



A GUIDE TO GRADUATE STUDY

INTRODUCTION

The purpose of this guide is to inform students and prospective students in the Master of Environmental Arts and Sciences program at UWGB of the nature of the degree, what is required of them to attain the degree, and the resources available to them. Because of the novel and innovative nature of the degree program, the guidelines should be approached by students in a spirit of scepticism and experiment. It is not our intention to engrave on stone a set of rules and regulations which must be adhered to or skillfully evaded. Rather we wish to outline an orderly procedure for accomplishing the required work and to describe appropriate bodies and processes for obtaining relief from grievance and to petition for exceptions.

GOVERNANCE OF THE GRADUATE PROGRAM

The governing body of the MEAS degree program is the graduate faculty of the University of Wisconsin-Green Bay. The graduate faculty consists of all assistant, associate, and full professors, together with such others as may from time to time be elected. Only members of the graduate faculty may teach, supervise assigned study, or act as major professors. In the event that a student undertakes study of any kind with an individual not a member of the graduate faculty, then the supervisor of record must be a member of the graduate faculty, must sign the assigned study card, and accept the supervisory responsibility for ensuring that the experience is suitable for recognition at the graduate level.

Day-to-day governance of the program is delegated by the graduate faculty to their

elective body, the Graduate Faculty Council. The council consists of twelve members, six from the division of Socio-Cultural Ecology and six from the division of Biophysical Ecology. It meets with the Director of Graduate Studies, who is the non-voting chairperson. For organizational purposes, the Graduate Faculty Council has established three subcommittees: Admissions, Graduate Actions, and Curriculum. The Admissions Subcommittee recommends admissions policy and reviews and rules upon applications. The Graduate Actions Subcommittee reviews petitions and programs of study. The Curriculum Subcommittee considers course proposals and recommends curriculum changes. All subcommittees are advisory to the Graduate Faculty Council.

The Graduate Student Association is the organization which represents the student interest and serves as a focus for student activities. Six students are elected annually as an executive committee and are entitled to sit with and participate in meetings of the Graduate Faculty Council, but cannot vote. In addition, two members of the student executive committee sit on each of the major subcommittees. Every student has the right to suggest changes in the program as such, or to petition for exceptions to any rule in his or her own case. Such petitions and suggestions should be well documented and addressed to the Director of Graduate Studies, who will direct them to the appropriate subcommittee. The director will also assist and advise on the preparation of such petitions, but students are encouraged to consult with other--students, graduate faculty, or Graduate Faculty Council--on such matters.

ADMISSION REQUIREMENTS

While UWGB has a basic admissions policy for the MEAS degree, a philosophy of personalized admission dictates that each applicant be considered as an individual. Usual entry requirements are:

1. A baccalaureate degree in any field.
2. A 3.0 grade point average in the major field of study, measured on a 4.0 scale.

Entry as a provisional student is possible for those who do not meet the requirement for a 3.0 GPA, and admission is not guaranteed for those who do. Maintaining a 3.0 GPA for 12 credits of graduate work entitles a student admitted provisionally to acquire full admission. Evidence of intellectual activity or community or university service outside the classroom, of experience since graduation, either job-related or not, of an active and questing mind interested in societal problems --all these are factors which are weighed by the Admissions Committee in assigning admissions categories. The commitment to admission based on more than college performance is genuine, and prospective students should submit evidence of life-experience with their applications.

Candidates for entry are required to submit:

1. A completed application form, including a statement of the student's intended area of study and educational objectives.
2. An undergraduate transcript, including grade records.
3. Three letters of recommendation. Under the requirements of the Buckley Amendment of the Family Educational Rights and Privacy Act of 1974, such letters may either be confidential or not. The application package for the MEAS degree includes six forms for letters of recommendation: three white, labelled OPEN FILE, and three colored, labelled CONFIDENTIAL FILE. The student chooses which to submit, and should explain to the writer of the letter of recommendation whether it will be subsequently open to inspection by the student or not. It is not required that writers of letters fill out the prescribed form. They can, if they wish, simply submit a letter. But we ask that the letter be attached to the form, so that we know whether or not it is intended to be confidential.
4. Such additional evidence as the applicant may deem helpful to the Admissions Subcommittee. Recent graduates are urged to submit Graduate Record Examination quantitative and verbal scores, and/or Miller Analogies Test scores.

The University, in the evaluation of its programs, has an interest in comparing the performance of its students on established tests, relative to national norms. Such comparisons assist in confirming the high calibre of our entering students, and help us to develop data relative to the new categories of students which our program serves. Therefore, graduate students in the MEAS program who have not previously submitted Miller Analogy Test scores will be required to do so prior to being admitted to degree candidacy, which normally takes place after 15 credits have been earned towards the degree (see below). Opportunities for taking the test will be provided by the Office of Educational Development, and the cost will be borne by the Graduate Office. The results of such tests will be used for statistical purposes only, and will not be permitted to affect the student's status in the program. Results will not be released to anyone, within or without UWGB, except at the specific written request of the student.

GRADING AND REQUIREMENTS FOR GOOD STANDING

With the exception of thesis credit, all work completed must be graded on a scale A,B,C,D,F. All grades except F are passing grades. A course can be repeated, in which case the last earned grade stands as the grade for the course. In addition, the grade PR (for progress) is acceptable when the fact that an experience is to continue beyond the end of the semester prevents the assignment of a letter grade. Such grades must be altered to a letter grade prior to graduation. The grade I is permitted for incomplete courses and is distinguished from the grade PR by denoting the failure of the student to complete course requirements. It must be removed by the instructor before the end of the immediately following semester. The grade P (for pass) is usual for thesis credit, which does not count towards the grade point. Students must maintain a cumulative GPA of at least 3.0 to remain in good standing. Only students in good standing can graduate. Students who fail to maintain such status can continue on probation, but may be asked to leave the program if the situation persists.

PROGRAM OF STUDY AND DIVISION OF CREDIT

The following distribution of credits will constitute a normal program of study:

Graduate Courses (005-500 series)	12-15 credits
Assigned Study (005-600 series)	9-12 credits
Thesis	6 credits

A minimum of 30 credits is required for the degree.

The Assigned Study component can be taken in several ways:

1. *Additional graduate (005-500) courses*

The 12-15 credits in formal graduate courses is a minimum, which might be exceeded if it seems beneficial to the student's program.

2. *Selected junior/senior level undergraduate courses*

With some exceptions, junior and senior level undergraduate courses can be taken for graduate credit as assigned study. The purpose of this is to permit students to augment or strengthen skills acquired as undergraduates. Such courses cannot be chosen at random, but must fit into the overall program of study developed by the student. Additional work is usually required of graduate students in an undergraduate class. Before taking such a course, the student must obtain the permission of his or her major professor and the instructor of the course. For further details, see the listing of undergraduate courses.

3. *Directed study*

Directed study is independent study in the form of reading, writing, and research undertaken with the supervision of a member of the graduate faculty. Generally speaking, this type of study should be undertaken only when no other resource is available to the student in the program, because of the burden it imposes on the faculty. Under certain stringent circumstances, undergraduate courses not approved for graduate students may be assigned as part of directed study, even including lower division courses. The stringent circumstances are as follows: (a) The undergraduate course must be undertaken as only a part of the directed study. A good guideline is one to one and one-half graduate credits for three undergraduate credits. (b) The professor supervising should meet with the student from time to time to review progress and make extra assignments. (c) The undergraduate courses are not remedial. That is to say, they are courses required for the student's graduate program but are not of a nature which the student should have undertaken as an undergraduate. For example, a student with an undergraduate major in biology may need basic economics, or a social science student may need calculus. Alternatively, a student may have completed the undergraduate degree so long ago that new areas (e.g., computer science) have become important in the interim. But a student with an undergraduate major in mathematics cannot take elementary statistics.

4. *Transfer credit*

Up to 12 semester credits of graduate work may be accepted as transfer. But such credits

must be (a) reasonably recent and (b) integrate with the rest of the student's program. This is not to be construed as a blanket approval of all previous graduate work for transfer. Evaluation of credit for transfer is primarily the responsibility of the student's graduate committee, subject to review by the Graduate Actions Subcommittee.

5. *Internships*

An internship is an experience which cannot reasonably be obtained within the University. It must be in a situation which provides a genuine training ground for the application of knowledge and understanding relevant to the student's program, be preplanned and incorporate predetermined criteria for grading. 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. The faculty supervisor is responsible for awarding a letter grade and should maintain contact with the student's progress. Pass-no credit is not possible in the graduate program.

Experience gained in permanent employment cannot be counted as an internship, except that such a person may acquire a new and temporary job role involving a genuine training situation, separate from and augmenting customary responsibilities. (A person is deemed to be in permanent employment, not eligible to be counted as an internship, if he or she is employed in the proposed internship situation for three months either before or after the proposed internship.) The amount of credit to be acquired through an internship is determined by the student's graduate committee. Credit should be determined by reference to laboratory or studio work, where three hours/week for a semester constitutes one credit.

The graduate program will not award credit for experience. An internship, however valid, if undertaken without the supervision of a member of the graduate faculty or undertaken prior to enrollment in the program cannot carry credit towards the MEAS degree.

6. *Seminars, colloquia or other experiences*

From time to time, professors or groups of professors may organize courses, semi-formal seminars, colloquia, field trips, etc., 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.

REGISTRATION AND ASSIGNED STUDY CARDS

Registration for formal graduate courses in the 005-500 series is undertaken in the usual way before or immediately after the start of the semester. Registration for assigned study ordinarily requires approval through assigned study cards, available at the Graduate Office or the Registrar's Office.

Assigned study cards detail the nature of the experience to be undertaken. If an undergraduate course is to be taken, then the number and title of the course must be entered on the card, together with the graduate number 005-650. Signatures are required from (a) the student's major professor; (b) the professor supervising the assigned study; (c) the professor teaching the course if different from (b), and (d) the chairperson of the instructor's concentration.

For directed study and internships the same set of signatures is required, with the addition of a statement of about 100-200 words describing the experience, to be filed with the Graduate Office. Directed study should receive a title and the number 005-698; an internship should receive a title and the number 005-660.

The only type of assigned study which does not require an assigned study card is that undertaken through 005-600 series courses listed as such in the UWGB *Timetable*. Thesis credit can also be registered directly using numbers in the 005-600 to 005-609 series, depending on the area in which research is being undertaken. For details, consult the UWGB *Timetable*.

The Graduate Thesis

The graduate thesis carries a maximum of six credits. It must culminate in a permanent record of scholarly or creative activity, directed towards environmental problem solving, and once approved becomes the property of the University. In the case of written records of research, musical scores, scripts, or literary work, two bound copies are to be deposited with the UWGB Library. In the case of art works, the originals are to be deposited with the Curator of Art.

The degree will only be awarded after the thesis has been orally defended before the student's graduate committee, and with their approval. Such an oral defense is a public occasion, at which the major professor acts as chairperson. Approval is required only from the graduate committee, the members of which have an absolute right to question the candidate. Others in attendance can address questions only with permission of the chairperson, but such permission should not be capriciously withheld.

Progress Towards the Degree

1. *The Graduate Committee*

Each student must obtain a major professor upon being admitted to the program. The student may make such an arrangement personally with a member of the graduate faculty, or may receive the assistance of the Graduate Office. Until a major professor has been found, the student is not officially admitted. That is to say that the Admissions Subcommittee rules on the admissibility of students, but the degree program depends on a major professor being found.

In association with the major professor, the student should move at once to complete a graduate committee consisting of at least two members of the graduate faculty in addition to the major professor. At least one of the members must be from outside the student's area of disciplinary emphasis. An additional committee member should be appointed from outside the University community. Further members may be recruited at the discretion of student and major professor. The committee is responsible for supervising the student's degree program, and three general criteria should govern its work:

- a. The program of study should ensure that the full context of the problem area is explored, and that the appropriate resources of all relevant disciplines are brought to bear;
- b. The student should demonstrate to the committee competence in the disciplinary or professional skills needed to engage in analytical work, and in the posing of solutions in his or her chosen problem area;
- c. The thesis project should deal with a problem of the biophysical, social, or cultural environments. It should not be narrowly construed within the framework of a conventional discipline, but rather it should be a problem in which the student confronts the connectedness of things, as seen in a world where values matter.

Changes in the composition of the graduate committee are permitted, including changes of the major professor. Normally, agreement is required from both the retiring member and the new member, and should be approved by the Director of Graduate Studies.

2. *The Program of Study*

All students must submit to the Graduate Office a completed program of study form, signed by all members of their graduate committees, for approval by the Graduate Actions Subcommittee. Blank forms can be obtained from the Graduate Office. Programs of study should be submitted as soon as possible, but

in all circumstances must be submitted on or before the completion of 15 credits, including transfer credits. If this is not done, the Graduate Actions Subcommittee will require completion of 15 credits in addition to those indicated as completed on the program of study form, which will lead to the student graduating with more than the minimum of 30 credits.

The primary responsibility for ensuring that each student program conforms to the spirit and regulations of the Master of Environmental Arts and Sciences program rests with the student's graduate committee. Programs will not be rejected capriciously by the Graduate Actions Subcommittee. Nevertheless, the subcommittee reserves the right to reject programs, or suggest amendments, when in its judgment the program of study fails to conform to the goals of the MEAS degree. Subsequent to such rejection, a hearing may be requested at which both the student and major professor must appear. Ultimately, appeal may be made to the full Graduate Faculty Council, and in such case the decision of the council is final. Additions and deletions may be made to a program of study form after adoption. Such changes should be reported to the Graduate Office at once, and in all cases *must* be reported and approved prior to the final examination. The Graduate Actions Subcommittee reserves the right to alter its previous decision on a program of study whenever changes are made in it.

