HIGHER EDUCATION

GRADUATE COURSES

EDH 6061 THE JUNIOR COLLEGE IN AMERICAN HIGHER EDUCATION (4)
History of higher education, philosophical and cultural bases for definition of its role, and contemporary issues, such as control, financing, and curricular patterns. The place and problems of the community junior college will be central concerns of this course.

EDH 6938 SEMINAR IN COLLEGE TEACHING (3)
Implications of learning theory and student characteristics for teaching at the college level. Types of teaching procedures, innovation, evaluation, student freedom and responsibility for learning.

EDH 7225 CURRICULUM DEVELOPMENT IN HIGHER EDUCATION (3)
Emphasis on curriculum perspectives, procedures, and practices in higher education; principles of curriculum and instruction in higher education; theory and practices in goal setting, curriculum planning, instructional improvement and curriculum design.

EDH 7505 HIGHER EDUCATION FINANCE (3)
Emphasis on financial policies, planning and budgeting; allocation, financial analysis and management, patterns of expenditure, sources of income. Relationships between educational objectives and resource allocations.

EDH 7635 ORGANIZATION AND ADMINISTRATION OF HIGHER EDUCATION (3)
This course examines the concepts about higher education organizations and administration, the behaviors of those organizations and administrators, and the relationships between concept and practice.

EDH 7930 HIGHER EDUCATION SEMINAR (1)
Topies of general and special concern in higher education, restricted to advanced graduate students. May be repeated up to 8 credit hours.

HUMANITIES EDUCATION

UNDERGRADUATE COURSES

HUM 4870 CURRENT TRENDS IN THE TEACHING OF HUMANITIES (3)
Curricular patterns, materials, and instructional practices in the teaching of humanities.

HUM 4909 DIRECTED STUDY: HUMANITIES EDUCATION (1-3)
PR: Departmental standing. To extend competency in teaching field. Offered only as a scheduled class.

HUM 4936 SENIOR SEMINAR IN HUMANITIES EDUCATION (2)

HUM 4940 INTERNSHIP: HUMANITIES EDUCATION (1-12)
One full semester of internship in a public or private school. Intern takes Senior Seminar in Education concurrently. In special programs where the internship experience is distributed over two or more semesters, students will be registered for credit which accumulates from 9 to 12 semester hours. (S/U only.)

HUM 4945 INTERNSHIP (1-4)
Part-time internship in an accredited public or private school. To be taken concurrently with departmental requirements and will include beginning of year experiences when taken in Fall Semester. (S/U only.)

HUM 4946 INTERNSHIP (1-2)
PR: Admission to the College of Education and/or departmental approval. Internship in an accredited public or private school which will include the end of an academic year or program closing. (S/U only.)

INDUSTRIAL AND TECHNICAL EDUCATION

UNDERGRADUATE COURSES

EIA 4360 SPECIAL TEACHING METHODS: INDUSTRIAL ARTS (3)
PR: EVT 4364 or CI. Equips Industrial Arts instructors with professional competencies for classroom and laboratory settings. Includes the selection of appropriate methods, planning, and delivery of instruction, along with supervision of students in laboratory areas.

EIV 4314 METHODS OF TEACHING: DIVERSIFIED COOPERATIVE TRAINING (3)
Methods, techniques, and materials for instruction. This course specializes in Diversified Cooperative Training.

EVT 3063 THE TEACHER IN THE WORLD OF WORK (3)
A study of educational efforts in preparing people for work, the relationship of a job to a man's life style, and the concept of education as a life-long process.

EVT 4661C TEACHING IN INDUSTRIAL-TECHNICAL EDUCATION (1-3)
An overview of the ITE instructor's roles and responsibilities concerning students, the school and the community and a look at the organization of vocational education, liability, and professionalism.

EVT 4865 HISTORY AND PRINCIPLES OF VOCATIONAL EDUCATION (4)
An overview of current policies and principles in vocational education including their historical, sociological, and philosophical bases. Open to majors and non-majors.

EVT 4864C PROFESSIONAL DEVELOPMENT IN INDUSTRIAL TECHNICAL EDUCATION (1-3)
Designed for the ITE teachers in forming plans of professional development. Competencies include the development of a personal education philosophy; attributes in creating harmonious school-community relationships; and desirable staff and teacher associations.

EVT 4776 CURRICULUM CONSTRUCTION: INDUSTRIAL-TECHNICAL EDUCATION (4)
PR: EVT 4364 or CI. Design, development, implementation and evaluation of effective curricular materials in industrial, technical and health related occupations; includes individualized and self-paced materials. Open to majors and non-majors.

EVT 4254 PROGRAM MANAGEMENT: INDUSTRIAL-TECHNICAL EDUCATION (4)
PR: CI. Planning, organizing, motivating and controlling of the learning environment in Industrial-Technical Education Classroom and Laboratories. Program standards for OSHA, program review, record keeping, and budgeting will be examined.

EVT 4263 ORGANIZATION AND ADMINISTRATION OF STUDENT VOCATIONAL ORGANIZATIONS (1-4)
Includes the organization and administration of the local student vocational organization in industrial, health occupations, business and distributive education.

EVT 4311 TEACHING METHODS: HEALTH OCCUPATIONS (4)
PR: EVT 4364 or CI. Equips health occupations instructors with professional competencies for classroom, laboratory and clinical settings. Includes selection of appropriate methods, planning and delivery of effective demonstrations, use of media and supervision of students in clinical areas.

EVT 4364 BASIC TEACHING METHODS IN VOCATIONAL EDUCATION (4)
Examines the role of the vocational instructor in the teaching-learning process; looks at factors that promote and inhibit learning particularly for adults. Reviews a wide variety of instructional approaches, techniques and methods; includes selection of techniques for situations.

EVT 4365 SPECIAL TEACHING METHODS: INDUSTRIAL-TECHNICAL EDUCATION (4)
PR: EVT 4364 or CI. Instructional techniques in industrial-technical education. Vocational Industrial Clubs of America activities may be included.

EVT 4367 ASSESSING STUDENT SKILL IN INDUSTRIAL-TECHNICAL EDUCATION (4)
Techniques for assessing student's mastery of skills in industrial-technical education. Focuses on specific competencies including developing and administering performance tests, monitoring student process, and others. Open to majors and non-majors.

EVT 4540 READING SKILLS IN ADULT AND VOCATIONAL EDUCATION (2)
PR: RED 4360, or CR in RED 4360. Students will study reading and communication skills as they relate to their particular content areas in Adult and Vocational-Technical Education. This course, along with RED 4360, satisfies State certification requirement pertaining to secondary reading.

EVT 4815 FACILITY DESIGN AND MANAGEMENT (3)
Design and develop instructional facility floor plans consistent with modern and efficient methods of instruction as well as evaluate existing
classrooms, laboratories, and shops. Selection and location of equipment. Review and prepare operational plans for the management of equipment, furniture, tools, and supplies as they relate to effective student learning.

**EVT 4905 INDEPENDENT STUDY:**
**INDUSTRIAL-TECHNICAL EDUCATION** (1-4)
PR: CI. Specialized independent study determined by the student's needs and interests. May be repeated when subjects vary. (S/U only.)

**EVT 4909 DIRECTED STUDY:**
**INDUSTRIAL-TECHNICAL EDUCATION** (1-3)
PR: Senior standing. To extend competency in teaching field. Offered only as a scheduled class.

**EVT 4936 SENIOR SEMINAR IN INDUSTRIAL-TECHNICAL EDUCATION** (2)

**EVT 4940 INTERNSHIP: INDUSTRIAL-TECHNICAL EDUCATION** (1-12)
One full semester of internship in a public or private school. Intern takes Senior Seminar in Education concurrently. In special programs where the intern experience is distributed over two or more semesters, students will be registered for credit which accumulates from 9-12 semester hours. (S/U only.)

**EVT 4946 SUPERVISED FIELD EXPERIENCE:**
**INDUSTRIAL-TECHNICAL EDUCATION** (1-6)
PR: CI. Planned supervised functions in the area of specialization and co-ordinated with selected schools, government, offices, social agencies, businesses and industries on site. (S/U only.)

**GRADUATE COURSES**

**EVT 5315 PROGRAM MANAGEMENT: DIVERSIFIED COOPERATIVE TRAINING** (3)
Organization, coordination, and budgeting of adult, cooperative, and special programs.

**EVT 5190 SCHOOL COMMUNITY DEVELOPMENT** (4)
This course is an approach to identifying, assessing, and analyzing, individual, institutional and community needs for the purpose of cooperative program planning, community involvement and public support.

**EVT 5200 OCCUPATIONAL SAFETY AND HEALTH (OSHA)** (3)
Planning and organizing safety and health course content to be included in occupational education programs in Florida. Content to be identified in and selected from Federal Registers, Department of Labor, Occupational Safety and Health Standards.

**EVT 5366 PREPARATION AND DEVELOPMENT FOR TEACHING** (4)
The development of selected instructional materials, use of new educational media, performance evaluation instruments, and counseling techniques.

**EVT 6191 PLACEMENT OF SEVERELY HANDICAPPED PEOPLE** (3)
A study of the purpose, methods, process and procedures used to plan, implement and operate a Vocational Rehabilitation Cooperative School Counseling Program.

**EVT 6300 INDIVIDUALIZED INSTRUCTION** (3)
Attention is given to individualized instruction to include the special needs students, the slow learner, and the more capable student.

**EVT 6385 ADMINISTRATION OF LOCAL PROGRAMS: VOCATIONAL** (4)
Organization, personnel selection and assignment, and establishment of policies and procedures for local vocational programs within federal, state and local requirements.

**EVT 6386 SUPERVISION OF LOCAL PROGRAMS: VOCATIONAL EDUCATION** (3)
PR: CI. A study of the factors involved in the supervision of instruction including plans for teacher education, improvement of instruction, coordination of activities, and personnel relations.

**EVT 6563 CURRENT TRENDS** (3)
Historical information, issues, current trends, new dimensions and problems in the area of specialization.

**EVT 6769 METHODS, PROCEDURES, AND PROCESSES OF VOCATIONAL EVALUATION** (3)
A study of the purposes, methods, processes and procedures used to plan, implement and operate a vocational evaluation program.

**EVT 6926 STAFF DEVELOPMENT** (1-5)
Implementation of new procedures addressed to discreet developmental needs of the staff as identified by an educational agency.

**EVT 6930 SEMINAR** (4)
PR: EDF 6431 and EVT 6481. Applied research techniques and investigation of important current issues of thesis in the area of specialization.

**EVT 6948 PRACTICUM: INDUSTRIAL-TECHNICAL EDUCATION** (3-6)
A problem-centered field study in the local community, school, government, office, social agency, business or industry.

**EVT 7066 FOUNDATIONS AND PHILOSOPHY OF VOCATIONAL, TECHNICAL, AND ADULT EDUCATION** (3)
PR: Preliminary admission to the advanced graduate program and/or CI. This course focuses on the historical development and contemporary philosophies, cultural bases and practices of Vocational, Technical and Adult Education.

**EVT 7155 CAREER DEVELOPMENT IN VOCATIONAL, TECHNICAL, AND ADULT EDUCATION** (3)
PR: Preliminary admission to the Graduate Program and CI. Course involves the development of a career model designed to facilitate career development of students and articulate vocational education and career guidance.

**EVT 7164 VOCATIONAL AND ADULT EDUCATION PROGRAM PLANNING AND IMPLEMENTATION** (3)
PR: EVT 4176, Curriculum Construction, or equivalent. Designed to equip students with the knowledge and skills necessary to participate in the initial determination, planning, organization, and the implementation of new or expanded vocational and technical education programs.

**EVT 7168 INSTRUCTIONAL DEVELOPMENT FOR VOCATIONAL, TECHNICAL, AND ADULT EDUCATION** (4)
PR: EDF 5206 or Cl. The course is designed to develop competencies in a systematic approach to vocational, technical, and adult education curriculum improvement and instructional development. Students will apply an instructional systems approach to the development of practical solutions to critical teaching and learning problems.

**EVT 7760 RESEARCH SEMINAR IN VOCATIONAL, TECHNICAL, AND ADULT EDUCATION** (3)
PR: Completion of program requirements in measurement and research or CI. Examination and critical evaluation of research in a particular specialization area of Vocational, Technical, or Adult Education. Preparation of an individual research prospectus. Available to majors only. Repeatable up to six credit hours.

**LIBRARY, MEDIA, AND INFORMATION STUDIES**

**UNDERGRADUATE COURSES**

**LIS 2001 USE OF THE LIBRARY** (2)
An introduction to the resources of the University of South Florida Library. Emphasis will be placed on library materials germane to the course work of the undergraduate. (S/U only.)

**LIS 4302 PRODUCING AUDIOVISUAL MATERIALS** (2)
PR: Upper level standing or CI. Basic skills in designing and preparing audiovisual materials for wide variety of instructional and communications purposes.

**LIS 4503 INSTRUCTIONAL TECHNOLOGY** (3)
PR: Upper level standing or CI. Provides basic skills in selecting, utilizing, presenting, and evaluating: 1) various types of audio-visual media and 2) computers and computer software for use with students in a variety of classroom and learning situations.

**GRADUATE COURSES**

**COP 6242 COMPUTER PROGRAMMING FOR LIBRARIES AND INFORMATION CENTERS** (3)
Programming of library-oriented computer applications using PL/C programming language. Emphasis on programming of library technical services operations and information retrieval and dissemination systems.

**LIS 5315 INSTRUCTIONAL GRAPHICS** (3)
PR: CI. Theoretical aspects, planning and production of instructional graphic material. The Theory of graphic communications. Interpreting
LIS 5321 PREPARING SINGLE CONCEPT FILMS (3)
PR: CI. Techniques and procedures in the preparation of educational films. Ascertaining concepts, script writing, graphics, lighting, filming, editing.

LIS 5333 TV IN SCHOOL AND LIBRARIES (3)
Small format video tape recordings and the utilization of open and closed broadcasts in schools and libraries.

LIS 5404 FOUNDATIONS OF LIBRARIANSHIP (3)
Overview of the introduction to the study of library service; history; organization; specialized literature; outstanding leaders; current trends, issues, and problems. Place of the library in society with its contributions to that society.

LIS 5434 COMMUNITY COLLEGE LIBRARIANSHIP (3)
Introduction to the community college concept, examination of the basic elements, functions, purposes, directions, programs, etc., inherent in both the community college and the library resource center which serves it.

LIS 5937 SELECTED TOPICS IN LIBRARY STUDIES (1-4)
PR: CI. Covers a variety of topics in such areas as collection development, reference services, technical services, and administration.

LIS 6110 HISTORY OF LIBRARIES (3)
Development of libraries as found from the earliest records to the great libraries of modern times and the library as a social institution.

LIS 6111 HISTORY OF CHILDREN'S LITERATURE (3)
Historical bibliographical survey of imaginative and informational literature for children.

LIS 6119 CONTEMPORARY PUBLISHING AND PRINTING (3)
PR: LIS 6520. A survey of book publishing as it is carried on today, primarily in the United States. Emphasis on structure of the industry, economic conditions, technological developments, social functions of book publishing and distribution. Complementary relations between libraries and publishing.

LIS 6202 INTRODUCTION TO BIBLIOThERAPY (3)
PR: CI. History, theory and practice of bibliotherapy. Conflicting definitions and their resolutions. For continuing education of librar­ians, advanced majors and practitioners of related disciplines.

LIS 6203 READING GUIDANCE PROGRAMS IN LIBRARIES AND CLASSROOMS (3)
Working with factors and forces influencing reading habits of children and youth; programs for teaching investigative and library skills; materials and methods for guidance of reading, leading and viewing.

LIS 6206 ADULT SERVICES IN LIBRARIES (3)
PR: LIS 6520 or CI. Traditional and innovative services for adults in public and other types of libraries, including those for special groups such as the aging, handicapped, and institutionalized.

LIS 6225 STORYTELLING (3)
PR: LIS 6586 or CI. Building storytelling programs for school and public libraries or other educational institutions. Analysis of historical aspects, material suitable for use and audience reaction.

LIS 6240 INTRODUCTION TO LIBRARIANSHIP (3)
Historical overview of the emergence of information science as a discipline. The fundamental concepts of information retrieval systems and subsystems, related information technologies, including indexing and abstracting, and their applications to the field of librarianship.

LIS 6262 LIBRARY SYSTEMS PLANNING (3)
Application of systems planning and data processing technology to library files. Emphasis on analysis of selected library subsystems.

LIS 6271 RESEARCH METHODS IN LIBRARIANSHIP (3)
Overview of present status of research in library and information science; introduction to research methods and their application to librarianship; designed to prepare students to evaluate and plan research studies relating to library and information science.

LIS 6312 PREPARING INSTRUCTIONAL MEDIA (3)
Fundamentals of preparing and using audiovisuals as they relate to the communication process.

LIS 6402 ADVANCED LIBRARY ADMINISTRATION (3)
PR: CI. Applications of staff management principles to library situations. Includes staff roles in current and future operations, application of library performance measures to determine staff effectiveness; preparation of staff manuals; problems of special classes of library workers such as volunteers and students.

LIS 6411 INTRODUCTION TO LIBRARY ADMINISTRATION (3)
PR: CI. Behavioral approach to libraries as organizations; administra­
tive principles, theories, and problems of all types of libraries; methods of administration; use of case studies; role plays; and in-basket exercises.

LIS 6428 AUDIOVISUAL ADMINISTRATION (3)
PR: LIS 6312 and LIS 6508 or CI. Audiovisual administrative practices in school systems and community colleges.

LIS 6432 SEMINAR IN ACADEMIC LIBRARIES (3)
PR: LIS 6409. Identification of problems and critical examination of methods in administrative areas of technical, student, and teaching staff services, fiscal and legal responsibilities, staff organization and supervision in academic libraries.

LIS 6445 SEMINAR IN PUBLIC LIBRARIES (3)
PR: LIS 6409 or CI. Critical examination of public and institutional library administration, services, resources, and facilities at the municipal, county, and regional levels. Role of state and federal governments in library development.

LIS 6455 THE ORGANIZATION AND ADMINISTRATION OF THE SCHOOL MEDIA CENTER (3)
PR: CI. Media quarters, facilities, collections, equipment, and services. Principles of organization and administration of media programs in elementary and secondary schools. Field trips to area media centers required.

LIS 6463 LIBRARY NETWORKS AND SYSTEMS (3)
PR: LIS 6409 or LIS 6428 or LIS 6455. Development of library networks at the local, state, regional, and national levels with consideration of organization, administration, services, funding and legislation.

LIS 6472 SEMINAR IN SPECIAL LIBRARIES (3)
PR: LIS 6409. Identification of problems and critical examination of methods in administrative areas of technical and special service clientele; fiscal and legal responsibilities, staff organization and services in special libraries.

LIS 6473 LAW LIBRARIANSHIP (3)
PR: LIS 6608, LIS 6735, or CI. Course designed to give students an understanding of all aspects of law librarianship, including selection, acquisition, organization, and use of information resources of the law researcher. Emphasis on books, microforms, and computerized legal systems used for legal research, and on work products of lawyers.

LIS 6475 HEALTH SCIENCES LIBRARIANSHIP (3)
PR: LIS 6250, LIS 6409, LIS 6608, LIS 6735, or CI. All aspects of health science librarianship, including administration, acquisition, organization, and use of information resources for persons in the health fields such as physicians, medical students, nurses and allied health personnel and students, and researchers. Field trip may be required.

LIS 6502 SERIAL PUBLICATIONS IN LIBRARIES (2)
PR: LIS 6735 or CI. The organization and management of serial publications in libraries, including principles and practices in cataloging serials.

LIS 6506 AUDIOVISUAL UTILIZATION (3)
Examination (and utilization) of non-print media. Characteristics of media equipment and paradigms of use.

LIS 6508 THE CURRICULUM AND INSTRUCTIONAL TECHNOLOGY (3)
Effective utilization of instructional materials as they relate to specific areas of curriculum in elementary and high school programs.

LIS 6520 BUILDING LIBRARY COLLECTIONS (3)
PR: LIS 6608 or CI. Developmental approach to building library collections of both print and non-print materials. Emphasis upon evaluation, selection and acquisition of library materials as they uphold the objectives of the institutions for which they are selected and acquired.

LIS 6572 BOOKS AND RELATED MATERIALS FOR YOUNG ADULTS (3)
Young adult materials for use in secondary school libraries, young adult sections of public libraries and other institutions serving youth. Equal emphasis upon 1) selection principles and bibliographical sources as well as upon 2) utilization in terms of service to the young adult.

LIS 6586 MATERIALS FOR CHILDREN (3)
Examination of materials for all institutions in which children are served: school media centers public libraries, kindergartens, etc. Stress on selection aids, reviewing techniques, utilization.

LIS 6605 ADVANCED INFORMATION SOURCES AND SERVICES (3)
PR: LIS 6608. Reference materials in the humanities, social sciences, science and technology.
LIS 6608 BASIC INFORMATION SOURCES AND SERVICES (3)
An in-depth examination of the basic sources of information in the general library; discussion of bibliographical control of all communication media, with emphasis on those tools which are of most value to general reference services.

LIS 6609 AUTOMATED INFORMATION SOURCES AND SERVICES (3)
PR: LIS 6608, LIS 6260, or CI. Principles of online searching and characteristics of machine-readable bibliographic data bases. Includes two credit hours of laboratory providing hands-on research experience. (S/U only)

LIS 6610 INFORMATION SOURCES AND SERVICES IN THE HUMANITIES (3)
PR: LIS 6608 or CI. Detailed consideration of the bibliographical and reference materials in the humanities with training and practice in their use for solving problems arising in the reference service.

LIS 6620 INFORMATION SOURCES AND SERVICES IN THE SOCIAL SCIENCES (3)
PR: LIS 6608 or CI. Detailed consideration of the bibliographical and reference materials in the social sciences with training and practice in their use for solving problems arising in reference service.

LIS 6630 INFORMATION SOURCES AND SERVICES IN SCIENCE AND TECHNOLOGY (3)
PR: LIS 6608 or CI. Study of representative reference sources in pure and applied sciences with equal attention given to typical problems encountered in scientific and technological reference service.

LIS 6633 NON-TRADITIONAL SCIENTIFIC INFORMATION MANAGEMENT (3)
PR: LIS 6630 or CI. Explores alternatives to traditional systems of handling biological, pharmaceutical, medical, toxicological, environmental, as well as chemical information. Selected systems not based on words are studied.

LIS 6651 BOOKS AND RELATED MATERIALS OF LATIN AMERICAN COUNTRIES SUITABLE FOR CHILDREN AND YOUNG PEOPLE (3)
Bibliographic sources, aids and tools for the selection and utilization of Latin American books and related materials suitable for children and young people. Examination of representative materials in terms of the basic principles and criteria of selection for libraries.

LIS 6661 GOVERNMENT DOCUMENTS (3)
The nature of state, federal, United Nations, and international documents, their reference and research value; the techniques of acquisition, organization and reference use.

LIS 6724 CLASSIFICATION AND CATALOGING OF NON-BOOK MATERIALS (2)
PR: LIS 6735 or CI. Principles and practices in cataloging and organizing non-book materials.

LIS 6735 TECHNICAL SERVICES IN LIBRARIES (3)
Principles of general library practice in technical services operations. Emphasis on descriptive cataloging; and use of unabridged Dewey Decimal Classification.

LIS 6745 ADVANCED CATALOGING (3)
PR: LIS 6735. Introduction to the practice in using selected schedules of Library of Congress Classification System and the Library of Congress Subject Heading List; changing policies and procedures in cataloging and an introduction to the use of the MARC format for inputting cataloging data into machine readable files.

LIS 6906 INDEPENDENT STUDY (1-4)
PR: 20 hours earned in program and consent of advisor. (S/U only.)

LIS 6946 SUPERVISED FIELD WORK (3)
PR: CI. Supervised experience in an approved cooperating library. Includes practice work, seminar sessions and individual conferences, a progress report, and a final report on the field experience.

LIS 7406 ADVANCED FOUNDATIONS OF LIBRARIANSHIP (4)
PR: LIS 6404 or CI. Emphasis in this course is upon American libraries and American library education as influenced by legislation, education, censorship, technology, the copyright provisions and other influences.

LIS 7938 ADVANCED SEMINAR IN LIBRARIANSHIP (1-4)
PR: CI. Seminar in advanced areas of current importance in library media, and information science. Primarily for students enrolled in specialist and doctoral programs.

MATHEMATICS EDUCATION

UNDERGRADUATE COURSES

CAP 4100 COMPUTING DEVICES IN THE EDUCATIONAL PROCESS (3)
Characteristics of computing devices, flow charting, programming, classroom management techniques, teaching materials, and applications will be discussed.

MAE 4320 TEACHING JUNIOR HIGH SCHOOL MATHEMATICS (3)
PR: 18 semester hours of mathematics or CC. Techniques and materials of instruction in junior high school mathematics.

