraduate courses with 300 or 400 level numbers is available only with special permission of the instructor and the student's graduate adviser or the director of graduate studies. An assigned study card is required for registration in one of these courses.

Cooperative Programs

Master of Business Administration

A Cooperative Program With the University of Wisconsin-Oshkosh

The UW-Oshkosh M.B.A. is a new cooperative program offered at UWGB. The M.B.A. degree is awarded by UW-Oshkosh and is part of a program accredited by the American Assembly of Collegiate Schools of Business. It is specifically designed to provide individuals in both the public and private sectors with professional managerial training.

The M.B.A. program consists of three structured levels of courses: foundations, management core and elective. General requirements consist of 30 graduate credits in the core and elective courses with foundation course work taken as needed depending on previous undergraduate training. All M.B.A. courses are evening courses given by UW-Oshkosh on the UWGB campus.

Basic Program Requirements

M.B.A. candidates must maintain at least a 3.0 grade point average in all course work and with no more than two Cs. The maximum time allowed to complete the degree is seven years from the date of starting the first degree course. For more detailed information regarding admission criteria, program requirements and enrollment procedures contact:

Prof. Donald R. Simons
Director of Graduate Programs
College of Business Administration
University of Wisconsin-Oshkosh
Oshkosh, WI 54901
414 424-1444

or

Prof. Daniel Alesch
Business Administration
University of Wisconsin-Green Bay
2420 Nicolet Dr.
Green Bay, WI 54311-7001
414 465-2553

Foundations

Foundation level courses are designed to provide the necessary academic background for graduate study in business. The courses may be waived if the student has completed equivalent course work in previous academic studies. A number of UWGB courses may serve as the equivalent of foundation courses.

- UWO 28-700 Accounting Foundations, 3 cr.
- UWO 28-710 Management and the Computer, 3 cr.
- UWO 28-711 Foundations of Mathematics, 3 cr.
- UWO 28-712 Foundations of Statistics, 3 cr.
- UWO 28-730 Finance Foundations, 3 cr.
- UWO 28-740 Foundations of Production Management, 3 cr.
- UWO 28-750 Management Foundations, 3 cr.
- UWO 28-770 Marketing Foundations, 3 cr.
- UWO 36-704 Basic Economic Theory, 3 cr.

Management Core

All core courses are required for the M.B.A. degree (total 21 credits).

- UWO 28-731 Financial Management, 3 cr.
- UWO 28-751 Organization Theory, 3 cr.
- UWO 28-752 Managerial Accounting, 3 cr.
- UWO 28-753 Quantitative Methods, 3 cr.
- UWO 28-754 Information Systems Integration, 1.5 cr.
- UWO 28-756 Organizations and Their Environments, 3 cr.
- UWO 28-757 Corporate Strategy, 1.5 cr.
- UWO 28-771 Marketing Management, 3 cr.

Electives

Students are required to complete at least nine credit hours selected from the following courses:

- UWO 28-605 Not-for-Profit Accounting, 3 cr.
- UWO 28-701 Topics of Enterprise Reporting, 3 cr.
- UWO 28-702 Cost Analysis and Control, 3 cr.
- UWO 28-703 Strategy of Tax Management, 3 cr.
- UWO 28-704 Accounting Information Systems, 3 cr.
- UWO 28-720 Legal Aspects of Business, 3 cr.
- UWO 28-722 Planning for Management in the Future, 3 cr.
- UWO 28-732 Investment Analysis and Portfolio Management, 3 cr.
- UWO 28-733 Money and Capital Markets, 3 cr.
- UWO 28-741 Operations Analysis, 3 cr.
- UWO 28-742 Quantitative Analysis in Production Management, 3 cr.
- UWO 28-743 Problems in Operations Management, 3 cr.
- UWO 28-762 Human Resources Development, 3 cr.
- UWO 28-763 Collective Bargaining Systems, 3 cr.
- UWO 28-772 Research for Marketing Decisions, 3 cr.
- UWO 28-774 Purchasing, 1.5 cr.
- UWO 28-775 Sales Management, 1.5 cr.

Cooperative Programs in Education

Through a series of cooperative arrangements between the University of Wisconsin-Green Bay and its sister campuses, UW-Milwaukee and UW-Oshkosh, four graduate programs in education may be completed at the UW-Green Bay campus. These programs are:

- Master of Science in Administrative Leadership and Supervision in Education With an Emphasis on Educational Administration and Supervision (UW-Milwaukee)
- Master of Science in Curriculum and Instruction (UW-Milwaukee)
- Master of Science in Education—Reading (UW-Oshkosh)
- Master of Science in Educational Psychology With a Concentration in Counseling (UW-Milwaukee)

In these programs a coordinated set of UWGB and UW-Milwaukee or UW-Oshkosh courses are offered to enable students to complete requirements for these degrees on the UWGB campus. Students must be admitted to the graduate school and to the appropriate department of the degree-granting campus (UW-Milwaukee or UW-Oshkosh) and are subject to the rules and regulations of that campus. Students who satisfactorily complete degree requirements will receive the appropriate degree from the sponsoring campus and be recommended for any appropriate certification associated with the degree by that campus.

Students in these cooperative programs normally will include 12 UWGB credits in their programs of study. Lists of appropriate UWGB courses and a projected schedule of offerings are given later in this chapter. For information about course selection, students should contact Prof. James Busch, chairperson of the education program and coordinator of cooperative programs in education at UWGB at (414) 465-2149.

Application for Admission and Program Information

Packets including further information on these programs and application forms for admission to the sponsoring campus graduate school and department are available from:

Education Department, Wood Hall 424
University of Wisconsin-Green Bay
2420 Nicolet Dr.
Green Bay, WI 54311-7001

Also, for more complete descriptions of the programs, courses, degree requirements, rules and regulations and other pertinent information, students should consult the appropriate sponsoring campus graduate catalog, which may be obtained from the UWGB Education Office or by contacting the graduate school of the sponsoring campus.

Registration

Registration for UW-Milwaukee or UW-Oshkosh courses may be completed by mail using forms available from the University of Wisconsin-Green Bay Education Office. Students register for UWGB courses in their program as graduate special students, which may be done on campus or by mail.

Fees

Students pay fees to the campus offering the courses in accordance with the fee schedule and procedures of that campus.



Administrative Leadership and Supervision Degree

Master of Science in Administrative Leadership and Supervision in Education With an Emphasis on Educational Administration and Supervision

■ Degree Requirements

The program consists of 33 total credits.

UW-Green Bay Courses (12 credits)

UWGB 006-780 Foundations of Curriculum, 3 cr.

Elective as approved by adviser, 9 cr.

UW-Milwaukee Courses Taught on the UWGB Campus (21 credits)

UWM 103-705 Principles of Administrative Leadership, 3 cr.

UWM 103-740 Instructional Supervision, 3 cr.

UWM 103-785 Seminar in the Principalship, 3 cr.

UWM 103-795 Practicum in Administrative Leadership, 3 cr.

UWM 103-810 Administrative Planning In Education, 3 cr.

UWM 103-840 Legal Aspects of Educational Administration, 3 cr.

UWM 315-640 Human Development: Theory and Research, 3 cr.

Comprehensive Examination

The student must pass a final comprehensive examination.

Time Limit

A student must complete all requirements for the degree within seven years of the initial enrollment.

■ Certification Opportunities

Upon satisfactory completion of this program, persons who are eligible for a Wisconsin teaching license and have the required teaching experience may qualify for a license as an elementary or secondary school administrator and/or supervisor.

■ Projected Schedule of Course Offerings Spring 1988- Summer 1991

(All courses are offered at the UWGB campus.)

Spring 1988

Required course:

UWM 103-795 Practicum in Administrative Leadership, 3 cr.; P: 103-705, 740, 785

Electives:

UWGB 006-709 Effective Schools, 3 cr.

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.

Summer 1988

Required course:

UWGB 006-780 Foundations of Curriculum, 3 cr.

Fall 1988

(New Cycle of Administrative Courses Begins)

Required courses:

UWM 103-705 Principles of Administrative Leadership, 3 cr.; P: gr st

Electives:

UWGB 006-772 Contemporary Educational Thought, 3 cr.

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.

Spring 1989

Required course:

UWM 315-640 Human Development: Theory and Research, 3 cr.

Electives:

UWGB 006-706 The Administrator and the Community, 3 cr.

UWGB 006-709 Effective Schools, 3 cr.

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.

Summer 1989

Required courses:

UWM 103-740 Instructional Supervision, 3 cr.; P: 103-705

UWGB 006-780 Foundations of Curriculum, 3 cr.