3. Preliminary Examination

Following approval of the program of study, the student may request permission to schedule a preliminary examination based on completed situation and role statements, which are described below. Such a request may be made at any time after the completion of 15 credits on form GR1 which can be obtained from the Graduate Office. Copies of the situation and role statements are to be circulated by the student to each member of his or her graduate committee, and one copy is to be filed with the Graduate Office. Approval of the situation and role statements must occur at a formally scheduled meeting of the student's graduate committee, and at this time the student should be examined upon the thesis goals and upon the progress to date toward those goals, including relevant course work. At the conclusion of the meeting, all committee members must sign the approval of degree candidacy form GR2, provided by the Graduate Office. The major professor is responsible for returning the completed form to the Graduate Office. Space is provided on the form for dissenting signatures, but approval by the committee is through majority vote. A dissenting signature must be accompanied by a statement of the reasons for dissent, and the Graduate Actions Subcommittee reserves

the right to withhold approval of candidacy, pending resolution of such differences.

The student is not regarded as a degree candidate until this step has been completed. Advancement to degree candidacy is an important step, and should be so recognized by student and graduate committee. It denotes acceptance of the thesis project as a worthy contribution to the University, and of the student as a probable graduate of the program.

4. The Situation and Role Statements

UWGB has espoused the concept of education as a preparation for problem solving in the greater society of which the University is but a part. The specific problem area is the environment, in all its ramifications. Implicit in the student's application for the MEAS degree program is an acceptance of an active role in the identification and solution of environmental problems, a role consonant both with a high level of scholastic attainment and a commitment to environmental problem solving. The situation and role statements demonstrate this commitment, and form the basis for advancement to degree candidacy.

The Situation Statement

The purpose of this statement is to require the student to describe the chosen thesis problem in its social context and with respect to existing scholarship. It should include at least the following:

- a. A statement of the problem to be investigated, defining its nature and the reason for concern;
- b. A discussion of present interpretations of the problem's nature, identifying main currents of existing scholarship in the problem area;
- c. A discussion of the impact of the problem in society with some consideration of social institutions, actions or attitudes presently operative in the problem area.

The Role Statement

This should state the student's perception of his or her function and goals in investigating and seeking solutions to the problem. It should include at least the following:

- a. An assessment of various methods of inquiry and potential solutions;
- b. A statement of the method of inquiry and solution orientation chosen by the student for the thesis project, with a discussion justifying the choices made;

c. A statement of the student's qualifications for undertaking the proposed inquiry and of the student's personal and professional goals in the project;

d. A discussion of the relationship of the investigation to the functions of the University, to relevant social organizations, and to the needs of society.

Both of these statements should together total 10-15 pages in length, and include a bibliography. The above outline is intended as a guide, not to be followed slavishly, paragraph by paragraph. It is recognized that different categories of problems will lend themselves to different rationalizations in terms of situation and role statements. The discovery and development of such rationalizations is an integral part of the exercise.

5. The Final Examination

Following completion of all course requirements in the program of study, a student who has been admitted to degree candidacy may request permission to hold his or her thesis examination. Such a request must be made on the prescribed form, GR3, obtainable in the Graduate Office, and must be submitted at least two weeks prior to the date on which the examination will be held. The Graduate Office will then check that the student has completed the course work from the program of study with a cumulative grade point average of at least 3.0, and forward an approval of final examination form GR4 to the major professor. Notice of the location and subject of the final oral examination will then be posted in the UWGB Log. The student must be enrolled at UWGB during the semester, interim, or summer session during which the examination is held. The student is responsible for seeing that each member of his or her committee receives a copy of the thesis at least one week in advance of the examination.

The final examination is an open event. It must be attended by all members of the student's graduate committee, and chaired by the student's major professor. The major professor is to ensure that all committee members are given the opportunity to question the student. Others present should be given permission to question the student and will be recognized at the discretion of the chair. The primary purpose of the final examination is the oral defense of the thesis, and the committee is to be convinced that the student has adequately understood the problem as outlined in the situation and role statements, and seriously attempted a solution. In the event that the thesis is a creative work or activity, or some similar non-inquiry based product, the goals the student has set for the work should be probed, and the adequacy with which these goals have been met evaluated.

All members of the graduate committee must sign the approval of final examination form. Majority decision will rule, but space is provided for dissenting signatures, which must be accompanied by a written statement of the reasons for dissent. In the event of disagreement, the Graduate Actions Subcommittee will arbitrate and attempt to resolve differences, without prejudice to the rule of the majority. Upon satisfactory conclusion of the final examination, the Director of Graduate Studies will sign the form, the Registrar will prepare a graduate summary and the student will be permitted to graduate upon depositing the thesis with the University.

6. The Thesis

The graduate thesis represents the culmination of the program of study and must be prepared with care. In the case of written materials two bound copies of the thesis must be delivered to the Graduate Office for the UWGB Library. Graduation cannot occur until this has been done. The thesis must include at the front a title page with the following format:

TITLE
BY
AUTHOR

A Dissertation Submitted to the
Graduate Faculty of the University
of Wisconsin-Green Bay in Partial
Fulfillment of the Requirements for
the Degree of
MASTER OF ENVIRONMENTAL ARTS
AND SCIENCES DEGREE

Approved:

Major Professor

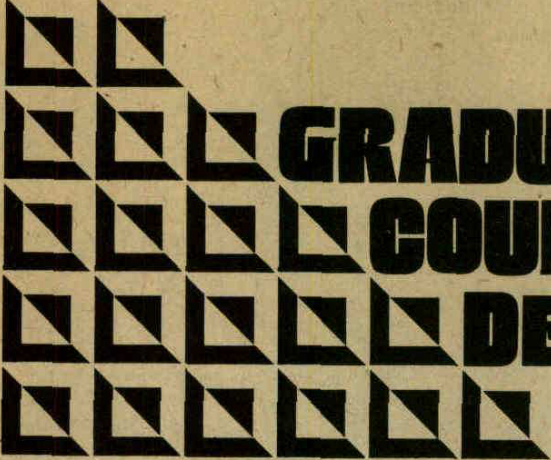
Director of Graduate Studies

Signatures are required only on those copies destined for the Library.

Art works (originals) are to be similarly deposited with the Curator of Art. If in doubt about the repository for the thesis, consult the Director of Graduate Studies.

DEADLINES FOR SUBMISSION

UWGB holds two commencements each year, at the end of the fall and spring semesters. For graduation in the fall, the signed approval of final examination form GR4 must be returned to the Graduate Office on or before November 15. For spring, the deadline is April 15. Graduation will in no circumstances be permitted unless the thesis is deposited in the Graduate Office prior to the graduation.



GRADUATE COURSE DESCRIPTIONS

The following course descriptions are of graduate courses approved by the Graduate Faculty Council. Courses carrying numbers in the 005-500 series can be utilized for the 12-15 credits required in the core curriculum or for assigned study. Courses in the 005-600 series are available only for assigned study.

005-511 PERCEPTION: MODELS OF REALITY 3 cr. A careful study of selected different perceptions of reality. Writers, painters, composers, psychologists, scientists, social scientists, and all other creators have endeavored to impose different, and usually conflicting, models upon the world they have seen. Essential to significant understanding of the work in any area is an awareness of those different structures and a careful understanding of the effects of the assumptions implicit in the acceptance of a model. Significant assumed models not only provide means by which people obtain a degree of "perception" into their worlds; they can often impose a particular set of blinders which may actually be more restrictive than incisive. If a particular model ceases to be useful in helping people understand and deal with important parts of the world in which they live, then the major approaches by which they view their world must be questioned. A careful evaluation of the entire idea of progress as it applies to intellectual areas selected for study therefore is extremely important. Of major concern is a thorough understanding of the problems inherent in model acceptance.

005-512 FOUNDATIONS OF KNOWLEDGE IN THE CULTURAL AND NATURAL SCIENCES 3 cr.

Since the turn of this century problems related to the philosophical foundations of the cultural and natural sciences have been widely discussed. It was realized by many thinkers, even ones as diverse as Dilthey, Whitehead, and Russell, that for the advancement of these problems specific concepts were required which related to the systematic in the sense of developing a critical examination of claims to valid knowledge by the cultural and natural sciences. Here similarities, differences, possible transformation formulas of logics, patterns of explanation and description, the nature of problems and objectivity, the roles of imagination and perception, the goals and ideals of knowledge, various assumptions about the nature of facts and symbols are studied in their bearing on claims to valid knowledge. To define the parameters of the systematic approach and to provide a setting for critical examination, a common set of phenomena is developed in terms of both cultural and natural sciences. These phenomena are those of laughing and crying, and serve not only to integrate the discussion of knowledge-claims but also to test them. The course draws from the works of philosophers, biologists, physicists, historians, logicians, philosophical anthropologists, all of whom purport to develop multidisciplinary approaches. P: 6 credits in philosophy and 1 or more credits in natural sciences.

005-514 AESTHETIC AND PERCEPTUAL AWARENESS
3 cr.

Although there is emphasis upon music, various approaches to the nature of art, artistic creativity, and the aesthetic experience are investigated. The particular social and aesthetic problems posed by contemporary and avant garde movements also are considered. The course is suitable not only for advanced students in music, but also for those with a critical and philosophic interest in the arts.

005-517 EXPERIMENTAL WORKSHOP IN POPULAR
COMMUNICATION ARTS 3 cr.

In our era, significant human communication comes by way of all the arts and media. The most penetrating impact upon individuals and communities is effected through interpretation and self-interpretation of life in the intellectual and cultural, rather than only the biological, sense. One aspect or dimension of these problems, namely those related to the nature and validation of knowledge in the cultural and natural sciences, is examined through a comparative and analytic study of the similarities and differences in methods, knowledge-claims, and validating grounds of knowledge produced by the cultural and natural sciences.

In part because of the comparative nature of the study, avenues of research on contemporary problems of knowledge are opened; and in part because a wide variety of material bearing on these problems is examined within an integral framework, orientations for research can be readily determined with respect to the interests of each student. The analytic nature of the course, the focus on methods, claims, and validations, enables students to identify problems and to explore ways of resolving them; the various solutions are tested not only throughout the course with respect to various problems, but also in the latter part of the course, where a special framework is developed to test solutions in terms of a variety of different fields of the cultural and natural sciences, in Plessner's classic study of laughing and crying as basic forms of behavior, and their correlative environmental structures. Because knowledge-claims are generally related to value-claims, some implications for values related to various environments are examined.

Two complementary approaches are used. The first is historical, in the sense of singling out the roots of the recent controversies leading to the divergences between the cultural and natural sciences with respect to method and content. Emphasis here is on the "historical school" (e.g., Rickert) and "philosophy of life" (e.g., Dilthey, Bergson). The second approach is through television, film, radio, and the theater. This course forms a curricular base for the application of these arts and media today. It is

designed to develop an experimental workshop for special projects in television, radio, film, and theater. Graduate students, selected advanced undergraduates, and mature and experienced people from the community train and work together with the objective of creating a nucleus of properly trained people to engage in special projects in the arts and media. Its focus, in bringing together a diversity of disciplines and student interests, is the communication, in the most vital and interesting forms conceivable in these educational/entertainment art media, of a humanistic and socially responsible point of view on issues of profound community concern.

005-518 INTRODUCTION TO MUSICOLOGY AND
RESEARCH METHODS 3 cr.

The basic areas of musicology, the problems and concerns of each area, and the standard scholarly works and research methods in each field are introduced. Principal areas include: historical musicology, theory, aesthetics, pedagogy, physiology and psychology of music, and acoustics. A substantial background in music, particularly in basic theory and history, is required.

005-519 INTRODUCTION TO ETHNOMUSICOLOGY
3 cr.

This seminar offers a broad introduction to the field of ethnomusicology, including techniques of research and an investigation of the musical styles of some of the principal world cultures: Africa, the Orient, Near East, American Indian, India, etc. Some background in music history and theory is highly desirable. Student evaluation is based on: (1) group discussion of assigned source readings in the field and (2) presentation of an in-depth research project which investigates some aspect of non-Western music.

005-520 ANALYSIS OF CONTEMPORARY FICTION
3 cr.

Contemporary British and American fiction is studied and evaluated (with excursions into translations of German, French, Spanish, Italian, Japanese and Russian fiction) designed, first of all, as a comprehensive summary for creative writing students fulfilling requirements for an M.A. degree in environmental arts. Open to other students interested in reading and criticism. Approximately 15 novels and collections of short fiction are read and discussed.

005-521 LITERARY RESEARCH AND CRITICISM 3 cr.
This course states and questions the principles of literary studies by exploring the methodology and purposes of bibliography, scholarship, and criticism. It emphasizes the student's participation in literary study and the critical values he or she forms from such a participation.

005-522 GENERAL THEORY OF VALUES 3 cr.

An advanced systematic and critical examination of the subject matter, problems, concepts, methods, and results of recent value inquiry. Special attention given to value-problems of the environment. Topics covered include: origins, traditional problems, and current status of general theory of values; methods of inquiry into values; emotion, desire, and value; genuine and spurious, private and inter-subjective, intrinsic and extrinsic value; value judgments and their verification; relations of general theory of value to other disciplines; communities, "groups in fusion," and values; "facts" and "values"; need and scarcity, labor and reification, violence and tools; environment and apocalypse.