MAE 4330 TEACHING SENIOR HIGH SCHOOL MATHEMATICS (3)
PR: EDG 4200 or CR in EDG 4200 and admission to teacher education program in mathematics. Techniques and materials of instruction in mathematics.

MAE 4909 DIRECTED STUDY: MATHEMATICS EDUCATION (1-3)
PR: Senior Standing. To extend competency in teaching field. Offered only as a scheduled class.

MAE 4936 SENIOR SEMINAR IN MATHEMATICS EDUCATION (2)

MAE 4940 INTERNSHIP: MATHEMATICS EDUCATION (1-12)
One full semester of internship in a public or private school. Intern takes Senior Seminar in Education concurrently. In special programs where the intern experience is distributed over two or more semesters, students will be registered for credit which accumulates from 9 to 12 semester hours. (S/U only.)

MAE 4945 INTERNSHIP (1-4)
Part-time internship in an accredited public or private school. To be taken concurrently with departmental requirements and will include beginning of year experiences when taken in Fall Semester. (S/U only.)

MAE 4946 INTERNSHIP (1-2)
PR: Admission to the College of Education and/or departmental approval. Internship in an accredited public or private school which will include the end of an academic year or program closing. (S/U only.)

GRADUATE COURSES

MAE 5636C THE UTILIZATION OF LABORATORY TECHNIQUES IN THE TEACHING OF MATHEMATICS (3)
PR: 12 semester hours of mathematics or CC. An examination of a variety of sample laboratory lessons along with methods for creating and evaluating such lessons.

MAE 6136 CURRENT TRENDS IN SECONDARY MATHEMATICS EDUCATION (3)
PR: MAE 4330 or CC. Curricular patterns and instructional practices in secondary mathematics.

MAE 6337 TOPICS IN TEACHING ALGEBRA (1-4)
PR: Undergraduate degree in mathematics or certification in secondary school mathematics. Topics in algebra, philosophy, new trends, and methods of teaching secondary school algebra. May be repeated for a maximum of four hours.

MAE 6338 TOPICS IN TEACHING GEOMETRY (1-4)
PR: Undergraduate degree in mathematics or certification in secondary school mathematics. Topics in geometry, philosophy, new trends, and methods of teaching secondary school geometry. May be repeated for a maximum of four hours.
MEASUREMENT AND RESEARCH

UNDERGRADUATE COURSES

EDF 4430 MEASUREMENT FOR TEACHERS (3)
PR: Upper level standing. Concepts and skills related to planning, developing, administering, and interpreting classroom tests; interpreting standardized tests; and evaluating and reporting student progress.

EDF 6407 STATISTICAL ANALYSIS FOR EDUCATIONAL RESEARCH I (4)
Theory and application of statistical procedures to problems in education; (1) Descriptive statistics, 2) Probability-sampling distributions, 3) Inferential statistics-interval estimation, tests of significance (Z, t, F-Tests) and analysis of variance with a computer included.

EDF 6431 FOUNDATIONS OF MEASUREMENT (3)
Fundamental descriptive statistics, basic measurement concepts, role of measurement in education, construction of teacher-made tests and interpretation of standardized tests.

EDF 6481 FOUNDATIONS OF EDUCATIONAL RESEARCH (3)
PR: EDF 6431. Major types of educational research, with emphasis upon understanding the experimental method.

EDF 7408 STATISTICAL ANALYSIS FOR EDUCATIONAL RESEARCH II (4)
PR: EDF 7407 or Cl. Theory and application of statistical procedures to problems in education; (1) ANOVA-factorial, ANCOVA; (2) non-parametric statistics; (3) multiple correlation and regression—a specific technique and a general approach to data analysis. Coordinated use of computer may be included.

EDF 7410 DESIGN OF SYSTEMATIC STUDIES IN EDUCATION (4)
PR: EDF 7408 or equivalent or Cl. Theory and application of major design models to systematic inquiry in education, from experimental to naturalistic models. Nature and role of sampling in systematic studies.

EDF 7437 ADVANCED EDUCATIONAL MEASUREMENT I (3)
PR: EDF 7431 or equivalent. EDF 7407 or equivalent. Logical, empirical, and statistical models of measurement processes. Examination of issues relative to scaling with a focus on reliability of measurement. Critique of available instruments for measurement in psychology and education.

EDF 7438 ADVANCED EDUCATIONAL MEASUREMENT II (4)
PR: EDF 7437 or Cl. Scaling techniques in measurement. Item analytic theories and practices. Validation theory and construction and validation of instruments for measurements in education.

EDF 7444 STATISTICAL ANALYSIS FOR EDUCATIONAL RESEARCH III (4)
PR: EDF 7408 or Cl. Theory and application of selected multivariate statistical procedures including Canonical Correlation, Discriminate Analysis, Multivariate Analysis of Variance, Factor Analysis, Multivariate Analysis of Categorical Data, and Path Analysis.

EDF 7455 THEORY AND PRACTICE OF EDUCATION EVALUATION (3)
PR: EDF 7493 or Cl. Comparative analysis of contemporary evaluation approaches; theory and scientific basis of evaluation; social and political impact of evaluation on educational decision making; and the design, implementation and reporting of evaluation studies.

EDF 7488 APPLICATION OF COMPUTER LANGUAGE AND PROCEDURES IN EDUCATION (1)
Development of understanding and technical skill in relation to computer and data processing approaches to solution of educational research, and administrative problems. Training in use of Fortran as a programming language.

EDF 7493 SYSTEMS APPROACHES FOR PROGRAM PLANNING, VALUATION AND DEVELOPMENT (4)
Systems theory applied to problems in program planning, evaluation and development. Analysis of evaluation models. Application of Networking, PERT and Modeling procedures to selected problems in education.
## Graduates Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>MUE 6080</td>
<td>Foundations and Principles of Music Education</td>
<td>(3)</td>
<td>PR: Acceptance into Music Education Graduate Program or CI.</td>
</tr>
<tr>
<td>MUE 6116</td>
<td>Advanced Elementary School Music</td>
<td>(3)</td>
<td>PR: Acceptance in Music Education Graduate Program or CI. Study</td>
</tr>
<tr>
<td>MUE 6189</td>
<td>Music Supervision and Administration</td>
<td>(3)</td>
<td>The music curriculum in relation to the total school program; staff</td>
</tr>
<tr>
<td>MUE 6415</td>
<td>Advanced Secondary Vocal Music</td>
<td>(3)</td>
<td>PR: Acceptance in the Music Education Graduate Program or CI.</td>
</tr>
<tr>
<td>MUE 6418</td>
<td>Advanced Materials for Instrumental Music Education</td>
<td>(3)</td>
<td>PR: Acceptance in the Music Education Graduate Program and CI.</td>
</tr>
<tr>
<td>MUE 6495</td>
<td>Instrumental Conducting in the Secondary Schools</td>
<td>(3)</td>
<td>PR: Acceptance in the Music Education Graduate Program or CI.</td>
</tr>
<tr>
<td>MUE 6906</td>
<td>Independent Study: Music Education</td>
<td>(1-6)</td>
<td>Independent study in which students must have a contract with an instructor.</td>
</tr>
<tr>
<td>MUE 7630</td>
<td>Aesthetics in Music Education</td>
<td>(3)</td>
<td>PR: Acceptance in the music education graduate program or CI.</td>
</tr>
<tr>
<td>MUE 7641</td>
<td>Foundations of Musical Learning and Teaching</td>
<td>(3)</td>
<td>PR: Acceptance in the Music Education graduate program, a graduate</td>
</tr>
</tbody>
</table>

## Physical Education—Elective

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAA 1374</td>
<td>Folk &amp; Square Dance</td>
<td>(2)</td>
<td>An opportunity for the development of fundamental skills and knowledge</td>
</tr>
<tr>
<td>PEL 1121</td>
<td>Introductory experience in the sport of golf.</td>
<td>(2)</td>
<td>PR: PEL 1121L or equivalent. Knowledge and skills necessary for saving</td>
</tr>
<tr>
<td>PEL 1141</td>
<td>Development and refinement of the essential skills and information necessary for enjoying the sport of Archery.</td>
<td>(2)</td>
<td>PR: PEL 1121L or equivalent. Continuation of PEL 1121L. Special emphasis on development of endurance and efficient stroking.</td>
</tr>
</tbody>
</table>
PR: PEN 2122L or equivalent. Development of the essential skills and knowledge necessary for enjoying the sport of Skin & Scuba Diving. Correct utilization and care of equipment; emphasis on personal safety. (S/U only.)

PEN 2251 (formerly PEN 2251L) CANOEING (2)
PR: PEN 1112L or equivalent. Development and refinement of the skills necessary for enjoying canoeing. Skills, safety techniques and trips. (S/U only.)

PEQ 3115 (formerly PEQ 3115C) WATER SAFETY INSTRUCTION (2)
PR: PEN 2113C. Examination of the various swimming strokes leading to identification of appropriate methods and techniques for instructing others. ARC certification offered. (S/U only.)

PET 2330C HUMAN KINESIOLOGY I (2)
An introduction to the structure and function of the skeletal and neuromuscular systems in reference to their support of vigorous human movement. (S/U only.)

PET 2340C HUMAN KINESIOLOGY II (2)
PR: PET 2330C. An introduction to the mechanical principles which govern human movement. (S/U only.)

PET 2382 (formerly PET 2373) INTRODUCTION TO EXERCISE THEORY (2)
An introduction to the basic principles underlying exercise techniques for improving cardiovascular endurance, strength, flexibility, and weight control. Examination and critique of popular fitness programs, fads and fallacies.

PET 3931 SELECTED TOPICS (1-3)
Topics offered are selected to reflect student need and faculty interest. May be repeated up to 9 credit hours.

PET 4622 ATHLETIC TRAINING (2)
Principles and techniques of conditioning athletes for competition; prevention and care of injuries in physical education and athletic activities.

PHYSICAL EDUCATION FOR TEACHERS

UNDERGRADUATE COURSES

HES 2400 FIRST AID
Meets the American Red Cross certification requirements in standard and advanced first aid. (2)

LEI 4007 COMMUNITY RECREATION
Introduction to recreational outlets in the community and the administrative problems confronting recreational playground leaders and directors of community recreational programs. Offered on Independent Study basis only. (3)

†PEQ 3101 (formerly PEQ 3101C) AQUATICS (2)
PR: Red Cross beginning swimmer's skills, or equivalent. Includes analysis of swimming skills, teaching methodology, conducting class activities, and organizing and conducting aquatic programs.

†PET 3011C (formerly PET 3001C) INDIVIDUAL ASSESSMENT (2)
A personal evaluation of various factors related to the effective teaching of physical education. An individual profile that can be used for counseling purposes will be the final product of this course.

†PET 3312 (formerly PET 3372) HUMAN KINETICS I (6)
The structure and function of the skeletal, muscular, and nervous systems of the human body related to developmental movement and to impairments. The mechanical laws of physics as they contribute to those movements within the body which result in efficient running, jumping, throwing, catching, striking and kicking.

†PET 3313 (formerly PET 3381) HUMAN KINETICS II (6)
PR: PET 3372. An application of anatomy and physiology related to physical activity. Emphasis is placed on the acute and chronic adaptation of the body activity as reflected at cellular level. The special needs of physical educators in working with different ages, sexes, and atypical persons are considered.

†PET 3461 (formerly PET 3434C) MOVEMENT EDUCATION THEORY AND APPLICATION I (3)
A two course sequence emphasizing movement experiences appropriate for elementary school children. The philosophy, objectives, and analytical framework of movement education are studied relative to basic movement concepts.

†PET 3434C (formerly PET 3435C) MOVEMENT EDUCATION THEORY AND APPLICATION II (3)
PR: PET 3434C. A two course sequence emphasizing movement experiences appropriate for elementary school children. The philosophy, objectives, and analytical framework of movement education are studied relative to basic movement concepts.

†PET 3943C SEMINAR AND INTERNSHIP I (5)
Elementary school physical education teaching experiences are provided for students with added focus on the primary elementary grades. Seminars emphasize planning and teaching methodology. Health and recreation as they relate to elementary school children are studied.

†PET 3944C SEMINAR AND INTERNSHIP II (5)
Physical education teaching experience is provided at various grade levels. Seminars are concerned with organization, evaluation, and extra-class activities. Individual teaching is analyzed and programmed.

†PET 4092 (formerly PET 4362C) APPLIED HUMAN KINETICS II (4)
The biomechanical analysis of movement, principles of psychomotor learning, teaching methodologies and teaching competencies in individual and team sports and in teaching specialized health-related topics such as weight control and individual assessment techniques.

PET 4304 (formerly PET 4302) PRINCIPLES AND ISSUES IN COACHING (4)
The application of principles from philosophy, psychology, sociology, and physiology to competitive athletics and coaching.

†PET 4381C (formerly PET 4361C) APPLIED HUMAN KINETICS I (4)
The focus is on the biomechanical analysis of movement in dance and selected sports, physical fitness, and exercise principles as related to teaching. Emphasis is directed to developing competency in teaching all aspects of individual and team sports and in teaching specialized health-related topics such as weight control and individual fitness assessment techniques.

†PET 4905 INDEPENDENT STUDY: PROFESSIONAL PHYSICAL EDUCATION (1-4)
PR: CI. Specialized independent study determined by the student's needs and interests. May be repeated when subjects vary. (S/U only.)

†PET 4909 DIRECTED STUDY: PROFESSIONAL PHYSICAL EDUCATION (1-3)
PR: Senior standing. To extend competency in teaching field. Offered only as a scheduled class.

†4943C SEMINAR AND INTERNSHIP III (5)
Supervised teaching experiences in physical education at the secondary school level. On-campus seminars emphasize the influence of various teaching styles on the learning process; the process of individualizing learning experiences in the psychomotor, cognitive, and affective domain.

†PET 4944C SEMINAR AND INTERNSHIP IV (5)
Supervised internship in physical education in the public schools or allied community-based programs. On-campus seminars explore relevant issues in the physical education profession.

GRADUATE COURSES

PHET 6016C (formerly PET 6051C) PROFESSIONAL ASSESSMENT (3)
Selected reading of current trends in physical education; discussion of philosophies of teaching; and individual appraisal of knowledge, values, attitudes and professional competencies.

PET 6205 SOCIO-PsyCHOLOGICAL ASPECTS OF HUMAN MOVEMENT (3)
Involves the psychological and sociological implications of movement to historical and contemporary man. Emphasis on concept, role of movement in society and values and attitudes held toward movement.

PET 6296 SPECIALIZED STUDY IN SOCIOPSYCHOLOGICAL ASPECTS OF HUMAN MOVEMENT: (SUBJECT) (1-4)
Will provide in-depth study in specific areas related to sociological and psychological principles of human movement. May be repeated for credit.

PET 3905C (formerly PET 6345) BIO-KINETICS OF HUMAN MOVEMENT (3)
Integration of basic kinesiological foundations applied to teaching physical education. Specific topics include: physical growth and neuromuscular development, physical principles of human movement and the effects of exercise on the muscular and cardiorespiratory systems.

PET 6396C SPECIALIZED STUDY IN BIO-KINETICS OF HUMAN MOVEMENT (1-4)
Will provide in-depth study in specific areas related to neurologi...
physiological, and mechanical principles of human development. Repeatable.

PET 6425 CURRICULUM AND INSTRUCTIONAL PROGRESS IN PHYSICAL EDUCATION (3) Application of learning theory and education innovations, study of structure of subject matter and styles of teaching and investigation of the nature of the learner as these relate to teaching physical education. Fieldwork may be required.

PET 6496 SPECIALIZED STUDY IN CURRICULUM AND INSTRUCTIONAL PROCESS IN PHYSICAL EDUCATION (1-4) Will provide in-depth study in specific areas related to the teaching learning process of physical education. Repeatable.

PET 6645 PHYSICAL EDUCATION FOR THE HANDICAPPED (4) The course is concerned with the motor performance and physical fitness of handicapped individuals. Study includes psycho-educational characteristics; planning, conducting, and evaluating individualized programs of physical education; and review of relevant literature. Fieldwork may be required.

PET 6695C (formerly PET 6646) PHYSICAL EDUCATION FOR THE HANDICAPPED PRACTICUM (2-4) PR: PET 6645 or Cl. School or treatment center-based experience providing evaluation and instructional services. Seminars are conducted to discuss professional literature, teaching strategies and curriculum organization and evaluation. Repeatable.

PET 6906 INDEPENDENT STUDY: PROFESSIONAL PHYSICAL EDUCATION (1-6) Independent study in which students must have a contract with an instructor. Repeatable. (S/U only.)

PET 6910L RESEARCH PROJECT IN PHYSICAL EDUCATION (1-4) In-depth research study of selected topics concerning human movement. Topics will vary according to needs and interests of students. Repeatable.

READING EDUCATION

UNDERGRADUATE COURSES

RED 4310 READING FOR THE CHILD (3) PR: Admission to college of Education. Prereading, word recognition, comprehension and basic study skills and various reading approaches and reading interests.

RED 4357 READING IN THE SECONDARY SCHOOL (3) Basic course in Reading for Secondary school personnel.

RED 4360 READING IN SECONDARY CONTENT AREAS (2) Provides basic instruction on phonics, word recognition, readability, interests, corrective procedures, reading behaviors, comprehension, etc. Offered only in conjunction with special content reading courses.

RED 4515 CORRECTIVE READING FOR THE CHILD (3) PR: RED 4310 or equivalent. Procedures for meeting individual differences through diagnosis of needs, differentiated instruction, selected use of materials, and classroom organization.

RED 4905 INDEPENDENT STUDY: READING EDUCATION (1-4) PR: Cl. Specialized independent study determined by the student's needs and interests. May be repeated when subjects vary. (S/U only.)

RED 4909 DIRECTED STUDY: READING EDUCATION (1-3) PR: Senior standing. To extend competency in teaching field. Offered only as a scheduled class.

RED 4945 INTERNSHIP (1-4) Part-time internship in an accredited public or private school. To be taken concurrently with departmental requirements and will include beginning of year experiences when taken in Fall Semester. (S/U only.)

RED 4946 INTERNSHIP (1-2) PR: Admission to the College of Education and/or departmental approval. Internship in an accredited public or private school which will include the end of an academic year or program closing. (S/U only.)

GRADUATE COURSES

RED 6116 CURRENT TRENDS IN ELEMENTARY READING INSTRUCTION (3) PR: RED 4310 or equivalent course. Study of approaches, materials, and procedures in Elementary Reading instruction, with emphasis on pertinent research. Not for undergraduate nor to be used as a first course in Reading.

RED 6247 CURRICULUM AND SUPERVISION PROBLEMS IN ELEMENTARY EDUCATION (3) PR: EDF 6431, RED 6116, RED 6546, RED 6548, or Cl. Planning and administering programs and preparation as consultants in reading. Intensive work on individual project required.

RED 6355 READING IN SECONDARY AND HIGHER EDUCATION (3) PR: Cl. and graduate standing; RED 4310, RED 4337, or RED 4360. Designed for students and inservice teachers with appropriate B.A. degrees. Content covers Secondary, Community College and University levels. Organization permits student to work on applications to their levels and disciplines. Research paper required.

RED 6516 CORRECTIVE READING IN THE CLASSROOM (3) PR: RED 4310 or Cl. Use of diagnostic and prescriptive procedures with individual and group reading instruction.

RED 6546 DIAGNOSIS OF READING DISABILITIES (3) PR: RED 6116. Causes of reading disability; techniques and materials in diagnosis of reading problems. Diagnoses of individual children are required.

RED 6548 TECHNIQUES OF REMEDIAL READING (3) PR: RED 6116 and RED 6546. Materials in remediation of moderate to severe reading disability cases. Supervised tutoring, materials evaluation, and application of remedial techniques.

RED 6747 SURVEY OF READING RESEARCH (3) PR: EDF 6481, RED 6116, RED 6546. Cl. This course will address topics related to the location of research information, to the reading and evaluation of research, and to the identification and understanding of important studies.

RED 6838 INSTRUCTIONAL STRATEGIES AND MATERIALS DEVELOPMENT FOR THE PROBLEM READER (3) PR: EDF 6431, RED 6116, RED 6546, RED 6548, and Cl. Remediation of severe reading disability cases, tutoring of individuals and smaller groups, interview techniques, preparation of case reports.

RED 6906 INDEPENDENT STUDY: READING EDUCATION (1-6) Independent study in which students must have a contract with an instructor. Repeatable. (S/U only.)

RED 7048 READING AS A SYMBOLIC PROCESS (3) PR: RED 6116 or RED 6365. Advanced graduate standing in Reading/Language Arts or Cl. Examination and understanding of the relationship of the various perceptual, learning, affective, and cognitive processes to the acquisition of reading competencies.

RED 7839 ADVANCED CLINICAL PRACTICUM IN READING (3-6) PR: RED 6546, RED 6548, RED 6838, and Advanced Graduate standing in Reading/Language Arts. Clinical diagnosis and remediation of severe reading disability cases with emphasis on multi-disciplinary approach. May be repeated for a maximum of six hours.

RED 7938 ADVANCED GRADUATE SEMINAR IN READING/LANGUAGE ARTS (2) Discussion and evaluation of current issues and research in Reading/Language Arts and related fields. May be repeated for six semester hours. Required for each Ph.D. student. (Topics differ each semester.)

SCIENCE EDUCATION

UNDERGRADUATE COURSES

SCE 4305 COMMUNICATION SKILLS IN THE SCIENCE CLASSROOM (2) PR: RED 4360 or Cl. in RED 4360. Reading and communication skills important in understanding scientific literature and communicating findings to others.

SCE 4320 TEACHING METHODS FOR ELDERLY HIGH SCHOOL SCIENCE (3) PR: Completion of 25 semester hours of Science or CC. Survey techniques and materials unique to science, grades 7-9. Not designed for high school certification purposes.

SCE 4330 TEACHING METHODS IN THE SECONDARY SCHOOL-SCIENCES (3) PR: Completion of 26 hours in approved science areas, EDG 4200 (or...
SCE 4630 NEW TRENDS IN TEACHING THE PHYSICAL SCIENCES
(3)
Physical Science Study Committee Physics, Chemical Education Materials Study, and other new approaches to the teaching of the physical sciences. Recommended for teachers of Physics, Chemistry, and Earth Sciences.

SCE 4631 NEW TRENDS IN TEACHING BIOLOGY
(3)
Recent developments in curriculum materials and in strategies for teaching biological sciences, grades 7-12. Recommended for pre-service teachers of secondary school biology.

SCE 4905 INDEPENDENT STUDY: SCIENCE EDUCATION
(1-4)
PR: CI. Specialized independent study determined by the student's needs and interests. May be repeated when subjects vary. (S/U only.)

SCE 4909 DIRECTED STUDY: SCIENCE EDUCATION
(1-3)
PR: Senior standing. To extend competency in teaching field. Offered only as a scheduled class.

SCE 4936 SENIOR SEMINAR IN SCIENCE EDUCATION
(2)

SCE 4940 INTERNSHIP: SCIENCE EDUCATION
(1-12)
One full semester of internship in a public or private school. Intern takes Senior Seminar in Education concurrently. In special programs where the intern experience is distributed over two or more semesters, students will be registered for credit which accumulates from 9 to 12 semester hours. (S/U only.)

SCE 4945 INTERNSHIP
(1-4)
Part-time internship in an accredited public or private school. To be taken concurrently with departmental requirements and will include beginning of year experiences when taken in Fall Semester. (S/U only.)

SCE 4946 INTERNSHIP
(1-2)
PR: Admission to the College of Education and/or departmental approval. Internship in an accredited public or private school which will include the end of an academic year or program closing. (S/U only.)

GRADUATE COURSES

SCE 5937 SELECTED TOPICS IN SCIENCE EDUCATION
(1-4)
May be repeated when topics are not duplicated.

SCE 6336 TEACHING SECONDARY SCHOOL BIOLOGY
(3)
PR: CC. Effective use and production of instructional materials in the biological sciences. Interrelation of philosophy, materials, and classroom practices.

SCE 6436 TEACHING SECONDARY SCHOOL PHYSICAL & EARTH SCIENCES
(3)
PR: CC. Effective use and production of instructional materials in the physical and earth sciences. Interrelation of philosophy, materials, and classroom practices.

SCE 6634 CURRENT TRENDS IN SECONDARY SCIENCE EDUCATION
(3)
PR: Bachelor's degree with major in science area, and certification in secondary science, or CC. Curricular patterns and instructional practices in secondary science.

SCE 7641 PROGRAMS AND RESEARCH IN EARTH SCIENCES
(3)
PR: Master's degree or equivalent in Science Education or CC. A study of curricula, issues, and research in Earth Science Education, grades K-12. Also included are the study and application of: (1) skills for assisting pre- and in-service school personnel with Earth Science instruction and (2) skills for developing Earth Science curricula.

SCE 7642 PROGRAMS AND RESEARCH IN LIFE SCIENCES
(3)
PR: Master's degree or equivalent in Science Education or CC. A study of curricula, issues and research in Life Science Education, grades K-12. Also included are the study and application of: (1) skills for assisting pre- and in-service school personnel with Life Science instruction and (2) skills for developing Life Science curricula.