Fall 1989

Required course:

UWM 103-810 Administrative Planning in Education, 3 cr.; P: 103-705, 740

Elective:

UWGB 006-786 Current Issues and Trends in Education, 3 cr.

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.

Spring 1990

Electives:

UWGB 006-702 Business Administration of School Systems, 3 cr.

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.

Summer 1990

Required courses:

UWM 103-785 Seminar in the Principalship, 3 cr.; P: 103-705

UWGB 006-780 Foundations of Curriculum, 3 cr.

Fall 1990

Required courses:

UWM 103-840 Legal Aspects of Educational Administration, 3 cr.; P: 103-705, 740 or cons inst

Elective:

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.

Spring 1991

Electives:

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.

Summer 1991

Required course:

UWM 103-795 Practicum in Administrative Leadership, 3 cr.; P: 103-705, 740, 785

UWGB 006-780 Foundations of Curriculum, 3 cr.

Educational Psychology— Counseling Degree

Master of Science in
Educational Psychology With a
Concentration in Counseling

■ Degree Requirements

The degree program consists of 39 credits.

UW-Green Bay Courses (12 credits)

UWGB 006-750 Statistical Methods
Applied to Education, 3 cr.
UWGB 481-620 Tests and Measurements,
3 cr.
Electives as approved by adviser, 6 cr.

For certification in school counseling, elec-
tives must include UWGB 302-610, Intro-
duction to the Education of Exceptional
Children, if a comparable course has not
been completed.

UWM 265-710 Counseling: Theory
and Issues, 3 cr.
UWM 265-711 Foundations of Career
Development, 3 cr.
UWM 265-714 Essentials of Counseling
Practice, 3 cr.
UWM 265-715 Awareness: Counseling,
Poverty, and Urban Cultures, 3 cr.
UWM 265-774 Fieldwork in Counseling,
3 cr.
UWM 265-800 Group Counseling Theory,
3 cr.
UWM 265-970 Supervised Practicum
in Counseling
UWM 315-640 Human Development:
Theory and Research, 3 cr.

One of the three following courses depend-
ing upon concentration:

UWM 265-810 Developmental Counseling
in the Elementary School, 3 cr.
UWM 265-811 Counseling in the
Secondary School, 3 cr.
UWM 265-900 Clinical Studies in
Counseling, 3 cr.

Comprehensive Examination

The student must pass a final oral or written
comprehensive examination.

Time Limit

The student must complete all degree
requirements within five years of initial
enrollment.

■ Certification Opportunities

Upon satisfactory completion of this pro-
gram, persons who are eligible for a Wis-
consin teaching license and have the re-
quired teaching experience may qualify for
a license as a counselor at the elementary
or secondary school level.

■ Projected Schedule of Course Offerings Fall 1987—Spring 1990

Fall 1987

Required course:
UWM 265-710 Counseling: Theory and
Issues, 3 cr.

Elective:
UWGB 302-610 Introduction to the Educa-
tion of Exceptional Children, 3 cr.

Spring 1988

Required course:
UWM 265-714 Essentials of Counseling
Practice, 3 cr.

Elective:
UWGB 302-610 Introduction to the Educa-
tion of Exceptional Children, 3 cr.

Summer 1988

Required courses:
UWM 265-711 Foundations in Career
Development, 3 cr.
UWM 265-715 Awareness: Counseling,
Poverty, and Urban Cultures, 3 cr.;
P: 265-714

Elective:
UWGB 006-780 Foundations of
Curriculum, 3 cr.

Fall 1988

Required course:
UWM 265-774 Fieldwork in Counseling,
3 cr.; P: 265-710, 714

Elective:
UWGB 302-610 Introduction to the Educa-
tion of Exceptional Children, 3 cr.

Spring 1989

Required courses:
UWM 265-800 Group Counseling Theory,
3 cr.; P: 265-710, 714
UWM 315-640 Human Development:
Theory and Research, 3 cr.

Elective:
UWGB 302-610 Introduction to the Educa-
tion of Exceptional Children, 3 cr.

Summer 1989

Required courses:
UWM 265-810 Developmental Counseling
in the Elementary School, 3 cr.;
P: 265-710, 714
UWM 265-811 Counseling in the
Secondary School, 3 cr.;
P: 265-710, 714

Elective:
UWGB 006-780 Foundations of
Curriculum, 3 cr.

Fall 1989

Required courses:
UWGB 006-750 Statistical Methods
Applied to Education, 3 cr.
UWM 265-900 Clinical Studies in
Counseling, 3 cr.; P: 265-710, 714

Elective:
UWGB 302-610 Introduction to the Educa-
tion of Exceptional Children, 3 cr.

Spring 1990

Required courses:
UWM 265-970 Supervised Practicum in
Counseling, 3 cr.; P: 710, 714, 774
UWGB 481-620 Tests and Measurements,
3 cr.

Elective:
UWGB 302-610 Introduction to the Educa-
tion of Exceptional Children, 3 cr.

Additional courses to meet elective require-
ments will be available. Check the UWGB
Timetable for updated information and time
schedule for courses each semester.

Cooperative Programs

Curriculum and Instruction Degree

Master of Science in Curriculum and Instruction

■ Degree Requirements

The degree program consists of 30 credits.

UW-Green Bay Courses (12 credits)

UWGB 006-780 Foundations of Curriculum, 3 cr.

Electives as approved by adviser, 9 cr.

UW-Milwaukee Courses Taught on the UWGB Campus (18 credits)

UWM 272-616 Urban Education: Teaching, 3 cr.

UWM 272-714 Analysis of Instruction, 3 cr.

UWM 272-819 Theory and Design of Curriculum, 3 cr.

UWM 272-800 Master's Seminar in Curriculum and Instruction, 3 cr.

Electives as approved by adviser, 6 credits, at least three of which must be in Curriculum and Instruction courses.

Comprehensive Examination

Neither a final written or oral comprehensive examination is required. Students must demonstrate their proficiency through satisfactory completion of the Master's Seminar in Curriculum and Instruction (272-800).

Time Limit

Students must complete all degree requirements within five years of initial enrollment.

■ Certification Opportunities

Through selection of appropriate elective courses persons who are eligible for a Wisconsin teaching license and have the required teaching experience may qualify for a license as an elementary or secondary supervisor.

■ Projected Schedule of Course Offerings Fall 1987-Summer 1989

Fall 1987

Required course:

UWM 272-714 Analysis of Instruction, 3 cr.

Elective courses:

UWGB 006-786 Current Issues and Trends in Education, 3 cr.

UWGB 302-508 Children's Literature: Contemporary Practice in the Elementary School, 3 cr.

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.

UWM 265-710 Counseling: Theory and Issues, 3 cr.* (Non-C&I elective)

Spring 1988

Elective courses:

UWGB 006-765 Diagnosis of Reading Difficulties, 3 cr.

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.

UWGB 302-621 Reading Readiness and Language Development, 3 cr.

UWM 265-714 Essentials of Counseling Practice, 3 cr.* (Non-C&I elective)

Summer 1988

Required course:

UWGB 006-780 Foundations of Curriculum, 3 cr.

Elective courses:

UWGB 006-788 The Teacher and the Law, 3 cr.

UWGB 006-783 Development of Middle Level Education, 2 cr.

UWGB 006-783 Middle School Level Curriculum and Practices, 1 cr.

UWGB 302-620 Integration of Contemporary Economic Problems in K-12 Curriculum, 3 cr.

UWGB 302-622 Reading in the Content Area, 3 cr.

UWM C&I elective to be determined

UWM 265-711 Foundations of Career Development, 3 cr.* (Non-C&I elective)

UWM 265-715 Awareness: Counseling, Poverty and Urban Cultures, 3 cr.* (Non-C&I elective)

Fall 1988

Required course:

UWM 272-819 Theory and Design of Curriculum, 3 cr.

Elective courses:

UWGB 006-772 Contemporary Educational Thought, 3 cr.

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.

UWM 103-705 Principles of Administrative Leadership, 3 cr.* (Non-C&I elective)

Spring 1989

Elective courses:

UWGB 006-709 Effective Schools, 3 cr.

UWGB 302-519 Adolescent Literature in Secondary School Reading, 3 cr.

UWGB 302-606 Evaluation and Testing in Education, 3 cr.

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.

UWGB 302-621 Reading Readiness and Language Development, 3 cr.

UWM C&I elective to be determined

Summer 1989

Required courses:

UWGB 006-780 Foundations of Curriculum, 3 cr.