005-523 CRITICISM AND DEVELOPMENT OF SCIENTIFIC THINKING 3 cr.

Philosophic exploration and critique of major aspects of the theory and metatheory of formal logic. Topics covered include: development of distinct syntactic and semantic expressions of linguistic and metalinguistic aspects of an abstract language; pure logical grammar, questions of cognitive access presupposed by semantics (viz. "truth"); genetic analysis of logic and its relation to the surrounding world.

005-532 METHODOLOGY, SOURCES AND PROBLEMS IN HISTORICAL RESEARCH 3 cr.

Research techniques other than complex statistical and algebraic data manipulation. Fundamentals of defining research areas and identifying the relevant records resources are emphasized. The status of records and their accessibility are discussed. Attention is paid to methodologies facilitating the matching of available data with research goals.

005-534 SCIENCE, STRUCTURE, MONEY, AND ENVIRONMENTAL DECISION-MAKING 3 cr.

The relationship of the natural and social sciences to significant changes in the environment through institutions which affect the expenditure of funds is explored. Special attention is paid to corporations, universities, and government bureaus.

The introductory section explores the theory of relationships and costs. The intermediate section emphasizes case studies and depends in part on individual and/or group research projects. Neither geographical nor chronological considerations will impose limits on the selection of topics. Problem areas which may be considered include: energy, water, landscape and recreation, air, transportation, urban development, economic growth, and others.

The third section of the course attempts to synthesize the factors and values derived from the case studies toward the end of developing a pluralistic methodology for ethical environmental decision-making.

005-535 INNOVATION AND DIFFUSION: THEORY AND PRACTICE 4 cr.

Innovations are the basis of all socio-cultural change including altered adaptations to the environment. This course examines the determinants and the nature of the process of innovation as well as the process of intra- and inter-group diffusion of novel ideas and practices. A field research project studying the diffusion of one particular innovation is required of each student.

005-536 INTERPERSONAL AND INSTITUTIONAL INTERVENTION: DIRECTED CHANGE WITH INDIVIDUALS, GROUPS, AND SOCIAL STRUCTURES 3 cr.

Individuals, groups, societies are considered to be organisms. Change is a necessary and required condition of any living organism. The rules, the sequences, the dynamics of transformation from one state to another (changes) are in some fundamental ways the same and alike for individuals, groups, and societies. There are also fundamental dissimilarities in the lawfulness of change among the three. The understanding of both the dissimilarities and similarities of change in individuals, groups, and societies is the first subject of the course.

Planned change, to be referred to as "intervention," introduced into organisms creates situations which may be congruent with, as well as antagonistic to, their functioning. The planned part, at best, may be successful; it may attain its goal. At the same time, there are unintended changes and consequences, unanticipated disturbances which very frequently accompany the best of planned changes. All planned interventions require that the purpose and the goal of the intervention be clearly stated. A theory needs to be available of which, optimally, the planned intervention is a part, or to which it can be linked. Methods of recognizing that the anticipated changes have or have not occurred must be demonstrated. Finally, methods must be available to observe the unanticipated consequences of the intervention.

Three case studies demonstrate the above discussed principles and subject areas: individual (psycho-therapy); group (group-dynamic principles and the encounter-group); society (the special legislation covering the untouchables in India and some of the consequences, intended and unintended).

005-537 COMMUNITY PSYCHOLOGY AND MENTAL HEALTH 3 cr.

The multiple uses of psychology in the areas of community mental health, consultation, crisis intervention, and mental health education. Using psychological ecological principles, an attempt is made to develop a coherent picture of the interaction of individuals and community in the creation, prevention, and

treatment of problems of living. There is an introduction to crisis and intervention skills training and mental health planning.

005-539 BEHAVIORAL RESEARCH STRATEGIES 4 cr.
An introduction to widely used research methods in the behavioral sciences. Methods covered include experimental and quasi-experimental designs, one-way designs, and two-way designs with interaction effects; selected multivariate techniques, including multiple correlation and factor analysis; instrumentation and survey research techniques, including test construction, questionnaire development, observational methods, and sampling techniques. Emphasis is placed on the appropriateness of various techniques for different kinds of research questions rather than on formal statistical development, although statistical methods are used. Students engage in design of studies, and collection and analysis of data for some of the research techniques covered. Attention is also given to research writing and critical reading of research reports in the behavioral sciences. P: An elementary statistics course.

005-540 CULTURE AND SETTLEMENT 3 cr.
The process and form of rural settlement. Stressing primarily colonization and elements of the built environment, the course also deals with perceptions, political traditions, economic percepts, and ethnic heritages as they apply to the lands. Research centers largely on North America, and it is hoped that students will do some field work in northeastern Wisconsin.

005-541 LAND USE INSTITUTIONS AND POLICY 3 cr.
The institutional arrangements which determine the control and use of land resources. Initially attention is directed to the evaluation of contemporary land use institutions in this country as well as selected other countries and to the role of these institutions in the developmental process. These institutions will be further examined from the standpoint of how they might be altered to promote a more rational developmental process at local, regional, national, and international levels. Various land use policy alternatives and strategies for implementation are explored. P: Two courses in regional analysis, economics, physical science, or the equivalent, or consent of instructor.

005-542 HUMAN POPULATION DYNAMICS AND POLICY 3 cr.
Readings, lectures, and student research focus upon the causes and consequences of human population growth and composition. The three basic mechanisms of population dynamics (birth, death, and migration) are examined from a global perspective. Case studies are used to analyze the association between population processes and such factors as food production,

economic development, community health, and social organization. Special emphasis is given to the interrelationships between governmental policy and human population dynamics. P: A course in human population studies or consent of instructor.

005-543 INTEGRATIVE ANALYSIS IN TRANSPORTATION SYSTEMS 3 cr.
Transportation, with annual expenditures approximating one-fifth of the nation's gross national product, is a vital factor in all phases of economic activity. Transportation modes are in an era of intense competition and advanced technological development. Fundamental changes are occurring in pricing concepts and techniques, and the nature of public policy for regulation is undergoing significant changes. The rapid development of highways, airports and airways, and waterways represents the largest public works effort ever undertaken in the United States. At the same time public attention is being made increasingly aware that the beneficial operation of transportation brings with it the social costs associated with pollution, congestion, and ecological interaction. Consequently, since the essence of the environmental problem is a recognition of this fact, broad social decisions of the future must be made relative to the environmental-sociological impacts of transportation in conjunction with those made relative to its regulatory-economic control, historical, and developmental aspects.

Accordingly, the course develops an integrative approach to the analysis of transportation problems in order that decisions are made both more efficiently and with a broader level of understanding. Included are the study of general economic characteristics and government regulations of rail, motor, water, air, and pipeline carriers; the management of public and private transportation; the planning and coordination required for public investment in transportation systems; mass transportation; the ecological aspects in the design and operation of transportation systems; and an intensive study of critical transportation topics of current interest.

005-544 URBAN ENVIRONMENTAL MANAGEMENT 3 cr.
(Description not available at this time.)

005-545 ECONOMIC ANALYSIS OF ENVIRONMENTAL ISSUES 3 cr.
Economics is the study of the system through which a society allocates its scarce resources to the production of a limited set of goods and services and how the elements and participants in that system interrelate and react with one another. It is the study of how choices are made--how society chooses those goods and services that represent the best use of the limited resources available to it.

Issues relating to the quality of life within our environment represent some of the most difficult and fundamental choices to be made--choices bound up in physical, chemical, biological, social, political, psychological, aesthetic, creative, economic, and still other dimensions. Economics, then, is an important tool in the study of environmental issues. It has value as an analytical device and as a means of understanding how society has chosen and will continue to choose among alternative means and ends that at times improve and at times diminish the quality of life.

Environmental economics encompasses a broad area. It can, in part, be viewed in terms of the economic quality of life--the efficiency with which scarce resources are allocated among competing demands and the equitability with which the resulting goods and services are distributed among the members of the community. A more common focus of study is the analysis of an economic system's impact on the natural environment and the inhabitants within it and an examination of the underlying causes of pollution from an economic perspective. The evaluation of policies and proposals to promote or regulate actions that affect the quality of the environment is a closely related area of inquiry. These areas, taken together, provide a broad view of economics and its relationship to people in their environment. Through an exploration of each of them, an understanding of the important economic concepts that apply to the analysis of environmental issues is developed.

It is important that the economic tools developed in this course be placed in appropriate perspective to the other dimensions that help to create a living space and that the interrelationships between these elements be drawn out for examination. This is achieved by applying the concepts and underlying theory of economics to the broad issues of our need for energy, food, and other scarce resources, to our use and abuse of air, water, and land, to the pressures that have arisen out of urbanization and the growing demands it places on transportation and recreation facilities, and to the difficult and complex choice between an expanding population and economic system and the development of an environment capable of sustaining life at an acceptable level of quality.

005-550 ENVIRONMENTAL ADMINISTRATION 3 cr. Introduction to modern techniques and concepts needed for decision-making in largescale corporate and institutional organizations. Included within the context of systems analysis is a description of appropriate mathematical, economical, and financial ideas necessary for wise decision-making. Applications to a wide range of environmental and business oriented problems in both the private and public

sectors are presented. A selected case study is analyzed to demonstrate ongoing practices in decision-making.

005-551 BASES OF COMMUNITY HEALTH 2 cr. An overview of community health is presented, including concepts of health and disease. Indices of health status are discussed, as well as patterns of morbidity and mortality. The student is introduced to the process of perception, identification, and delineation of health problems, along with strategies for intervention. Such strategies include provision of a safe water supply, immunization, proper nutrition, appropriate laws and policies. Significant problem areas are analyzed including problems of the environment, population, food, and communicable disease. Special emphasis is placed on the concept of humans and their environment and how these interrelationships affect community health. The role of public health in the diagnosis and treatment of disease is explored. The American health care system is discussed, along with basic principles of health care organization.

005-558 COASTAL ZONE PROCESSES 3 cr. An introduction to the coastal environment as a dynamic system subject to continuous modification and change induced by natural physical forces, the effects of artificial structures, and coastal land use settlement patterns. P: Earth Science 202 recommended.

005-559 COASTAL ZONE MANAGEMENT 3 cr. The coastal zone as a distinct and limited resource provides, within our own geographical setting, a unique opportunity to explore the complex interaction of socio-economic and biophysical factors associated with the growing problem of scarce natural resources. Within this context the Bay of Green Bay and Lake Michigan will serve as focal study points. The course provides a lecture format but also requires participation by students in individual or group projects centered on the regional coastal zone. A broader geographical perspective of coastal environments is developed through lectures and the use of material (films and readings) acquired from other coastal states. Basic ecological concepts necessary for understanding the biophysical limitations of the coastal zone are presented; demands for resource development in coastal regions and attitudinal differences toward meeting these demands are considered; and legal and institutional frameworks are explored within the context of developing processes in the management of the coastal zone.

005-560 TOPICS IN GLOBAL ECOLOGY 1 cr. A seminar in which a variety of speakers address issues of concern in the areas of ecosystem productivity, community health, and environmental quality. Speakers are drawn from the UWGB staff and from professionals

outside the University. Students in global ecology are expected to take this seminar for credit at least once. The seminar is open to all faculty and students; however, students registered for credit will contribute one seminar during the semester.

005-561 GLOBAL ENVIRONMENTAL MONITORING 2 cr.
The gross aspects of human food supply, certain diseases, natural disaster, and environmental quality are best observed on a global basis. The course seeks to provide knowledge of scientific monitoring systems, national and international institutions including both governmental and those from the private sector, analytical techniques of evaluation and potential use of global monitoring data in providing advanced warning of issues and problems that require resolution of problems affecting people. NOTE: The general outline of the course is developed around the publication "Global Environmental Monitoring"--a report submitted to the United Nations Conference on the Human Environment, Stockholm, 1972.

005-564 SURVEY OF SYSTEMS ANALYSIS 3 cr.
Most environmental problems are very complex. Analyses which focus on a narrow aspect or one component of a problem are frequently misleading. It is necessary to imbed the problem in a system which is large enough so that significant interrelationships can be assessed. In the last 20 or 30 years a number of quantitative techniques have been developed under the heading of systems analysis which provide tools for conducting such analyses.

Systems analysis techniques are stressed, with these main topics: problem formulation, construction of mathematical models, definition of a criterion function or a measure of merit, derivation of optimal solutions, testing of solutions and sensitivity of parameters, and implementation of solutions. Emphasis is placed upon applications of systems analysis; theoretical background is discussed, not for its own sake, but as a means of deepening understanding of practical problems; case studies of applications of systems analysis are studied and computer tools are introduced. P: An undergraduate course in calculus and an introduction to matrix algebra.

005-567 STATISTICAL DESIGN AND ANALYSIS OF EXPERIMENTS 4 cr.
The design and analysis of scientific experiments are treated according to the established procedures of statistics, and is designed to furnish the beginning graduate student with the basic tools necessary to conduct independent research in environmental problem solving according to these procedures. Design principles of randomization and sampling are discussed, and the utility and analysis of completely random designs, hierarchical designs, randomized complete blocks, factorial

experiments (including single and fractional replicates, confounded designs, and split-plots) and Latin squares, are described and illustrated with examples analyzed in the laboratory. Linear model theory and least squares are presented as the basis for such analyses, and techniques for comparison of treatment means explored. Subsequently, non-parametric techniques such as contingency tables up to three-way tables are described and illustrated, and methods for the non-parametric analysis of various types of data layout up to two-way classifications are introduced. A lecture-laboratory format is used, with exercises and examples chosen from fields of environmental concern where practicable, and evaluation is by testing and grading of laboratory exercises. P: An elementary course in statistics.