SCE 7643 PROGRAMS AND RESEARCH IN PHYSICAL SCIENCE EDUCATION
(3)
PR: Master's degree or equivalent in Science Education or CC. A study of curricula, issues, and research in Physical Science Education, grades K-12. Also included are the study and application of: (1) skills for assisting pre- and in-service school personnel with Physical Science instruction; and (2) skills for developing Physical Science curricula.
SSE 6647 INSTRUCTIONAL PROBLEMS AND STRATEGIES IN SOCIAL STUDIES: ELEMENTARY, MIDDLE, OR SECONDARY SCHOOL (3)
PR: Admission to Specialized secondary Social Science or CC. Investigation of problems confronted when teaching Social Studies in the elementary, middle, or secondary school.

SSE 6795 REVIEW OF RESEARCH IN SOCIAL SCIENCE EDUCATION (3)
PR: EDF 4430 or EDF 6431. Graduate students in Education or CC. Investigation into and an evaluation of the research in Social Science Education.

SSE 6939 SEMINAR IN SOCIAL SCIENCE EDUCATION (1-3)
PR: EDF 4430 or EDF 6431 or CC. To increase general technological knowledge of graduate students in Social Science Education.

SPECIAL EDUCATION

UNDERGRADUATE COURSES

EED 4011 INTRODUCTION TO BEHAVIOR DISORDERS (3)
PR: EEX 3010, or equivalent or Cl. Survey of emotional and social disorders in children and youth. History of the field, definitions, classifications, theoretical approaches, intervention techniques, classroom management, service delivery models, trends and issues.

EED 4321 EDUCATIONAL PROGRAMMING FOR BEHAVIOR DISORDERS STUDENTS (3)
PR: EEX 3010, EED 4011, or equivalent or Cl. Methods, materials and instructional techniques; development and implementation of individualized education programs; classroom organization and curriculum for students with behavior disorders.

EED 4905 INDEPENDENT STUDY: BEHAVIOR DISORDERS (1-3)
PR: Cl. Specialized independent study determined by the student's needs and interests. May be repeated up to 3 credit hours when subjects vary. (S/U only.)

EED 4909 DIRECTED STUDY: BEHAVIOR DISORDERS (1-3)
PR: Senior standing. To extend competency in teaching field. Offered only as a scheduled class.

EED 4941 UNDERGRADUATE SUPERVISED PRACTICUM IN BEHAVIOR DISORDERS (1-6)
PR: Cl. Field experience in classroom management, behavior modification, precision teaching, and educational programming in behavior disorders. (S/U only.) Repeatable up to 6 credit hours.

EEX 3010 INTRODUCTION TO SPECIAL EDUCATION (3)
PR: EED 3214, EEX 3010, EED 3011, EED 401, or ELD 401, and an Exceptional Child Education major. Introduction to and familiarization with formal and informal techniques used to measure and evaluate all exceptional students. The interpretation of information so derived from utilization in educational programming and individualization of instruction. Lec.-Lab.

EEX 4221 EDUCATIONAL ASSESSMENT OF EXCEPTIONAL STUDENTS (3)
PR: EDF 3214, EEX 3010, EMR 3011, EED 4011, or ELD 4011, and an Exceptional Child Education major. Introduction to and familiarization with formal and informal approaches to educational assessment and evaluation of exceptional students. The interpretation of information so derived for utilization in educational programming and individualization of instruction. Lec.-Lab.

EEX 4240 EDUCATION OF THE EXCEPTIONAL ADOLESCENT AND ADULT (3)
PR: EEX 3010 or equivalent or Cl. Procedures for implementing educational programs for exceptional adolescents and adults. Topics include service delivery, curriculum, academic remediation, advocacy, utilization of ancillary services, alternative programs, and community resources. Practicum/field experience linkage.

EEX 4905 INDEPENDENT STUDY: EXCEPTIONAL STUDENT EDUCATION (1-3)
PR: Cl. Specialized independent study determined by the student's needs and interests. May be repeated up to 3 credit hours when subjects vary. (S/U only.)

EEX 4909 DIRECTED STUDY: EXCEPTIONAL STUDENT EDUCATION (1-3)
PR: Senior standing. To extend competency in teaching field. Offered only as a scheduled class. Repeatable up to 3 credit hours.

EEX 4936 SENIOR SEMINAR IN EXCEPTIONAL STUDENT EDUCATION (2)

EEX 4940 INTERNSHIP: EXCEPTIONAL STUDENT EDUCATION (1-10)
One full semester of internship in an accredited public or private school. Interns must complete an internship concurrently. In special programs whenever the internship experience is distributed over two or more semesters, students will be registered for credit which accumulates from 9 to 12 semester hours. (S/U only.)

EGI 3011 INTRODUCTION TO GIFTED AND TALENTED (3)
PR: Junior class standing. Diagnosis, characteristics, and educational provision of the gifted and talented.

EGI 4941 UNDERGRADUATE SUPERVISED PRACTICUM IN GIFTED STUDENT EDUCATION (1-6)
Organized, supervised experiences with gifted children. Specific experiences may be either a combination of observation and assistance with gifted children or individualized projects. (S/U only.)

ELD 4011 INTRODUCTION TO SPECIFIC LEARNING DISABILITIES (3)
PR: EEX 3010 or Cl. Characteristics, needs and abilities of children with specific learning disabilities. Emphasis is on theories, issues, trends, and philosophy of problems for such children.

Eld 4110 EDUCATIONAL PROCEDURES FOR SPECIFIC LEARNING DISABILITIES (3)
PR: ELD 4011, EEX 4221, or Cl. Curriculum organization, materials selection/design based on diagnostic findings for students with specific learning disabilities.

ELD 4905 INDEPENDENT STUDY: SPECIFIC LEARNING DISABILITIES (1-3)
PR: Cl. Specialized independent study determined by student's needs and interests. May be repeated up to 3 credit hours when subjects vary. (S/U only.)

ELD 4909 DIRECTED STUDY: SPECIFIC LEARNING DISABILITIES (1-3)
PR: Senior standing. To extend competency in teaching field. Offered only as a scheduled class.

Eld 4941 UNDERGRADUATE SUPERVISED PRACTICUM IN SPECIFIC LEARNING DISABILITIES (1-6)
PR: EEX 3010, ELD 4011, ELD 4110 and major in Specific Learning Disabilities. Supervised practicum experiences in classes for children with specific learning disabilities. Repeatable up to a total of 8 hours. (S/U only.)

EMR 3011 INTRODUCTION TO MENTAL RETARDATION (3)
PR: EEX 3010. Introduction to the classification, diagnosis, characteristics, and treatment of the mentally retarded.

EMR 4380 EDUCATING THE SEVERELY/PROFOUNDLY HANDICAPPED (3)
PR: EMR 3011 or Cl. Must be taken concurrently with EMR 3800. Emphasis on educational methods and materials for teaching the severely/profoundly handicapped. Practicum/field experience linkage.

EMR 4310 EDUCATIONAL PROCEDURES FOR ELEMENTARY AGE EDUCABLE MENTALLY RETARDED CHILDREN (3)
PR: EMR 3011, RED 4310, EMR 4941 either previously or concurrently. Special class organization, curriculum development, procedures and materials for elementary age educable mentally retarded children.

EMR 4313 EDUCATIONAL PROCEDURES FOR EDUCABLE MENTALLY RETARDED SECONDARY YOUTH AND ADULTS (3)
PR: EMR 3011, or Cl. Special program organization, curriculum development, procedures and materials for secondary age educable mentally retarded youth and adults.

EMR 4905 INDEPENDENT STUDY: MENTAL RETARDATION (1-3)
PR: Cl. Specialized independent study determined by the student's needs and interests. May be repeated when subjects vary. (S/U only.)

EMR 4909 DIRECTED STUDY: MENTAL RETARDATION (1-3)
PR: Senior standing. To extend competency in teaching field. Offered only as a scheduled class.
EMR 4941 UNDERGRADUATE SUPERVISED PRACTICUM IN MENTAL RETARDATION (1-6)
PR: EMR 3011 and major in Mental Retardation. Supervised Practicum experiences in the educational, social and vocational programming for mentally retarded individuals. A one hour per week seminar is required concurrently. Repeatable up to a total of 6 hours credit. (S/U only.)

GRADUATE COURSES

EDG 5734 PLURALISM AND ITS EDUCATIONAL IMPLICATIONS (3)
Characteristics and needs of the culturally disadvantaged and their implications for educational programming.

EDG 6946 FIELD WORK WITH POTENTIALLY HANDICAPPED (CULTURALLY DISADVANTAGED) (1-6)
Teaching and participation in activities related to teaching disadvantaged young children.

EED 6201 ADVANCED THEORIES IN BEHAVIOR DISORDERS (3)
In-depth survey of mild, moderate and severe behavioral pathologies of children and youth. Includes such topics as autism, schizophrenia, neurotic and other psychotic disorders: social, cultural, and behavioral implications, and the educational implications of each.

EED 6211 EDUCATIONAL STRATEGIES FOR STUDENTS WITH BEHAVIOR DISORDERS (3)
PR: EED 6201 or equivalent, or Cl. Advanced methods and materials for planning, implementing, and evaluating educational interventions with disturbed students.

EED 6221 MANAGEMENT METHODS AND TECHNIQUES WITH DISRUPTIVE AND DISTURBED STUDENTS (3)
PR: EED 6201, or equivalent, or Cl. Classroom management methods and techniques. Behavioral, psychodynamic, and ecological interventions. Includes behavior modification, precision teaching, reality therapy, and humanistic approaches. Available to non-majors.

EED 6843 SUPERVISED PRACTICUM IN BEHAVIOR DISORDERS (1-12)
PR: EED 6201 (may be taken concurrently), and acceptance in Master's Degree Program in Behavior Disorders. Supervised graduate practicum experiences with emotionally disturbed children. A one hour per week seminar is required concurrent with practicum. May be repeated up to 12 semester hours. (S/U only.)

EEX 6025 SURVEY OF TRENDS AND ISSUES IN SPECIAL EDUCATION (3)
Graduate survey of all exceptionalities including current trends and issues related to the field of special education.

EEX 6201 ADVANCED PSYCHOEDUCATIONAL ASSESSMENT OF EXCEPTIONAL STUDENTS (3)
PR: Graduate standing, introductory courses in exceptional student education and educational assessment. Advanced educational assessment and staffing procedures for individual exceptional students. Laboratory sessions required.

EEX 6222 EDUCATIONAL STRATEGIES FOR THE ADOLESCENT EXCEPTIONAL STUDENT (3)
PR: Introductory course in educating exceptional students, graduate standing. Procedures in implementing educational programs for the exceptional adolescent. Includes educational programming, alternative programs, community resource coordination, career/occupational education, and advocacy.

EEX 6362 EDUCATING THE AUTISTIC STUDENT (3)
PR: Graduate standing, introductory course in Educating Exceptional Students; Psycho-educational Assessment. Developing and managing appropriate and effective educational programs and techniques with autistic students.

EEX 6511 ADMINISTRATION OF EXCEPTIONAL STUDENT PROGRAMS (3)
PR: Cl. Procedures which local, state, and national administrators may use to implement services for exceptional students.

EEX 6732 CONSULTATION WITH PROFESSIONALS AND PARENTS OF EXCEPTIONAL STUDENTS (3)
PR: Introductory course in exceptional student education, graduate standing. Knowledge and skills in developing home, school, and community professional partnership in educating exceptional students.

EEX 6906 INDEPENDENT STUDY: SPECIAL EDUCATION (1-6)
Independent study in which students must have a contract with an instructor. Repeatable. (S/U only.)

EEX 6936 SEMINAR IN INTEGRATING EXCEPTIONAL DESIGNS (3)
PR: EEX 6906 or equivalent. Seminar stressing cross-categorical relationships. Topics include research and exceptional child education, clinical teaching, service delivery, and future directions.

EEX 7203 EDUCATIONAL IMPLICATIONS OF PSYCHOSOCIAL ASPECTS OF EXCEPTIONAL CHILDREN (1-5)
PR: Cl. This course will be concerned with the identification of the psycho-social needs and characteristics of exceptional children. Opportunity will also be given to the analysis of the educational implications of these needs and characteristics. May be repeated for a maximum of 5 hours.

EEX 7301 SELECTED TOPICS IN EXCEPTIONAL STUDENT EDUCATION (1-8)
PR: EEX 7341 or equivalent. Identification and specifications of a research problem in special education. Opportunity will be provided for the student to gather and process data, culminating in a written report and/or oral presentation to fellow student researchers. May be repeated for a maximum of 8 hours.

EEX 7341 RESEARCH STUDIES AND THEIR IMPLICATIONS IN THE EDUCATION OF EXCEPTIONAL CHILDREN (1-8)
PR: EDF 6431, ED 6421, or equivalent Cl. This course will involve a study of current research in exceptional child education. The transition from theory into practice will be made through the examination and discussion of implications to the field of special education that can be drawn from the research.

EEX 7741 PHILOSOPHY AND PROCESS IN THE PREPARATION OF SPECIALISTS IN EXCEPTIONAL EDUCATION (3)
PR: Admission in the Program for Ed.S. or Ph.D. in Education. In-depth exploration of the philosophy and theory in special education. A theoretical basis for the preparation of specialists in the field of exceptional child education.

EEX 7841 FIELDWORK WITH EXCEPTIONAL STUDENTS (1-5)
PR: Cl. Practical field experience in curriculum development, classroom teaching, supervision and/or administrative areas in special education. May be repeated for a maximum of 5 hours.

EEX 7911 SPECIALIZED STUDY IN: MENTAL RETARDATION, BEHAVIOR DISORDERS, SPECIFIC LEARNING DISABILITIES, AND GIFTED EDUCATION (1-8)
PR: Cl. Exploration and demonstration of knowledge in an area of interest to the student in special education. The specialized study may also include areas for which the student needs to demonstrate a higher level of competency. May be repeated for a maximum of 8 hours.

EEX 7930 SEMINARS IN EXCEPTIONAL STUDENT EDUCATION (1-7)
PR: Preliminary admission to the Graduate Program and Cl. Seminar Topics will vary to include neuropsychological mechanisms, current trends, issues, and curriculum development in Special Education. May be repeated for a maximum of 7 hours.

EGI 5051 NATURE AND NEEDS OF THE GIFTED (3)
Characteristics and educational needs of gifted children and youth. Emphasis is on five types of giftedness as defined by National Department of Education (1) intellectual giftedness, (2) specific academic aptitude, (3) visual and performing arts, (4) leadership and (5) kinesthetic.

EGI 5325 CREATIVE PROBLEM SOLVING FOR THE CHILD (3)
Exploration of the concept of creativity, its factors, measurement, and application to education. Opportunities are given to work with children in a laboratory setting and to prepare materials to be used with small groups of children.

EGI 6223 ADVANCED EDUCATIONAL STRATEGIES FOR THE GIFTED (3)
PR: EGI 5051. Curriculum adjustments, methods and techniques, classroom organizations necessary for teaching the gifted. Emphasis will be on the examination of various theoretical models and how these can be utilized to develop appropriate programs for the gifted.

EGI 6416 CONSULTATION, COUNSELING, AND GUIDANCE
SKILLS FOR GIFTED STUDENTS
PR: EGI 5051 or CL. Counseling techniques appropriate for the gifted and talented will be explored and experienced. Primary emphasis of the course will be to provide opportunities for classroom teachers to develop awareness, knowledge, and understanding of the unique guidance counseling needs of gifted and talented children and their parents.

EGI 6936 SEMINAR IN EDUCATION OF THE GIFTED: RECENT RESEARCH
PR: EPH 5051. A critical survey of the literature related to the psychological and educational problems of gifted children.

EGI 6943 SUPERVISED PRACTICUM FOR THE GIFTED (1-12)
Supervised graduate practicum encompassing teaching and supervising experiences in public school classes for the gifted.

ELD 6115 EDUCATIONAL STRATEGIES FOR STUDENTS WITH SPECIFIC LEARNING DISABILITIES
PR: ELD 6141, EEX 6201. Advanced educational procedures and materials development for the student with specific learning disabilities.

ELD 6141 ADVANCED THEORIES IN SPECIFIC LEARNING DISABILITIES
PR: Introductory course in exceptional child education, graduate standing. Various conceptual and/or theoretical models are reviewed, current trends and issues related to education of children with specific learning disabilities.

EMR 5012 THE SLOW LEARNER IN THE SCHOOL
Characteristics, needs and educational planning for the slow learning child. Appropriate for special class teachers and regular class teachers.

EMR 6052 ADVANCED THEORIES IN MENTAL RETARDATION
PR: Graduate standing. Introductory course in exceptional student education. In-depth study of the complex social and biological aspects of mental retardation with particular reference to effects on education.

EMR 6303 ADVANCED EDUCATIONAL STRATEGIES FOR THE MENTALLY RETARDED
PR: EMR 4310 or EMR 4080, EEX 6201. In-depth study of specific curriculum and methodological problems in teaching the retarded.

EMR 6843 GRADUATE SUPERVISED PRACTICUM IN MENTAL RETARDATION
Supervised graduate paratitum encompassing teaching and supervising experiences in public school classes for the mentally retarded.

EPH 5051 ADVANCED THEORIES IN MOTOR AND PHYSICAL DISABILITIES
PR: EEx 4010 or Cl. Biological and functional aspects of motor and physical health disabilities, including dysfunctions in central nervous system covering motor, sensory, language and psychological disorders.

EPH 5321 EDUCATIONAL STRATEGIES FOR PHYSICALLY AND MULTI-HANDICAPPED STUDENTS
PR: EPH 5051. Educational management of students with cerebral palsy, motor disabilities and multi-handicapped conditions including rehabilitation and other community services.

EVI 5311 THE VISUALLY HANDICAPPED IN THE CLASSROOM
PR: EEX 3010 or Cl. The visually handicapped in the classroom, structure, hygiene and educational implications.

PR: 14 semester hours in Speech/Communication or CC. Investigation of curricular program in Speech Communication, including courses, curriculum guides and preparation of units and lessons; determination of objects and teaching strategies; and problems of teachers and completion of course and C grade required for recommendation for internship.

SED 4371 DIRECTING SPEECH ACTIVITIES IN THE SECONDARY SCHOOL
PR: 10 hours of Speech Communication courses or CC. Coaching and directing co-curricular activities in discussion, debate, oratory, theatre, oral interpretation, and extemporaneous speaking. Planning and supervision of tournaments, contests, and festivals. Observations required.

SED 4374 READING IN SPEECH COMMUNICATION INSTRUCTION
PR: RED 4360 or CR. Strategies and materials for teaching oral and silent reading in speech and theatre classes at the secondary school level.

SED 4905 INDEPENDENT STUDY: SPEECH COMMUNICATION-ENGLISH EDUCATION
PR: CI. Specialized independent study determined by the student's needs and interests. May be repeated when subjects vary. (S/U only.)

SED 4909 DIRECTED STUDY: SPEECH COMMUNICATION-ENGLISH EDUCATION
PR: Senior standing. To extend competency in teaching field. Offered only as a scheduled class.

SED 4936 SENIOR SEMINAR IN SPEECH COMMUNICATION-ENGLISH EDUCATION

SED 4940 INTERNSHIP: SPEECH COMMUNICATION-ENGLISH EDUCATION (1-12)
One full semester of internship in public or private school. Intern takes Senior Seminar in Education concurrently. In special programs where the intern experience is distributed over two or more semesters, students will be registered for credit which accumulates from 9 to 12 semester hours. (S/U only.)

SED 4945 INTERNSHIP
Part-time internship in an accredited public or private school. To be taken concurrently with departmental requirements and will include beginning of year experiences when taken in Fall Semester. (S/U only.)

SED 4946 INTERNSHIP
PR: Admission to the College of Education and/or departmental approval. Internship in an accredited public or private school which will include the end of an academic year or program closing. (S/U only.)

GRADUATE COURSES
EDG 7365 RESEARCH IN COMMUNICATION EDUCATION
PR: Master's degree in Communication Education area or CC. A survey of exemplary research studies in Communication, Speech Education, English Education, Language Development and Analysis, Mass Communication Education, and Theatre Education, including analysis of design and methodologies.

SED 6070 SEMINAR IN THE HISTORY OF SPEECH COMMUNICATION IN EDUCATION
PR: CC. Studies in selected courses, critical writings, and research which have contributed to the development of speech communication as an academic discipline.

SED 6670 CURRENT TRENDS IN TEACHING SPEECH COMMUNICATION
PR: CC. Curricular patterns; preparation of personnel; instructional materials, facilities, and practices used in teaching speech communication.

SPEECH COMMUNICATION-ENGLISH EDUCATION
UNDERGRADUATE COURSES
SED 4335 METHODS OF TEACHING SPEECH COMMUNICATION

SPEECH COMMUNICATION-ENGLISH EDUCATION


COLLEGE OF ENGINEERING
## BASIC AND INTERDISCIPLINARY ENGINEERING

### UNDERGRADUATE COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGN 1402</td>
<td>ENGINEERING ORIENTATION</td>
<td>2</td>
<td>The role of engineering in society, characteristics of different fields of engineering, required preparation for engineering careers, techniques and approaches used by engineers in their profession. (S/U only.)</td>
</tr>
<tr>
<td>EGN 1115D</td>
<td>INTRODUCTION TO DESIGN GRAPHICS</td>
<td>3</td>
<td>An introduction to the basic principles of engineering design. The course will include the graphic projective systems used in engineering drawing and design. Methods of graphic communication and graphic analysis of engineering design problems will be investigated.</td>
</tr>
<tr>
<td>EGN 1402</td>
<td>GRAPHIC ANALYSIS III</td>
<td>2</td>
<td>PR: EGN 1115. An elective course designed for students with limited background in pre-calculus mathematics necessary for graphical processes. Emphasis on graphical concepts of algebraic and trigonometric relationships.</td>
</tr>
<tr>
<td>EGN 1403</td>
<td>GRAPHIC ANALYSIS IV</td>
<td>2</td>
<td>Continuation of EGN 1402.</td>
</tr>
<tr>
<td>EGN 2021L</td>
<td>INTRODUCTION TO ENGINEERING I</td>
<td>2</td>
<td>To present an overview of Engineering, its role and its concepts. Experimental program; see adviser.</td>
</tr>
<tr>
<td>EGN 2210</td>
<td>FORTRAN FOR ENGINEERS</td>
<td>3</td>
<td>PR: MAC 3281 FORTRAN programming for engineers. Solving engineering type problems using the computer; introduction to programming algorithms used by the practicing engineer.</td>
</tr>
<tr>
<td>EGN 3313</td>
<td>STATICS</td>
<td>2</td>
<td>PR: MAC 3281. Principles of statics, mechanical equilibrium, forces, moments, plane trusses. Lec.-pro.</td>
</tr>
<tr>
<td>EGN 3321</td>
<td>DYNAMICS</td>
<td>3</td>
<td>PR: EGN 3313. Dynamics of discrete particles; kinematics and kinetics for rigid bodies. Lec.</td>
</tr>
<tr>
<td>EGN 3331</td>
<td>MECHANICS OF MATERIALS</td>
<td>3</td>
<td>PR: EGN 3321. Stress, strain, Hooke's Law; torsion, beam, column analysis; combined stresses; inelastic effects, limit design. Lec.</td>
</tr>
<tr>
<td>EGN 3331L</td>
<td>MECHANICS OF MATERIALS LABORATORY</td>
<td>1</td>
<td>EGN 3331. Experiments in mechanics of deformable bodies. Lab.</td>
</tr>
<tr>
<td>EGN 3343</td>
<td>THERMODYNAMICS I</td>
<td>3</td>
<td>PR: PHY 3041. Axiomatic introduction to thermodynamic concepts of energy, entropy, work and heat. Properties of ideal and real substances. Applications: power production and refrigeration, phase equilibria.</td>
</tr>
<tr>
<td>EGN 3354C</td>
<td>BASIC FLUID MECHANICS</td>
<td>3</td>
<td>PR: EGN 3321. Fundamental and experimental concepts in ideal and viscous fluid theory; momentum and energy consideration, introduction to hydraulics, pipe flow. Lecture.</td>
</tr>
<tr>
<td>EGN 3365L</td>
<td>MATERIALS ENGINEERING I</td>
<td>3</td>
<td>PR: CHM 2046. EGN 3331. Structure and property relationships in engineering materials, i.e., metal, ceramic and polymer systems. Environmental effects are also treated.</td>
</tr>
<tr>
<td>EGN 3374</td>
<td>INTRODUCTION TO ELECTRICAL SYSTEMS II</td>
<td>3</td>
<td>PR: EGN 3373. Continuation of EGN 3373.</td>
</tr>
<tr>
<td>EGN 3375</td>
<td>INTRODUCTION TO ELECTRICAL SYSTEMS III</td>
<td>3</td>
<td>PR: EGN 3373. Continuation of EGN 3373 or EGN 3374.</td>
</tr>
<tr>
<td>EGN 3433L</td>
<td>MODELING AND ANALYSIS</td>
<td>3</td>
<td>PR: PHY 3041, PHY 3041L. Linear dynamic analysis of electrical, mechanical, pneumatic, hydraulic and thermal systems. LaPlace transformation, block diagram representation, transient and frequency response. Lec.-dem.</td>
</tr>
<tr>
<td>EGN 3443</td>
<td>ENGINEERING STATISTICS I</td>
<td>3</td>
<td>PR: MAC 3283. An introduction to the basic concepts of statistical analysis with special emphasis on engineering applications.</td>
</tr>
<tr>
<td>EGN 3613</td>
<td>ENGINEERING ECONOMY I</td>
<td>3</td>
<td>A study in analyzing the economic limitations imposed on engineering activities using basic models which consider the time value of money.</td>
</tr>
<tr>
<td>EGN 4355</td>
<td>COMPRESSIBLE FLOW</td>
<td>2</td>
<td>PR: EGN 3354C Fundamental and experimental concepts in compressible flow theory of fluids.</td>
</tr>
<tr>
<td>EGN 4366</td>
<td>MATERIALS ENGINEERING II</td>
<td>3</td>
<td>PR: 3365L. Phase equilibria and its relation to the microstructures and properties of multiphase materials. Heat treatment and processing of steel, aluminum, and titanium alloys.</td>
</tr>
<tr>
<td>EGN 4450</td>
<td>INTRODUCTION TO LINEAR SYSTEMS</td>
<td>2</td>
<td>PR: EGN 4421. Study and application of matrix algebra, differential equations and calculus of finite differences.</td>
</tr>
<tr>
<td>EGN 4905</td>
<td>INDEPENDENT STUDY</td>
<td>1-5</td>
<td>PR: CI. Specialized independent study determined by the students' needs and interests. May be repeated up to 15 credit hours. (S/U only.)</td>
</tr>
<tr>
<td>EGN 4933</td>
<td>SPECIAL TOPICS</td>
<td>1-5</td>
<td>New technical topics of general interest on an intermediate or experimental basis. May be repeated to a total of 10 credit hours.</td>
</tr>
<tr>
<td>EGN 4935</td>
<td>PROFESSIONAL ENGINEERING SEMINAR I</td>
<td>1-5</td>
<td>PR: CI and Senior standing. An examination of current engineering and related problems facing the graduating senior.</td>
</tr>
</tbody>
</table>