UWM 272-616 Urban Education: Teaching, 3 cr.

UWM 272-800 Master's Seminar in Curriculum and Instruction, 3 cr.

Elective courses:

UWGB 006-705 Reading in the Elementary School, 3 cr.

UWGB 006-783X Development of Middle Level Education, 2 cr.

UWGB 006-783X Middle School Level Curriculum and Practices, 1 cr.

UWGB 302-615 Counseling Role of the Classroom Teacher, 3 cr.

UWGB 302-620 Integration of Contemporary Economic Problems in K-12 Curriculum, 3 cr.

UWM 103-740 Instructional Supervision, 3 cr.* (Non-C&I elective)

(If space is available in the class)

Reading Degree

Master of Science in
Education—Reading

■ Degree Requirements

The degree program consists of 30 or 36 credits.

Prerequisites: Applicants must hold and be eligible for teacher licensure and should have taken:

The Learning Disabled Child or the Exceptional Child, 3 cr.*
Education Measurement or Literature for Children or Adolescents, 3 cr.*

If these have not been taken, they must be completed either as undergraduate courses or as graduate elective credits within the program.

UW-Green Bay Courses (12 credits)

UWGB 006-705 Reading in the Elementary School, 3 cr.*
(equivalent to UWO 15-705)
UWGB 006-765 Diagnosis of Reading Difficulties, 3 cr.*
(equivalent to UWO 15-710)

Electives as approved by adviser, 6 cr.

UW-Oshkosh Courses Taught on the UWGB Campus (18-24 credits)

UWO 15-735 Seminar in Secondary School Reading, 3 cr.*
UWO 15-720 Corrective Reading Clinic, 3 cr.*
UWO 12-770 Foundations of Educational Research, 3 cr.
UWO 15-780 Administration and Supervision of Reading Programs, 3 cr.
UWO 15-785 Practicum in Reading, 3 cr.

Research options and electives as specified in option 1 or 2 below:

Option 1: UWO 15-795 Thesis, 3-6 cr.
Option 2: UWO 15-790 Seminar in Reading Research, 3 cr.
UWO electives, 6 cr.

Credit Requirements

Thirty credits applicable to the degree constitute the minimum requirements for students in Option 1 (thesis plan) in the MSE—Reading Program. In Option 2, the student is required to take 36 credits and complete a major paper developed in the seminar in reading research.

Comprehensive Examination

Candidates in Option 1 orally defend their thesis to faculty committees in open meetings. Those in Option 2 must successfully complete a written comprehensive examination.

Time Limit

All work applied toward the degree must be completed within a seven-year time period.

■ Certification Opportunities

1. To be recommended for 316 (reading teacher) certification, the student must be enrolled in a graduate program and complete the 18 credits above marked with an asterisk.
2. To be recommended for 317 (reading specialist) certification, the student must complete the MSE—Reading degree.
3. At least 12 of the required credits for certification, including 15-720, must be taken at UW-Oshkosh or at UWGB in the UW-Oshkosh—UWGB MSE—Reading Cooperative Program.
4. A minimum of two years of teaching experience is required by the Department of Public Instruction for 316 and 317 certifications.

■ Projected Schedule of Course Offerings Spring 1988-Spring 1990

Spring 1988

Required courses:

UWGB 006-765 Diagnosis of Reading Difficulties, 3 cr.

UWO 15-735 Seminar in Secondary School Reading, 3 cr.

Recommended electives:**

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.*

UWGB 302-621 Reading Readiness and Language Development, 3 cr.

Summer 1988

Required course:

UWO 15-720 Corrective Reading Clinic, 3 cr.

Recommended electives:

UWGB 302-622 Reading in the Content Areas, 3 cr.

UWGB 006-780 Foundations of Curriculum, 3 cr.

UWO 15-715 Issues in Reading, 3 cr.

Fall 1988

Required course:

UWO 15-790 Seminar in Reading Research, 3 cr.

Recommended electives:**

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.*

UWO 16-554 The LD Child, 3 cr.*

Spring 1989

Required course:

UWO 12-770 Foundations of Educational Research, 3 cr.

Recommended electives:

UWGB 302-519 Adolescent Literature in Secondary School Reading, 3 cr.*

UWGB 302-606 Evaluation and Testing in Education, 3 cr.*

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.*

UWGB 302-621 Reading Readiness and Language Development, 3 cr.

(continued)

Cooperative Programs

Summer 1989

Required course:

UWGB 006-705 Reading in the Elementary School, 3 cr.

Recommended electives:**

UWGB 302-615 The Counseling Role of the Classroom Teacher, 3 cr.

UWGB 006-780 Foundations of Curriculum, 3 cr.

Fall 1989

Required courses:

UWO 15-780 Administration and Supervision of Reading Programs, 3 cr.

UWO 15-785 Practicum in Reading, 3 cr.

Recommended electives:**

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.

Spring 1990

Required courses:

UWGB 006-765 Diagnosis of Reading Difficulties, 3 cr.

UWO 15-735 Seminar in Secondary School Reading, 3 cr.

Recommended electives:**

UWGB 302-508 Children's Literature: Contemporary Practices in the Elementary Schools, 3 cr.*

UWGB 302-610 Introduction to the Education of Exceptional Children, 3 cr.*

UWGB 302-621 Reading Readiness and Language Development, 3 cr.

*May be required if equivalent courses have not been taken as undergraduate credit. See program requirements for specific information.

**Additional courses to meet the elective requirement will be scheduled as needed and appropriate by UWGB and UW-Oshkosh. Check the UWGB *Timetable* for updated information and time schedule for courses each semester.

■ Faculty

Abbott, Clifford, Associate Professor of Communication and the Arts. B.A. (1969), Tufts; M.A. (1973), Ph.D. (1974), Yale.
Linguistics, Native American languages.

Bruss, Lyle R., Adjunct Associate Professor of Education; Director, School Services Bureau; Director, Facilities Planning and Management. B.S. (1955), UW-Oshkosh; M.Ed. (1959), Illinois; Ph.D. (1970), UW-Madison.

Educational planning in school districts and higher education including such aspects as finance, facilities, and politics. Educational administration and governance of school districts.

Bryan, Dennis L., Associate Professor of Education (curriculum). B.S. (1960), M.S. (1962), Western Michigan; Ed.D. (1972), Michigan State.

The relationship between teaching behavior and student learning. Curriculum development and evaluation. School organization and curriculum designed for individualized learning. Environmental education through problem-focused curriculum.

Busch, James W., Associate Professor of Education (physics). B.S. (1951), UW-Superior; M.S. (1957), Ph.D. (1969), UW-Madison.

Science education, secondary education. Environmental education, evaluation of clinical experiences in education (student teaching-internships). Educational development in Middle Eastern countries, particularly science education. Elementary education, school mathematics.

Hughes, Fergus, Associate Professor of Human Development. B.A. (1968), St. Johns University; M.A. (1972), Ph.D. (1972), Syracuse.

Life span human development, child and adolescent psychology.

Koch, Kathryn A., Assistant Professor of Education-Reading. B.A. (1977), M.S. (1982), Ph.D. (1984), Purdue.

Reading comprehensive, remedial reading techniques, motivational strategies.

Larmouth, Donald, Professor of Communication and the Arts. B.A. (1962), Minnesota; M.A. (1965), Ph.D. (1972), University of Chicago.

Linguistics, writing skills, composition theory.

Laughlin, Margaret A., Associate Professor of Education (social sciences). B.A. (1959), M.A. (1964), California State; Ed.D. (1978), USC-Los Angeles.

Social science curriculum and methods of K-12; international/comparative education; multicultural/global perspectives; social, philosophical and historical foundations of education; curriculum; elementary and secondary methods and materials; study skills.

Logan, Richard, Chairperson and Professor of Human Development. A.B. (1965), Harvard; Ph.D. (1972), Chicago.

Human Development, anthropology, family relations, culture and personality.

Noppe, Lloyd, Associate Professor of Human Development. B.A. (1972), Lake Forest; Ph.D. (1978), Temple.

Developmental psychology, psychological testing, cognitive style.

O'Hearn, George T., Professor of Education (physics); Director of Institute for Research. B.A. (1957), M.S. (1960), Ph.D. (1964), UW-Madison.

Research design, program evaluation. International comparative education. Science curriculum development, teaching, methods and effectiveness. Scientific literacy—the cultural impact of science.

Presnell, Richard W., Associate Professor of Education. B.A. (1958), M.A. (1961), Iowa; Ph.D. (1971), Cornell.