005-568 MULTIVARIATE STATISTICAL ANALYSIS 4 cr.

Environmental problem solving frequently precludes the conduct of scientific experiments, requiring rather the analysis of field data. Such data can frequently be described in terms of a matrix of observations on a set of variables X_i . The statistical treatment of such data is the province of multivariate statistical analysis. This course covers the techniques for such analysis, and introduces appropriate computer tools. Beginning with a review of simple regression and correlation, the student proceeds to multiple regression and curvilinear regression, culminating in the use of various techniques of stepwise regression for the selection of explanatory variables. Subsequently, techniques for factor analysis and classification analysis are introduced for data matrices where dependent and independent variables are not separately identifiable. The accent is upon techniques of analysis and especially upon interpretation, dealing carefully with the errors of misinterpretation which are so prevalent in such data situations. Theoretical background, including least squares and matrix manipulation, is discussed, but only where necessary to illustrate and deepen understanding of the practical problems of data analysis. A lecture-laboratory format is used, with extensive use made of the computer. Evaluation is by testing and grading of laboratory exercises. P: An elementary course in statistics.

005-571 PHYSIOLOGICAL AND PSYCHOLOGICAL EFFECTS OF ENVIRONMENTAL STRESSES 3 cr.
The effects of physical and psychological stresses on humans are studied. Topics include the effects of ingested substances such as lead, mercury, nitrates and the effects of noise, vibration, temperature, crowding.

005-573 SOIL-PLANT RELATIONSHIPS 3 cr.
Growth of plants, whether or not they are components of the human food chain, depend ultimately on soil substrates to provide essential nutrients and water. This course examines in detail the physical, chemical, and biological processes by which nutrients and water are made available in the soil, transported to plants, taken up by plants, and utilized within plants. Influence of physical and chemical properties of soils and rooting characteristics of plants are discussed. Topics include soil water, plant water relations, soil aeration, soil acidity, soil salinity, plant macronutrients, plant micronutrients, exchangeable bases in the soil, and mechanisms of nutrient uptake in plants. P: One course in biology of organisms or botany, one course in ecology and one course in soil science.

005-574

005-575 ECOLOGY OF FOOD PRODUCTION I, II
3 cr. each

This two-semester sequence integrates subject matter in the areas of food production resources and agricultural ecology. Topics to be considered include global soil resources in terms of productivity, energy and resource requirements for crop production, structure and function of the managed agricultural ecosystem, genetic improvement of crops and livestock to meet food and fiber requirements, pest and disease resistance of crops and products. The relationships among human population factors; nutritional requirements and food preference; and storage distribution and processing of agricultural products are studied. Interactions among the dynamic factors affecting food production ecology will be investigated with emphasis on optimizing production. P: One course in ecology.

005-576 BIOCLIMATOLOGY 3 cr.

The influence of the atmosphere on plants and animals including humans, the adaptations of organisms to the atmosphere, and the effects of organisms on the atmosphere. Emphasis is placed on subjects related to productivity and the well-being of organisms. P: One undergraduate course in ecology.

005-577 HYDROBIOLOGY 3 cr.

Fundamental features of aquatic organisms are discussed with emphasis on plankton, benthos, and fish communities. Trophic-dynamics in aquatic ecosystems are examined to demonstrate interrelationships based on energy flow and nutrient transfer processes. Structural-functional characteristics of undisturbed communities are analyzed to provide a base for evaluation of the effects of water quality deterioration on aquatic ecosystems. P: College level ecology or limnology.

005-578 EPIDEMIOLOGY 3 cr.

Lectures and case histories are used to study the survival and transmission of organisms causing disease. Both plant and animal diseases are considered. Topics include: terminology, communicability of diseases, plant and animal reservoirs of disease organisms, principles of disease control, types of disease vectors, host mechanisms of disease resistance, and routes of transmission and survival factors for disease organisms. The first third of the course consists of formal presentations by the instructors and the rest is devoted to student library research, exercises, and presentations.

005-581 ENVIRONMENTAL EDUCATION PROCESSES
AND MATERIALS 3 cr.

Students are involved in experiences designed to more adequately prepare them to: (1) communicate environmental concepts; (2) develop an increased awareness of their local environment; and (3) initiate positive environmental action programs. Environmental education processes and materials that are appropriate at different age levels and relate to different areas of interest are examined. Class activities include an examination of several philosophical approaches to environmental education, utilizing local environmental resources in implementing environmental education on a day-to-day basis, and evaluating different kinds of environmental education materials. Students participate in value clarification exercises and acclimatization activities. Field trips are taken to local natural areas and to areas where people are having a particularly important impact on the environment. Resource people who are involved in significant environmental education efforts are utilized. Activities and evaluation criteria will be adapted to the needs of students with varied backgrounds, experiences, and professional interests in environmental education.

005-584 DEVELOPMENT OF CONTEMPORARY PROBLEM-
FOCUSED CURRICULA 3 cr.

The opportunity to develop problem-focused curricula is provided. Development efforts can result in new courses or the redesign of portions of existing courses. One of the major problems facing educators is that of finding the time and resources needed to develop new curricula. Consequently, a major portion of the course operates in a workshop format. Topics for study include the nature of problem-focused learning, its purpose and associated problems, existing problem-focused curriculum efforts, and the role of contemporary and future orientation in problem-focused learning. A number of important problem areas are introduced by invited speakers. The State Environmental Education Plan is examined

as well as a suggested curriculum design format, useful in problem-focused curriculum development. This class is appropriate for potential as well as practicing educators and is designed to include all subject areas, including the arts. All participants must complete the development of a problem-centered learning program appropriate to their teaching responsibility.

005-586 DYNAMICS OF CURRICULUM DEVELOPMENT AND CHANGE IN THE SCHOOLS 3 cr.

The curriculum of a public or alternative school refers to that which is learned and how it is learned. Part of a curriculum is the formal scope and sequence plans for courses. Another part is the informal social traffic among students, teachers, administrators, and others interested in education.

This course is designed for individuals who need an understanding of the power structure and the processes of curriculum development and change in elementary, secondary, nursing, or technical schools. It is appropriate for those who are preparing for administrative or supervisory roles, teachers, and also citizens and parents who wish to learn about the inner workings of the school system.

Schools have been conceived as both agents of socialization for citizenship and for social reform. The course emphasizes consideration of the school's role in changing attitudes toward the environment. Beyond this, each student delves into a curriculum topic of individual concern such as sexism in textbooks, education of minority children, individualized instruction, confluent education, career education, open curriculum, accountability, and lessons to nurture creativity in students.

005-680 INDIVIDUALIZING INSTRUCTION 2-3 cr.
New and innovative learning programs in grades K-12 which are designed to individualize instruction. Development of specific performance objectives, diagnostic procedures, staff organizations, student monitoring systems, and choice-elective instructional programs. Students may participate in a task force, student-initiated project for the third credit.

005-681 READING AND STUDY SKILLS IN THE SECONDARY SCHOOL 2-3 cr.

Developmental reading, comprehension and retention, vocabulary development, motivation, rate and flexibility. Consideration of diverse reading abilities and interests, and development of appropriate study and learning techniques for reading in contact areas. Students may take a field tutoring experience for the third credit.

005-682 READING DISABILITY: READING PROBLEMS AND THE PROBLEM READER 3 cr.

Important causes of reading disability and appropriate corrective strategies and materials are studied. Psychological and sociological considerations affecting disabled readers are examined. The student learns to administer a number of related diagnostic instruments, interpret their results and prescribe instructional procedures. Meets a requirement for classroom teachers. Suitable for both elementary and secondary school teachers. P: 302-307, or 302-318, or 005-681.

005-689 SUPERVISION OF STUDENT TEACHERS AND INTERN TEACHERS 3 cr.

Understanding, skills, and specific procedures essential for supervising the teaching-learning process are developed, with special application to the role of the cooperating teacher in student teaching and internship programs. P: Open to experienced teachers only. Fee may be waived if teacher is currently assigned student teachers or intern teachers from the University of Wisconsin.

UNDERGRADUATE COURSES FOR GRADUATE CREDIT

Under certain circumstances, upper division undergraduate courses can be taken to fulfill the assigned study portion of a graduate student program. These circumstances are:

1. The course cannot be remedial. Interdisciplinarity requires an acquaintance with many areas of study rather than only one, but students should not include as part of a master's program a course which, in the judgment of their committee, should have formed part of their undergraduate program.
2. The course must form part of a coherent program directed toward the student's chosen focus of study.
3. Extra work is to be assigned or a superior performance demanded for an equivalent grade, when compared with undergraduates enrolled in the same course.
4. Prerequisites for the course must be fulfilled, and these may not necessarily carry graduate credit. Entry to undergraduate courses is not guaranteed, but depends on informed consent of the responsible faculty members.

To enroll in an undergraduate course, the student must complete an assigned study card, obtainable from the Graduate Office. This card must be signed by the student, his or her major professor, and the instructor of the course. These signatories can withhold consent from the student. It must also be signed by the chairperson of the instructor's concentration.

A list of available undergraduate courses for the 1975-76 academic year follows. For course descriptions, consult the undergraduate catalog or the *Timetable*. In addition to the courses listed here, a number of 483X courses --experimental courses being taught for the first time--also are available for graduate students.

Anthropology

- 156-304 Family, Kin and Community
- 156-405 Anthropology of a Selected Institution

Biology

- 204-302 Principles of Microbiology
- 204-303 Genetics
- 204-306 Ornithology
- 204-320 Field Botany
- 204-340 Comparative Anatomy of Vertebrates
- 204-344 Vertebrate Zoology
- 204-345 Animal Behavior
- 204-347 Developmental Biology
- 204-350 Field Zoology
- 204-355 Principles of Entomology
- 204-402 Advanced Microbiology

Chemistry-Physics

- 226-300 Bio-organic Chemistry
- 226-301 Bio-organic Chemistry Laboratory
- 226-302 Organic Chemistry I
- 226-303 Organic Chemistry II
- 226-304 Organic Chemistry Laboratory I
- 226-305 Organic Chemistry Laboratory II
- 226-311 Analytic Chemistry

226-320 Thermodynamics and Kinetics
 226-321 Structure of Matter
 226-322 Thermodynamics and Kinetics
 Laboratory
 226-323 Structure of Matter Laboratory
 226-410 Inorganic Chemistry
 226-413 Instrumental Analysis
 226-417 Nuclear Physics and Radiochemistry
 226-418 Nuclear Physics and Radiochemistry
 Laboratory

Communication-Action

242-301 Communication-Action Projects in the
 Community: Oneida Language Project
 242-310 Criticism of the Performing Arts
 242-320 Communications: Extensions of
 Consciousness
 242-323 Language and Human Conflict
 242-324 Psycholinguistics
 242-328 Cultural Cross Communication I:
 Chinese and Japanese Art and Culture
 242-329 Cultural Cross Communication II:
 Jazz History
 242-329 Cultural Cross Communication II:
 American Show Music
 242-351 Literature and Styles in Music III
 242-352 Literature and Styles in Music IV
 242-370 Modern American Culture
 242-372 The Phenomenon of Style I: Tradi-
 tional Styles
 242-373 The Phenomenon of Style II: Avant-
 garde Styles
 242-401 Designing the Environment I
 242-402 Designing the Environment II
 242-405 Urban Technological Design

Communication Processes

246-303 Specialized Writing
 246-305 Elements of Electronic Media
 246-322 Modern Linguistics
 246-325 Applied Linguistics
 246-343 Creative Photography II
 246-430 Mass Media and Society

Earth Science

296-302 Geological Evolution of the Earth
 296-310 Paleobiology
 296-340 Minerals, Rocks, and Mineral Resources
 296-350 Field Geology
 296-402 Introduction to Stratigraphy and
 Sedimentology

Economics

298-303 Money, Income, and Prices
 298-305 Natural Resources Economic Policy
 298-306 Public Finance and Fiscal Policy
 298-308 Business Cycles
 298-401 Regional Economic Analysis
 298-403 International Trade
 298-406 Comparative Economic Systems and
 Institutions

Education*

302-321 Teaching and Leadership Strategies
 for Nurses
 302-407 Developing Environmental Education
 Materials for the Schools

Geography

416-325 Regional Climatology
 416-350 Maps and Air Photos
 416-371 Geography of U.S. and Canada
 416-372 Analysis of Great Lakes Region of
 North America

Growth and Development

426-331 Infancy and Early Childhood
 426-332 Middle Childhood and Adolescence
 426-333 Observation and Interpretation of
 Child Behavior
 426-334 Play and Creative Activities in
 Childhood
 426-336 Sex Role Development in Contemporary
 Society
 426-337 Developmental Tests and Measurement
 426-429 Theories of Personality Development
 426-431 Cognitive Development and Facilita-
 tion in Childhood and Adolescence
 426-432 Cultural Impacts on Human Develop-
 ment
 426-433 Adulthood and Later Maturity
 426-435 Developmental Problems and Deviations
 426-436 Developmental Guidance with Children
 and Adolescents
 426-437 Developmental Guidance with Adults
 and Aged
 426-438 Lifetime Needs and Environmental
 Planning
 426-439 The Elderly: Social and Behavioral
 Implications for Health Care
 426-441 Guidance and Methods for Preschool
 and Kindergarten Groups I
 426-442 Guidance and Methods for Preschool
 and Kindergarten Groups II
 426-444 Practicum in Working with Preschool
 and Kindergarten Groups
 426-445 Community Projects in Development
 Guidance

History

448-302 History of American Thought and
 Culture I
 448-303 History of American Thought and
 Culture II
 448-309 History of Modern Science
 448-314 The Transformation and Collapse of
 Modern Russia
 448-315 The Soviet Union from 1917 to the
 Present

*See also 005-600 level courses under graduate
 courses.