### GRADUATE COURSES

<table>
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<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>EGN 5425</td>
<td>ENGINEERING ANALYSIS V</td>
<td>3</td>
<td>PR: CC. Special topics in engineering analysis. Content varying from year to year. May be repeated.</td>
</tr>
</tbody>
</table>

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</thead>
<tbody>
<tr>
<td>EGN 6907</td>
<td>INDEPENDENT STUDY</td>
<td>var.</td>
<td>Independent study in which students must have a contract with an instructor. Repeatable. (S/U only.)</td>
</tr>
<tr>
<td>EGN 6911</td>
<td>DIRECTED RESEARCH</td>
<td>var.</td>
<td>PR: GR. Master's level. Repeatable (S/U only.)</td>
</tr>
<tr>
<td>EGN 6991</td>
<td>GRADUATE INSTRUCTION METHODS</td>
<td>1-5</td>
<td>Special course to be used primarily for the training of graduate teaching assistants. Variable credit, repeatable. Limited to a cumulative total of 5 credits per student. (S/U only.)</td>
</tr>
<tr>
<td>EGN 6992</td>
<td>GRADUATE RESEARCH METHODS</td>
<td>1-5</td>
<td>Special course to be used primarily for the training of graduate research assistants. Variable credit, repeatable. Limited to a cumulative total of 5 credits per student. (S/U only.)</td>
</tr>
</tbody>
</table>

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<tbody>
<tr>
<td>EGN 7911</td>
<td>DIRECTED RESEARCH</td>
<td>var.</td>
<td>PR: GR. Ph.D. level. Repeatable. (S/U only.)</td>
</tr>
<tr>
<td>EGN 7980</td>
<td>DISSERTATION: DOCTORAL</td>
<td>var.</td>
<td>PR: Must be admitted to Doctoral Candidacy. Repeatable. (S/U only.)</td>
</tr>
<tr>
<td>Course Code</td>
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<td>Description</td>
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</tr>
<tr>
<td>EMC 4413</td>
<td>SEPARATION PROCESSES AND PHASE EQUILIBRIA</td>
<td>PR: EMC 3103. Phase equilibria in the context of design and selection of separation processes. Familiarization with computational approaches used in process design and use of state of the art correlation for equipment specification.</td>
<td></td>
</tr>
<tr>
<td>ECH 4415C</td>
<td>REACTING SYSTEMS AND CHEMICAL EQUILIBRIA</td>
<td>PR: ECH 4413. Equilibria and rate phenomena in reacting systems. Description of homogeneous chemical reactors for process design and operation.</td>
<td></td>
</tr>
<tr>
<td>ECH 4615</td>
<td>PLANT DESIGN AND ECONOMICS</td>
<td>PR: ECH 4413, ECH 4415 or CI Methods of cost estimation and profitability measures. Analysis and synthesis of optimal chemical processing routes. Design of chemical process equipment. Introduction to computer-aided design. Case studies.</td>
<td></td>
</tr>
<tr>
<td>EMC 3103</td>
<td>THERMODYNAMICS II</td>
<td>PR: EGN 3343. Mass and energy balances on steady and unsteady state systems with and without chemical reactions. Combustion processes, power and refrigeration applications.</td>
<td></td>
</tr>
<tr>
<td>ECM 3117</td>
<td>TRANSPORT PROCESSES I</td>
<td>PR: EGN 3343. Principles of momentum, energy, and mass transfer. Boundary layer theory and pipe flow. Emphasis given to pumping and metering of compressible and incompressible fluids. Selection of proper fluid handling equipment to satisfy realistic process demands.</td>
<td></td>
</tr>
<tr>
<td>ECM 4112</td>
<td>ELECTRONIC EQUIPMENT COOLING</td>
<td>PR: EGN 3374 or CI. Analysis of extended surfaces. Printed circuit board thermal analysis. Free and forced convection as applied to electrical and electronic components. Thermo-electric cooling and performance of cold plate heat exchangers.</td>
<td></td>
</tr>
<tr>
<td>ECM 4311</td>
<td>CONTROLS LABORATORY</td>
<td>PR: EGN 3433, CR: EMC 4314. Familiarization with and performance testing of automatic control systems.</td>
<td></td>
</tr>
<tr>
<td>EMC 4314</td>
<td>AUTOMATIC CONTROLS I</td>
<td>PRL: EGN 3433, EMC 3103, ECM 4118; CR: EMC 4411. Analysis of devices for measurement and control and factors affecting process dynamics. Block diagram representation of control systems. Modes of control for single loops and stability requirements.</td>
<td></td>
</tr>
<tr>
<td>ECH 4411</td>
<td>COMPUTER SIMULATION</td>
<td>PR: EGN 3433. The use of computers to study the dynamic behavior of chemical and mechanical engineering processes.</td>
<td></td>
</tr>
<tr>
<td>ECM 4522L</td>
<td>CHEMICAL AND MECHANICAL ENGINEERING LABORATORY II</td>
<td>PR: EMC 3303L. Continuation of EMC 3303L with emphasis on material and energy balances of mechanical and chemical systems and processes. Lec.-lab. The Team-Project-Time Approach.</td>
<td></td>
</tr>
<tr>
<td>ECM 4523</td>
<td>CHEMICAL AND MECHANICAL ENGINEERING LABORATORY III</td>
<td>PR: EMC 4522L or CI. Continuation of EMC 4522L. Emphasis on experiments involving momentum transfer and non-Newtonian fluids, heat transfer and mass diffusion.</td>
<td></td>
</tr>
<tr>
<td>ECH 4905</td>
<td>INDEPENDENT STUDY</td>
<td>PR: CI. Specialized independent study determined by the student's needs and interests. May be repeated up to 15 credit hours. (S/U only.)</td>
<td></td>
</tr>
<tr>
<td>ECH 4931</td>
<td>SPECIAL TOPICS IN CHEMICAL AND MECHANICAL ENGINEERING I</td>
<td>PR: CC.</td>
<td></td>
</tr>
<tr>
<td>EML 3264</td>
<td>KINEMATICS</td>
<td>PR: MEC 3282, PHY 3040. Plane and angular motion; determination of velocities and accelerations in mechanisms. Rolling and sliding contact pairs, cams, gearing.</td>
<td></td>
</tr>
<tr>
<td>EML 3500</td>
<td>MACHINE ANALYSIS AND DESIGN</td>
<td>PR: EGN 3313. Stress and deflection analysis of machine parts, variable loads, endurance limits, fasteners, bearings, power transmission, code consideration of pressure and vacuum vessels, elements of design.</td>
<td></td>
</tr>
<tr>
<td>EML 4106C</td>
<td>THERMAL SYSTEMS AND ECONOMICS</td>
<td>PR: EMC 3103. Power and Refrigeration Cycles; Solar Cells; Fuel Cells; Magnetohydrodynamics; Nuclear Energy; Internal Combustion Engines; Fuels; Methods of Economic Comparison.</td>
<td></td>
</tr>
<tr>
<td>EML 426OC</td>
<td>DYNAMICS OF MACHINERY</td>
<td>PR: EML 3264. Static forces and inertia forces in machines, flywheels, balancing rotating masses, balancing reciprocating masses, gyroscopic effects, mathematical analysis of lumped parameter mechanical systems.</td>
<td></td>
</tr>
<tr>
<td>EML 4503</td>
<td>MACHINE ANALYSIS AND DESIGN</td>
<td>PR: EML 3500, EML 3264. Continuation of EML 3500. Antifriction bearings, journal bearings, power transmission, shafting.</td>
<td></td>
</tr>
<tr>
<td>EML 4536</td>
<td>CAD-YACHT DESIGN</td>
<td>PR: CI. Fundamentals of small craft design using computer-aided design techniques. Emphasis is on sailing yachts with some material included on design of commercial sail vessels and pleasure and commercial power craft. Class is taught in a microcomputer-equipped laboratory.</td>
<td></td>
</tr>
<tr>
<td>EML 4551C</td>
<td>PROJECT DESIGN I</td>
<td>PR: Senior standing in mechanical engineering or CC. Comprehensive design or feasibility project requiring application of previously acquired engineering knowledge.</td>
<td></td>
</tr>
<tr>
<td>EML 4552C</td>
<td>PROJECT DESIGN II</td>
<td>PR: EML 4509 or CC. Comprehensive design or feasibility study project. In some cases may be a continuation of EML 4509.</td>
<td></td>
</tr>
<tr>
<td>ENU 4142</td>
<td>INTRODUCTION TO NUCLEAR ENGINEERING</td>
<td>PR: EMC 3103, EMC 3117 or CI. Fundamentals of nuclear reactors, core physics, and fuel enrichment, reactor power cycles, transient reactor performance.</td>
<td></td>
</tr>
</tbody>
</table>

**GRADUATE COURSES**

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</tr>
</thead>
<tbody>
<tr>
<td>ECH 6218</td>
<td>ADVANCED TRANSPORT ANALYSIS</td>
<td>PR: CI. Steady and transient multi-dimensional momentum and mass transport, emphasis on solution techniques, analytic and numerical.</td>
</tr>
<tr>
<td>ECH 6515</td>
<td>REACTING SYSTEMS</td>
<td>PR: ECH 4415 or CI. Dynamics of heterogeneous reactions. Economic factors in the design of chemical reactors. Simulation of complex reacting systems.</td>
</tr>
<tr>
<td>ECH 6616</td>
<td>COMPUTER-AIDE D PROGRESS SYNTHESIS DESIGN AND OPTIMIZATION</td>
<td>PR: ECH 4615. Plant and process design with emphasis on computer-aided design.</td>
</tr>
<tr>
<td>Course Code</td>
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<tr>
<td>EMC 5118</td>
<td>PROCESS HEAT TRANSFER</td>
<td>3</td>
</tr>
<tr>
<td>EMC 5129</td>
<td>TRANSPORT PHENOMENA PROJECTS</td>
<td>3</td>
</tr>
<tr>
<td>EMC 5191C</td>
<td>HEAT TRANSFER PROJECTS</td>
<td>3</td>
</tr>
<tr>
<td>EMC 5306</td>
<td>INSTRUMENTAL ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>EMC 5315</td>
<td>MACHINE CONTROL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>EMC 5319B</td>
<td>MOTOR SELECTION AND CONTROL</td>
<td>2</td>
</tr>
<tr>
<td>EMC 5591C</td>
<td>ENERGY CONVERSION PROJECTS</td>
<td>3</td>
</tr>
<tr>
<td>EMC 6050</td>
<td>ADVANCED THERMODYNAMICS</td>
<td>3</td>
</tr>
<tr>
<td>EMC 6120C</td>
<td>NUMERICAL METHODS IN HEAT TRANSFER</td>
<td>3</td>
</tr>
<tr>
<td>EMC 6121C</td>
<td>ADVANCED CONDUCTION ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>EMC 6122</td>
<td>RADIATION</td>
<td>3</td>
</tr>
<tr>
<td>EMC 6306C</td>
<td>INSTRUMENT SYSTEMS III</td>
<td>3</td>
</tr>
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CIVIL ENGINEERING AND MECHANICS

UNDERGRADUATE COURSES

CES 3400 DESIGN AND PRACTICES (2)
PR: EGN 3354C, EGN 3365L, EGN 3331 Methodology of the design process in civil engineering. Includes problem definition, criteria, data collection and analysis, information sources, planning, specifications, and presentation of technical information.

CES 3402 CIVIL ENGINEERING LABORATORY (1)
PR: EGN 3331, EGN 3354C, EGN 3365L. A laboratory experience in departmental facilities including the subject areas of structures, materials, fluids, transportation, soils, engineering mechanics and environmental engineering.

CES 4001 STRUCTURES I (3)
PR: EGN 3331. Analysis of simple structural systems, both determinate and indeterminate. Introduction to the use of energy methods in indeterminate structures.

CES 4002 MATRIX STRUCTURAL ANALYSIS (3)

CES 4003 COMPUTER STRUCTURAL ANALYSIS AND DESIGN (2)
PR: CES 4002. Computer aided structural analysis and design using existing finite element program, static dynamic loading.

CES 4104 ADVANCED MECHANICS OF MATERIALS (3)
PR: EGN 3331, MAP 4302. Analytical analysis of the mechanical behavior of deformable solids; special topics in beam theory, elastic and inelastic methods, plastic limit analysis flexure and torsion of beams; introduction to finite element computer methods.

CES 4202 STRUCTURAL DYNAMICS (3)
PR: CES 4001, EGN 4430. Behavior of structural components and systems when subjected to periodic dynamic loads.

CES 4403 HYDRAULIC DESIGN (2)
PR: EGM 4816, ENV 4622. Design of hydraulic systems, including drainage, water supply, and flood control.

CES 4404 FLUID SYSTEMS DESIGN (2)
PR: EGM 4816. Design of fluid systems. Consideration of pressure, drag, and gravity forces.

CES 4501 CONCEPTS OF STRUCTURAL DESIGN (2)
PR: CES 4001. Applications of solid mechanics, material science and structural analysis to the design of buildings, bridges, and mobile structures. Review of current codes and specifications.

CES 4502 STRUCTURAL DESIGN — STEEL (2)
PR: CES 4501. Design of structures made of steel.

CES 4700 CEMENT AND CONCRETE DESIGN (2)
PR: EGN 3365L. Classifications and production of cements. Design and testing of concrete mixes to produce desired properties.

CES 4704 STRUCTURAL DESIGN — CONCRETE (2)

CES 4911 SENIOR PROJECT (2)
PR: CI. Problem-solving experience and training for seniors in research and/or design projects. Written final reports are required.

CES 4933 SPECIAL TOPICS IN CIVIL ENGINEERING AND MECHANICS (1-5)
PR: CI. New technical topics of interest to civil engineering students.

EAS 4121 HYDRO AND AEROMECHANICS (3)
PR: EGN 3354, MAP 4302. Advanced fluid dynamics, ideal and viscous flows, applications to flow around immersed bodies.

ECI 4311 SOIL MECHANICS I (3)
PR: EGN 3354C. Fundamental and experimental concepts in soil mechanics with emphasis on soil properties, soil moisture, soil structure, and shearing strength.

ECI 4312 SOIL MECHANICS II (3)
PR: ECI 4311. A study of the application of the principles of soil mechanics to problems in soils engineering.

ECI 4640 GEOTECHNICAL DESIGN (2)
PR: ECI 4311. Design of geotechnical systems including bases, foundations, embankments, and dams.

ECI 4911 RESEARCH IN CIVIL ENGINEERING AND MECHANICS (1-4)
PR: CC.

EGM 4330 SHOCK AND VIBRATIONS (2)
PR: EGN 3321, MAP 4302. Response of mechanical systems to shock excitation; vibration of discrete and continuous bodies.

EGM 4610 COMPUTATIONS IN CIVIL ENGINEERING (3)
PR: MAP 4302. Development of techniques of applied mathematics to civil engineering problems, partial differential equations, vector analysis, complex variables.

EGM 4816 HYDRAULICS (3)
PR: EGN 3354C. Fundamental and applied aspects of pipe flow, free surface flow, and unsteady flow for hydraulic systems.

EMA 4303 THERMODYNAMICS OF MATERIALS (3)
PR: EGN 3365. Principles of Chemical Thermodynamics as applied to the interactions of materials with various gaseous, aqueous and solid phase environments.

EMA 4324 CORROSION OF ENGINEERING MATERIALS I (3)
PR: EGN 3365L. Principles of electrochemical corrosion and the representation of corrosion processes by polarization diagrams. Origin and prevention of the localized forms of corrosion and approaches to corrosion control.

EMA 4324L CORROSION LABORATORY (1)
PR: EMA 4324. Experimental potentiostatic and galvanostatic polarization studies related to various corrosion phenomena.

EMA 4325 CORROSION CONTROL SYSTEM DESIGN (2)
PR: EMA 4324. Design of corrosion prevention systems and prediction of the behavior of materials in various corrosive environments.

EMA 4604 PROCESSES IN MATERIALS ENGINEERING (3)
PR: EGN 3365L. Introduction to the basic theories of solidification and ultrapurification of materials, and discussion of the primary methods of shaping and forming materials.

EMA 4703 CONCEPTS OF ENGINEERING MATERIALS (3)

EMA 4704 SELECTION AND APPLICATION OF ENGINEERING MATERIALS (3)
PR: EGN 3365L. Determination of the property requirements for the utilization of materials in specific applications, comparison of properties of metals, plastics, and ceramics, the effect of heat treatment, etc., on materials, property limitations.

EMA 4905 INDEPENDENT STUDY (1-5)
PR: CC. Specialized independent study determined by the students' needs and interests. May be repeated up to 15 credit hours. (S/U only.)

ENV 3001 SOCIETAL ASPECTS OF ENVIRONMENTAL ENGINEERING (3)
An introduction to various aspects of environmental problems faced by today's society. Readings and discussions are conducted concerning air pollution, water pollution, noise pollution, solid waste management, ionizing radiation, disease transmission, and food protection, with regard to aesthetic, legal, economic, technical, and political constraints. This course is acceptable as an Engineering Social Science and Humanities Elective and is open to non-engineering students.

ENV 4011 ENVIRONMENTAL UNIT OPERATION AND PROCESS LABORATORY (2)
CR: ENV 4012. Experimental work of the theory and design practices learned in Unit Operations and Unit Processes lecture courses. It provides the student familiarity with the development of bench and pilot plant processes and operations used in environmental engineering.

ENV 4012 ENVIRONMENTAL UNIT PROCESSES (3)
PR: EMC 3103. The theory and design of unit processes normally used in environmental engineering such as coagulation of colloidal materials, water stabilization, water softening and neutralization, ion exchange, adsorption and oxidation processes for removal of iron and magnesium.

ENV 4111 AIR POLLUTION CONTROL (3)
PR: EGN 3354C. Behavior and effects of atmospheric contaminants and the principles of making measurements in the air environment. Basic concepts of meteorology and control technology are discussed. Regulatory aspects and air pollution standards are covered.

ENV 4402 ENVIRONMENTAL ENGINEERING LABORATORY (1)
PR: ENV 4417. Laboratory experience in the measuring of environmental parameters.

ENV 4417 WATER QUALITY AND TREATMENT (3)
PR: EGM 4816. An introduction to municipal water supply and waste
water treatment. Topics include water requirements and waste volumes, water quality, physical and chemical treatment processes, and advanced wastewater treatment processes.

ENV 4432 WATER SYSTEMS DESIGN (2) PR: EGN 3354C. A design oriented course which utilizes the theory obtained in the Unit Operations course to design both industrial and domestic water treatment and water transport systems. It emphasizes the design procedures normally used in engineering practice.

ENV 4504 WASTE WATER SYSTEMS DESIGN (2) PR: ENV 4012. Emphasis is placed upon design practice and economics for a comprehensive design of a waste water system and a collection system.

ENV 4622 WATER RESOURCES ENGINEERING (3) PR: EGM 4816. A study of the engineering principles involved in sustaining and managing the quality and quality of water available for human activities with particular emphasis on surface water and ground water hydrology.

SUR 310C ENGINEERING LAND SURVEYING (2) Principles of land surveying for engineering practice. Traverses, levels, boundary surveys, route surveys, coordinate geometry, and mapping.

TTE 4004 TRANSPORTATION ENGINEERING I (3) PR: MAP 4302. Introduction to transportation engineering, including urban transportation planning, traffic control and highway design.

TTE 4006 TRANSPORTATION ENGINEERING II (3) PR: TTE 4004. The planning and design of transportation systems.

TTE 4721 TRANSPORTATION SYSTEMS DESIGN (3) PR: TTE 4404. Design of transportation systems, including airports, highways, mass transit systems, etc.

GRADUATE COURSES

CES 5508 ADVANCED STRUCTURAL DESIGN I (3) PR: CES 4002, CES 4501. A study of design of complicated structural systems such as curved bridges, orthotropic bridges, tall buildings, towers, suspension structures.

CES 5509 ADVANCED STRUCTURAL DESIGN II (3) PR: CES 5508. A study of design of complicated structural systems such as curved bridges, orthotropic bridges, tall buildings, towers, suspension structures.

EAS 5100 AERODYNAMICS (3) PR: EGN 4355, and CI. Fundamentals of aerodynamic flow and flight including potential theory, circulatory theory, viscosity considerations, wing theory and design.

EES 5205 WATER QUALITY FOR ENGINEERS I (3) PR: CI. An introduction to the form, structure, and chemical activities of the important processes which are essential to treatment of domestic, and industrial wastewater.

EGM 5352 FINITE ELEMENT METHODS I (3) PR: CI. Finite element methods in continuum mechanics with applications to solid and fluid mechanics problems.

EGM 5562 MECHANICS OF COMPOSITE MATERIALS (3) PR: CES 4001. Physical and mathematical mode is for composites. Response to thermal, electrical and mechanical loading. Special composite systems and shapes, filimentary plates, shells, isotoiden domes.

EMA 5644 ENGINEERING CERAMICS (3) PR: EGN 3365L and CI. Detailed examination of the materials of ceramic engineering and the engineering properties of advanced ceramic products.

ENV 5007 ENVIRONMENTAL PLANNING (3) PR: CI. Study of comprehensive application of environmental control and protection techniques to the problems of environmental quality. Important aspects include air and water quality, amenities, waste management, land use practice, control of noise, and natural ecological factors. A design or analysis problem is an integral part of the course.

ENV 5439 URBAN WATER TREATMENT THEORY AND DESIGN (3) PR: ENV 4417 and CI. A study of the theory of water treatment and the relation of theory to analysis and design practice. Emphasis is given to unit processes. The course is devoted to the design and analysis of specific water treatment facilities.

ENV 5539 URBAN WASTEWATER TREATMENT THEORY AND DESIGN (3) PR: ENV 4417, CI. A study of the theory of wastewater and the relation of theory to analysis and design practice. Emphasis is given to unit processes. The course is devoted to the design and analysis of specific wastewater treatment works.

CES 6217 STRUCTURAL STABILITY (3) PR: CES 4002, CES 4208. Elastic and inelastic stability of trusses and frames, local buckling of structural members and plates.

CES 6335 OPTIMIZATION TECHNIQUES IN CIVIL ENGINEERING (3) PR: CI. Theory and application of optimization techniques to the planning, design and operation of Civil Engineering Systems.

CES 6915 DIRECTED RESEARCH (var.) PR: GR. Master’s level. Repeatable. (S/U only.)

EGM 6398 GRADUATE INSTRUCTION METHODS I (3) PR: CI. Formulation of fundamental problems in solids and fluids.

EGM 6939 GRADUATE RESEARCH METHODS (3) Special course to be used primarily for the training of graduate research assistants. Variable credit, repeatable. Limited to a cumulative total of 5 credits per student. (S/U only.)