Teaching-learning communication, processes and students' environments in elementary and secondary schools. Problem-solving education. Ecological education and outdoor environmental education processes.

Rodeheaver, Dean, Assistant Professor of Human Development. B.A., M.A., Ph.D. (1983), West Virginia.

Aging, adult development, social and personality development, gender roles.

Spielmann, Daniel, Lecturer in Business Administration and Special Assistant to the Chancellor. B.A. (1972), J.D. (1974), UW-Madison.
School law.

Thompson, Phillip E., Associate Professor of Education (English). B.A. (1958), Beloit; M.S. (1962), UW-Madison; Ph.D. (1972), Illinois.

Discursive and nondiscursive symbolism; creativity, aesthetics, and the imagination. Composition and computer grading. Native American education, English, language arts and aesthetics education.

Thron, Joan, Lecturer in Education. B.S. (1959), Emory; M.A. (1973), UW-Madison. Children's literature, writing skills, composition theory.

Van Koevering, Thomas E., Associate Professor of Natural and Applied Science and Education (science education). B.S. (1962), Western Michigan; M.A. (1965), Michigan; Ph.D. (1969), Western Michigan.

Science and environmental education, particularly at the elementary and secondary school level. Preservice and in-service teacher training in environmental education. Curriculum evaluation. Innovation in teaching high school physics and chemistry. Local and regional health care planning. Chemical education.

■ UWGB Course Descriptions

Graduate-Only Courses (700-Level)

006-702 Business Administration of School Systems 3 cr.

The focus of this course will be on the business functions and related support systems of American elementary and secondary public schools. The procedures of budgeting and financial reporting studies will be based on the relevant Wisconsin Statutes and Department of Public Instruction requirements.

006-705 Reading in the Elementary School 3 cr.

Consideration of components of a developmental reading program for the elementary school including the role of language in reading, basic reading skills and attitudes, methods and materials, individualization of instruction, and evaluation.

006-706 The Administrator and the Community 3 cr.

Concentrates on the relationship of schools and communities in American society. Students are oriented to relationships between schools and communities, public participation in local school districts, and response of local school districts to changing demands. Primary emphasis is on the school administrator and citizens at the local level. P: gr st and teaching experience or cons inst. Rec: UWM 103-705.

006-709 Effective Schools 3 cr.

Over the past few years, the educational research literature has seen an accumulation of evidence identifying factors associated with schools that work. This course involves an in-depth review and analysis of this growing body of literature that identifies elements and conditions present in effective schools. Participants then develop ways of assessing the extent to which these elements are present in schools and explore implications for school practices.

006-710 Practicum in Effective Instructional Skills 2 cr.

Designed for teachers and supervisors currently involved in schools. Analysis and application of effective teaching concepts and skills, including teacher demonstrations and simulations. P: gr st, must be currently involved in teaching.

006-750 Statistical Methods Applied to Education 3 cr.

Types of measures, data organization and display, measures of central tendency, variability, location, and correlation, hypothesis testing and interval estimation for common statistics in one and two sample cases, introduction to analysis of variance and chi-square.

006-755 Writing Programs in the Curriculum, K-12 3 cr.

Current theories of composition, supported by language and discourse theory; contemporary composition practices for teaching writing as a process integrated into existing curricula. Although the course is sustained by current theories, the emphasis will be on pragmatic implications. P: gr st, certified or practicing educator or cons inst.

006-765 Diagnosis of Reading Difficulties 3 cr.

Emphasis is placed on the comprehensive and accurate diagnosis and remediation of moderate to severe reading disabilities and associated learning, language, or behavior disorders through the use of formal and informal instruments. Students will complete an intensive diagnosis of a student's reading ability, a comprehensive report specifying the results of the evaluation, and a prescription for future remediation of any detected reading problems.

006-772 Contemporary Educational Thought 3 cr.

A critical examination of current thinking of educators, critics, social scientists, philosophers, and others as related to schools and schooling. Topics, problems, controversies and issues related to education at the local, national, and international level are included for discussion and consideration. P: gr st, experience in professional education, teacher certification, and cons inst.

006-780 Foundations of Curriculum 3 cr.

This course for experienced educators focuses on the philosophical, sociological, historic and psychological underpinnings of curriculum design, development and evaluation for the elementary, secondary and VTAE educator. It examines the forces influencing curriculum development and identifies issues related to curriculum design and development. P: gr st and experience with elementary, secondary, or VTAE education.

006-786 Current Issues and Trends in Education 3 cr.

In recent years numerous educational innovations have appeared on the scene, differing educational viewpoints (issues) have been articulated and alternative educational trends have been proposed. Educators and citizens are faced with numerous choices regarding education for the 1980's and beyond. Students enrolled in this class will critically examine and evaluate these innovations, issues and trends in education with particular attention focused on educational practices for the future. P: gr st or cons inst.

006-788 The Teacher and the Law 3 cr.

Concerns of teachers relating to tenure, non-renewals, due process, free speech, student rights, and potential liability; administration of collective bargaining in education; brief introduction to statutory regulation and financing of school systems. Topics are considered with an emphasis on Wisconsin. P: gr st and teacher certification or cons inst.

006-789 International Comparative Education

Introduces the experienced educator to practices in selected Western and non-Western countries, explores the ways and the extent to which the school systems reflect the prevailing national characteristics and trends and documents in summary form the mechanisms of change and control which characterize these national systems of education. Students are encouraged to complete an in-depth analysis of schools and schooling practices in one of the target nations and to draw comparisons with American traditions. The role of education in the changing cultural milieu of the various nations is stressed. P: teacher certification or cons inst.

006-783X Experimental Courses

This course number is used to designate courses and seminars offered by graduate faculty in response to special demand or on an experimental basis. Topics may be chosen to address current issues of general concern, special interests of student groups or faculty members, or special resources of visiting faculty. The title of the special topics course as announced in the *Timetable* will appear on the transcripts of the students who enroll. Credits earned in the 783X special topics courses may not be applied toward the graduate core requirement.

006-798 Independent Study 1-3 cr

Reading and research under the supervision of a member of the graduate faculty. Independent study credits may only be earned when this activity is included as part of an approved program plan. P: student classification of MSC6, MSA6, MSE6 or higher.

Undergraduate/Graduate Courses (500 and 600-Level)

246-520 History of the English Language 3 cr.

The origins, development, and cultural background of the English language (dialects, grammar, pronunciation, spelling, vocabulary, and usage), including contemporary American English.

246-521 Sociolinguistics 3 cr.

Communications in social groups and application of linguistic principles to specific cultural problems, including the study of social and regional dialects, stylistic variations, bilingualism, linguistic interference, paralinguistic behavior, and language acquisition.

246-522 Modern Linguistics 3 cr.

Structure and system in language, with attention to modern English and including principles of structural linguistics (phonology, morphology, and syntax), tagmemic grammar, and generative-transformational grammar.

246-524 Psycholinguistics 3 cr.

A brief survey of language structures and an intensive examination of the psychological processes by which we produce and perceive those structures. Additional topics include: comparisons with animal communication and other communication methods; acquisition of language; origin of language; memory.

246-525 Applied Linguistics 3 cr.

Application of linguistic principles to specific problem areas, including language acquisition, the teaching of reading, the teaching of English as a second language, the teaching composition (especially remedial composition), and institutional communications; special emphasis upon problems faced by secondary school teachers. P: at least one course in linguistics.

302-508 Children's Literature: Contemporary Practices in the Elementary School 3 cr.

Examines practices which produce an effective children's literature program. Analysis of current children's books; development of instruction units and independent programs to foster positive attitudes toward reading; using books for personal development; using books for developing attitudes about social issues such as ecological concerns and social and minority group relations; and criteria of evaluation of content, methods, and effect on students.

302-515 Principles and Methods of Teaching English as a Second Language 2 cr.

Introduces the basic methods of teaching ESL and the underlying theories from linguistics, psychology, education, and sociolinguistics. Designed to give students opportunity to develop lessons for the ESL class using various methods, discuss and critique these methods, and consider their use in future situations. Required for certification to teach English as a Second Language. P: A minimum of one course in linguistics or another area to develop foundation academic competence to teach ESL plus 302-301.

302-519 Adolescent Literature in Secondary School Reading 3 cr.

Examines practices in high schools, junior high schools, and middle schools which produce effective adolescent literature programs. Includes analysis of literature for the adolescent, current practices in literacy curriculum, personal development and literature for the adolescent, literature and social issues, and criteria for evaluation of adolescent literature and literature program.