- 448-322 Economic History of the U.S. from 1876 to the Present
 448-324 History of American Foreign Relations
 448-343 America's Urban Past
 448-357 History of Africa II
 448-363 Medieval History from 337 to 1100 A.D.
 448-364 Medieval History from 1100 to 1453 A.D.
 448-367 World Wars I and II
 448-403 Political and Social History of Modern America
 448-404 Political and Social History of Modern Europe
 448-405 History of Technological Change

Human Adaptability

- 478-402 Human Physiology
 478-403 Human Physiology Laboratory
 478-413 Neurophysiology
 478-414 Neurophysiology Laboratory
 478-420 Human Growth, Development, and Senescence

Humanism and Cultural Change

- 485-302 Human Identity
 485-303 ACTION Training Intensive
 485-307 Other Cultures Through Humanistic Studies I (French)
 485-307 Other Cultures Through Humanistic Studies I (Spanish)
 485-308 Other Cultures Through Humanistic Studies II (French)
 485-308 Other Cultures Through Humanistic Studies II (Spanish)
 485-311 Visions of Man: The Tragic View
 485-312 Visions of Man: The Comic View
 485-325 Western Christianity: Belief and Institutional Structure from the New Testament to the Reformation
 485-369 Women: Crisis in Society
 485-374 Wisconsin's Indians: Historical and Cultural Perspectives
 485-376 Human Contrast
 485-390 War, Violence, Revolution, and Society
 485-474 The Native American: Emergence of Pan-Indian Culture

Leisure Sciences

- 532-302 Philosophy and Sociology of Leisure
 532-404 Public Parks and Recreation Systems
 532-410 Outdoor Recreation and Natural Environment

English Literature and Language

- 552-302 Fiction Writing Workshop
 552-303 Poetry Writing Workshop
 552-310 Major English Drama
 552-313 Major English Prose Fiction
 552-330 Major American Drama
 552-331 Major American Prose Fiction
 552-332 Major American Poetry
 552-334 Literary Isms: Romanticism and Revolution

- 552-334 Literary Isms: The Literature of American Romance
 552-334 or 554-334 Literary Isms: From Romanticism to Symbolism in France
 552-335 Literary Eras: The Literature of the Old Testament
 552-335 or 556-335 Literary Eras: Weimar Culture from Caligari to Hitler
 552-351 or 558-351 Major Foreign Prose Fiction: Narrative Arts in Latin America
 552-351 or 556-351 Major Foreign Prose Fiction: Hesse and the Romantic Tradition
 552-431 Shakespeare I
 552-432 Shakespeare II
 552-438 or 558-438 Major Spanish Writer: Cervantes, A Man from La Mancha
 552-493 Seminar in English Literature: Shelley and Keats
 552-494 Seminar in American Literature: Fitzgerald and Hemingway

Managerial Systems

- 575-305 Business Law I
 575-306 Business Law II
 575-312 Cost Accounting
 575-313 Financial Accounting Theory and Practice I
 575-314 Financial Accounting Theory and Practice II
 575-316 Government and Institutional Accounting
 575-322 Principles of Distribution
 575-325 Principles of Public Relations
 575-326 Principles of Purchasing
 575-331 Management of Transportation Systems and Their Interaction with the Environment
 575-333 Analysis of Environmental Factors in Transportation Systems Planning
 575-334 Logistic System Management
 575-343 Corporation Finance
 575-345 Principles of Risk Management
 575-362 Principles of Personnel Management
 575-382 Principles of Management
 575-384 Industrial Management
 575-386 Small Business Management in the Northern Great Lakes Region
 575-410 Income Tax Theory and Practice
 575-411 Financial Information Systems
 575-412 Auditing Standards and Procedures
 575-422 Principles of Retailing
 575-424 Marketing Research
 575-425 Promotional Strategy
 575-426 Marketing Management
 575-442 Problems of Investment
 575-443 Financial Planning and Control
 575-463 Labor Legislation and Administration

Mathematics

- 600-309 Systems of Differential Equations
 600-321 Linear Algebra I
 600-350 Numerical Analysis

- 600-361 Theoretical Statistics
 600-385 College Geometry
 600-410 Complex Analysis

Modernization Processes

- 662-320 American Constitutional Law and Constitutional Development
 662-333 Modernization of a Selected Area: American Southwest
 662-333 Modernization of a Selected Area: China
 662-342 Women: Myth and Identity
 662-360 Concepts of Modernization
 662-361 Processes of Modernization
 662-365 Human Resources and Economic Growth in Poor Countries
 662-370 Strategies of Modernization
 662-371 Motivation in Modernization
 662-381 Courses and Consequences of Poverty
 662-385 Dynamics of Revolutionary Change
 662-390 Racism and Social Change
 662-400 Environmental Law
 662-410 Alternative Social Environments from Speculative Fiction
 662-475 Value Issues in Science and Society

Nutritional Sciences

- 694-302 Nutrition and Culture
 694-328 Principles of Nutritional Biochemistry
 694-329 Nutritional Biochemistry Laboratory
 694-333 Nutrition and Disease
 694-421 Community Nutrition I
 694-422 Community Nutrition II
 694-485 Advanced Human Nutrition I
 694-486 Advanced Human Nutrition II

Performing Arts: Music

- 705-302 Piano for Elementary Teachers
 705-316 Instrumental Arranging
 705-331 Choral Conducting
 705-332 Instrumental Conducting
 705-341 Woodwind Techniques
 705-342 Brass Techniques
 705-345 Percussion Techniques
 705-346 Keyboard Accompanying I
 705-347 Keyboard Accompanying II
 705-351 Literature and Styles in Music III
 705-352 Literature and Styles in Music IV
 705-411 Composition I
 705-412 Composition II
 705-417 Arranging for Jazz Ensembles

Performing Arts: Theater

- 709-310 Theater History
 709-321 Scene Design
 709-322 Costume Design
 709-323 Stage Lighting and Sound Design
 709-335 Theater Performance in the Community
 709-337 Dance and Movement V
 709-338 Dance and Movement VI
 709-341 Shakespeare and Poetic Drama
 709-351 Introduction to Stage Directing I
 709-352 Introduction to Stage Directing II

- 709-361 Introduction to Playwriting
 709-405 Theater Management
 709-437 Dance and Movement VII
 709-438 Dance and Movement VIII

Philosophy

- 736-304 History of American Philosophy
 736-313 History of Medieval and Renaissance Philosophy
 736-314 History of Modern Philosophy
 736-317 Philosophical Foundations of the Natural Sciences
 736-319 Phenomenology: German
 736-320 Phenomenology: French
 736-322 Contemporary Aesthetic Philosophy
 736-324 Contemporary Philosophical Movements
 736-404 Major Philosophical Figures

Political Science

- 778-302 Community Political Behavior
 778-304 Comparative Political Systems: Latin America
 778-307 Concepts in Political Theory
 778-320 Laws, the Constitution, and American Development
 778-350 Political Conflict and Urban Policy
 778-426 American Legislative Process
 778-450 Political Change

Population Dynamics

- 779-310 Introduction to Human Genetics
 779-312 Evolutionary Processes
 779-318 Vertebrate Reproduction
 779-320 Introduction to Population Dynamics
 779-342 Human Evolution
 779-356 Social Demography
 779-360 Applied Demography
 779-364 Variation in Culture and Ethology in Human Populations
 779-401 Agricultural Genetics and World Food Production
 779-412 Principles of Parasitology
 779-421 Problems in Population Regulation
 779-450 Current Topics in Population Dynamics

Psychology

- 820-300 Experimental Psychology
 820-320 Personnel Psychology
 820-335 Psychology of Attitudes and Public Opinion
 820-338 Psychology of Learning
 820-415 Organization Psychology
 820-416 Psychology of Intergroup Relations
 820-417 Thinking and Problem Solving
 820-438 Group Dynamics

Regional Analysis

- 834-320 Introduction to Regional Analysis
 834-325 Human Living Space I
 834-326 Human Living Space II
 834-335 Transport Systems in Selected World Regions

834-345 Regional Sociology--Man and Environment
 834-356 Environmental Impact Analysis
 834-362 The Great Lakes Region of Africa
 834-372 Analysis of Great Lakes Regions of North America
 834-377 Analysis of Northern Lands
 834-382 Regional Analysis of North Western Europe
 834-392 Regional Analysis of South Asia
 834-401 Regional Economic Analysis
 834-420 Regional Planning

Science and Environmental Change

862-302 Principles of Ecology
 862-303 Conservation of Natural Resources
 862-306 Biophysics
 862-310 Plant Taxonomy
 862-311 Plant Physiology
 862-312 Mycology
 862-313 Mechanics I
 862-314 Mechanics II
 862-316 Mechanics of Materials
 862-317 Electromagnetic Radiation
 862-320 The Soil Environment
 862-321 The Soil Environment Laboratory
 862-322 Ecosystems Analysis I
 862-323 Ecosystems Analysis II
 862-330 Hydrology
 862-331 Introduction to Oceanography
 862-342 Environmental Geology
 862-363 Forest and Plant Pathology
 862-403 General Limnology
 862-434 Water Chemistry
 862-450 Air Pollution Chemistry and Meteorology
 862-460 Resource Management Strategy

Social Services

892-320 Introduction to Principles of Social Services Methods
 892-407 Clinical Approaches to Institutional Change I
 892-408 Clinical Approaches to Institutional Change II
 892-411 Principles of Client Intervention I
 892-412 Principles of Client Intervention II

Sociology

900-302 Social Stratification
 900-304 Processes of Deviant Behavior I
 900-305 Processes of Deviant Behavior II
 900-307 Concepts of Social Analysis
 900-311 Collective Behavior
 900-312 Social Change
 900-404 Criminology
 900-406 Comparative Social Studies

Urban Analysis

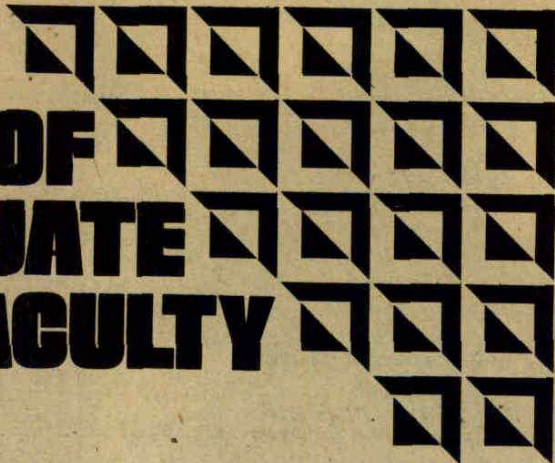
938-313 City Through Time and Space
 938-335 Aggressive Behavior: Biological and Psychological Roots
 938-351 Transportation and the City

938-360 Rise of New Towns
 938-400 The City as Idea
 938-401 Environmental Design Workshop
 938-421 Urban Planning I
 938-422 Urban Planning II
 938-432 Evolutionary Roots of Urban Behavior
 938-435 Socio-cultural Aspects of Urban Stress
 938-440 Social Dynamics of Urban Life
 938-445 Simulated Environmental Planning

Visual Arts

957-311 Painting II
 957-312 Painting III
 957-321 Sculpture II
 957-322 Sculpture III
 957-331 Ceramics II
 957-332 Ceramics III
 957-341 Textiles: Fiber Construction
 957-343 Creative Photography II
 957-351 Art Metal and Jewelry Design I
 957-352 Art Metal and Jewelry Design II
 957-361 Life Drawing and Anatomy I
 957-362 Life Drawing and Anatomy II
 957-410 Materials Workshop for the Painter
 957-411 Materials Workshop for the Sculptor
 957-412 Materials Workshop for the Ceramist
 957-413 Materials Workshop for the Fiber Artist

MEMBERS OF THE GRADUATE FACULTY



ABBOTT, Clifford E., Assistant Professor of Communication-Action (linguistics); B.A. (1969), Tufts; M.A., M.Phil. (1972), Ph.D. (1973), Yale.

Iroquoian languages, especially Oneida. Transformational generative grammar; the derivation of infinitive complements. Modern semantic theory. Psychology of language, perception of speech, and language acquisition. Grammatical properties of sign languages.

ABELES, Thomas P., Associate Professor of Science and Environmental Change (chemistry); B.S. (1963), Wilmington (Ohio); Ph.D. (1969), Louisville.

Alternate sources of energy (solar, wind, biofuels), science and humanism, environmental design, systems theory applied to environmental planning, futurology.

ABRAHAM, Jerome B., Associate Professor of Communication-Action (music); B.M. (1957), M.M. (1965), UW-Madison.

Low brass instruments, specialty in trombone. Brass ensembles conductor.

ABRAHAMS, Paul P., Associate Professor of Humanism and Cultural Change (history); B.A., M.A. (1959), Syracuse; Ph.D. (1967), UW-Madison.

How policy reorientations affect political-economic and structural changes in modern life. Economic and social considerations of the quality of life on national and international levels. Mythology, ideology, and rational criteria in problem formulation and policy-making. Special emphasis on themes of continuity and change in American, economic, and international history.