ECI 6206 COASTAL WAVES AND STRUCTURES (3) PR: CI. A study of the fundamentals of wave motion and the mutual interaction of waves and structures. A design project is included.

ECI 6207 WAVES AND BEACH PROTECTION (3) PR: ECI 6206. A study of the fundamentals of shoreline dynamics including distribution of wave energy, motion of beach sand, stable configurations and protective measures.

ECI 6208 COASTAL AND ESTUARY MODELING (3) PR: CI. Digital modeling of coastal and estuary systems, currents, tide heights, sediment transport, erosion, data collection, temperature distribution, sources and sinks. Special emphasis on Florida regions.

ECI 6239 FREE SURFACE FLOW (3) PR: EGM 4816 or CI. Fundamental and applied aspects of free surface flow, including river hydraulics, canal flow, and open channel design.

ECI 6631 HYDROLOGIC MODELS (3) A study of the theoretical principles of hydrologic modeling and an examination of various numerical hydrologic models available. Students will be required to develop and apply computer models.

ECI 6632 URBAN HYDROLOGY (3) PR: CI. A study of the quality and quality problems and solution techniques associated with urban runoff.

ECI 6933 SPECIAL TOPICS IN CIVIL ENGINEERING AND MECHANICS (1-4) PR: CC.

ECI 6939 CIVIL ENGINEERING AND MECHANICS SEMINAR PR: CC.

ECI 6971 THESIS: MASTER’S (var.) Repeatable. (S/U only.)

EES 6205 WATER QUALITY FOR ENGINEERS II (3) PR: EES 5203, MCB 3010C Study of biochemical relations and processes in treatment of pollutants with emphasis on control of effluents for the protection of water quality.

EGM 6136 ADVANCED X-RAY METHODS (3) PR: CI. X-Ray diffraction, analytical and experimental studies of defects, texture, residual stress, crystal and polycrystalline aggregates. Lec.-Lab.

EGM 6261 ADVANCED DYNAMICS (3) PR: EGM 4430, EGM 5352. Elastic and plastic stress wave propagation in solids, experimental and theoretical treatment method of characteristics, use of finite element programs to solve multiple degree of freedom systems.

EGM 6343 NUMERICAL METHODS IN ENGINEERING ANALYSIS (3) PR: EGN 4420. Application of computational and mathematical techniques and principles to advanced engineering problems.


EGM 6611 CONTINUUM I (3) PR: CI. Formulation of fundamental problems in solids and fluids from a unified viewpoint; application to ideal media; elastic, plastic, and fluids.

EGM 6655 CONTINUUM II (3) PR: EGM 5611. Theory of thermoelastic and viscoelastic behavior in continuous media; coupled thermodynamics and mechanical behavior; generalized constitutive relations.
EGL 6656 THEORY OF ELASTICITY (3)
PR: CI. Classical and contemporary elasticity theory with applications to engineering problems.

EGL 6657 THEORY OF PLASTICITY (3)
PR: CI. A study of the theory of plasticity including initial and subsequent yield surfaces, incremental and deformation theories.

EGL 6796 PLATES AND SHELLS (3)
PR: CES 4001, and CI. Elastic behavior of thin plate and shell structures.

EGL 6814 ADVANCED FLUID MECHANICS (3)
PR: EGM 4816. Formulation and analysis of problems in the flow of viscous and nonviscous fluids including Newtonian and Non-Newtonian flows. Mathematical methods and techniques of solutions.

EMA 6236 DISLOCATION STRUCTURES AND PROPERTIES OF ENGINEERING MATERIALS (3)
PR: EMA 4324. Dislocation interactions and structures in metals, principles of phase nucleation and growth, transformations and a study of the primary strengthening mechanisms in metals.

EMA 6907 INDEPENDENT STUDY (var.)
PR: CI. Independent study in which students must have a contract with an instructor. Repeatable. (S/U only.)

ENV 6645 WATER RESOURCES SYSTEMS (3)
PR: ENV 4622, CES 6335. The planning, design, and operation of water resources by the use of systems analysis and operations research techniques.

CES 7915 DIRECTED RESEARCH (var.)
PR: GR. Ph.D. level. Repeatable. (S/U only.)

ECI 7980 DISSERTATION: DOCTORAL (var.)
PR: Must be admitted to Doctoral Candidacy. Repeatable. (S/U only.)

### COMPUTER SCIENCE AND ENGINEERING

#### UNDERGRADUATE COURSES

**CAP 4621 INTRODUCTION TO ARTIFICIAL INTELLIGENCE** (3)
PR: EEL 4851C. Basic concepts, tools and techniques used to produce and study intelligent behavior. Organizing knowledge, exploiting constraints, searching spaces, understanding natural languages, problem solving strategies, etc.

**CDA 4101 COMPUTER ORGANIZATION AND ARCHITECTURE** (3)
PR: EEL 4705, CR; CDA 4171. Elements of computer systems; processors, memories and switches. Register transfer presentation of a computer, ALUs and their implementation. The control unit. Memory and I/O. Hardware support of operation system functions.

**CDA 4171 MINICOMPUTER LABORATORY** (1)

**CDA 4905 INDEPENDENT STUDY IN COMPUTER SCIENCE** (1-5)
PR: CI. Specialized independent study determined by the needs and interests of the student. May be repeated up to 10 credit hours. (S/U only.)

**CIS 4321 DATA PROCESSING APPLICATIONS** (3)
PR: EEL 4850C, EEL 4851C. An introduction to principles of information processing and applications. Fundamentals of systems for management and control.

**CIS 4911 COMPUTER SCIENCE PROJECT** (2)
Projects intended to develop individual interests and abilities in computer science involving either computer hardware or software aspects of a well defined problem.

**COC 2400 COMPUTERS AND SOCIETY** (3)
This computer literacy course covers the fundamentals of hardware, software, and programming languages, presents a broad overview of data processing concepts, problems and applications for students with little or no computing background. (For non-engineering majors only.)

**COC 4935 SPECIAL TOPICS IN COMPUTER SCIENCE I** (1-4)

**COC 4939 COMPUTER SCIENCE AND ENGINEERING SEMINAR** (2)
PR: CC. This is a seminar course for majors in Computer Science and Engineering. May be repeated up to 4 credit hours.

**COP 2170 PROGRAMMING IN BASIC (CAI)** (1)
Laboratory course in theory and applications of BASIC interactive programming language using a minicomputer and CAI instruction.

**COP 3150 PROGRAMMING IN APL (CAI)** (2)
PR: MAC 1104, MAC 1114. Laboratory course in fundamental theory and applications of APL programming language using a minicomputer and CAI learning environment.

**COP 3510 INTRODUCTION TO COMPUTER SCIENCE** (3)
PR: EGN 2210. CR: COP 3510L. Introduction to the concepts of algorithmic formulation of problems for computer solution and the general abstract operations used in these formulations.

**COP 3510L COMPUTER SCIENCE LABORATORY** (1)
CR: COP 3510. Laboratory for implementation of algorithms in a general purpose computer language.

**COP 4400 COMPUTER SYSTEMS** (3)
PR: COP 3510, COP 3510L and MAC 3283 or CC. Principles of computer organization, machine and assembly language programming.

**COP 4502 COMPARISON OF PROGRAMMING LANGUAGES** (3)
PR: EEL 4850C, EEL 4851C. A comparative study of procedural and nonprocedural computer languages, emphasizing the fundamental differences in information binding, string and data structures manipulation, control and I/O structures in different languages.

**COP 4550 PROGRAMMING LANGUAGES** (3)
PR: EEL 4851C and COP 4400. An introduction to programming languages, survey of language types and design of translators and interpreters.

**COP 4620 INTRODUCTION TO SYSTEMS PROGRAMMING** (3)
PR: EEL 4851C, COP 4400. Introduction to systems programming. Design of operating systems. Concurrent processing, synchronization, and storage management policies.

**COT 3001 INTRODUCTION TO DISCRETE STRUCTURES** (3)
PR: MAC 3281 or equivalent. Introduction to set algebra, propositional calculus and finite algebraic structures as they apply to computer systems.

**COT 4725 INTRODUCTION TO AUTOMATA THEORY AND FORMAL LANGUAGES** (3)
PR: EEL 4851C, COT 3001, or CC. Introduction to the theory and application of various types of computing devices and the languages they recognize.

**COT 4130 SEQUENTIAL CIRCUITS** (3)

**COT 4300 ANALYSIS OF ALGORITHMS** (3)
PR: EEL 4851C and COT 3001. Design principles and analysis techniques applicable to various classes of computer algorithms frequently used in practice.

**EEL 4705 LOGIC DESIGN** (3)
PR: EGN 3373, CR: EEL 4705L or CC. Binary number systems; truth functions, Boolean algebra; canonical forms; minimization of combinational logic circuits; synchronous logic circuits in computers.

**EEL 4705L LOGIC LABORATORY** (CR: EEL 4705.

**EEL 4706 TESTING AND FAULT TOLERANCE IN DIGITAL SYSTEMS** (3)
PR: COP 4400, COT 4130, or CC. Test generation for combinational and sequential digital circuits, fault analysis and diagnosis. Methods for reliability improvement through fault tolerant and testable circuit design. Introduction to software reliability.

**EEL 4743L MICROPROCESSOR LABORATORY** (1)
CR: EEL 4757. Laboratory for Microprocessor use and evaluation.

**EEL 4757 MICROPROCESSOR PRINCIPLES AND APPLICATIONS** (3)

**EEL 4758 MICROPROCESSOR-BASED SYSTEM DESIGN AND APPLICATION** (3)
PR: EEL 4757, EEL 4743L. Study of techniques for design of microprocessor-based systems used in various applications. Includes a project on development of an experimental application system.

**EEL 4850C PROGRAMMING METHODOLOGY** (3)
PR: Senior standing in Computer Science or CC: COP 3510. Methods of designing and developing effective and efficient computer programs. Top-down design, structured programming, debugging and program analysis are addressed.

**EEL 4851C DATA STRUCTURES** (3)
EEL 4852C DATA BASE SYSTEMS
PR: COP 4400 and EEL 4851C. Fundamentals of data base management systems. CODASYL, network, hierarchical, and relational data base systems are analyzed, and typical applications are presented.

EEL 4853C DISTRIBUTED PROCESSING AND COMPUTER NETWORKS
PR: COP 4620, CDA 4101. Design and analysis of distributed processing systems. Covers communication hardware and software, network operating systems, and reliability enhancement techniques.

GRADUATE COURSES

CAP 6675 ROBOT INTELLIGENCE AND COMPUTER VISION
PR: COP 4400 or equiv. An introduction to robotic systems with emphasis on the computational aspects of robot control. Topics for discussion: overview of the robotics field, computing arm motions using analysis of robot arm kinematics and coordinate transformation, real-time computer control of robot arms, and computer vision. Practical experience in programming robotic systems will be included.

CDA 6168 DISTRIBUTED COMPUTER SYSTEMS
PR: CDA 4101, CDA 4171. Design, performance measurement, and evaluation of distributed systems including distributed system function, network operating systems, protocols and topologies, metering, queuing evaluations, and simulation.

CDA 6907 INDEPENDENT STUDY
PR: Graduate standing. Independent study in which students must have a contract with an instructor. (S/U only.)

CDA 6910 DIRECTED RESEARCH
PR: GR. Master's level. Repeatable. (S/U only.)

CDA 6911 GRADUATE RESEARCH METHODS
PR: Graduate standing. Special course to train graduate research assistants. Variable credit, repeatable. Limited to cumulative total of 4 credits per student. (S/U only.)

CDA 6930 SPECIAL TOPICS IN COMPUTER SCIENCE AND ENGINEERING
PR: CC. (var.)

CDA 6940 GRADUATE INSTRUCTION METHODS
PR: Graduate standing. Special course to train graduate teaching assistants. Variable credit, repeatable. Limited to a cumulative total of 4 credits per student. (S/U only.)

CDA 6971 THESIS: MASTERS
PR: Graduate standing.

CDA 7910 DIRECTED RESEARCH
PR: GR. Ph. D. level. Repeatable. (S/U only.)

CDA 7980 DISSERTATION: DOCTORAL
PR: Admission to doctoral candidacy. Repeatable. (S/U only.)

CIS 6912 COMPUTER SCIENCE GRADUATE PROJECT
PR: CC. Computer Engineering project that may be taken by graduate students in place of Master's thesis. (S/U only.)

COC 6839 GRADUATE COMPUTER SCIENCE AND ENGINEERING SEMINAR
PR: CC. This is a graduate seminar for students majoring in computer science and engineering. May be repeated up to 4 credit hours. (S/U only.)

COP 5001 TOPICS IN COMPUTERS AND PROGRAMMING
PR: CC. Survey of topics in machine organization systems programing.

COP 6613 OPERATING SYSTEMS
PR: CC. Operating systems functions and design, resource management, protection systems, process communication and deadlock.

COP 6630 SOFTWARE ENGINEERING I-BASIC PRINCIPLES AND FORMAL METHODS

COP 6634 SOFTWARE ENGINEERING II-TOOLS AND APPLIED TECHNIQUES
PR: COP 6630. Tools and cost-effective techniques for requirements, specifications and analysis, module specification, design and integration, validation and verification, maintenance and project management.

COP 6640 PROGRAMMING LANGUAGES AND TRANSLATION
PR: CC. Grammars and languages, symbols, strings, syntax, parsing, the design of a compiler, storage organization and symbol tables, translator writing systems.

COP 6717 PASCAL AS A RESEARCH TOOL
PR: Ph. D. level. Intended only for doctoral students who would want to substitute the computer language Pascal for one of the foreign language requirements as a tool of research. (S/U only.)

COT 5002 FUNCTIONAL PROGRAMMING LANGUAGES
PR: COP 4550. The properties of functional and applicative languages; comparison with conventional languages, features and examples of applicative languages, LISP, KRC AND Forth. Implications to computer architecture.

EEL 5771 INTRODUCTION TO COMPUTER GRAPHICS I
PR: CC. An introduction to the evolution of computer graphics including point-plotting, line drawing, two-dimensional transformations and graphics software packages.

EEL 6221 INFORMATION THEORY
PR: CC. Concepts of information, information channels, channel capacity, information sources and Shannon's fundamental theorem and error correcting codes.

EEL 6764 PRINCIPLES OF COMPUTER ARCHITECTURE
PR: CDA 4101 or CC. Study of the number systems and the algorithms used for digital arithmetic computation with emphasis in their implementation, speed and reliability considerations.

EEL 6766 ADVANCED COMPUTER ARCHITECTURE
PR: EEL 6764 or CC. The macro-structure of computers is considered in this course, ranging from the orthodox von Neumann design to multiprocessors, stack processors, pipeline systems, and associative computers.

EEL 6773 THREE-DIMENSIONAL GRAPHICS AND SYSTEMS
PR: EEL 5771 or CC. Advanced course covers the methods of representation of three dimensional objects in the plane of the graphics screen and the hardware and software required for their processing.

EEL 6830 CODING THEORY
PR: EEL 6522 Error-correcting codes, algebraic block codes, linear codes and feedback shift registers; BCH codes; convolutional codes; burst error codes; arithmetic codes; decoding methods.

EEL 6840 AUTOMATA THEORY I

EEL 6841 AUTOMATA THEORY II
PR: EEL 6840. Turing machines, recursive function; computability. Artificial languages, phase-structure grammars, operations on languages, decision problems, discrete value random processes, Markov processes, probabilistic sequential machines, nondeterministic sequential machines.

ESI 6198 CASE STUDIES IN INDUSTRIAL COMPUTER SYSTEMS
PR: CC. A case study approach to the definition and implementation of industrial computer systems. The role of automation within the industrial concern. Design of systems in inventory, production control, and related areas.

ELECTRICAL ENGINEERING

UNDERGRADUATE COURSES

EEL 3100 NETWORK ANALYSIS AND DESIGN

EEL 3302 ELECTRONICS
PR: EGN 3737. A course in the physical principles of electronic devices with emphasis on semiconductor electronics. Includes the analysis and design of amplifiers and switching circuits.

EEL 3410, 4411 FIELDS AND WAVES I, II
PR: MAP 4302, PHY 3041, PHY 3041L. A basic introduction to electromagnetic field theory, including static and dynamic electromagnetic fields.

EEL 4102 LINEAR SYSTEMS ANALYSIS
PR: EEL 3100. Provides further study in the analysis of linear networks and systems. Includes time and frequency domain points of view. Laplace, Fourier and superposition integrals.

EEL 4108 DISTRIBUTED NETWORKS
PR: EEL 3410, EEL 3100. Transmission lines, standing waves, impe-
dance, waveguides.

EEL 4163 COMPUTER AIDED DESIGN AND ANALYSIS (2)
PR: EEL 3302. The emphasis is upon applications and how to use the major CADA programs as effective tools to solve a wide variety of engineering problems. The coverage includes solid state design, systems analysis, digital logic, transfer function solutions and concludes with a brief look at thermal and mechanical systems analysis. The programs used include SUPER*SCEPTRE, SPICE 2, NASAP and others.

EEL 4220, 4222 ELECTROMECHANICS I, II (3,3)

EEL 4300 COMMUNICATION CIRCUITS (3)
PR: EEL 3302. Provides further study in electronic circuits. Includes oscillator, modulator, and detector analysis and design.

EEL 4330 MICROELECTRONICS ENGINEERING (3)

EEL 4411 See EEL 3410

EEL 4511 COMMUNICATION ENGINEERING (2)
PR: EEL 4300. System considerations of electronic circuits; radio propagation; antennas; transmitters and receivers.

EEL 4511L COMMUNICATIONS LABORATORY (1)
CR: EEL 4511. Experiments in amplitude modulation, frequency modulation, pulse communications, and data transmission.

EEL 4567 ELECTRO-OPTICS LABORATORY (2)
PR: EEL 3301L, EEL 3302L; and Fields and Waves 1, EEL 3410. An introduction to the emerging field of electro-optics, including visible and infra-red sources and detectors, radiometry, optical and electronic components, and fiber optics.

EEL 4567L ELECTRO-OPTICS LABORATORY (1)

EEL 4568 LINEAR CONTROL SYSTEMS (3)

EEL 4705 LOGIC DESIGN (3)
PR: EGN 3373. Non-majors may enroll with CC. Binary number system; truth functions; Boolean algebra; canonical forms; minimization of combinational logic circuits; logic circuits in computers.

EEL 4705L LOGIC LABORATORY (1)
CR: EEL 4705.

EEL 4905 INDEPENDENT STUDY (1-5)
PR: CI. Specialized independent study determined by the students' needs and interests. May be repeated up to 15 credit hours. (S/U only).

EEL 4906 DESIGN PROJECT (2)
PR: Senior standing. An individual or team project involving the design of an electrical component system. Required of all electrical seniors.

EEL 4935, 4936, 4937 SPECIAL ELECTRICAL TOPICS I, II, III (1-4 each)
PR: CC.

EGR 3301L LABORATORY I (1)
PR: ELR 3301L, EEL 3302.

EGR 3302L LABORATORY II (1)
PR: EGN 3373.

EGR 4114 ELECTRICAL MEASUREMENTS (2)
PR: EEL 3100. Techniques and principles of electronic measurement.

EEL 4301L LABORATORY 3 (2)
PR: EEL 3302L, EEL 3300.

EEL 4306L LABORATORY 4 (1)
PR: EEL 3302L CR: EEL 4411.

GRADUATE COURSES

EEL 5250 POWER SYSTEMS ANALYSIS (2)
PR: CC. Analysis techniques for AC power systems.

EEL 5255 COMPUTER ANALYSIS OF POWER SYSTEMS (2)
PR: CC. Review of Fortran programming, matric algebra, network formulation, short circuit studies, simulation of algebraic equations, load flow studies, numerical solution of differential equations, transient stability studies. Strong emphasis on techniques adaptable to digital computer studies, programs will be written and run on the IBM 360/65.

EEL 5367 PULSE CIRCUIT PRINCIPLES (2)
PR: EEL 4102, EEL 4300. An introduction to the analysis and design of pulse and timing circuits with applications.

EEL 5388 LOW NOISE ELECTRICAL CIRCUITS (3)
PR: EEL 3302. Noise sources, circuit noise representations, noise in diodes, bipolar transistors, field-effect transistors and sensors, low noise circuit design and noise measurements.

EEL 5435 UHF PRINCIPLES (2)
PR: EEL 4102, EEL 4300, EEL 4411. A study of tubes, devices, and circuits peculiar to systems which operate at ultra high and super high frequencies.

EEL 5435L UHF LABORATORY CR: EEL 5435.

EEL 5437 MICROWAVE ENGINEERING (3)
PR: EEL 4411, 4102, or CC. Introduction to passive and active components, devices, and circuits, including transmission lines and waveguides, employed in microwave integrated circuits and systems.

EEL 5534 COMMUNICATION SYSTEMS I (3)

EEL 5620 NONLINEAR CONTROL SYSTEMS (2)

EEL 5751 DIGITAL COMPUTERS (3)
PR: EEL 4705. Digital arithmetic: computer sub-systems, arithmetic units; control units; memory units; general purpose computers.

EEL 5751L DIGITAL LABORATORY CR: EEL 5751.

EEL 5755 DIGITAL SIGNAL PROCESSING I (3)

EEL 5760 DISCRETE STRUCTURES FOR DIGITAL SYSTEMS (2)

EEL 5780 IMAGE PROCESSING BY COMPUTERS (2)
PR: EEL 4102 or CC. Two dimensional convolution and system functions. Fourier transform in two dimensions. Digitization of two dimensional signals, sampling theorems, bandlimited signals. Image processing by computers. Applications of image processing.

EEL 5835, 5836, 5937 SPECIAL ELECTRICAL TOPICS I, II, III (1-3 each)
PR: CC.

EEL 6141, 6142, 6143 NETWORKS SYNTHESIS I, II, III (2-2-2)
PR: CC. Network functions; physical realizability; two terminal network synthesis methods; frequency transformation; potential analogy; approximation problems; insertion-loss and transfer function synthesis.

EEL 6150, 6151 ADVANCED CIRCUIT THEORY I, II (3,3)
PR: CC. Network fundamentals; network characterization; frequency analysis; superposition integrals; signal-flow techniques; stability problems; real-and-imaginary relations.

EEL 6152 NONLINEAR CIRCUITS (2)
PR: CC. Analytical and topological approaches to nonlinear circuits; nonlinear resonance; relaxation oscillations.

EEL 6168 CADA: MODELING & SOFTWARE (2)
PR: EEL 4163. Coverage includes all facets of solid-state modeling pertaining to CADA applications. Discrete and macro modeling techniques are explored for a wide range of devices. Software methods for CADA applications are discussed from several vantage points. Methodology and treatment required for the large scale, general purpose programs are explored. The mathematical techniques used for the modern Honeywell integrations are examined, with tradesoffs discussed.

EEL 6174 OPTIMUM FILTERING AND IDENTIFICATION (2)
PR: CC or EEL 6631. Estimation theory and development of the Kalman-Wiener filter for continuous and discrete-time systems. System identification through deterministic and stochastic approaches. Application to control and communication systems.

EEL 6261, 6262, 6263 ELECTRIC POWER SYSTEMS I, II, III (2,2,2)
PR: CC Steady-state and transient analysis of interconnected power systems; power circuit protection; transient characteristics of apparatus.
EEL 6270 LIGHTNING AND SURGE PROTECTION (2)
PR: CC. Methods of protection against overvoltage due to lightning. Ground wire shielding, systems and tower grounding lightning arresters. Dynamic overvoltage, switching phenomena and system recovery voltages.

EEL 6271 PROTECTIVE RELAYING OF POWER SYSTEMS (2)
PR: EEL 5250, EEL 6261 or CC. Fundamentals of instrumentation. Design and operation of protective schemes for equipment in generation, transmission, and distribution circuits. Analysis of abnormal system conditions requiring relay operation.

EEL 6332 ELECTRICAL PROPERTIES OF THIN FILMS (2)
PR: EEL 4330 OR EQUIVALENT AND EEL 4411 or CC. Electrical properties of thin films as derived from Boltzmann's transport equation. The growth of thin films. The fabrication of electrical circuits with thin films. Lecture supplemented by laboratory experiments and demonstrations.

EEL 6351, EEL 6352 SOLID STATE ELECTRONICS I, II (3,3)
PR: CC. Theory of operation and application of circuits and devices.

EEL 6386, 6389 PRINCIPLES OF SEMICONDUCTOR DEVICE MODELING I, II (2,2)
PR: EEL 4002 or EEL 4411. A course sequence which emphasizes systematic methods for obtaining models which relate device physics to terminal behavior and which provide appropriate compromises between accuracy and simplicity.

EEL 6387 NOISE THEORY (2)
PR: CC. Electrical noise and signals through linear filters and electronic systems.

EEL 6432 PASSIVE MICROWAVE STRUCTURES (3)
PR: EEL or EEL 5437. Theory and design of passive microwave structures (directional couplers, transformers, phase shifters, junctions, resonators, etc.) for coaxial, waveguide, microstrip and integrated circuit applications.