302-606 Evaluation and Testing in Education 2-3 cr.

Techniques for constructing tests and measurement systems, statistical procedures applied to classroom data, monitoring and assessing individual and group standardized tests. Students may participate in a task force student-initiated project for the third credit. P: jr st.

302-610 Introduction to the Education of Exceptional Children 3 cr.

A survey of the kinds of exceptionalities found in the school population, the needs of such children, and some methods for meeting them. Information enables the teacher or parent to recognize and understand exceptional children and unique subtleties that deserve specific attention. P: jr st.

302-615 Counseling Role of the Classroom Teacher 2 cr.

Provides teachers and future teachers with knowledge of specific counseling and guidance skills necessary to enhance their counseling effectiveness. Focuses on becoming more aware of these skills and how they are best implemented in the classroom. P: teaching experience or upper division status in a teacher education program.

302-620 Integration of Contemporary Economic Problems in K-12 Curriculum 1-3 cr.

Introduces K-12 educators and other students to major economics concepts and explores materials and methods for effective integration of economics into overall school curriculum. P: completion of at least one education methods course and/or teaching experience. For graduate credit, graduate standing is required. See 302-420.

302-662 The Adult Learner 3 cr.

Designed to help students (1) acquire knowledge of various physiological, psychological, and sociological factors relevant to adult development throughout the life span and of their implications for learning; (2) develop an understanding of the key elements involved in the teaching-learning process; (3) develop an understanding of some of the important research in adult learning; and (4) develop a personalized learning theory. P: bachelor's degree and relevant professional experience or foundation courses in education, human development, or social services. Course, Principles of Adult Education is recommended.

481-620 Tests and Measurements 3 cr.

Methods and problems of measuring human characteristics, including determination of validity, reliability, and interpretive schemas for such measures. Examination of selected tests in intelligence, achievement, attitudes, interests, and personality. Typical uses of tests and methods for reviewing tests. P: a course in statistics.

481-631 Cognitive Development 3 cr.

The development of cognitive functioning from infancy to adulthood. The stimulus-response, cognitive, and psychoanalytic approaches to intellectual development are analyzed. Current issues and research are critically examined. P: 481-331, 332.

481-636 Counseling with Children and Adolescents 3 cr.

Introduction to theories and principles of counseling as applied to children and adolescents. Surveys different theoretical approaches and techniques for helping children and adolescents cope with the developmental deviations introduced in 481-435. P: 481-331, 332, 435.

Undergraduate Courses (300 and 400) Numbers

Graduate credit for undergraduate courses with 300 or 400-level numbers is available only with special permission of the instructor and the student's graduate adviser or the director of graduate studies. An assigned study card is required for registration in one of these courses.

Academic Rules and Regulations

■ Class Attendance

A student is expected to attend all class sessions. If, for any reason, a student is unable to attend classes during the first week of classes, he or she is responsible for notifying the instructor(s), in writing, of the reason for nonattendance and intentions to complete the course. Registered students are obligated to pay all fees and penalties as listed on the fee schedule; nonattendance does not alter these academic or financial obligations in any way.

■ Definitions

Graduate Record—the permanent record of all graduate level credits attempted and grades earned, including courses which may not be completed, such as progress (PR) or incomplete (I), as well as audited graduate credits.

Undergraduate Record—a separate permanent record of any undergraduate courses taken. A complete transcript includes copies of both the graduate and undergraduate records compiled at UWGB.

Graduate Credits—those credits which are taken under a graduate course number (500-level or above) by a student enrolled with a graduate classification (MS, MSC, MSA, MSE, GSP, GMI, GML, GMC, GMO, GSO, GMB) and noted by a letter G after the credits on any enrollment forms and records.

Attempted or Grade Point Credits—those graduate credits for which a letter grade of A, AB, B, BC, C, D, WF, or F has been earned and used to calculate the grade point average.

Credit Load—the total of all graduate credits, undergraduate credits, and audited credits being taken in a given term.

Maximum Credit Load—a specific limitation of the number of credits that a student is allowed to carry at any time during an academic term. For a graduate student in good standing, this is defined as 12 credits in a semester and for a graduate student on probation the maximum is reduced to 9 credits. For a shorter term, lower pro rata limitations are in effect.

Minimum Credit Load—a specific minimum number of graduate credits for which a graduate student must be enrolled in a term to be eligible for a variety of programs and benefits, such as V.A. benefits, financial aids, and assistantships.

Grade Point Average (GPA)—a numerical value used to express the general quality of all courses/credits completed on a regular graded basis (A, AB, B, BC, C, D, F, WF). Only attempted graduate credits taken at UWGB are computed into the graduate GPA.

Probation—an academic status assigned to a student who is achieving below minimum GPA standards required for good standing. Probation is an advisory warning that improved quality of work is necessary to continue as a student.

Academic Drop—a status assigned to a student who has a record of achievement consistently below the standards which are acceptable to the University. An academic drop means that the student is ineligible to enroll as a graduate student at UWGB until readmitted.

Good Standing—a status assigned when a student is achieving at an adequate level (3.0 cumulative and semester GPAs).

Provisional Admission—a conditional graduate admission status which is subject to review after 9 graduate credits have been attempted at UWGB.

Grading System and Grade Points

| Letter Grade | Grade Points Per Credit |
|--|--|
| A (Excellent) | 4.0 |
| AB (Very Good) | 3.5 |
| B (Good) | 3.0 |
| BC (Above Average) | 2.5 |
| C (Average) | 2.0 |
| D (Poor) | 1.0 |
| F (Unacceptable) | 0.0 |
| WF (Unofficial Withdrawal) | 0.0 |
| PR (Progress-temporary grade for an internship or thesis course) | No effect |
| P (Passed thesis or internship) | No effect |
| NC (Unacceptable thesis or internship) | No effect |
| U (Unsatisfactory audit) | No effect |
| S (Satisfactory audit) | No effect |
| N (No acceptable report from instructor—temporary grade) | No effect until an acceptable grade is submitted |
| I (Incomplete) | No effect until removed or lapsed into the tentative grade assigned if the required work is not completed prior to the deadline established by the instructor, or the last day of classes for the following semester, whichever comes first. |

■ Academic Standing

Every student is expected to maintain certain standards of academic achievement in University work. The University has established quality of work standards, as measured by semester and cumulative grade point averages.

Academic standings are reviewed at the end of each term and a revised standing is reported to every student on the final grade report issued after each academic term.

■ Probation and Drop Status

The University is concerned about students whose academic achievements indicate that they are unable to meet expectations of their instructors or that they are experiencing other problems that may interfere with their studies. A probation action is an advisory warning that a student should take action to improve his or her achievement. A drop action is taken when the University feels that the student's academic achievement record to date indicates a need to interrupt enrolled status to reassess and reevaluate goals and plans. A student who is placed on probation or drop status should give careful consideration to factors involved. The University encourages such students to seek assistance from counselors, graduate advisers, and course instructors.

Every student is expected to maintain at least a B average (3.0 GPA) on all graduate work carried, whether passed or not. Failure to achieve this minimum B average in any term results in a probation, continued probation, or drop action at the end of that term, as shown below. Drop actions are taken at the end of each term. However, if a student is not enrolled for the fall semester, a drop action is not taken solely on the basis of inadequate achievement in the January interim.

1. Student in Good Standing

Grade point requirements and actions:

- A 3.0 or better end-of-term cumulative GPA results in continuing good standing.
- A 2.0 to 2.999 end-of-term cumulative GPA results in probation status.
- A 1.999 or less end-of-term cumulative GPA results in drop status. Student's graduate committee reviews his or her record up to that time and recommends for continued enrollment or for the drop status to go into effect.
- Action on part-time students is withheld until at least 9 credits are attempted at UWGB.

2. Student on Probation

Grade point requirements and actions:

- A 3.0 or better end-of-term cumulative GPA results in a return to good standing.
- A 2.999 or less end-of-term cumulative GPA may result in a drop status at the end of any term after a cumulative total of 15 or more credits is attempted at UWGB. Student's graduate committee reviews his or her record up to that time and recommends for continued enrollment or for the drop status to go into effect.

■ Appeals

Academic probation is a nonpunitive warning that is not subject to appeal. Academic drop status may be appealed by means of a special appeal to the director of graduate studies. The director may seek advice from the graduate board of advisers. Any appeal must be filed within two weeks after the end of the semester. A student who is allowed to continue will be on probation and is subject to any other special conditions that may be designated. Any appeal must include a clear explanation of the problems causing the inadequate achievement and how the student proposes to resolve those problems.