ARMSTRONG, Forrest H., Associate Professor of Urban Analysis (political science); and Associate Dean; B.A. (1965), Yale; M.A. (1966), Ph.D. (1970), Michigan.

The process of political representation, especially elections and voting behavior. Metropolitan governmental structures. Literary reflections of the city in American life. Changes in American higher education.

BAKER, Bela O., Associate Professor of Modernization Processes (psychology); B.A. (1950), San Jose State; Ph.D. (1961), UC-Berkeley.

Personality assessment, especially biographical and case study techniques. Program evaluation methods. Innovations in higher education. Cultural and individual variations in temporal perspectives.

BARGER, John E., Assistant Professor of Humanism and Cultural Change (mathematics); B.S. (1952), Washington; M.S. (1953), UW-Madison.

Non-associative finite dimensional algebra. Rings and fields. Linear algebra with computer applications.

BAUER, Robert J., Associate Professor of Communication-Action (music); B.S. (1954), M.A. (1964), Minnesota.

Music education in secondary schools, music performance practices for wind instruments --special emphasis on wind ensemble literature.

BENHAM, G. Harvey, Professor of Nutritional Sciences (biochemistry); B.Sc. (1935), Ph.D. (1938), London, England.

Analysis and availability of food nutrients; iron and calcium supplementation; new thrusts in the teaching of biochemistry, foods, and nutrition in an interdisciplinary setting; development of university research programs in Asian countries; hunger, starvation, and the world food crisis.

BLAISDELL, Nesbitt C., Associate Professor of Communication-Action (theater); B.A. (1951), Amherst; M.F.A. (1958), Columbia.

Acting and children's theater. Actor training program. Member Next Door Theater, 2 years. Artistic director and performer, Park Circus Pranksters, Green Bay's outdoor children's theater. (On leave, 1975-1976.)

BREMER, Sidney H., Assistant Professor of Urban Analysis; B.A. (1966), Stanford; M.A. (1967), UC-Berkeley; Ph.D. (1971), Stanford.

The development of the urban novel, especially in late-nineteenth-century America. Images of the city in America's intellectual tradition and cultural environment. Images of women in American literature. Sexual, racial, and social stereotypes as elements in social discrimination, interpersonal relations, and cognitive processes. American cultural myths of freedom, individualism, and community.

BRULAND, Richard A., Assistant Professor in Education; B.A. (1958), M.A. (1963), Western Washington; Ph.D. (1970), Syracuse.

Developmental reading and reading disability at elementary and secondary levels; children's literature.

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. School organization and curriculum designed for individualized learning. Environmental education through problem-focused curriculum. Evaluation of innovation and change in education.

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

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

CHAVEZ, Trinidad J., Associate Professor of Communication-Action (music); B.M.E., Eastern New Mexico; M.M.E. (1965), Wichita State.

Choral music: methods, techniques, and

literature. Conducting: instrumental and choral. Music education: secondary choral emphasis.

CHENOWETH, Lawrence, Associate Professor of Urban Analysis; B.A., Loyola (Los Angeles); M.A., Ph.D., UC-Berkeley.

Modern American political history, American social and intellectual history, colonial American history, middle-class and countercultural behavior, American studies, popular culture, urban analysis, psychology.

CHURCHILL, Thomas, Associate Professor of Humanism and Cultural Change (literature); M.A., Ph.D., Washington.

Presently involved in writing fiction based upon research into real people and incidents. Study of the labor struggle in Centralia, Wash., 1919, led to a novel; research into the life of Lillian Leitzel Pelikan will form the basis of a novella of circus life. Also, for American Documentary Theater, researched and written a play concerning the Menominee people. Faculty adviser for the "Sheepshead Revue."

CLARK, Orville W., Associate Professor of Humanism and Cultural Change (philosophy); B.A. (1958), M.A. (1964), Oklahoma; Ph.D. (1968), Penn State.

Aesthetics and philosophy of arts. Specialty in German philosophy of 19th century. Development of 20th century thought in relation to current ecological crises. Native American culture and the Indian view of nature.

CLIFTON, James A., Professor of Humanism and Cultural Change (anthropology) and Director of Summer Sessions; Ph.B. (1950), Chicago; M.A. (1957), San Francisco State; Ph.D. (1960), Oregon.

Individual identity processes, cultural dynamics, innovation and diffusion, and community adaptations to a changing social-environmental universe.

COHRS, Arthur L., Associate Professor of Communication-Action (music); B.Mus. (1959), UW-Madison; M.Mus. (1961), Rochester.

Keyboard literature of all periods. Piano literature and performance practice from 1750 to present. Relationship to historical/cultural setting.

COOK, Robert S., Associate Professor of Science and Environmental Change (biology) and Curator of Richter Natural History Museum; B.S. (1951), UW-Stevens Point; M.S. (1958), Ph.D. (1966), UW-Madison.

Problems involving wildlife ecology, especially habitat, recreational planning, disease, ornithology and management

aspects. Present research involves waterfowl, recreational land-use planning and avian migration patterns.

CRANDALL, Coryl, Associate Professor of Humanism and Cultural Change (literature); B.A. (1956), M.A. (1960), Ph.D. (1966), Illinois. Humanistic and artistic resources available to American communities. The development and improvement of such resources as community theater, choruses, symphonies, museums, etc. World drama, especially Shakespeare, Chekhov, Ibsen, and Shaw.

DAMKOEHLER, David L., Assistant Professor of Communication-Action; B.S., UW-Oshkosh; M.F.A. (1970), Kent State.

Visual arts; sculpture and design; graphics; environmental design.

DANIELS, Thomas E., Associate Professor of Humanism and Cultural Change (literature); B.S. (1959), M.A. (1960), Utah State; Ph.D. (1968), Washington.

Literature, history, philosophy, and general social patterns of American writers of the first half of the 20th century. Publications are mostly concerned with writers like F. Scott Fitzgerald, Thomas Wolfe and others. Concerned with criticism and the problems involved particularly with the intentional fallacy and textual-critical questions.

DAY, Harold J., Professor of Science and Environmental Change and Director of the Institute for Research on Environmental Change; 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.

DEESE, Dawson C., Associate Professor and Chairperson, Nutritional Sciences (chemistry); B.S. (1952), North Carolina A&T; M.S. (1954), Tuskegee; Ph.D. (1961), UW-Madison.

Biochemical problems of ecosystems in nutritional sciences with particular attention to environmental effects on enzyme systems controlling metabolism of the macronutrients--proteins, carbohydrates and activities of nucleic acid components; consumerism applied to nutrition and food in developing community public health; curricular development of chemistry as applied to the nutritional problems of human beings throughout the lifespan from infancy to later years and senescence.

DILWEG, Vivi L., Assistant Professor of Managerial Systems; A.B. (1964), Washington (St. Louis); J.D. (1967), Texas.

The checks and balances of American administrative law. The impact of administrative

law on the underlying assumptions of the American legal system. Alternative methods of handling legal disputes, both civil and criminal. Legal education for the laymen, its mechanics and its necessity for a strong legal system in a free society.

DOBERENZ, Alexander R., Professor of Nutritional Sciences (biology); B.S. (1958), Tusculum; M.S. (1960), Ph.D. (1963), Arizona. Nutritional status. Nutrition education programs. Effects of nutrition on human development. Biochemistry, microstructure and ultrastructure of fossils.

DURHAM, Norris M., Assistant Professor of Population Dynamics (physical anthropology); B.S. (1958), West Chester State; M.A. (1967), New York; Ph.D. (1974), Pennsylvania State.

Director of Concourse Museum. Naturalistic behavior of nonhuman primates, particularly those of South America. Ecological influences on social organization. The relationship of biology and culture. Museum technology. Animal behavior.

FALK, Jacqueline M., Associate Professor and Chairperson, Growth and Development (human development); B.A. (1950), Carleton; M.A. (1953), Radcliffe; M.A. (1967), Ph.D. (1970), Chicago.

Memory function in late life; personality development over the life span; social and psychological problems of aging population; the nursing home environment.

FISCHBACH, Fritz A., Associate Professor of Science and Environmental Change; B.S. (1959), Ph.D. (1966), UW-Madison.

Major research interests include air quality, particulates, and the structure of large biological molecules. Recent interest has centered on hay fever studies emphasizing studies of monitoring of ragweed pollen and strategies for its control. Other studies in the area of community health include correlations between air quality factors and certain human respiratory diseases. Current interests in biological molecules involve structure correlations on viruses. Methods to extend x-ray diffraction interpretation are being investigated.

FLEURANT, Kenneth J., Assistant Professor of Humanism and Cultural Change (literature and language); A.B. (1966), Holy Cross; M.A., Ph.D. (1972), Princeton.

Literature as a social force. Normal and abnormal behavior from a humanistic perspective. Historical and theoretical relationship between irrationality and reasoned discourse. Creativity. Individual freedom and social responsibility. Literature and philosophy of the European

Enlightenment, the Romantic era, surrealism, existentialism, and "absurdism" generally with French emphasis. French language and culture. Problems of cultural identity in Quebec. Relationship between literature, philosophy, psychology, anthropology, sociology and the nonverbal arts, especially with respect to the above issues.

FRISCH, Jack E., Associate Professor of Communication-Action (theater; communication processes); B.A. (1957), M.A. (1959), Ph.D. (1965), UW-Madison.

Theater as an art form and as a means of communication. Dramatic literature/theater history of various periods, especially late 19th century and 20th century continental drama. Contemporary American group-theater work. Theater in education. Interpersonal communication, and integration of such areas in humanistic psychology with theatrical creation/performance.

GALATY, David H., Associate Professor of Humanism and Cultural Change (history); B.A. (1964), Trinity; Ph.D. (1971), Johns Hopkins.

History of science and technology, epistemology, history of human impact on environments, implications of modern physics for other disciplines. Human values, value implications of the social services, African science.

GALT, Anthony H., Assistant Professor of Modernization Processes (anthropology); B.A. (1966), UC-Berkeley; Ph.D. (1972), UC-Riverside.

Geographic area: the European Mediterranean, especially southern Italy. Peasant society. Network theory and patron-client relationships. Cultural ecology of land tenure and inheritance patterns. Demography. Social change theory. Expressive culture--the art, music, and folklore of non-European and little tradition European peoples.

GANDRE, Donald A., Professor and Chairperson, Regional Analysis (geography); B.S. (1956), Arizona State; M.S. (1961), Illinois; Ph.D. (1965), UW-Madison.

Inter-city transportation in the United States. Water transportation--Great Lakes region. Economic activities in Great Lakes region.

GAWOREK, Norbert H., Associate Professor of Humanism and Cultural Change (history); B.A. (1959), M.A. (1964), Diploma, Russian Area Studies (1965), Ph.D. (1970), UW-Madison.

Modern European history, specialization in central and eastern Europe (emphasis on Russia and the Soviet Union) and related area studies; Soviet-Western relations, especially Soviet-U.S. economic and political relations; modernization and social systems analysis.

GIRARD, Dennis M., Associate Professor of Science and Environmental Change (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, econometric modelling in energy demand related problems, Fourier analysis, applied combinatorics, stochastic modelling.

GOLDSBY, Alice I., Associate Professor of Science and Environmental Change (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.

GORDER, Lyle D., Assistant Professor of Regional Analysis (geography); B.S. (1948), M.S. (1949), UW-Madison.

The Lake Michigan shoreline in north-eastern Wisconsin, ice-age trails, coastal zone, the Netherlands, manufacturing logistics.

GREEN, James W., Assistant Professor of Modernization Processes (anthropology); B.A. (1962), Puget Sound; M.A. (1964), Ohio State; Ph.D. (1972), Washington.

Migration and economic development in the West Indies; ethnic groups and plural societies; sex roles in developing societies; social history, particularly post-slavery West Indian labor conditions. (On leave, 1975-1976.)

GREENBERG, Martin H., Associate Professor of Modernization Processes and Director of Graduate Studies; B.A. (1962), Miami; M.A. (1965), Ph.D. (1969), Connecticut.

Modernization processes in the Middle East; the international relations of the Middle East; science fiction as a tool of analysis for the social sciences; the political philosophy of science fiction; bureaucratic and organizational behavior.

GREIF, Gary F., Associate Professor of Humanism and Cultural Change (philosophy); B.A. (1959), M.A. (1960), Spokane; Ph.D. (1965), Toronto.

Implications for freedom in shifting conceptions of individuality in Western culture. Work and leisure as these affect the quality of human life in post-industrial society. Humanistic and behavioral psychologies and their contributions to understanding and effecting significant trends in contemporary society.

GRIFFITH, Agnes E., Assistant Professor of Growth and Development; A.B. (1953), Wheaton; M.S. (1956), Oregon State; Ph.D. (1969), Purdue.

GRIMES, Bruce A., Professor of Communication-Action (visual arts) and Director of Inter-collegiate Athletics, Intramural, Recreation, and the Physical Education Programs; B.F.A. (1961), Millikin; M.F.A. (1964), Ohio.

Exhibited in over 200 national, regional, and area exhibitions. Extensive work in Raku, high-fire reduction, salt-glazing, and kiln construction.

GUILFORD, Harry G., Professor of Human Adaptability (zoology) and Secretary of the Faculty; Ph.B. (1944), Ph.M. (1946), Ph.D. (1949), UW-Madison.

Parasitic diseases of fishes, particularly disease caused by myxosporida. Life cycles of trematode parasites. (Changes in biota of Wisconsin 1634-1910.)