EEL 6433 MICROWAVE NETWORKS (2)
PR: CC. Scattering and transfer representation of n-ports. Odd and even mode theory. Wave filters.

EEL 6434 ACTIVE MICROWAVE STRUCTURES AND DEVICES (3)
PR: CC or EEL 6432. Theory and design of solid state low noise and high power amplifiers, solid state oscillators and high power tubes for waveguide, coax and integrated circuit applications.

EEL 6447 OPTICAL ELECTRONICS (3)
PR: EEL 3410, PHY 4604. A study of the basic principles and operation of laser and optical devices and analyses of power output and frequency pulling in laser oscillators.

EEL 6448 INTEGRATED OPTICS (3)
PR: EEL 6447. A study of integrated optical devices and guided wave optical systems.

EEL 6449 FOURIER OPTICS AND SYSTEMS (3)
PR: Linear Systems Analysis (EEL 4102 or PHS 5113). A study of optical applications of linear systems and Fourier transforms.

EEL 6482, 6483 ELECTROMAGNETIC FIELDS AND WAVES I, II (3,3)
PR: CC. Electromagnetic theory from the engineering point of view, propagation and reflection of waves, guided waves, resonant cavities, antennas and radiation.

EEL 6506 DATA TRANSMISSION (2)
PR: EEL 6508. Quantization theory, binary coding systems ideal binary transmission, on-off keying, FSK, PSK, PCM applications.

EEL 6507 DATA TRANSMISSION II (2)
PR: EEL 6506. M-ary systems-MASK, MFSK, MPSK, orthogonal systems, multilevel and multistate coding, simplex coding, orthogonal and QPSK codes, multichannel systems, synchronization methods.

EEL 6508 PULSE COMMUNICATIONS SYSTEMS (2)
PR: CC. Sampling theory, pulse waveform generation and modulation, PAM, PWM, PPM, related multiplex systems, telemetry applications.

EEL 6522 INFORMATION THEORY (3)
PR: CC. Concepts of information, information channels, channel capacity, information sources, Shannon's Fundamental theorem and introduction to error correcting codes.

EEL 6531 THEORY OF COMMUNICATION I (3)
PR: CC. Advanced communication and application to satellite communication, telephone (voice and data), video (television) and facsimile transmission, digital radio, spread spectrum communication. Intersymbol interference, adaptive equalizers, channel fading and non-linearities, and error-correcting codes are also discussed.

EEL 6532 THEORY OF COMMUNICATION II (3)
PR: CC. Physical basis and statistical representation of electrical noise; filtering, modulation, and de-modulation of signals corrupted by noise; correlation techniques and linear prediction; statistical estimation of signal parameter; optimum filters receivers; and ambiguity functions and inverse probability; quantitative measure of information sources, noise channels and channel capacity, an introduction to error-correcting codes.

EEL 6535 COMMUNICATIONS SYSTEMS II (3)
PR: CC or EEL 5530. Analog communication; AM, DSB, SSB, and FM. Multisymbol communication, QAM, modems. Noise, bandwidth, error rate, SNR. Matched filters. Binary and M-ary transmission, orthogonal waveforms.

EEL 6563 OPTICAL FIBER COMMUNICATION (3)
PR: EEL 6447. An introduction to fiber optic technology as applied to communications systems.

EEL 6613 MODERN CONTROL THEORY (2)
PR: EEL 4656, EEL 5620, EEL 6631, EEL 6640 or CC. A study of modern control techniques including optimum and adaptive control.

EEL 6614 SYSTEMS AND CONTROL THEORY I (3)
PR: CC or EEL 4656. Analysis of multi-variable linear systems (continuous and discrete time, state-space methodology and transfer functions description). Analysis and design of feedback control systems. Effects of plant and measurement noise. Optimal control.

EEL 6615 SYSTEMS AND CONTROL THEORY II (3)
PR: CC or EEL 4656. *Continuation of EEL 6614-systems and Control Theory*.

EEL 6631 DIGITAL CONTROL SYSTEMS (2)
PR: EEL 4656. Sample data and digital control processes.

EEL 6640 RANDOM PROCESSES IN CONTROL SYSTEMS (2)
PR: EEL 6656. Analysis and design of control systems subject to random inputs and disturbances.

EEL 6752 DIGITAL SIGNAL PROCESSING II (3)

EEL 6753 DIGITAL SIGNAL PROCESSING III (3)
PR: CC or EEL 6756. Topics in digital signal processing, e.g., speech processing, radar signal processing, microprocessor and VLSI based DSP implementation, adaptive arrays, and noise cancellation.

EEL 6754 SPECIAL ANALYSIS BY COMPUTERS (2)
PR: CC. Introduction to time series analysis by computers. Discrete Fourier methods applied to time series, sample spectrum, cross spectrum, smoothing of spectral estimators, distribution properties. Application to physical, biological and environmental problems.

EEL 6822 PATTERN RECOGNITION THEORY (2)

EEL 6823 COMPUTER APPROACHES TO PATTERN RECOGNITION (2)

EEL 6838 CODING THEORY (3)
PR: EEL 6522 or CC. Error-correcting codes, algebraic block codes, linear codes and feedback shift registers; BCH codes; convolutional codes; burst error correcting codes; arithmetic codes; decoding methods.

EEL 6840 AUTOMATA THEORY I (3)

EEL 6841 AUTOMATA THEORY II (3)
PR: EEL 6840. Turing machines, recursive function; computability. Artificial languages, phase-structure grammars, operations on languages, decision problems, discrete value random processes, Markov processes, probabilistic sequential machines, nondeterministic sequential machines.

EEL 6908 INDEPENDENT STUDY (var.)
Independent study in which Students must have a contract with an instructor. Repeatable. (S/U only.)

EEL 6932 ADVANCED ENGINEERING SEMINAR (1-3)
### ENGINEERING TECHNOLOGY

#### UNDERGRADUATE COURSES

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ETL 4931</td>
<td>SPECIAL TOPICS IN TECHNOLOGY I</td>
<td>(1-5)</td>
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<tr>
<td>PR: CC</td>
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<tr>
<td>ETL 4932</td>
<td>SPECIAL TOPICS IN TECHNOLOGY II</td>
<td>(1-5)</td>
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<td>PR: CC</td>
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<tr>
<td>ETL 4933</td>
<td>SPECIAL TOPICS IN TECHNOLOGY III</td>
<td>(1-5)</td>
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<td>PR: CC</td>
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<tr>
<td>ETI 3101</td>
<td>INDUSTRIAL STATISTICS</td>
<td>(3)</td>
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<td>PR: ETK</td>
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<tr>
<td>ETI 4600</td>
<td>INTRODUCTION TO INDUSTRIAL SYSTEMS</td>
<td>(3)</td>
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<tr>
<td>PR: ETK</td>
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<tr>
<td>ETI 4614</td>
<td>PRINCIPLES OF INDUSTRIAL OPERATIONS I</td>
<td>(3)</td>
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<tr>
<td>PR: ETK</td>
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<tr>
<td>ETI 4661</td>
<td>PRINCIPLES OF INDUSTRIAL OPERATIONS II</td>
<td>(3)</td>
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<tr>
<td>PR: ETI 4600, ETI 4614, or CC</td>
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#### GRADUATE COURSES

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<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ETL 5100</td>
<td>INTRODUCTION TO ELECTRONICS FOR SCIENTIST</td>
<td>(5)</td>
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<tr>
<td></td>
<td>Basic electronic devices and instruments, DC and AC circuits, diodes</td>
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<td></td>
<td>and power supplies, transistor, circuits, integrated circuits, laboratory</td>
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<tr>
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<td>instruments, transducers and special instruments. No credit toward</td>
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<td>graduate degree requirements.</td>
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<tr>
<td>ETC 6931</td>
<td>SPECIAL TECHNICAL TOPICS I</td>
<td>(1-4)</td>
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<tr>
<td>PR: CC</td>
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<tr>
<td>ETC 6932</td>
<td>SPECIAL TECHNICAL TOPICS II</td>
<td>(1-4)</td>
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<tr>
<td>PR: CC</td>
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<tr>
<td>ETC 6933</td>
<td>SPECIAL TOPICS III</td>
<td>(1-4)</td>
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<td>PR: CC</td>
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### INDUSTRIAL AND MANAGEMENT SYSTEMS

#### UNDERGRADUATE COURSES

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>EIN 4214C</td>
<td>SAFETY ENGINEERING</td>
<td>(3)</td>
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<tr>
<td></td>
<td>Industrial safety practices. Application of hazard reduction or elimination</td>
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<td></td>
<td>techniques. Achievement of safety and health goals. OSHA, NIOSH. Design of loss control program.</td>
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<tr>
<td>EIN 4251C</td>
<td>AUTOMATION AND ROBOTICS</td>
<td>(3)</td>
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<tr>
<td></td>
<td>PR: EIN 4304L, EGN 3613. Introduction to the practices and concepts of automation as applied to material handling, inventory storage, material transfer, industrial processes and quality control. Economic justification of automated activities.</td>
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<tr>
<td>EIN 4304C</td>
<td>INTRODUCTION TO INDUSTRIAL ENGINEERING</td>
<td>(3)</td>
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<tr>
<td></td>
<td>History of industrial engineering. Introduction to basic industrial processes and controls. Students research specific industries and visit local industrial plants.</td>
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<tr>
<td>EIN 4312L</td>
<td>PRODUCTION DESIGN I</td>
<td>(3)</td>
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<tr>
<td></td>
<td>PR: EIN 4304C Operation analysis and workplace design, work measurement, standard data, ergonomics, and labor relations.</td>
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<tr>
<td>EIN 4313C</td>
<td>PRODUCTION DESIGN II</td>
<td>(3)</td>
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<tr>
<td></td>
<td>PR: EIN 4312L Predetermined time systems, job analysis and evaluation, wage administration, motivational theories, and design and application of wage incentive plans.</td>
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<tr>
<td>EIN 4334</td>
<td>PRODUCTION CONTROL I</td>
<td>(3)</td>
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<tr>
<td></td>
<td>PR: EGN 3443 PR: ESI 4314. Activity forecasting models and control. Design and use of inventory control models, both deterministic and probabilistic. Analysis of resource requirements.</td>
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<tr>
<td>EIN 4335</td>
<td>PRODUCTION CONTROL II</td>
<td>(3)</td>
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<tr>
<td>EIN 4352</td>
<td>ENGINEERING ECONOMY I</td>
<td>(2)</td>
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<tr>
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<td>PR: EGN 3613 or equivalent. Analysis of economic limitations on engineering projects. Income tax considerations, replacement models, MAPI, and obsolescence.</td>
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<tr>
<td>EIN 4364L</td>
<td>PLANT FACILITIES DESIGN</td>
<td>(3)</td>
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<tr>
<td></td>
<td>PR: EIN 4313L Design and modification of industrial production and material handling facilities. Basic analysis techniques, use of computer programs, automated warehousing.</td>
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<tr>
<td>EIN 4933</td>
<td>TOPICS IN INDUSTRIAL ENGINEERING</td>
<td>(3)</td>
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<tr>
<td>PR: CC</td>
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<tr>
<td>ESI 4221</td>
<td>STATISTICAL QUALITY CONTROL</td>
<td>(3)</td>
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<tr>
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<td>PR: EGN 3443 Application of statistical techniques to the control of</td>
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<td>industrial processes. Control charts and acceptance procedures.</td>
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<tr>
<td>ESI 4244</td>
<td>DESIGN OF EXPERIMENTS I</td>
<td>(3)</td>
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<tr>
<td></td>
<td>PR: EGN 3443 Development of the basic statistical experimental designs applicable to engineering analyses. Analysis of variance and regression.</td>
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<tr>
<td>ESI 4314</td>
<td>OPERATIONS RESEARCH I</td>
<td>(3)</td>
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<td>PR: EGN 4450. An introduction to operations research techniques with particular emphasis on deterministic models. Linear programming, dynamic programming, goal programming, integer programming, andPERT/CPM networks are considered.</td>
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<tr>
<td>ESI 4315</td>
<td>OPERATIONS RESEARCH II</td>
<td>(3)</td>
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<tr>
<td></td>
<td>PR: EGN 3443, ESI 4314. A continuation of ESI 4314 with emphasis given to probabilistic models in Operations Research. Discrete and continuous time processes, queueing models, inventory models, simulation models, Markovian decision process and decision analysis.</td>
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<tr>
<td>ESI 4521</td>
<td>INDUSTRIAL SYSTEMS SIMULATION</td>
<td>(3)</td>
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<tr>
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<td>PR: ESI 4315. A study of the development and analysis of computer simulation models: Monte Carlo, time-slice, and next-event. Introduction to special purpose simulation languages.</td>
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<tr>
<td>ESI 4573</td>
<td>NUMERICAL METHODS</td>
<td>(3)</td>
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<tr>
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<td>PR: EGN 2210, one calculus course or Cl. Numerical algorithms and methods for applications to engineering problems. Applications using FORTRAN language.</td>
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<tr>
<td>ESI 4905</td>
<td>INDEPENDENT STUDY</td>
<td>(1-5)</td>
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<td>PR: Cl. Specialized independent study determined by the student's needs and interests. May be repeated up to 15 credit hours. (S/U only.)</td>
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<tr>
<td>ESI 4911</td>
<td>SENIOR PROJECT</td>
<td>(2)</td>
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<td>PR: EIN 4312, ESI 4314, EGN 3443. Analysis and design of systems in a directed project format. Individual or group work consisting of</td>
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</table>
project proposal, project activities, and final report. Student projects are directed by faculty, with chairman's approval.

**GRADUATE COURSES**

**EIN 5101C ARBITRATION OF INDUSTRIAL ENGINEERING DISPUTES** (3)
Case studies in the arbitration of technical disputes involving job evaluation and classification, labor standards, wage incentives, crew size, etc.

**EIN 5218 HAZARDS CONTROL ENGINEERING** (3)
PR: Senior or graduate status. Open to non-majors. Nature of industrial accidents. Preventive standards, OSHA, and other governmental requirements for reducing accident frequency and severity in the industrial environment. Design measures for the prevention of health impairment due to non-accidental causes.

**EIN 5245 HUMAN FACTORS** (3)
PR: CC. A study of the human physiological limitations encountered in the design, analysis and evaluation of man-machine systems.

**EIN 5253 HUMAN PROBLEMS IN AUTOMATION** (3)
The study of analysis of combined human operations, automated processes, and robotics in industrial environments.

**EIN 5301C INDUSTRIAL ENGINEERING CONCEPTS** (3)
PR: CC. Survey of industrial and management engineering methodology. Work measurement, methods, production and inventory control, and facility design.

**EIN 5345 INVENTORY CONTROL** (3)
PR: EIN 4335 or equivalent. Properties of inventory systems and fundamentals of deterministic and probabilistic inventory models. Principles and concepts of material requirements planning.

**EIN 5353 ADVANCED ENGINEERING VALUATION** (3)
PR: EIN 4352 or equivalent. Statistical models for analyzing engineering alternatives from an economic viewpoint. The use of advanced engineering economy concepts in solving industrial problems.

**EIN 5381C LOGISTICS ENGINEERING** (3)
PR: EGN 3443 or equivalent. Principles and practices of Logistics Engineering are covered. System requirements, logistics support analysis, test and evaluation are considered.

**EIN 5386C PROBLEMS IN ENGINEERING MANAGEMENT** (3)
A study of problems encountered by managers in the planning, organizing, allocation of resources, directing, and controlling technical activities.

**EIN 5389 FORECASTING** (3)
Introduction to forecasting techniques used to plan and schedule production and inventory control functions. Smoothing and decomposition time-series methods, regression methods, and autoregressive moving average methods are presented. Integrating forecasting and planning into the enterprise engineering organization is discussed.

**EIN 5914, 5915, 5916 SPECIAL INDUSTRIAL PROJECTS I, II, III** (1-3 each)
PR: CC.

**EIN 6247 MAN/MACHINE SYSTEMS** (3)

**EIN 6336 PRODUCTION CONTROL SYSTEMS** (3)
PR: CC. Forecasting models, development of production plans, loading and scheduling models and basic inventory models. Use of MRP. Design and evaluation of production control systems.

**EIN 6605C ROBOTICS AND ASSEMBLY AUTOMATION** (3)
The use of robots in manufacturing assembly; coordinated use of robots, machine tools, feeders, holding devices, and material handling systems.

**EIN 6933 ADVANCED ENGINEERING SEMINAR** (1-3)
PR: CC.

**EIN 6934, 6935, 6936 SPECIAL INDUSTRIAL TOPICS I, II, III** (1-3 each)
PR: CC.

**EIN 6971 THESIS: MASTER'S** (var.)
Repeatable. (S/U only.)

**ESI 5216 ENGINEERING STATISTICS II** (3)
PR: EGN 3443 or equivalent. Application of non-parametric statistics, sequential analysis, orthogonal polynomials and other advanced statistical techniques to solving engineering problems.

**ESI 5219 STATISTICAL METHODS FOR ENGINEERING MANAGERS** (3)
Study of statistical methods applied to engineering management problems involving estimation and prediction under conditions of uncertainty. Not open to students who have had EGN 3443.

**ESI 5233 RELIABILITY ENGINEERING** (3)
PR: EGN 3443 or equivalent. Fundamental concepts of reliability, estimation of reliability of systems and components. Measures of availability, maintainability and reliability.

**ESI 5306 OPERATIONS RESEARCH FOR ENGINEERING MANAGEMENT** (3)
Linear programming, non-linear programming, queueing, inventory, network analysis. Not open to students who have had ESI 4315.

**ESI 5479 MANUFACTURING SYSTEMS ANALYSIS** (3)
PR: CC. The study of systems of manufacturing entities such as machine tools, robots, advanced materials handlers. Emphasis is on mathematical description of integrated systems and system optimization.

**ESI 5522 COMPUTER SIMULATION II** (3)

**ESI 6213 THEORY OF INDUSTRIAL STATISTICS** (3)
PR: ESI 5219 or equivalent. Study of the theory behind the statistical techniques applied to the solving of engineering problems.

**ESI 6223C ECONOMIC QUALITY CONTROL** (3)
PR: EIN 5353, ESI 4221. The design of acceptance sampling systems and control charts for the economic point of view. Consideration of the effects of inspection error on sampling plan and control chart designs.

**ESI 6227 STATISTICAL ASSURANCE PLANS** (3)
PR: ESI 5219 or equivalent. Advanced techniques in quality control systems. Includes study of articles in current journals.

**ESI 6238 THEORY OF RELIABILITY** (3)
PR: EGN 3443 or equivalent. Topics in statistical methodology which have applications in reliability. Discrete and continuous distribution models, reliability estimation, reliability structure and growth models, and statistical design of reliability.

**ESI 6247 STATISTICAL DESIGN MODELS** (3)
PR: ESI 5219 or equivalent. Design of experimental mathematical models. Application of advanced analysis of variance techniques as applied to industrial problems.

**ESI 6291 SPECIAL TOPICS IN STATISTICS** (3)
PR: CC. Special topics in statistics related to research in engineering.

**ESI 6336 QUEUEING THEORY** (3)
PR: ESI 4315. Introduction to queueing models. Poisson queues, non-Poisson queues, decision models, transient analysis and special queueing topics.

**ESI 6341 DYNAMIC PROBABILISTIC SYSTEMS** (3)

**ESI 6405 NONLINEAR AND DYNAMIC PROGRAMMING** (3)
PR: ESI 4315 or equivalent. Optimization of nonlinear systems. General theory and existence theorems. Techniques of solution including quadratic, dynamic and geometric programming for discrete systems, continuous systems and variational methods.

**ESI 6414 LINEAR PROGRAMMING** (3)
PR: ESI 4315 or equivalent. The Simplex method, degeneracy, sensitivity analysis, duality theory, network flow theory. Applications to industrial problems.

**ESI 6491 MULTIVARIABLE OPTIMIZATION** (3)

**ESI 6550 INDUSTRIAL SYSTEMS DESIGN** (3)
PR: ESI 4521, ESI 4315 or equivalent. Design of integrated systems using statistical and operations research models. Digital simulation using several different digital simulation systems.

**ESI 6552 EVALUATION OF SYSTEM PERFORMANCE** (3)
PR: ESI 4215, ESI 4315 or equivalent. Applications of probability and random processes to the design and evaluation of physical systems from the viewpoint of satisfying prescribed specifications.

**ESI 6555 TOPICS IN AUTOMATION** (3)
PR: CC. Study of recent advances in automated systems, automation
CONCEPTS, CONTROL METHODS, NUMERICAL CONTROL, ADAPTIVE CONTROL.

ESI 6906 INDEPENDENT STUDY (var.)
Independent study in which students must have a contract with an instructor. Repeatable. (S/U only.)

ESI 6911 DIRECTED RESEARCH (var.)
PR: GR. Master's level. Repeatable. (S/U only.)

ESI 6991 GRADUATE RESEARCH METHODS (1-5)
Special course to be used primarily for the training of graduate research assistants. Variable credit, repeatable. Limited to a cumulative total of five credits per student. (S/U only.)

ESI 6992 GRADUATE INSTRUCTION METHODS (1-5)
Special course to be used primarily for the training of graduate teaching assistants. Variable credit, repeatable. Limited to a cumulative total of five credits per student. (S/U only.)

ESI 7900 DISSERATION: DOCTORAL (var.)
PR: Must be admitted to Doctoral Candidacy. Repeatable. (S/U only.)

COMPUTER SERVICE COURSES
(No credit for Engineering Majors)

UNDERGRADUATE COURSES
CDA 3101 SC INTRODUCTION TO COMPUTERS II (3)
PR: CDA 3101. Continuation of CDA 3101. Introduction to large computer systems assembler language and applications.

CDA 3102 SC INTRODUCTION TO COMPUTERS III (3)
PR: CDA 3101. Continuation of CDA 3101. Introduction to large computer systems assembler language and applications.

CDA 4152 SC MINI-COMPUTER APPLICATIONS (3)
PR: COP 4530. Study of mini-computer system components, I-O devices, theory of computer operation.

COC 3300 SC INTRODUCTION TO COMPUTERS AND PROGRAMMING IN BASIC (3)
An overview of computer systems and their role in society. Survey of the evolution of computer software and hardware technology with emphasis on current applications. Introduction to programming using the BASIC language.

COP 3110 SC FORTRAN PROGRAMMING (3)
PR: COP 3300. Solution of scientifically oriented problems using the FORTRAN language. Particular emphasis is placed on file manipulation and system libraries.

COP 3120 SC COBOL PROGRAMMING I (3)

COP 3155 SC APL PROGRAMMING II (3)
PR: COP 3155. Use of the APL language is an interactive mode to solve business and scientific programs.

COP 3180 SC PASCAL PROGRAMMING (3)
PR: COP 3180. Structured programming implemented with the PASCAL language. Emphasis on program structure and data manipulation.

COP 4330 SC GPSS SIMULATION (3)
PR: COP 3330. The development and execution of discrete event simulation models of real world systems using the GPSS language.

COP 4331 SC SIMSCRIPT SIMULATION (3)

COP 4204 SC COMPUTER APPLICATIONS (3)
PR: COP 3110. Applications of various high level languages to current scientific and engineering problems.

COP 4530 SC DATA REPRESENTATION AND MANIPULATION (3)
PR: CDA 3101. Study of the internal representations of data, data storage and retrieval, and data manipulations.

GRADUATE COURSES
CAP 5812 SC COMPUTERS FOR RESEARCH I (3)
PR: Graduate student status. The use of the FORTRAN language in solving research problems.

CAP 6813 SC COMPUTER FOR RESEARCH II (3)
PR: CAP 5812 or equivalent. Continuation of the material covered in CAP 5812. Use of computer libraries, plotting equipment and statistical packages.

COLLEGE OF FINE ARTS

ART

UNDERGRADUATE COURSES
ARH 3000 INTRODUCTION TO ART (4)
An expanded introductory treatment of basic concepts. For art majors and non-art majors.

ARH 4100 PREHISTORIC AND ANCIENT ART (4)
A comprehensive study of Paleolithic, Neolithic, Egyptian, Assyrian and Mesopotamian painting, sculpture and architecture.

ARH 4170 GREEK AND ROMAN ART (4)
A comprehensive study of Aegean, Mycenaean, Etruscan, Greek and Roman painting, sculpture and architecture.

ARH 4200 MEDIEVAL ART (4)
A comprehensive study of early Christian, Byzantine and Medieval painting, sculpture, architecture and manuscript illumination.

ARH 4301 ITALIAN RENAISSANCE ART (4)
A comprehensive study of Renaissance and Mannerist painting, sculpture and architecture in Italy and Northern Europe.

ARH 4350 BAROQUE AND ROCOCO ART (4)
A comprehensive study of the painting, sculpture and architecture in France, Italy, Spain and the Netherlands in the seventeenth and early eighteenth centuries.

ARH 4430 NINETEENTH CENTURY ART (4)
A comprehensive study of nineteenth century painting, sculpture and architecture in France and England.