■ Readmission

Readmission after an academic is not automatic. The director of graduate studies may decide to deny or to grant readmission subject to specific requirements or conditions. A student who is readmitted after an academic drop is always readmitted on probation and is subject to normal standards of achievement required to continue as a graduate student. An application for readmission should be submitted to the director of graduate studies at least 30 days in advance of the desired term of admission to allow for the review process.

■ Grades and Grade Appeals

Each student receives a grade from the instructor in charge of a course at the end of each semester or session. Grades must be in the office of the registrar no later than 96 hours after a final examination. Information on current grading policies accompanies the grade rosters distributed by the registrar each semester.

If a student is dissatisfied and wishes to appeal a particular course grade, he or she must first contact the instructor who issued the grade. If the student is still dissatisfied, he or she may appeal to the director of graduate studies who must, in turn, consult with the course instructor. A student who wishes to appeal beyond this level consults with the vice-chancellor for academic affairs who then consults with the instructor and the director of graduate studies. The vice-chancellor or director act in an advisory capacity to the student and instructor.

■ Grade Changes

All final grades, with the exception of incompletes (I) or progress (PR), become permanent grades at the end of the following semester. Any discussions with faculty regarding grade levels or missing (N) grades must be pursued within this time period.

■ Incompletes

If unusual, yet acceptable, circumstances prevent a student from taking or completing a final examination or other course work, he or she may arrange with the instructor to receive an incomplete in the course. The incomplete is filed with two tentative grades and a specific deadline for completing the work. The first tentative grade indicates the quality of the work to date, and the second grade will be assigned if no more work is completed. Before a grade of incomplete is accepted for recording, the course instructor must file an incomplete removal form, stating the conditions and specific deadline for removal. Since the course is incomplete, a student's grade points and degree credits remain undetermined until a permanent grade is established; however, a tentative academic action may be assigned on the basis of grades and credits received in other courses. The tentative action is reviewed after the incomplete is converted into a permanent grade.

Incompletes for Graduating Students

Students anticipating graduation must remove all pending incompletes by the end of the sixth week of the final semester of attendance. Outstanding incompletes are considered as I grades for purposes of estimating eligibility for graduation.

Removal of Incompletes

The course instructor is responsible for informing the student, the office of the registrar, and the director of graduate studies as to the specific deadline for removing an incomplete. If no earlier deadline is specified, an incomplete (I) must be removed no later than the last day of classes for the following semester; this is the maximum allowable deadline. If no other grade is submitted by the instructor within this deadline, incomplete grades become a permanent grade of F with the normal effect on the student's grade point average and earned credits. A student may file a special petition for an exception to the removal deadline if actual unanticipated extenuating circumstances prevented compliance with the removal deadline, such as:

1. The student has serious physical or mental health problems documented by a physician or professional counselor's statement.
2. The student has had a death or serious illness in the immediate family; also documented by a physician's statement.
3. The course instructor is on leave during the semester for removal.

If a student is graduating, all I or PR grades must be converted to a permanent passing or failing grade before the commencement date. All grades on the record become permanent as of that date with no possibility for removal or change.

■ Repeating Courses

Students may repeat a course only upon special petition to the director of graduate studies. All repeated courses are designated with a letter R after the grade on the transcript. When a repeated course is completed, the original grade and entry on the transcript remain on the transcript, but the credits, grade, and grade points earned for the most recent completion are the only course records that affect cumulative attempted credits, grade points earned, and the grade point average. Courses repeated at another institution have no effect on the grade point average at UWGB.

■ Minimum and Maximum Credit Loads

A graduate student in good academic standing may register for any number of credits up to a maximum of 12 credits per semester. A student will not be allowed to register for credits in excess of 12 if he or she does not have prior written permission from the director of graduate studies to carry an overload. Any course adds that would have the effect of exceeding the maximum will not be processed if prior overload permission has not been granted.

A student may register for or reduce a program below 9 credits in a semester with the understanding that for certain purposes he or she will then be considered a part-time student. A student who reduces graduate credit level below 9 should consult the appropriate offices about implications for financial aids, government benefits, and other programs with credit load eligibility stipulations.

Maximum Credit Load for Probationary Students

The maximum semester credit load is 9 credits for a graduate student on probation.

■ Course Adds

After final registration a student may add other courses to his or her program if the addition does not exceed the maximum credit load limitation and is completed before a specific deadline for additions. During a normal semester, the add period is limited to the first two weeks of classes; for shorter terms an earlier deadline is in effect. A student may petition for an exception if unforeseeable extenuating circumstances prevented deadline compliance.

■ Course Drops

The course drop deadline is established to allow students ample time to discover what content a course will cover, the type of readings and projects to be assigned, the instructor's teaching style, and the methods of evaluation. In some courses, feedback from a formal evaluation process may not be available before the drop deadline. In such cases, it is the student's responsibility to contact the instructor before the drop deadline to obtain information useful in making the decision to drop. Therefore, lack of feedback in the form of grades on papers or examinations is not acceptable to justify a late drop.

The drop deadline is intended to stimulate a student to weigh carefully all of the important considerations and to do this as early as possible. If a student decides that a course does not fulfill expectations, an early drop permits the student to devote a greater portion of available study time and effort to remaining courses, and the instructor is able to devote more time and effort to the students participating in the course. The 8-week deadline for 14-week semester courses provides an adequate opportunity to make drop decisions.

The two phases of the drop policy are:

1. First 4 weeks of a 14-week semester:
 - student can drop any course without instructor's signature;
 - no record of action on transcript.
2. Fifth through eighth week:
 - course appears on permanent record with the symbol DR (dropped) or W (withdrew).
3. Ninth through 14th week:
 - no official drops allowed; WF or F appears on transcript.

For terms or classes of a shorter duration than 14 weeks, pro rata deadlines are established as follows in the chart above:

| Course Length in Weeks | Drop Deadline-End of Course Session Week | "W" or "DR" Symbol Recorded After |
|------------------------|--|-----------------------------------|
| 1 | Wednesday, Week 1 | |
| 2 | Friday, Week 1 | Friday, Week 1 |
| 3 | Wednesday, Week 2 | Friday, Week 1 |
| 4 | Friday, Week 2 | Friday, Week 1 |
| 5 | Wednesday, Week 3 | Friday, Week 1 |
| 6 | Friday, Week 3 | Friday, Week 2 |
| 7 | Wednesday, Week 4 | Friday, Week 2 |
| 8 | Friday, Week 4 | Friday, Week 2 |
| 9 | Wednesday, Week 5 | Friday, Week 2 |
| 10 | Friday, Week 5 | Friday, Week 3 |
| 11 | Wednesday, Week 6 | Friday, Week 3 |
| 12 | Friday, Week 6 | Friday, Week 3 |
| 13 | Wednesday, Week 7 | Friday, Week 3 |
| 14 or more | Friday, Week 8 (normal semester course) | Friday, Week 4 |

A course session week always ends on a Friday. All courses beginning or ending on nonstandard session weeks have a nonstandard drop deadline, e.g., if 742-159, section 1 meets for seven weeks, the drop deadline would be Wednesday of the fourth week.

■ Late Program Changes and Withdrawals

A student may be granted permission to drop a course or courses after the eight-week deadline, or make a complete withdrawal after the normal twelfth-week deadline, if one of these specific criteria can be verified:

1. If the student has serious mental or physical health problems, verified by a physician's or professional counselor's statement.
2. If there is a death or prolonged serious illness in the immediate family; also verified by the family physician.

Under any of these circumstances, a counselor in the Student Counseling and Development Center or the director of graduate studies is authorized to grant permission for a late drop or withdrawal, he or she should direct a written appeal, stating the circumstances, to the director of graduate studies.

■ Withdrawal From the University

A student who desires to withdraw from all academic course work at any time after completing the study list request form or final registration must see a counselor in the Student Counseling and Development Center, his or her graduate adviser, or the director of graduate studies. A complete withdrawal without failure may be requested at any time before 4:30 p.m. on the afternoon of the last day of regularly scheduled classes during the twelfth week of a semester, during the sixth week of an eight-week summer session, or during the second week of a January interim period. If a student has not attended classes or taken the final examination in a course, a grade of WF will be given unless official withdrawal procedures are followed.

A decision to withdraw should be given careful consideration in terms of academic retention policy, veteran's benefits, Social Security benefits, financial aids and other situations that have specific prohibitions against withdrawals.

In matters not covered by the graduate academic rules and regulations as specified in this catalog, the graduate program follows rules and regulations for the undergraduate programs and courses at UWGB.