HANEY, Emil B. Jr., Associate Professor of Modernization Processes (economics); B.S. (1962), Ohio State; M.S. (1965), Ph.D. (1969), UW-Madison.

Modernization of the peasantry, especially in Latin America. Rural development in marginal agricultural regions of Latin America and U.S. Impact of agribusiness on the decline of rural community. Social and environmental consequences of "Green Revolution" technology. Land use and land reform.

HANEY, Wava G., Assistant Professor of Urban Analysis (sociology and Liberal Education Seminars); B.S. (1963), Ohio State; M.S. (1965), Ph.D. (1972), UW-Madison.

Societal development with particular attention to urbanization, industrialization, migration, ethnic and class stratification and political change, U.S. and Third World, especially Latin America. Social consequences of changes in the political economy for peasant communities, rural and urban America.

HARDEN, Donald F., Associate Professor of Community Sciences and Assistant Chancellor for Instructional and University Services; B.A. (1956), M.A. (1961), Ph.D. (1969), Michigan State.

History, philosophy and sociology of higher education; principles of administration.

HARRIS, Hallett, Jr., Associate Professor and Chairperson of Science and Environmental Change; B.A., Coe; M.S., Ph.D. (1969), Iowa State.

Wetland ecology, avian stress ecology, environmental impact analysis.

HAVENS, Elmer A., Professor of Humanism and Cultural Change; B.A., Cornell College; B.D., Drew; M.A., Ph.D. (1965), UW-Madison.

American literature; English literature of the 19th century; theology.

HERRSCHER, Walter J., Associate Professor of Humanism and Cultural Change (literature and language) and Director of Undergraduate Studies; B.A. (1955), Elmhurst; M.A. (1961), Northwestern; Ph.D. (1969), UW-Madison.

Modern American literature, especially the short story. American nature writing. Environmental issues in American literature. Expository writing.

HUDDLESTON, J. Herbert, Associate Professor of Science and Environmental Change (earth science); B.S. (1963), M.S. (1965), Cornell; Ph.D. (1969), Iowa State.

Soil genesis and classification. Soil survey interpretations. Soil-landscape relationships. Impacts of human management on soil morphology and soil productivity. Use of soil for disposal of human and farm animal wastes. Application of soils information to land use planning.

HUGHES, Fergus P., Assistant Professor of Growth and Development (psychology); B.A. (1968), St. John's (New York); M.A., Ph.D. (1972), Syracuse.

Intellectual development in children and adolescents. Cognitive aspects of perceptual development, particularly the development of the child's concepts of space. Intelligence and intelligence testing.

IHRKE, Charles A., Associate Professor and Chairperson, 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.

IVES, Lovell G., Associate Professor of Communication-Action (music); B.S. (1957), UW-Stevens Point; M.M.E., Vandercook College of Music.

Arranging composition and analysis in the field of jazz and contemporary band and vocal music. Development of the jazz ensemble and improvisation techniques.

JADWANI, Hassanand T., Associate Professor and Chairperson, Managerial Systems; B.B.A. (1962), Miami; M.B.A. (1963), Columbia; D.B.A. (1972), Harvard.

International business and finance. Emphasis on managerial and financial aspects of multinational corporations.

JEVELI, Elaine, Assistant Professor of Human Adaptability; B.S. (1958), Jackson; M.A. (1965), Smith; Ph.D. (1975), Massachusetts.

JOHNSEN, Per K., Assistant Professor of Urban Analysis; B.S., Ph.D. (1971), Washington.

Environmental psychology, influences of designs on behavior, design and uses of outdoor recreation areas.

JOWETT, David, Professor of Science and Environmental Change and Special Assistant to the Vice Chancellor; 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 bio-science and social science. Population genetics and population modelling. Computer-models of biological systems. Ecological genetics, plant breeding, agriculture, especially tropical agriculture.

KANGAYAPPAN, Kumaraswamy, Associate Professor of Modernization Processes (economics); B.A. (1956), Madras (India); M.S. (1958), Annamalai (India); M.A., Ph.D. (1968), UW-Madison.

Economic development, social change, and poverty (national and global levels). Macroeconomic policy, monetary economics and policy and banking.

KAUFMAN, William C., Professor and Chairperson, Human Adaptability (biology); B.A. (1948), Minnesota; M.S. (1952), Illinois; Ph.D. (1961), Washington.

Human and environmental physiology. Temperature regulation and the peripheral circulation as a thermoregulatory function. Evaluation and design of cold-weather clothing.

KAZAR, Michael R., Professor of Communication-Action (art and education) and Director, Extension Arts for Northeastern Wisconsin; B.S. (1939), Milwaukee State Teachers College; M.S. (1952), UW-Madison.

Ecological and humanistic bases for aesthetic education; impact of teachers' preparation. Problems of communication beyond the conventional systems of symbolic interaction, verbal or nonverbal. Painting; exploring all aqueous media and relationship between sympathetic and fugitive pigments and papers.

KELLOGG, Peter J., Assistant Professor of Urban Analysis; B.S. (1960), Davidson; M.A. (1963), Ph.D. (1971), Northwestern.

Recent United States history, Afro-American history; urban affairs, ethnicity in American life, American culture and values particularly those of urban population groups. The development of white interest in the status of black Americans and the possibilities of American reform traditions.

KERSTEN, Frederick I., Professor of Humanism and Cultural Change (philosophy); B.A. (1954), Lawrence; M.A. (1959), Ph.D. (1964), The New School for Social Research.

Research and publication in the areas of phenomenology, ontology, value theory, aesthetics, foundational problems in the social and natural sciences, the philosophy of Husserl.

KERSTEN, Raquel, Associate Professor of Humanism and Cultural Change (literature and language); B.A. (1952), Habana; M.S., Ph.D. (1964), New York.

Cross-cultural communication of the culture of Spain, Latin America, and Spanish-speaking North Americans; baroque, romantic and 20th century Spanish literature.

KNOWLES, Eric S., Associate Professor of Urban Analysis; B.A., Antioch; Ph.D. (1971), Boston.

Psychology, social psychology, environmental psychology, personality psychology. Proxemics and social space, risk taking, perception of neighborhood. Survey design, research design, statistics.

KOLSHUS, Halvor J., Associate Professor of Modernization Processes; B.S., Vinterlandbruksskolen (Oslo); M.S., Agricultural College of Norway; Ph.D. (1972), Kentucky.

Agricultural economics, environmental economics, developmental economics. Rural sociology. (On leave, 1975-1976.)

KORNER, Ija N., Professor of Humanism and Cultural Change; B.S., Vienna; M.S., Geneva; Ph.D., Columbia.

Interests include individual, group, and community counseling, consultation, and intervention. The theory of technology of change in and by itself is a prime area of interest. Related to the pre-occupation with intervention is the issue of values. All the above must be, when

ever possible, related to experimental evidence. Speculation and new theory building are as much a part of science as experimentation and theory verification. The theory and practice of mental and social well-being are the core of the concern of a social scientist, they underlie all attempts at individual and group intervention.

KUEPPER, William G., Associate Professor of Regional Analysis (geography); Ph.D. (1968), UW-Madison.

Regional climatology of the tropics and subtropics; low-latitude environments with particular reference to eastern and southern Africa; effects of British colonial policy on resource utilization and development in Africa; economic and

environmental implications of big game utilization, especially sport hunting.

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 problem.

LACKEY, G. Lynne, Assistant Professor of Urban Analysis; B.A., Bowling Green; M.A., Ph.D. (1972), Kentucky.

Sociology, urban sociology; race and ethnic relations, comparative society.

LANZ, Robert W., Associate Professor of Science and Environmental Change (engineering); B.S. (1963), M.S. (1965), Ph.D. (1969), UW-Madison.

Steady-state computer causal modelling of the Fox River and lower Green Bay. Remote and on-site monitoring, recording, and analyzing selected water quality parameters and physical parameters of solar and wind driven auxiliary heating systems. Modelling of fatigue life of materials under random vibration excitation.

LARMOUTH, Donald W., Associate Professor and Chairperson, Communication-Action (linguistics); B.A. (1962), Minnesota; M.S., Ph.D. (1972), Chicago.

Sociolinguistics, particularly bilingualism and retention of immigrant languages, recovery of immigrant and native American languages, and social dialectology. Applied linguistics, especially design of programs in initial reading, English as a second language, and developmental/remedial composition. Linguistic theory, especially as related to language acquisition in children and adults.

LAUTER, Estella, Assistant Professor of Communication-Action (Liberal Education Seminars); B.A. (1961), Ph.D. (1966), Rochester.

Interpretation of modern poetry; interrelationships of the arts; aesthetic experience and evaluation; myth as a symbolic form and a mode of thought; imagination as a human resource; the possibility of changing images of the human being (particularly of women); humanistic psychology (including Jung's analytical psychology).

LEE, Kwang K., Associate Professor of Science and Environmental Change; B.S.C.E., National Taiwan University; M.S., Duke; Ph.D. (1969), Cornell.

Water and land systems modelling and management, (On leave, Semester I, 1975-1976.)

LIND, Joan D., Assistant Professor of Modernization Processes (sociology); B.A. (1946), Minnesota; M.F.A. (1952), Cranbrook Academy of Art; M.A., Ph.D. (1973), Michigan.

Political sociology and social change. To study large-scale social change, I use historical data and a theory of the nation-state in which there are "polity members" and "challengers" (social movements). My teaching and research uses the key variables "mobilization" and "repression" for contemporary America, cross-national, and historical studies.

LITTIG, David M., Assistant Professor of Urban Analysis (political science); 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.

LOGAN, Richard D., Assistant Professor of Growth and Development (anthropology and psychology); A.B. (1965), Harvard; Ph.D. (1972), Chicago.

Cross-cultural study of human development, especially the comparative study of the socialization of high achievement in children and the cross-cultural study of cognitive development. The development of children's conceptions of social institutions. The importance of role-taking in intellectual development.

LOOMER, Allison P., Associate Professor of Science and Environmental Change (mathematics); B.A. (1933), M.A. (1935), Acadia. Algebra and analysis.

MAIER, Robert H., Professor of Science and Environmental Change (environmental administration); B.S. (1951), Miami; M.S. (1952), Ph.D. (1954), Illinois.

Development, appraisal, and/or implementation of management science techniques for improved effectiveness and efficiency in environmental administration. Soil-plant-animal-human relationships within the environment with emphasis on food production, nutrition, and biochemistry.

MAKAROFF, Nikolai S., Assistant Professor of Communication-Action; B.S. (1941), Communication Academy (Kiev); Ballet artist, Ph.D. (1938), Bolshoi School of Ballet (Moscow).

Ballet (romantic, classic, character, modern influence, supported adagio). Dance history.

MATTER, Charles F., Assistant Professor of Urban Analysis (psychology); A.B. (1966), 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.

MATULIS, Anatole C., Associate Professor of Communication-Action; B.A., Detroit Institute of Technology; M.A., Wayne State; Ph.D. (1963), Michigan State.

Linguistics and psychology; German and Lithuanian language; Russian language. (On leave, 1975-1976.)

McAULEY, William J., Assistant Professor of Population Dynamics; Ph.D. (1974), Penn State.

Age differential in residential mobility. Migration, attitudes toward environmental issues, fertility decision-making, and demographic aspects of the elderly population. Social demography, social gerontology, urban sociology, and research methods.

McINTOSH, Elaine N., Associate Professor of Nutritional Sciences and Special Assistant to the Chancellor; 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.

McINTOSH, Thomas H., Professor of Environmental Sciences and Assistant Chancellor for Student and Administrative Services; B.S. (1956), M.S. (1958), Ph.D. (1962), Iowa State.

Nitrogen cycle, soil science, agronomic systems.

MEHRA, Anjani K., Associate Professor of Science and Environmental Change (chemistry-physics); B.S. (1962), M.S. (1964), Allahabad (India); Ph.D. (1967), I.I.T. Kanpur (India).

Solar energy as alternative source of energy. Astronomy and cosmology. Spectroscopic studies of crystals.

MENDELSON, Robert A., Associate Professor of

MORAN, Joseph M., Associate Professor of Science and Environmental Change (earth science); B.A. (1965), M.S. (1967), Boston; 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. (On leave, 1975-1976.)

MORGAN, Michael D., Associate Professor of Science and Environmental Change (biology); B.S. (1963), Butler; M.S., Ph.D. (1968), Illinois.

Relationships between climatic change and plant distribution and production. Ecological relationships during late Pleistocene. Plant phenology. Interactions between plants and air pollutants.

MOWBRAY, Thomas B., Associate Professor of Population Dynamics (biology); B.A. (1962), Minnesota-Duluth; M.A. (1964), Ph.D. (1967), Duke.

Plant population and community ecology; field and herbarium problems in biosystematics; development of a regional flora of northeastern Wisconsin.

MUGANE, Bridget R., Assistant Professor of Humanism and Cultural Change; B.A., M.A.; Ph.D. (1972), UC-Berkeley.

African history, women's studies.

MULVIHILL, Philip M., Assistant Professor of Managerial Systems; B.B.A. (1961), Michigan; J.D. (1968), Wayne State.

Income, estate, and gift taxation. Public finance aspects of taxation. Tax exempt status of nonprofit institutions.

MURPHY, Michael W., Associate Professor of Humanism and Cultural Change (English); B.A. (1960), Marquette; M.A. (1961), Ph.D. (1971), UW-Madison.

Modern British and Irish literature, especially James Joyce and Dylan Thomas; literature as a reflection of historical ideas and cultural values; development of instructional media resources and alter-

Aligarh; 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.