ARH 4450 TWENTIETH CENTURY ART (4)
A comprehensive study of painting, sculpture and architecture from Cezanne to the present in Europe and the United States. Required of all art majors.

ARH 4530 ORIENTAL ART (4)
An introduction to concepts of the arts of China, Japan and other Far Eastern countries.

ARH 4743 INTRODUCTION TO THE PERSONAL FILM (4)
PR: ART 3630C. Comparison of philosophical and technical distinctions between the personal film and theatrical or commercial releases.

ARH 4746 ANATOMY OF THE COLLABORATIVE FILM (4)
PR: ART 4631C. Analysis of aesthetic and other selected aspects of film produced through collaborative efforts. May be repeated.
ART 4790 SELECTED TOPICS IN THE HISTORY OF FILM  
In-depth investigation of a selected period, development, or school in the history of film as Art. May be repeated.  

ART 4796 CRITICAL STUDIES IN ART HISTORY  
PR: CI. Specialized intensive studies in art history. Specific subject matter varies. To be announced at each course offering. May be repeated for different topics only.  

ART 4937 SEMINAR IN THE HISTORY OF ART HISTORY  
PR: Four courses in Art History at the 4000 level, CI. An examination of the origins of Art History as a discipline and changing nature of Art History from Vasari to the present.  

ART 2202C VISUAL CONCEPTS I  
Studio problems supplemented by reading and discussion. Consideration of spatial organization of the two-dimensional surface.  

ART 2203C VISUAL CONCEPTS II  
Studio problems supplemented by reading and discussion. Consideration of the three-dimensional organization of space and mass.  

ART 3110C CERAMICS I  

ART 3301C DRAWING I  

ART 3420C LITHOGRAPHY I  
PR: Visual Concepts I. Introduction to Art and Drawing I. Intermediate problems in lithography with emphasis on the exploration of methods and media and the development of individual concepts.  

ART 3600C PHOTOGRAPHY I  
PR: Visual Concepts I and Introduction to Art. Intermediate problems in photography with emphasis on the exploration of methods and media and the development of individual concepts.  

ART 3630C CINEMATOGRAPHY I  
PR: Visual Concepts I and Introduction to Art. Intermediate problems in cinematography with emphasis on the exploration of methods and media and the development of individual concepts.  

ART 3701C SCULPTURE I  
PR: Visual Concepts II and Introduction to Art. Intermediate problems in sculpture with emphasis on the exploration of materials and media and the development of individual concepts.  

ART 3935 STUDIO TECHNIQUES: SELECTED PROJECTS  
PR: Visual Concepts I, II and Introduction to Art and CI. Concentration in specialized technical data and process. May be repeated for credit for different topics only.  

ART 4111C CERAMICS II  
PR: ART 3110C. Continued problems in ceramics. May be repeated.  

ART 4200C DRAWING II  
PR: ART 3301C. Continued problems in drawing. May be repeated.  

ART 4221C LITHOGRAPHY II  
PR: ART 3420C. Continued problems in lithography. May be repeated.  

ART 4471C INTAGLIO II  
PR: ART 3470. Continued problems in intaglio. May be repeated.  

ART 4520C PAINTING II  
PR: ART 3510C. Continued problems in painting. May be repeated.  

ART 4601C PHOTOGRAPHY II  
PR: ART 3600C. Continued problems in photography. May be repeated.  

ART 4631C CINEMATOGRAPHY II  
PR: ART 3630C. Continued problems in cinematography. May be repeated.  

ART 4633C SOUND TECHNIQUES  
PR: ART 3630C. The recording and editing of sound for film. Collaboration with other departments, particularly Music and Theatre, is encouraged. To be taken concurrently with ART 4631C or ART 5642C whenever possible.  

ART 4702C SCULPTURE II  
PR: ART 3701C. Continued problems in sculpture. May be repeated.  

ART 4900 DIRECTED READING  
PR: CI and CC. A course of reading and study in an area of special concern governed by student demand, instructor interest and/or departmental requirements. Registration by contract only. May be repeated for credit for different study areas only.  

ART 4905 DIRECTED STUDY  
PR: CC. Independent studies in the various areas of Visual Arts. Course of study and credits must be assigned prior to registration. May be repeated.  

ART 4935 ART SENIOR SEMINAR  
PR: Senior Status. To aid majors to understand, appraise, and perfect their own art and technique through critical and aesthetic judgments of their colleagues. Discussion and critical evaluation.  

GRADUATE COURSES  
Admission to all 5000 level studio courses by Consent of Instructor.  

ART 6055 ART HISTORY  
PR: CI. May be repeated.  

ART 5125C CERAMICS  
PR: ART 4111C. Advanced problems in the various ceramic techniques, including throwing, glaze and glaze calculation. May be repeated.  

ART 5340C DRAWING  
PR: ART 4320C. Advanced problems in various drawing techniques. Emphasis on individual creative expression. May be repeated.  

ART 5422C LITHOGRAPHY  
PR: ART 4421C. Advanced problems in various lithographic techniques. Emphasis on individual creative expression. May be repeated.  

ART 5472C INTAGLIO  
PR: ART 4471C. Investigations into more complex intaglio processes including photoengraving and color printing procedures. Emphasis on personal conceptual development in graphic media. May be repeated.  

ART 5532C PAINTING  
PR: ART 4520C. Advanced problems in the various painting techniques. Emphasis on individual creative expression. May be repeated.  

ART 5604C PHOTOGRAPHY  
PR: CI. Advanced work in photography and related media leading to development of personal/expressive statements. May be repeated.  

ART 5730C CINEMATOGRAPHY  
PR: ART 4702C. Advanced problems in the various techniques of sculpture. Emphasis on individual creative expression. May be repeated.  

ART 5910 RESEARCH  
PR: CC. May be repeated.  

ART 5936 STUDIO TECHNIQUES: SELECTED PROJECTS  
PR: Visual Concepts I, II and Introduction to Art, the topic-technique-related 3000-4000 level studio sequence and CI. Concentration in specialized technical data and process. May be repeated for credit for different topics only.  

ART 6126C CERAMICS  
PR: CI. May be repeated.  

ART 6341C DRAWING  
PR: CI. May be repeated.  

ART 6423C LITHOGRAPHY  
PR: CI. May be repeated.  

ART 6473C INTAGLIO  
PR: CI. May be repeated.  

ART 6580C PAINTING  
PR: CI. May be repeated.  

ART 6628C PHOTOGRAPHY  
PR: CI. May be repeated.  

ART 6645C CINEMATOGRAPHY  
PR: CI. May be repeated.  

ART 6731C SCULPTURE  
PR: CI. May be repeated.  

ART 6907 INDEPENDENT STUDY  
VAR) Independent study in which student must have a contract with an instructor. Repeatable. (S/U only)  

ART 6911 DIRECTED RESEARCH  
VAR) PR: GR. Master's level. Repeatable. (S/U only)
**UNDERGRADUATE COURSES**

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<th>Course Title</th>
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<td>FUNDAMENTALS OF MODERN DANCE I</td>
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</tr>
<tr>
<td>DAA 2160</td>
<td>MODERN DANCE II</td>
<td>3</td>
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<tr>
<td>DAA 2201</td>
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<td>DAA 3503</td>
<td>JAZZ THEATRE DANCE</td>
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<td>DAA 3610</td>
<td>MUSIC FOR DANCE</td>
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<td>DAA 3710</td>
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<td>DAA 4151</td>
<td>19TH AND 20TH CENTURY DANCE</td>
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<td>DAA 4170</td>
<td>DANCE SENIOR SEMINAR</td>
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<td>DIRECTED READING</td>
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<td>DAA 4906</td>
<td>DIRECTED STUDY</td>
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<tr>
<td>DAA 4930</td>
<td>SELECTED TOPICS IN DANCE</td>
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**ARTS**

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**DANCE**

Chairperson: L. D. Berger; Professors: L. D. Berger, W. G. Hug; Associate Professor: G. W. Warren; Assistant Professors: H. S. Parrish, S. W. Robinson, L. Wimmer; Lecturer: M. W. Katz; Courtesy Faculty: Instructors: K. McBee, G. Pope; Lecturer: W. A. Calloway; Other Faculty: M. Tzigan.

**DAN 2100 FUNDAMENTALS OF MODERN DANCE I**

To acquaint beginning modern dance students with fundamentals of dance vocabulary, movement, rhythm and alignment.

**DAN 2160 MODERN DANCE II**

PR: Admission by audition. Study of principles of modern dance technique. Practical work in exercises and movement phrases, utilizing changing rhythms and dynamics. May be repeated. (Ballet requirement)

**DAN 2201 FUNDAMENTALS OF BALLET I**

To acquaint beginning ballet dance students with fundamentals of vocabulary, movement, rhythm and alignment.

**DAN 2201 BALLET II**

PR: Admission by audition. Positions and barre exercises. Emphasis on correct alignment of the body and the application of simple step combinations in centre work. The use of ballet vocabulary (French terms). Material is covered almost totally as practical work in class with a few outside projects. Concert and performance attendance required. May be repeated. (Modern requirement)

**DAN 3161 MODERN DANCE III**

PR: Admission by audition. Continuation of DAA 2160. Further emphasis on style and phrasing. Work in projecting mood and quality by dancing and rehearsing in more advanced student choreography, leading to performance. Rehearsal hours to be arranged. May by repeated.

**DAN 3200 BALLET III**

PR: Admission by audition. Intensification of barre exercises for the development of strength and form. Most of the ballet steps are introduced. Application of phrasing and movement. Material covered as practical work in class for concerts and performances. Rehearsal hours to be arranged. May be repeated.

**DAN 3220 BALLET IV**

PR: DAA 3200. This course introduces fundamental exercises for the development of pointe technique. Material covered may also be pas de deux, character, and variations. Must be repeated for a total of 4 hours by majors in ballet concentration. May be repeated.

**DAN 3502 JAZZ DANCE**

PR: Admission by audition, DAA 2201 or 2160. A technique class for the intermediate level dancer to become acquainted with the dance styles and forms of musical theatre and concert jazz dance. Emphasis is on highly stylized movement on a strong rhythmic base. May be repeated.

**DAN 3503 JAZZ THEATRE DANCE**

PR: Admission by audition and DAA 3502. Continuation of DAA 3502. Further emphasis on projection, phrasing, rhythmic patterns and dynamics. Solo and ensemble studies leading to performance. May be repeated.

**DAN 3700 CHOREOGRAPHY I**

Study and execution for basic principles of composition. Preparation of studies in theme and variations, breath phrases and metric phrases. May be repeated.

**DAN 3701 CHOREOGRAPHY II**

PR: DAA 3700 or CI. Preparation of studies in rhythm, dynamics, form and motivation, culminating in a solo. May be repeated.

**DAN 4112 MODERN DANCE IV**

PR: Admission by audition. Intensive work on the growth of personal performance styles. Equal emphasis will be given to training the body in the development of technical excellence. Rehearsal hours to be arranged. May be repeated.

**DAN 4203 BALLET IV**

PR: Admission by audition. Perfecting the execution of barre work. Intensification of centre work. More stress on aesthetic quality of movement and phrasing. Students expected to be proficient in pointe work. Outside projects, concerts, and performances are required. Rehearsal hours to be arranged. May be repeated.

**DAN 4702 CHOREOGRAPHY III**

PR: DAA 3701 or CI. Work directed toward duets and group dances. The students will submit choreographic ideas for instructor's approval, then proceed with rehearsals. The best dances will be performed and fully produced under supervision of student choreographers. Lecture, research, laboratory, and reading. Rehearsal hours to be arranged. May be repeated.

**DAN 4703 CHOREOGRAPHY IV**

PR: DAA 4702. The student will prepare studies based on free form, minimal art, and chance methods. Lecture, reading. May be repeated.

**DAN 3100 INTRODUCTION TO DANCE**

For non-dance majors, a study of the art of dance. Activities including Modern, Ballet, Jazz, Ethnic, and Tap. DAN 2160 may be used for University General Distribution Requirement by the non-major; and may be used to satisfy part of the 6 hour in-College Requirement for fine Arts Majors in Art, Music and Theatre.

**DAN 3590 PRACTICUM IN DANCE PRODUCTION I**

A practicum in mounting dance concerts with shop work and back-stage participation. Intended for students working in costuming, set preparation, light presentation, stage management and production crew. Dance majors must have at least 2 credits for graduation accumulated in two different semesters.

**DAN 3610 MUSIC FOR DANCE**

Development of practical music skills in relation to dance. Emphasis on rhythm and the relationship of music forms to dance. May be repeated up to 4 credit hours.

**DAN 3611 MUSIC FOR DANCE II**

PR: DAN 3610 or CI. Elements within historical context. Continued problems in rhythmical materials.

**DAN 3710 REPERTORY**

The development and performance of solo and/or group dances. Open to all University students by audition. May be repeated.

**DAN 4120 SURVEY HISTORY OF DANCE**

Survey history of dance. Study of development of dance from its inception through 18th Century. Social and theatrical dance forms, Ethnic Dance included.

**DAN 4151 19TH AND 20TH CENTURY DANCE**

Survey history of dance. Study of development of dance from 19th Century through 20th Century. Theatrical and other expressive forms included. Reading, lecture and visual aids.

**DAN 4170 DANCE SENIOR SEMINAR**

PR: Senior or CC. To aid majors to understand, appraise and perfect their own art and technique through critical and aesthetic judgments of their colleagues.

**DAN 4905 DIRECTED READING**

PR: CI and CC. Readings in topic of special interest to the student. Selection of topic and materials must be agreed upon and appropriate credit must be assigned prior to registration. A contract with all necessary signatures is required for registration. May be repeated for credit for different topics only.

**DAN 4906 DIRECTED STUDY**

PR: CC. Independent studies in the various areas of Dance. Course of study and credits must be assigned prior to registration. May be repeated.

**DAN 4930 SELECTED TOPICS IN DANCE**

PR: CI and CC. The content of the course will be governed by student demand and instructor interest. May be repeated for credit for different topics only.
MUSIC


UNDERGRADUATE COURSES

MUC 2202 COMPOSITION (3)
PR: MUC 1113 and CI. Private instruction in original composition. Required of composition majors. May be repeated for three semesters.

MUC 2301 INTRODUCTION TO ELECTRONIC MUSIC (2)
History and repertory of electronic music; standard sound studio techniques; basic electronics as applied in electronic sound synthesis; mathematics for music, composition and electronic music.

MUC 3203 COMPOSITION (3)
PR: Necessary competency at MUC 2202 level determined by faculty jury. Private instruction in original composition. Required of composition majors. May be repeated for three semesters.

MUC 3401, 3402 ELECTRONIC MUSIC—ANALOG SYNTHESIS (3,3)
PR: MUC 2301 and CI. Composition for tape medium with analog synthesizers; use of sound recording studio; repertory or analog music synthesis; technical basis of analog systems design and construction.

MUC 3441, 3442 ELECTRONIC MUSIC—DIGITAL SYNTHESIS (3,3)
Computer assisted composition for conventional instruments; composition for tape medium with computer controlled analog synthesizers; direct digital synthesis; digital systems design and construction.

MUC 3601, 3602 CONTEMPORARY TECHNIQUES OF COMPOSITION (3,3)
PR: CI. Instruction in the use of major Twentieth-Century compositional techniques; tonal unordered set, and serial composition and the use of indeterminacy in composition and performance.

MUC 4204 COMPOSITION (3)
PR: Necessary competency at MUC 3203 level determined by faculty jury. Private instruction in original composition. Required of composition majors. Must be repeated for credit for a minimum of 6 hours for majors.

MUC 4405, 4406 ELECTRONIC MUSIC—REAL-TIME PERFORMANCE (3,3)
PR: MUC 3402 and MUC 3442 or equivalent. Composition for analog/digital equipment; performance techniques; sound synthesis, interfacing electronics with conventional instruments.

MUC 4501 SEMINAR IN NEW MUSICAL SYSTEMS (2)
PR: CI. Experimental sound sources and ensemble groupings; creating of new instruments; unfamiliar sonic materials and unique social contexts for music. May be repeated for credit.

MUC 4503 CASE CONDUCTING (2)
PR: CI. The study and practical application of basic conducting techniques. Development of skills related to the conducting of musical scores.

MUC 4201 CHORAL CONDUCTING (2)
PR: MUC 3101 or its equivalent and CI. Practical application of conducting techniques to choral works, score study, performance practices, and rehearsal techniques. Class serves as performing group.

MUC 4301 INSTRUMENTAL CONDUCTING (2)
PR: MUC 3101 & CI. A study of those techniques of conducting unique to instrumental music ensembles: baton technique, score reading, terminology, rehearsal management.

MUH 3016 HISTORY OF POPULAR MUSIC (2)
Popular music in the U.S. from 1820 to present. Units on the big band era, country and western, jazz, Black music, and the rock scene beginning in 1955. May be used for University General Distribution Requirements and may be used to satisfy part of the 6 hours in-College Requirement for Fine Arts majors in Art, Dance, Theatre and as a music elective.

MUH 3211, 3212 MUSIC HISTORY (3,3)
PR: CI. Required of music majors; a survey of the historical development of musical styles and of the music representative of those styles.

MUL 3001 SURVEY OF JAZZ (2)
Open only to non-music majors. A study of jazz, its heritage, personalities and music. Emphasis is placed on the development of listening techniques.

MUL 3111, 3112 INTRODUCTION TO MUSIC LITERATURE (2,2)
PR: MUL 1112 or CI. A survey of representative music exemplars of the past and present with emphasis on the study of styles and form. Required for music majors.

MUL 3001 ISSUES IN MUSIC (2)
Open only to non-music majors; lectures and live performances by artist faculty of significant works from the literature for the piano; analysis and illustration in performance of the abstract and aesthetic elements in music which vitally concern the artist-performer. This course is also available on WUSF/TV Channel 16 by the O. U. Project (S/U only).

MUL 3011, 3012 THE ENJOYMENT OF MUSIC (3,3)
Open only to non-music majors; a study in the art of music and its materials, designed to develop an understanding of basic principles of music and a technique for listening to music.

MAJOR PERFORMING ENSEMBLES (below) PR: CI. Open to all university students with the necessary proficiency in their performing media; study and performance of music for large combinations of voices, string, woodwind, brass, or percussion instruments. May be repeated for credit.

MUN 3340 CHAMBER SINGERS (1)

MUN 3411 STRING QUARTET (1)

MUN 3421 FLUTE CHOIR (1)

MUN 3420 SAXOPHONE ENSEMBLE (1)

MUN 3423 CLARINET CHOIR (1)

MUN 3426 WOODWIND ENSEMBLE (1)

MUN 3430 BRASS CHOIR (1)

MUN 3432 HORN QUARTET (1)

MUN 3436 BRASS QUARTET (1)

MUN 3440 PERCUSSION ENSEMBLE (1)

MUN 3441 MARIMBA ENSEMBLE (1)

MUN 3470 COLLEGIUM MUSICUM (1)

MUN 3711 JAZZ CHAMBER ENSEMBLE (1)

MUS 3492 CLASSICAL GUITAR ENSEMBLE (1)

MUS 4951 DEDICATED READING (1-3)

MUS 4950 DIRECTED STUDY (1-4)
PR: CI and CC. Readings in topics of special interest to the student. Selection of topic and materials must be agreed upon and appropriate credit must be assigned prior to registration. A contract with all necessary signatures is required for registration. May be repeated for credit for different topics only.

PR: CC. Independent studies in the various areas of music; course of study and credits must be assigned prior to registration; may be repeated.

MUS 4930 SELECTED TOPICS IN MUSIC (1-4)
PR: CI and CC. The content of the course will be governed by student demand and instructor interest. May be repeated for credit for different topics only.

MUS 4931 SELECTED STUDY TOPICS IN MUSIC (1-4)
PR: CI. The content of the study will be governed by individual student demand and instructor interest with an emphasis on individual instruction.

MUS 4935 MUSIC SENIOR SEMINAR (2)
PR: CI. To aid majors to understand, appraise and perfect their own art through critical and aesthetic judgments of their colleagues. (S/U only.)

MUT 1001 RUDIMENTS OF MUSIC (2)
Open to non-music majors; development of skills in hearing and performing music and in basic notation. Will not count as degree credit for music majors.

MUT 112 MUSIC THEORY
PR: CI. Required of music majors; development of skills in perceiving and writing music through the use of aural and visual analysis and examples from all historical periods of music literature.

MUT 1241, 1242 AURAL THEORY
PR: CI. Course designed to begin training in aural recognition and vocal realization of materials used in music composition. Includes rhythmic, melodic and harmonic dictation, and sight singing. To be taken concurrently with MUT 1111, 1112.

MUT 2116, 2117 MUSIC Theory
PR: MUT 1112. Required of music majors, continuation of MUT 1111 and 1112.

MUT 2246, 2247 ADVANCED AURAL THEORY
PR: MUT 1243. Course designed to continue training in aural recognition and vocal realization of materials used in music composition. Includes rhythmic, melodic and harmonic dictation, and sight singing. To be taken concurrently with MUT 2116, 2117.

MUT 3353 JAZZ COMPOSITION AND ARRANGING I
PR: MUT 1112 and CI. Course designed to develop arranging and/or compositional skills in the jazz idiom through the study of jazz orchestra, harmonic, and melodic practices.

MUT 3354 JAZZ COMPOSITION AND ARRANGING II
PR: MUT 1112 and CI. Course designed to develop arranging and/or compositional skills in the jazz idiom through the study of jazz orchestra, harmonic and melodic practices.

MUT 3641 JAZZ THEORY AND IMPROVISATION I
PR: MUT 1112 and/or CI. A study of jazz improvisational techniques and related jazz theory.

MUT 3642 JAZZ THEORY AND IMPROVISATION II
PR: MUT 1112 or CI. A study of jazz improvisational techniques and related jazz theory.

MUT 3663 JAZZ STYLES AND ANALYSIS I
PR: MUT 3642 or CI. A studio course study of the improvised solos of the major innovators in jazz. Oriented toward the continuing development of the students own soloing ability. Students are required to enroll in Jazz Chamber Ensemble as a lab. Open to majors and non-majors.

MUT 3664 JAZZ STYLES AND ANALYSIS II
PR: Jazz Styles and Analysis I or CI. A continuation of Jazz Styles and Analysis I with the emphasis on contemporary jazz artists. Students are required to enroll in Jazz Chamber Ensemble as a lab. Open to majors and non-majors.

MUT 4311, 4312 ORCHESTRATION
PR: CI. Intensive study and practice in scoring music for various combinations of instruments, including symphony orchestra, band, and smaller ensembles of string, woodwind, brass, and percussion instruments.

MUT 4411 SIXTEENTH CENTURY PRACTICE
PR: MUT 2117. A study of the music of the 16th century from a theoretical standpoint; development of skills in perceiving and writing music in the style of the period through the use of aural and visual analysis.

MUT 4412 EIGHTEENTH CENTURY PRACTICE
PR: MUT 2117. An intensive study of the contrapuntal practice of the 18th century; development of skills in perceiving and writing music in the style of the period through the use of aural and visual analysis.

MUT 4431 TWENTIETH CENTURY PRACTICE
PR: MUT 2117. A study of 20th century theoretical concepts; development of skills in perceiving and writing music in contemporary styles through the use of aural and visual analysis.

SECONDARY APPLIED MUSIC COURSES (below)
PR: CI. One half-hour private lesson or one hour class per week for music students wishing to gain proficiency in an area other than their applied performance major and for a limited number of non-music majors who have had prior musical training. Course is open by audition only.

MVB 1211 APPLIED TRUMPET
MVB 1212 APPLIED FRENCH HORN
MVB 1213 APPLIED TROMBONE

MVB 1214 APPLIED BARITONE
MVB 1215 APPLIED TUBA

MKS 1211 APPLIED PIANO
MVP 1211 APPLIED PERCUSSION

MVS 1211 APPLIED VIOLIN
MVS 1212 APPLIED VIOLA
MVS 1213 APPLIED VIOLONCELLO
MVS 1214 APPLIED DOUBLE BASS
MVS 1215 APPLIED HARP

MVM 1216 APPLIED CLASSICAL GUITAR
MVM 1211 APPLIED VIOLONCELLO
MVW 1211 APPLIED FLUTE
MVW 1212 APPLIED OBOE
MVW 1213 APPLIED CLARINET
MVW 1214 APPLIED BASSOON
MVW 1215 APPLIED SAXOPHONE

CLASS PIANO COURSES (below)
PR: CI. Class is elementary piano and music fundamentals designed for students with limited keyboard experience. Primary emphasis is placed on sight-reading, accompanying, transposition, harmonization, basic technique, and appropriate literature.

MVK 1111 MUSIC MAJORS, LEVEL I
MVK 1112 MUSIC MAJORS, LEVEL II
MVK 2111 MUSIC MAJORS, LEVEL III
MVK 2112 MUSIC MAJORS, LEVEL IV
MVK 3111 MUSIC MAJORS, LEVEL V
MVK 1811 NON-MUSIC MAJORS, LEVEL I
MVK 1821 NON-MUSIC MAJORS, LEVEL II
MVK 2811 NON-MUSIC MAJORS, LEVEL III
MVK 2821 NON-MUSIC MAJORS, LEVEL IV

APPLIED MUSIC COURSES (below)
PR: CI. Required of all applied music majors; open to a limited number of non-music majors by audition only. Private and class instruction in string, woodwind, brass and percussion instruments, voice and piano. May be repeated for credit.