Academic Rules and Regulations

■ Pass-No Credit Grading

This special grading is permitted and required only for internships (797) and thesis writing (799) courses/credits at the graduate level. All other graduate credit courses must be taken on a regular graded basis.

■ Audit Enrollment Information

With the permission of the instructor, a graduate student may audit an undergraduate course if space is available after undergraduate students who have enrolled for credit have been accommodated. Special policies apply to senior citizen guest students and students who enroll under the special half-price fee arrangements; these policy statements are published in the *Timetable* for each term. Conditions and requirements for class participation are completely at the discretion of the course instructor. A student enrolled for credit may change to audit status for grading purposes, at any time up to the course drop deadline. *Audited credits do not count in determining credit completion requirements or for any program or benefits eligibility status.* Audit credits do count toward maximum credit load limitations. Any changes from audit status for grading purposes, must be completed within the course add period.

■ Graduate Independent Study

Faculty approval signatures are required before registering for or adding independent study credits. Graduate faculty status includes only assistant, associate, and full professors, and full-time lecturers. Regular semester add and drop deadlines apply to independent study. Special 500-600-level numbered undergraduate courses do not require an independent study card. Graduate special (GSP) students are not eligible for 798 work except in the 006 area; graduate specials are also not eligible for 797 or 799 work.

■ Special Petitions

A special petition is a formal written request for an exception to normal rules, regulations, and procedures and may be granted or denied. The rules, regulations, and requirements of the graduate program are the result of recommendations from the graduate faculty board of advisers and the academic actions committee. Some rules may originate from legislative statutes or Board of Regents actions.

Exceptions to academic rules and regulations are granted if the petition states unforeseeable extenuating circumstances and relevant facts that fall within general parameters recommended by the academic actions committee, and approved by the vice-chancellor for academic affairs. The director of graduate studies is responsible for reviewing the petition. If a petition is denied, the student has the right of further appeal to the academic actions committee.

Students contemplating an appeal should consider:

1. Are the relevant facts and dates clearly stated and documented?
2. Are the extenuating circumstances cited of an unforeseeable nature?
3. Are relevant recommendations from the instructor included, if this is appropriate?
4. Do the statements distinguish between needs and wants?
5. Is the educational rationale for the request stated?

■ V.A. Certification

Undergraduate courses taken as part of the load, but which are not for graduate credit, do not have the same effect for credit load requirements. Contact the veterans coordinator for clarification. Courses which do not meet for the full 14-week semester may only be counted as part of the credit load during those weeks that the course is actually meeting. Courses which do not meet every week can usually only be certified for the cost of fees.

If you are a Wisconsin veteran, be sure to learn about possible D.V.A. tuition and book expense reimbursement possibilities before the end of the course; all applications must be on file in the D.V.A. office in Madison before the last day of the term.

Audit credits do not count for any veterans benefits programs.

Credit load requirements for "Cold War" or VEAP V.A. certification are:

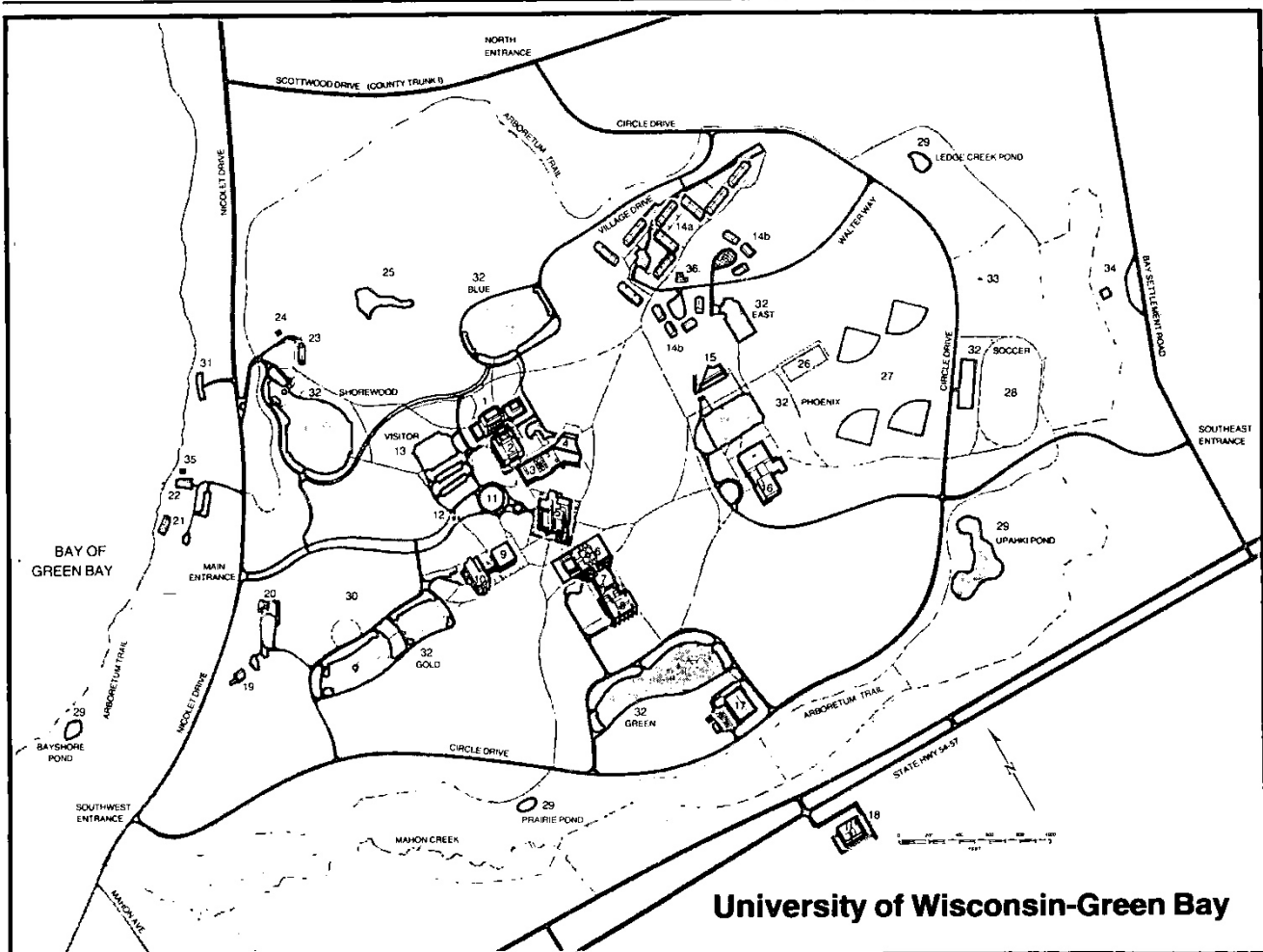
| Graduate Credits | Fall Semester | 4-wk Summer/ January Interim | Spring Semester | 8-week Summer |
|------------------|---------------|---------------------------------|-----------------|---------------|
| 9 or more | Full-Time | | Full-Time | |
| 8 credits | 3/4 Time | | 3/4 Time | |
| 7 credits | 3/4 Time | | 3/4 Time | |
| 6 credits | 3/4 Time | | 3/4 Time | |
| 5 credits | 1/2 Time | | 1/2 Time | |
| 4 credits | 1/2 Time | | 1/2 Time | |
| 3 credits | 1/2 Time | Full-Time | 1/2 Time | Full-Time |
| 2 credits | - 1/2 Time | 3/4 Time | - 1/2 Time | 1/2 Time |
| 1 credit | - 1/2 Time | 1/2 Time | - 1/2 Time | 1/2 Time |