NELSON-COLE, Clarence, Assistant Professor of Communication-Action (visual arts); B.A. (1967), Nigeria; M.F.A. (1972), Illinois.

The art and technique of the intaglio print; photographic intaglio; photo-engraving; etching and lithography. Oil painting; collage, mixed media and the traditional art of Africa. African religion and philosophy.

NESBERG, Lloyd S., Assistant Professor of Modernization Processes (psychology); Ph.B., M.S., Ph.D., UW-Madison.

Learning theory: reproachment-behavioristic and cognitive theories, conditions for creativity. Behavioral stress: psychological and socio-cultural factors and outcomes, acute and chronic. The relationship between stress and anxiety.

NICHOLS, Terry W., Assistant Professor of Urban Analysis (sociology); B.A. (1962), Bethany; M.A. (1970), Ph.D. (1974), Chicago.

Mathematical and computer modelling in the social sciences; urban-regional computer simulations; covariance of alienation and radicalism (political and cultural) among students.

NORMAN, Jack C., Associate Professor of Science and Environmental Change (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. The use of radionuclides to investigate environmental problems, especially cycling of nutrients and toxic substances.

NULL, Gilbert T., Assistant Professor of Humanism and Cultural Change (philosophy); B.A. (1967), Santa Cruz; M.A. (1970), Ph.D. (1973), New York.

History of philosophy (Western), theory of science and reality in the control of Husserlian phenomenology. Problems of contemporary epistemology, the problem of abstraction in theory construction.

OBERBERGER, Robert W., Assistant Professor of Managerial Systems; Ph.D. (1974), Louisiana State.

Consumer behavior, consumerism, marketing and nonbusiness/nonprofit institutions, marketing and its environment, marketing theory.

O'BRIEN, Dean W., Associate Professor of Communication-Action (mass communications); B.S. (1954), M.S., Ph.D. (1963), UW-Madison. Public understanding of education and other professional or specialized fields. Development of alternative public media of communication.

O'GRADY, Terence J., Assistant Professor of Communication-Action (music); B.M. (1968), M.S. (1972), Ph.D. (1975), UW-Madison.

O'HEARN, George T., Professor of Education (physics) and Director of Educational Development; B.A. (1957), M.S. (1960), Ph.D. (1964), UW-Madison.

Science education; school science curriculum and teaching practices. Study of career planning in the sciences. Development of procedures to assess learning in the sciences. Scientific literacy, including social and cultural impact of science on society; science and alternative futures.

PETRAKOPOULOS, Nikitas L., Assistant Professor of Science and Environmental Change (mathematics); B.A. (1964), Columbia; M.S. (1966), Ph.D. (1971), New York.

Applications of mathematics to concrete models of the socio-cultural and bio-physical systems. Applications of the mathematical methods in modern culture plan to the undergraduate and graduate curriculum. Interested in students who wish to learn and/or apply mathematical methods to their fields of study. Theories of physical systems in the normal, superfluid, and superconducting states. Applications of statistical mechanics to large-scale bio-physical and socio-cultural systems. Theoretical work on the Hamilton-Jacobi-Einstein equations connecting analytical dynamics, quantum mechanics and general relativity.

PETRIE, George W. III, Professor of Managerial Systems (mathematics, environmental administration); B.S. (1933), M.S. (1936), Carnegie-Mellon; Ph.D. (1949), Lehigh.

Systems analysis, computer programming, languages and applications. Computer mapping of environmental data, quantitative methods in business decisions (operations research). Mechanics, elasticity and plasticity.

PEZZETTA, John M., Assistant Professor of Science and Environmental Change (marine science); B.A. (1956), Toronto; M.S. (1962), Dalhousie, N.S.; Ph.D. (1968), Michigan.

Coordinator of UW Sea Grant College sub-program, shoreline property and resources. Basic and applied research in marine and freshwater sedimentology. Geo-environmental evaluation of the coastal zone: power plant siting, shoreline erosion and flooding, coastal land use. Optical properties of sea water.

POLLIS, Carol A., Associate Professor of Modernization Processes (sociology) and Director of the University Without Walls; B.A. (1963), M.A. (1964), Oklahoma; Ph.D. (1968), Oklahoma State.

Intimacy, friendship, and social structure. Changing familial structures in American society and definitions of family. Models in the analysis of collective behavior. Post-secondary alternative learning programs and the modernization of learning.

POLLIS, Nicholas P., Professor of Urban Analysis (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.

POWERS, John E., Associate Professor of Managerial Systems and Recreation Business Management Specialist, UW-Extension; B.S. (1951), M.S. (1965), Ph.D. (1971), UW-Madison.

Environmental, economic, and legal constraints to small business feasibility and management. Market determination and buyer behavior analysis for small business feasibility and management. Community and regional recreation industry development. Economic and social impact of the recreation industry.

PRANGE, W. Werner, Professor of Creative Communication and Vice Chancellor; Abitur, Paedagogium Bad Godesburg; Ph.D. (1955), Bonn (Germany).

English and American philology and ethnology.

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.

PREVETTI, William F., Professor of Communication-Action (visual arts) and Curator of Art; B.S. (1954), UW-Milwaukee; M.S. (1958), M.F.A. (1963), UW-Madison.

Printmaking as an expressive and communicative media in satire, social commentary, and political expression as well as possibilities of illustration for the story, the poem, etc.

PUM, Robert J., Associate Professor of Communication-Action (visual arts and art education); B.S. (1958), M.S. (1963), UW-Madison; Ed.D. (1971), Ball State.

Creative research in visual arts primarily in art metal: jewelry designs and techniques, and in drawing imagery with varied metal media. Art education concerns with aesthetic awareness education and art education methodology in the public schools.

RAHMAAN, Anis-Ur-, Assistant Professor of Regional Analysis; B.Sc. (1951), Punjab (Pakistan); M.Sc. (1961), Illinois.

RANDALL, Sterling P., Assistant Professor of Science and Environmental Change (chemistry-physics); B.S. (1948), St. Norbert; M.S. (1950), Ph.D. (1968), UW-Madison.

Energy conversion and storage, especially solar energy. Classical and statistical thermodynamics. Infra-red spectroscopy and molecular structure. High temperature chemistry.

REED, John F., Professor of Environmental Sciences (botany) and Dean for Academic Affairs; A.B. (1933), Dartmouth; M.A. (1935), Ph.D. (1936), Duke.

Design and operation of institutions for international environmental planning and research. Plant ecology. Rocky Mountain botany.

RHYNER, Charles R., Associate Professor of Science and Environmental Change (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 modelling solid waste management systems.

RODESCH, Jerrold C., Assistant Professor of Humanism and Cultural Change (history); B.S. (1960), UW-Madison; M.A., Ph.D. (1971), Rutgers.

Intellectual and cultural history; 18th and 19th century United States; the arts and social thought; Wisconsin.

SAGER, Dorothea B., Assistant Professor of Population Dynamics; B.A. (1959), Lawrence; M.S. (1961), Iowa; Ph.D. (1968), UW-Madison.

Physiology of reproduction: hormonal controls. Developmental and reproductive effects of environmental contaminants. Sociological/biological factors in family planning.

SAGER, Paul E., Associate Professor of Science and Environmental Change (biology); 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.

SANDERS, Norris M., Associate Professor of Education; B.S. (1948), M.S. (1952), Ph.D. (1959), UW-Madison.

Curriculum development in public and alternative schools. Ecological education, value clarification, conceptual instruction, affective education, inquiry strategies, cognitive levels of under-

SHERRELL, Richard E., Associate Professor of Communication-Action (theater); B.A. (1952), Pomona; B.D. (1955), Chicago; Ph.D. (1965), Claremont.

Theater history and criticism. Comparative arts. Theater and theology. Religion and myth as shapers of values and culture. Innovative higher education and institutional change.

SIMONS, Roger A., Assistant Professor of Science and Environmental Change (mathematics); B.S. (1964), UCLA; M.S. (1966), Ph.D. (1972), UC-Berkeley.

Boolean algebras of sentences of formal languages; computational logarithms for digital computers; computer modelling of ecosystems; gaming simulations for educational and decision-making applications; information theory.

SMITH, Larry J., Assistant Professor of Modernization Processes (economics); B.S. (1966), Oklahoma State; M.A. (1969), Ph.D. (1973), Chicago.

Theory and practice of community; prospects for deurbanizing society, economic

STARKEY, Ronald H., Associate Professor of Science and Environmental Change (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.

STEVENS, Richard J., Associate Professor of Human Adaptability (neurophysiology); B.S. (1963), Rochester; M.S. (1965), Ph.D. (1969), Illinois.

Neurophysiology and biophysics. Neurophysiological and pharmacological processes in vision and vision-related behavior. Microelectrode techniques. Neurobehavioral effects of prenatal exposure to environmental contaminants. Neurophysiological and psychological aspects of pain perception. New strategies for teaching undergraduate biology.

TASCH, Thomas J., Associate Professor of Humanism and Cultural Change; B.F.A. (1963), Illinois; M.A. (1965), Kansas State.

Research includes metal casting using various methods including traditional and modern techniques, casting and laminating of thermo-setting resins, and the investigation of mold materials for casting both metal and plastic.

THOMPSON, Philip E., Assistant 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.

THRON, E. Michael, Associate Professor of Humanism and Cultural Change (literature); B.A. (1959), M.A., Ph.D. (1968), Nebraska.

Shakespeare, the English romantic poets, literary criticism. The relationships of authors and literary works to the political and social world.

TROYER, Michael D., Assistant Professor of Managerial Systems; B.A. (1966), Grinnell; M.A. (1971), Ph.D. (1975), Duke.

Medical economics and labor relations.

VAN KOEVERING, Thomas E., Associate Professor of Science and Environmental Change (science education); B.S. (1962), Western Michigan; M.A. (1965), Michigan; Ph.D. (1969), Western Michigan.

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.

VEILLEUX, Jere, Associate Professor of Communication-Action; Ph.D. (1957), Minnesota. Communication: interpersonal and small group.

WALLACH, Martha K., Assistant Professor of Humanism and Cultural Change; B.A., M.A., Ph.D. (1972), Washington.

German language and literature. Polish.

WALLACH, H. G. Peter, Assistant Professor and Chairperson, Modernization Processes (political science); A.B. (1961), Kenyon; M.A. (1965), Ph.D. (1972), Connecticut.

Comparative legal cultures, questions of legal cultures connected to environmental action, comparative criminal law, political leadership, political socialization of adults and leaders, political recruitment, control of bureaucratic institutions.

WARD, David J., Associate Professor of Managerial Systems (finance); B.B.A. (1965), M.B.A. (1967), Ph.D. (1972), UW-Madison.

Capital markets and capital flows; cash management and cash flow problems associated with the life insurance industry. Consumer finance and consumer economics; consumer behavior, value clarification in budgeting, and personal risk and insurance planning.

WEIDNER, Edward W., Chancellor and Professor of Community Sciences; Ph.D. (1946), Minnesota.

Problem oriented higher education. Environmental education at the university level. Innovations in higher education. The development process in various countries around the world, and its relationship to higher education.

WENGER, Robert B., Associate Professor of Science and Environmental Change (mathematics); B.S. (1958), Eastern Mennonite; M.A. (1962), Penn 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.

WEST, Patrick C., Assistant Professor of Regional Analysis (leisure sciences); B.S., M.S. (1967), Minnesota; Ph.D. (1975), Yale.

Sociology of leisure and natural resources; outdoor recreation planning.

WHALEY, Russell G., Professor of Communication-Action (theater); B.A. (1950), Emerson; Design Director, U.S.A. (1952).

Contemporary theory and practices in American theater; playwriting; theater and arts management; design; puppetry; theater graphics.

WHITE, Keith L., Professor of Science and Environmental Change (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.

WIERSMA, James H., Associate Professor of Science and Environmental Change (chemistry); M.S., Ph.D. (1968), Missouri-Kansas City.

Assessment of effects of water pollutants and water pollution abatement procedures on aquatic ecosystems. Development of new analytical chemical methods with emphasis on techniques applied to environmental problems.

WILLIAMS, Schafer, Professor of Humanism and Cultural Change (history); A.B. (1935), M.A. (1936), S.T.B. (1939), Harvard; Ph.D. (1951), UC-Berkeley.

Ecclesiastical institutions from their origins to 13th century. Transmission of Latin canon law texts and the problems of

editions. Latin paleography and beginnings of printing.

WITHERELL, Louise R., Professor of Humanism and Cultural Change (French); B.A. (1940), Toledo; M.A. (1941), Ph.D. (1948), UW-Madison. Twentieth century French literature; Malraux, Claudel; multi-media theatrical development; French culture as contrasted with American culture; French Canada; French-Belgian heritage in Wisconsin; methods of teaching foreign languages and literatures.

YARBROUGH, C. Jarrell, Associate Professor and Chairperson, Urban Analysis (political science); B.A. (1961), Western Washington; M.A. (1963), M.A. (1966), Ph.D. (1971), Washington.

Environmental policy and administration, particularly water resource use and coastal zone management. Comparative political systems. Public policy analysis. Political theory. Urban environmental management.

ZEHMS, Karl M., Associate Professor of Managerial Systems (accounting); B.S. (1964), M.B.A. (1965), Ph.D. (1970), UW-Madison.

Accounting theory with a particular emphasis on how various alternative accounting alternatives affect operating results and financial condition. Nonprofit accounting systems, particularly as contrasted with profit oriented accounting systems.