Academic Year Calendar

| Fall Semester | 1988-89 | 1989-90 | 1990-91 |
|--|-----------------|-----------------|----------------|
| Registration and new student period (or register by mail earlier) | Aug. 29-Sept. 2 | Aug. 28-Sept. 1 | Aug. 27-31 |
| Classes begin | Sept. 6 | Sept. 5 | Sept. 4 |
| Thanksgiving recess begins | Nov. 24 | Nov. 23 | Nov. 22 |
| Classes resume | Nov. 28 | Nov. 27 | Nov. 26 |
| Classes end | Dec. 14 | Dec. 13 | Dec. 12 |
| Study and advising days | Dec. 15 | Dec. 14-15 | Dec. 13-14 |
| Examinations begin | Dec. 16 | Dec. 16 | Dec. 17 |
| Commencement (Sunday) | Dec. 18 | Dec. 17 | Dec. 23 |
| Examinations end | Dec. 22 | Dec. 22 | Dec. 22 |
| January Interim Period | | | |
| Classes begin | Jan. 2 | Jan. 2 | Jan. 7 |
| Martin Luther King Holiday | Jan. 16 | Jan. 15 | Jan. 21 |
| Spring Registration (or register by mail earlier) | Jan. 24-26 | Jan. 23-25 | Jan. 29-31 |
| Last day of classes | Jan. 27 | Jan. 26 | Feb. 1 |
| Winter recess | Jan. 28-Feb. 5 | Jan. 27-Feb. 4 | Feb. 2-10 |
| Spring Semester | | | |
| Classes begin | Feb. 6 | Feb. 5 | Feb. 11 |
| Spring recess | March 25 | March 31 | March 30 |
| Classes resume | April 3 | April 9 | April 8 |
| Memorial Day recess | None | None | May 26-27 |
| Examinations begin | May 22 | May 21 | May 25 |
| Examinations end | May 27 | May 26 | June 1 |
| Commencement (Saturday) | May 27 | May 26 | June 1 |
| Summer Session (8 Week Session) | | | |
| Registration | June 8-9 | June 7-8 | June 13-14 |
| First day of classes | June 12 | June 11 | June 17 |
| Last day of classes | Aug. 4 | Aug. 3 | Aug. 9 |

Please note: These dates may be subject to change. Consult the most recent *Timetable* to double check dates.

Campus Map



University of Wisconsin-Green Bay

- | | |
|---------------------------------|--------------------------------|
| 1. Studio Arts (SA) | 19. Children's Center |
| 2. Theatre Hall (TH) | 20. Language House |
| 3. Student Services (SS) | 21. Bayshore Center |
| 4. Student Union | 22. Dock Facility |
| 5. Library Learning Center (LC) | 23. Shorewood Center |
| 6. Instructional Services (IS) | 24. Equipment Service Building |
| 7. Environmental Sciences (ES) | 25. Golf Course |
| 8. Laboratory Sciences (LS) | 26. Tennis Courts |
| 9. Community Sciences (CS) | 27. Playing Fields |
| 10. Wood Hall | 28. Soccer Field |
| 11. Circle Entrance | 29. Arboretum Ponds |
| 12. Welcoming Booth | 30. Amphitheater |
| 13. Visitor Parking | 31. Communiversity Park |
| 14a. Student Apartments | 32. Parking |
| 14b. Student Residence Halls | 33. Weather Station |
| 15. Ecumenical Center | 34. Observaton Tower |
| 16. Phoenix Sports Center | 35. Dock Hut |
| 17. Physical Plant Center | 36. Housing Services Center |
| 18. Utility Control Center | |

Index

- Abbreviations, 8, 10
Academic calendar, 2, 51
Academic rules and regulations, 5, 46-50
Academic standing, 47
Accreditation, 2
Addresses for more information, inside back cover
Administration, UW, inside back cover
 UWGB, inside back cover
Administrative Leadership, cooperative program, 38
Administrative Science degree program, 12-17
 course descriptions, 15
 faculty, 14
 program description, 12-13
Decision Science and Systems Analysis emphasis, 13
Policy Analysis and Planning emphasis, 13
Public and Private Management emphasis, 13
Admission, 9-11
 advanced standing, 6
 deadline, 10
 education programs, 37
 fee, 10
 general policy, 9
 nonresidents, 10
 procedures, 9
 requirements, 9
Affirmative action information, inside front cover
Application, deadline, 10
 education programs, 37
 fee, 10
 process, 9
Area Research Center, 4
Assigned study courses, 5
Assistantships, graduate, 20
Attendance, course, 46
Auditors, 50
- Board of Regents, inside back cover
- Calendar, 51
Campus facilities, 3
Campus map, 52
Commencement deadlines, 8
Committee, graduate, 7
Community Human Services degree program, 18-23
 course descriptions, 22
 faculty, 21
 program description, 18
 Administration and Management of Human Services specialization, 19
 Community Resources and Development specialization, 19
 Counseling specialization, 19
 Evaluation of Human Services Programs specialization, 19
 Organizational Development specialization, 19
 Planning Human Services Programs specialization, 19
Cooperative Program—Master of Business Administration, 36
Cooperative Programs—Education, 37-45
 general information, 37
 Administrative Leadership, 38
 Educational Psychology, 39
 Curriculum and Instruction, 40
 Reading, 41
 faculty, 43
 course descriptions, 44
Core courses, 5
Course descriptions, see appropriate program of study
 assigned study, 5
 graduate core courses, 5
 independent study, 5
 internship, 6
 undergraduate, 5
 undergraduate/graduate, 5
Credit load, 48
Credits required, 5
Curriculum and Instruction, cooperative program, 40
- Degrees, 2, 12, 18, 24, 36, 37
- Education, cooperative programs in, 37
Educational Psychology, cooperative program, 39
Environmental Science and Policy degree program, 24-35
 course descriptions, 32
 faculty, 29
 program description, 24
Environmental Policy and Administration track, 27
 Institutions and Processes specialization, 27
 Management specialization, 27
 Methodology specialization, 27
 Public Policy specialization, 27
Environmental Science track, 25
 Ecosystems Studies specialization, 25
 Quantitative Methods and Data Analysis specialization, 26
 Resource Management specialization, 25
 Technology Development and Assessment specialization, 27
 Waste Management and Resource Recovery specialization, 26
Expenses, 10
- Faculty, see appropriate program of study
Fees, application, 10
 education programs, 37
 Minnesota residents, 10
 semester, 10
Financial aids
 graduate assistantships, 10
 grants, 10
 loans, 10
 tuition waivers, 10
- Grading system, 5, 46, 47
 grade point average, 5, 46
 incomplete grades, 48
 pass-no credit grading, 50
Graduate program, description, 2
Graduation requirements, 5, 7-8
Grants, 10
- Independent study, 5
Information, where to write, inside back cover
Institute for Research, 4
Internships, 6
- January interim period, 2, 51
- Laboratories, 3
Library, 3
 Area Research Center, 4
Loans, 10
- Map, campus, 52
Master of Business Administration degree (UW-Oshkosh), 36
Master of Science in Administrative Leadership and Supervision in
 Education degree (UW-Milwaukee), 38
Master of Science in Administrative Science degree, 12
Master of Science in Community Human Services degree, 18
Master of Science in Curriculum and Instruction degree (UW-Milwaukee), 40
Master of Science in Education—Reading degree (UW-Oshkosh), 41
Master of Science in Educational Psychology—Counseling degree
 (UW-Milwaukee), 39
Master of Science in Environmental Science and Policy degree, 24
- National direct student loan program, 10
Natural areas, 4
Nonresident tuition, 10
- (continued on next page)

Index

- Pass-no credit grading, 50
- Probation, academic, 46, 47
- Programs of study, UWGB
 - Administrative Science, 12-17
 - Community Human Services, 18-23
 - Environmental Science and Policy, 24-35
- Reading, cooperative program, 41
- Reciprocity, with Minnesota, 10
- Regents, Board of, inside back cover
- Requirements
 - admission, 9
 - course, 5
 - graduation, 5, 7-8
- Richter Natural History Collections, 4
- Rules, academic, 5, 46-50

- Sea Grant Program, 3
- School Services Bureau, 3
- Special students, 6
- Student employment, 10
- Student financial aids, 10
- Student loans, 10
- Summer session, 51

- Thesis, 6, 8
 - credits, 5
 - registration, 6
- Time limit, 5
- Timetable, 5
- Transfer students
 - credit transfer, 6
- Tuition, 10

- Undergraduate courses, 5
- Undergraduate/graduate courses, 5
- University of Wisconsin, Administration, inside back cover
 - board of regents, inside back cover
- University of Wisconsin-Milwaukee cooperative programs
 - Administrative Leadership and Supervision, 38
 - Educational Psychology and Counseling, 39
 - Curriculum and Instruction, 40
- University of Wisconsin-Oshkosh cooperative programs
 - Master of Business Administration, 36
 - Reading, 41
- UWGB
 - accreditation, 2
 - administration, inside back cover
 - board of visitors, inside back cover
 - campus, 3
 - faculty, see appropriate program of study
 - history, 2
 - mission, see history
 - natural areas, 4
 - philosophy, 2

- V.A. credit certification, 50

- Wisconsin Guaranteed Loans program, 10
- Wisconsin Indian Student Assistance grant, 10
- Wisconsin state student loans, 10
- Withdrawal from the University, 49
- Work/study employment, 10