MVB 1411 APPLIED TRUMPET
MVB 1412 APPLIED FRENCH HORN
MVB 1413 APPLIED TROMBONE
MVB 1414 APPLIED BARITONE
MVB 1415 APPLIED TUBA
MVB 1411 APPLIED PIANO
MKB 1413 APPLIED ORGAN
MVP 1411 APPLIED PERCUSSION
MVS 1411 APPLIED VIOLIN
MVS 1412 APPLIED VIOLA
MVS 1413 APPLIED VIOLONCELLO
MVS 1414 APPLIED DOUBLE BASS
MVS 1415 APPLIED HARP
MVS 1416 APPLIED CLASSICAL GUITAR
MVM 1411 APPLIED VOICE
MVM 1411 APPLIED FLUTE
MVM 1412 APPLIED OBOE
MVM 1413 APPLIED CLARINET
MVM 1414 APPLIED BASSOON
MVM 1415 APPLIED SAXOPHONE

APPLIED MUSIC COURSES (below)
PR: Necessary competency at freshman level determined by faculty jury examination. Required of all applied music majors. Private and class instruction in string, woodwind, brass, and percussion instruments, voice and piano. May be repeated for credit three semesters only.

MVB 2421 APPLIED TRUMPET
MVB 2422 APPLIED FRENCH HORN
MVB 2423 APPLIED TROMBONE
MVB 2424 APPLIED BARITONE
MVB 2425 APPLIED TUBA

MVK 2421 APPLIED PIANO
MVK 2423 APPLIED ORGAN
MVP 2421 APPLIED PERCUSSION

MVS 2421 APPLIED VIOLIN
MVS 2422 APPLIED VIOLA
MVS 2423 APPLIED VIOLONCELLO
MVS 2424 APPLIED DOUBLE BASS
MVS 2425 APPLIED HARP

MVM 2426 APPLIED CLASSICAL GUITAR
MVM 2421 APPLIED VOICE
MVM 2421 APPLIED FLUTE
MVW 2422 APPLIED FLUTE (3)
MVW 2422 APPLIED OBOE (3)
MVW 2423 APPLIED CLARINET (3)
MVW 2424 APPLIED BASSOON (3)
MVW 2425 APPLIED SAXOPHONE (3)

APPLIED MUSIC COURSES (below)
PR: Necessary competency at sophomore level determined by faculty jury examination. Required of all applied music majors. Private and class instruction in string, woodwind, brass and percussion instruments, voice and piano. May be repeated for credit three semesters only.

MVW 3431 APPLIED TRUMPET (3)
MVW 3432 APPLIED FRENCH HORN (3)
MVW 3433 APPLIED TROMBONE (3)
MVW 3434 APPLIED BARITONE (3)
MVW 3435 APPLIED TUBA (3)
MVW 3431 APPLIED VIOLIN (3)
MVW 3432 APPLIED VIOLONCELLO (3)
MVW 3433 APPLIED VIOLONCELLO (3)
MVW 3434 APPLIED DOUBLE BASS (3)
MVW 3435 APPLIED VIOLIN (3)
MVW 3436 APPLIED HARP (3)
MVW 3437 APPLIED CLASSICAL GUITAR (3)
MVW 3431 APPLIED VOICE (3)
MVW 3432 APPLIED FLUTE (3)
MVW 3433 APPLIED OBOE (3)
MVW 3434 APPLIED CLARINET (3)
MVW 3435 APPLIED BASSOON (3)
MVW 3436 APPLIED SAXOPHONE (3)

APPLIED MUSIC COURSES (below)
PR: Necessary competency at junior level determined by faculty jury examination. Required of all applied music majors. Private and class instruction in string, woodwind, brass and percussion instruments, voice and piano. Must be repeated for credit for a minimum of 6 hours for majors.

MVV 4441 APPLIED TRUMPET (3)
MVV 4442 APPLIED FRENCH HORN (3)
MVV 4443 APPLIED TROMBONE (3)
MVV 4444 APPLIED BARITONE (3)
MVV 4445 APPLIED TUBA (3)
MVK 4441 APPLIED VIOLIN (3)
MVK 4443 APPLIED ORGAN (3)
MVF 4441 APPLIED PERCUSSION (3)
MVV 4442 APPLIED VIOLIN (3)
MVV 4443 APPLIED VIOLONCELLO (3)
MVV 4444 APPLIED DOUBLE BASS (3)
MVV 4445 APPLIED HARP (3)
MVV 4446 APPLIED CLASSICAL GUITAR (3)
MVV 4441 APPLIED VOICE (3)
MWW 4441 APPLIED FLUTE (3)
MWW 4442 APPLIED OBOE (3)
MWW 4443 APPLIED CLARINET (3)
MWW 4444 APPLIED BASSOON (3)
MWW 4445 APPLIED SAXOPHONE (3)

MUSIC STUDIO PEDAGOGY COURSES (below)
PR: CI. May be elected by undergraduate music majors; emphasis on the business management of the music studio, and the musical responsibilities of the studio teacher, the techniques of private instruction. May be repeated for credit for a maximum of 4 hours for the same section.

MUN 6460 BRASS (2)
MNU 6460 CLASS PIANO (2)
MNU 6461 PIANO (2)
MVW 6460 STRINGS (2)
MVW 6461 VOICE (2)
MVW 6460 WINDS AND PERCUSSION (2)

GRADUATE COURSES
MUC 6251 COMPOSITION (4)
PR: CI. Private instruction in original composition. Required of composition majors. May be repeated for three semesters.
MUS 6444, 6445 ELECTRONIC MUSIC/ANALOG/DIGITAL SYSTEMS RESEARCH (3,3)
PR: CI. State-of-the-art compositional and performance applications; new concepts of electronic music synthesis; documentation and critical analysis of new repertory.
MUG 6256, 6257, 6258 CHORAL LITERATURE AND CONDUCTING (4,4)
PR: CI. Combination of seminar, classroom and laboratory types of experience designed to provide depth in stylistic study of choral music literature and performance.
MUL 6375 TWENTIETH CENTURY MUSIC LITERATURE (3)
PR: CI. A study of the literature, compositional techniques and music philosophies of the major 20th century composers from Debussy to the present.
MUL 6410, 6411 KEYBOARD REPERTORY (2,2)
PR: CI. A study of style, history and performance practice in keyboard repertory including masterworks of all periods.
MUL 6585 SYMPHONIC LITERATURE (2)
PR: CI. A chronological study of the development of orchestral music; analysis and study of major works from a stylistic and biographical perspective.
MUL 6555 CHAMBER MUSIC LITERATURE (2)
PR: CI. A survey and stylistic analysis of chamber music repertory 1750 through the present day; emphasis on aural recognition of representative works.
MUL 6624, 6625 SONG LITERATURE (2,2)
PR: CI. Solo song literature from the 17th century through the contemporary with emphasis on German lieder, French songs and contemporary English and American songs; special emphasis on performance.
MUL 6663 OPERA LITERATURE (2)
PR: CI. A chronological study of the development of opera from 1600 to the present; emphasis on the technical, stylistic, and performance aspects of opera.
MUL 6687 SOLO VOCAL LITERATURE IN ORATORIO (2)
PR: CI. A survey of literature for the solo voice in cantatas and orchestral music.

MAJOR ENSEMBLE PERFORMANCE COURSES (below)
PR: CI. Open to all university students with the necessary proficiency in their performing media; study and performance of music for large combinations of voices, string, woodwind, brass or percussion instruments; may be repeated for credit.

MUN 6100 UNIVERSITY BAND (1)
MUN 6140 WIND ENSEMBLE (1)
MUN 6210 UNIVERSITY ORCHESTRA (1)
MUN 6310 UNIVERSITY SINGERS (1)
MUN 6380 UNIVERSITY-COMMUNITY CHORUS (1)
MUN 6411 PIANO ENSEMBLE (1)
MUN 6501 OPERA WORKSHOP (1)
MUN 6710 JAZZ ENSEMBLE (1)

CHAMBER MUSIC ENSEMBLES COURSES (below)
PR: CI. Open to all university graduate students with the necessary proficiency in their performance media; study and performance of music for small combinations of voices, string, woodwind, brass or percussion instruments, and piano; may be repeated for credit.

MUN 6340 CHAMBER SINGERS (1)
MUN 6411 STRING QUARTET (1)
MUN 6421 FLUTE CHOIR (1)
MUN 6423 CLARINET CHOIR (1)
MUN 6425 GRADUATE SAXOPHONE ENSEMBLE (1)
MUN 6426 WOODWIND QUINTET (1)
MUN 6430 BRASS CHOIR (1)
MUN 6432 HORN QUARTET (1)
MUN 6436 BRASS QUINTET (1)
MUN 6440 PERCUSSION ENSEMBLE (1)
MUN 6441 MARIMBA ENSEMBLE (1)
MUN 6470 COLLEGIATE MUSICUM (1)
MUN 6490 NEW MUSIC ENSEMBLE (1)
MUN 6710 JAZZ ENSEMBLE (1)
MUN 6715 JAZZ CHAMBER ENSEMBLE (1)
MUN 6498 CLASSICAL GUITAR ENSEMBLE (1)
MUS 5905 DIRECTED STUDY (1-4)
PR: CC. Independent studies in the various areas of music; course of study and credits must be assigned prior to registration; may be repeated.
### MUSIC WORKSHOP COURSES (below)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>MUS 5924</td>
<td>BAND WORKSHOP</td>
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<tr>
<td>MUS 5925</td>
<td>CHAMBER MUSIC WORKSHOP</td>
<td>(1-2)</td>
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<tr>
<td>MUS 5926</td>
<td>CHORUS WORKSHOP</td>
<td>(1-2)</td>
</tr>
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<td>MUS 5927</td>
<td>ORCHESTRA WORKSHOP</td>
<td>(1-2)</td>
</tr>
<tr>
<td>MUS 5928</td>
<td>PIANO WORKSHOP</td>
<td>(1-2)</td>
</tr>
<tr>
<td>MUS 5929</td>
<td>STRING WORKSHOP</td>
<td>(1-2)</td>
</tr>
<tr>
<td>MUS 6793</td>
<td>TECHNIQUES OF RESEARCH IN MUSIC</td>
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<tr>
<td>MUS 6910</td>
<td>INDEPENDENT STUDY</td>
<td>(var.)</td>
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<tr>
<td>MUS 6911</td>
<td>DIRECTED RESEARCH</td>
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<tr>
<td>MUS 6912</td>
<td>GRADUATE STUDY</td>
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<td>MUS 6913</td>
<td>THESES: MASTER'S</td>
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<tr>
<td>MUS 6976</td>
<td>GRADUATE RECITAL</td>
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<tr>
<td>MUS 6994</td>
<td>GRADUATE INSTRUCTION METHODS</td>
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<tr>
<td>MUS 6995</td>
<td>GRADUATE RESEARCH METHODS</td>
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<tr>
<td>MUT 5051</td>
<td>GRADUATE REVIEW OF MUSIC THEORY</td>
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<td>MUT 6535</td>
<td>CRITICAL ANALYSIS-THEORY</td>
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<td>MUT 6547</td>
<td>CRITICAL ANALYSIS-HISTORY</td>
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<tr>
<td>MUT 6629</td>
<td>ANALYTICAL SYSTEMS</td>
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<td>MUT 6751</td>
<td>TEACHING OF MUSIC THEORY</td>
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<tr>
<td>MUT 6760</td>
<td>HISTORY OF MUSIC THEORY</td>
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<td>MVS 6253</td>
<td>APPLIED VIOLONCELLO, SECONDARY</td>
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<tr>
<td>MVS 6254</td>
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<td>MVS 6255</td>
<td>APPLIED HARP, SECONDARY</td>
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<td>MVS 6256</td>
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<td>APPLIED OBOE</td>
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<td>APPLIED CLARINET, SECONDARY</td>
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<td>APPLIED BASSOON</td>
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<td>MVS 6655</td>
<td>APPLIED SAXOPHONE, SECONDARY</td>
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<td>MVS 6656</td>
<td>APPLIED FLUTE</td>
<td>(4)</td>
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<tr>
<td>MVS 6657</td>
<td>APPLIED OBOE</td>
<td>(4)</td>
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<td>MVS 6658</td>
<td>APPLIED VIOLONCELLO, SECONDARY</td>
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<td>MVS 6659</td>
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<td>MVS 6660</td>
<td>APPLIED VIOLONCELLO, SECONDARY</td>
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<td>MVS 6665</td>
<td>APPLIED VIOLONCELLO, SECONDARY</td>
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<tr>
<td>MVS 5751</td>
<td>PIANO, MASTER CLASS</td>
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<td>MVS 5750</td>
<td>STRINGS, MASTER CLASS</td>
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<td>MVS 5751</td>
<td>VOICE, MASTER CLASS</td>
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<td>MVK 6650</td>
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<td>MVK 6651</td>
<td>STUDIO TEACHING SEMINAR-PIANO</td>
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<tr>
<td>MVK 6652</td>
<td>STUDIO TEACHING-STRINGS</td>
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<tr>
<td>MVK 6653</td>
<td>STUDIO TEACHING-VOICE</td>
<td>(2)</td>
</tr>
<tr>
<td>MVK 6654</td>
<td>STUDIO TEACHING-WINDS AND PERCUSSION</td>
<td>(2)</td>
</tr>
</tbody>
</table>

### MUSIC EDUCATION

Chairperson: L.R. Cullison; Professors: V.A. Bridges; Assistant Professor: C. Doane, T.B.A.

### UNDERGRADUATE COURSES

### MUE 2420 THEORETICAL BASES OF MUSIC EDUCATION

The course is designed to investigate music education practices in the schools. It provides the student with experience and information early in his academic career which will enable him to determine his commitment to professional music education.

### MUE 3411 CHORAL MATERIALS PRACTICUM

PR: CI. A study of choral materials in a laboratory setting, appropriate to elementary and secondary school music programs. Course content will change each semester. May be repeated for a total of 2 credit hours.

### MUE 3413 BAND MATERIALS PRACTICUM

PR: CI. A study of band materials in a laboratory setting, appropriate to elementary and secondary school music programs. Course content will change each semester. May be repeated for a total of 2 credit hours.

### MUE 4050 FOUNDATIONS OF INSTRUMENTAL MUSIC

PR: CI. Junior standing. Introduction to the foundation of instrumental music instruction in the elementary and middle school.

### MUE 4130 CLASSROOM MUSIC IN THE SECONDARY SCHOOL

PR: CI. Development and implementation of methods and techniques for teaching music to the student not participating in secondary school.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUE 4314</td>
<td>MUSIC IN THE ELEMENTARY SCHOOL</td>
<td>A study of principles, techniques, materials, and activities as they relate to a comprehensive music curriculum in Grades K-6.</td>
</tr>
<tr>
<td>MUE 4315</td>
<td>MUSIC FOR THE CHILD</td>
<td>PR: Admission to the College of Education. Music fundamentals, the development of music skills and knowledge of music materials and teaching strategies for presenting music to children in the elementary school.</td>
</tr>
<tr>
<td>MUE 4480</td>
<td>BAND PAGEANTRY</td>
<td>This course is designed as an elective offering for instrumental music majors who expect to direct band activities in a secondary school. It will provide the student with skills in creating half-time shows, an integral part of the band teacher's responsibilities.</td>
</tr>
<tr>
<td>MUE 4905</td>
<td>INDEPENDENT STUDY: MUSIC EDUCATION</td>
<td>PR: CI. Specialized independent study determined by the student's needs and interests. May be repeated when subjects vary. (S/U only.)</td>
</tr>
<tr>
<td>MUE 4909</td>
<td>DIRECTED STUDY: MUSIC EDUCATION</td>
<td>PR: Senior standing. To extend competency in teaching field. Offered only as a scheduled Graduate Assistantship.</td>
</tr>
<tr>
<td>MUE 4936</td>
<td>SENIOR SEMINAR IN MUSIC</td>
<td>PR: Senior standing. Synthesis of teacher candidate's courses in complete college program. Required concurrently with internship.</td>
</tr>
<tr>
<td>MUE 4940</td>
<td>INTERNSHIP: MUSIC EDUCATION</td>
<td>One full semester of internship in a public or private school. Intern takes Senior Seminar in Education concurrently. In special programs where the internship experience is distributed over two or more semesters, students will be registered for credit which accumulates from 9-12 semester hours. (S/U only.)</td>
</tr>
<tr>
<td>MUE 4945</td>
<td>INTERNSHIP</td>
<td>Part-time internship in an accredited public or private school. To be taken concurrently with departmental requirements and will include beginning of the year experiences when taken in Fall Semester. (S/U only.)</td>
</tr>
<tr>
<td>MUE 4946</td>
<td>INTERNSHIP</td>
<td>PR: Admission to the College of Education and/or departmental approval. Internship in an accredited public or private school which will include the end of the academic year or program closing. (S/U only.)</td>
</tr>
</tbody>
</table>

**GRADUATE COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUE 6080</td>
<td>FOUNDATIONS AND PRINCIPLES OF MUSIC EDUCATION</td>
<td>PR: Acceptance into Music Education Graduate Program or CI. Investigation of historical, philosophical and psychological foundations of music education.</td>
</tr>
<tr>
<td>MUE 6116</td>
<td>ADVANCED ELEMENTARY SCHOOL MUSIC</td>
<td>PR: Acceptance in the Music Education Graduate Program or CI. Study and appraisal of children's musical growth, curriculum plans, materials and teaching techniques essential for the sequential development of musical learnings.</td>
</tr>
<tr>
<td>MUE 6189</td>
<td>MUSIC SUPERVISION AND ADMINISTRATION</td>
<td>The music curriculum in relation to the total school program; staff and budgetary needs.</td>
</tr>
<tr>
<td>MUE 6415</td>
<td>ADVANCED SECONDARY VOCAL MUSIC</td>
<td>PR: Acceptance in the Music Education Graduate Program and CI. Course provides for graduate students in music education the opportunity to examine current research related to the teaching of secondary school vocal music, evaluate curricula, music materials, and teaching methods that will enable them to develop a vocal music program which emphasizes musical sensitivity.</td>
</tr>
<tr>
<td>MUE 6418</td>
<td>ADVANCED MATERIALS FOR INSTRUMENTAL MUSIC EDUCATION</td>
<td>PR: Acceptance in the Music Education Graduate Program and CI. Course designed to examine published and unpublished materials, develop curricula and resources, including medial hardware, appropriate for use in school instrumental music programs.</td>
</tr>
</tbody>
</table>

**THEATRE**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE 2020</td>
<td>THE 2020 THEATRE FUNDAMENTALS</td>
<td>An introduction to the means and materials of theatre, the nature of theatre forms, the concepts of Total Theatre, and the basic issues in American theatre today. This course open to non-majors and theatre majors should take this course concurrently with their first registration in the group of courses TPA 2200, TPA 2223, TPA 2232, TPA 2110. Required of all theatre majors.</td>
</tr>
<tr>
<td>THE 3080C</td>
<td>MODERN THEATRE PRACTICE</td>
<td>Initial readings and exercises in theatre; play analysis, performance, and technical theatre for non-theatre majors.</td>
</tr>
<tr>
<td>THE 3110</td>
<td>THEATRE HISTORY</td>
<td>A survey of all facets of theatrical performance in selected periods of theatre history from the 5th Century B.C. to the present. Normally ten plays will be read. Required of all theatre majors. Open to non-majors.</td>
</tr>
<tr>
<td>THE 3925</td>
<td>PERFORMANCE</td>
<td>The rehearsal, construction, production of major theatrical works. Concurrent registration in this course is expected of all students who are enrolled in courses carrying ACP1 (Advanced Course Production Involvement). Assignments are made contractually at the time of registration. Open to non-majors on a credit or non-credit basis. May be repeated.</td>
</tr>
<tr>
<td>THE 4180</td>
<td>THEATRE ORIGINS</td>
<td>PR: Completion of first three years as a theatre major and one from the following: THE 4320, THE 4330, THE 4370, THE 4401, THE 4442, THE 4480; or CI. An analysis of the development of theatre out of myth, ritual, and liturgy. Emphasis placed on what attempts to understand the resulting phenomena can teach us about the nature of our art. Required of all theatre majors.</td>
</tr>
<tr>
<td>THE 4264</td>
<td>HISTORY OF COSTUME</td>
<td>A survey of clothing and dress from Ancient Egypt to the 20th Century with an emphasis on cultural and social influences. (A requirement in the tech-design track/costume.) Open to upper level non-majors with CI.</td>
</tr>
</tbody>
</table>
THE 4266 ARCHITECTURE AND DECOR (3)
The survey of architectural and decorative motifs and decor and their stylistic concepts. (A requirement in the tech/design track/scenic.)
Open to upper level non-majors with CI.

THE 4320 THE THEATRE OF MYTH AND RITUAL/ NORTHERN EUROPEAN (950-1600) AND ORIENTAL (400-1800) (3)
PR: THE 3110. An investigation into the interrelationship of myth, ritual, and theatre event. Enables the student to analyze these scripts in light of their present productivity and past cultural energy. Open to non-majors with CI.

THE 4330 SHAKESPEARE FOR THE THEATRE (3)
PR: THE 3110. Study of several Shakespeare plays from the historic point of view. 'A person of standing (Shakespeare) play can better the preparation of its performance if this is rightly done.' Harlye Granville-Baker. Open to non-majors with CI.

THE 4370 THE 19TH CENTURY THEATRE REVOLUTION (3)
PR: THE 3110. Survey of materials in the Continental, English, and American stage dating from 1870. Deals with the extraordinary playwrights and new theatrical experiments. Open to non-majors with CI.

THE 4401 O'NEILL AND AFTER (3)
PR: THE 3110. Survey of materials in the American Theatre from the writings of Eugene O'Neill to the present. Open to non-majors with CI.

THE 4442 THE COMEDY OF THE CLASSIC AND NEO-CLASSIC STAGE (3)
PR: THE 3110. A course in the function of the script for the active theatre artist, treating materials from the Ancient Greeks through the Restoration and the theatre of Molière, giving some attention to later reflections. Open to non-majors with CI.

THE 4480 DRAMA SPECIAL TOPICS (3)
PR: THE 3110. A course in the function of the script for the active theatre artist treating materials of a particular playwright or grouping of playwrights. Repealable with consent of advisor and change in topic. Open to non-majors with CI.

THE 4562 SENIOR COLLOQUIUM IN THEATRICAL CREATIVITY (3)
PR: THE 4180. A colloquium in the nature of the synthesized theatre object. Required of all theatre majors. Open to senior non-majors with CI.

THE 4900 DIRECTED READING (1-4)
PR: CI and CC. Readings in a topic of special interest to the student. Selection of topic and materials must be agreed upon and appropriate credit must be assigned prior to registration. A contract with all necessary signatures is required for registration. May be repeated for credit for different topics only.

THE 4905 DIRECTED STUDIES (1-4)
PR: CC. Independent studies in the various areas of Theatre. Course of study and credits must be assigned prior to registration.

THE 4930 SELEC TED TOPICS IN THEATRE (1-8)
PR: CI. The content of the course will be governed by student demand and instructor interest. May be lecture or class discussion or studio format. May be repeated for credit for different topics only.

TPA 2200 THEATRE CRAFTS: STAGECRAFT (3)
The scenic materials and skills basic to theatrical production. An introductory course with lab. Required of all performance majors. Open to non-majors.

TPA 2223 THEATRE CRAFTS: LIGHTING (3)
Required of all Tech/Design majors. The basic equipment and skills used in lighting and sound for stage productions. This course or TPA 2223 Theatre Crafts: Costume required of all performance majors. Open to non-majors.

TPA 2232 THEATRE CRAFTS COSTUME (3)
Required of all Tech/Design majors. This course or TPA 2223 Theatre Crafts: Lighting required of all Performance majors. By learning basic tools, processes and materials used in the Costume Shop, the student will be skillful in the costuming process. This course also trains students in wardrobe crew practices and in preparing costumes in the USF Costume Shop. Open to non-majors.

TPA 2250 WORKSHOP IN STAGE MAKEUP (1)
Beginning theory and practice in make-up for the stage. Theatre majors given preference. A studio course.

TPA 3086 MEANS OF VISUAL EXPRESSION (3)
PR: Completion of the four required 2000 level courses. The study of presentational techniques for visual design and technology as applied to the development of visual dynamics. Required of all theatre majors. Open to non-majors with TPA 2200 and CI.

TPA 3221 LIGHTING: THEORY AND PRACTICE (3)
PR: TPA 2223. This course covers the principles of color theory and composition as pertain to lighting design. Laboratory experiments in usage of light to create space utilizing shadow, texture and blending. Introduction to stage lighting methods and graphics.

TPA 3501 STAGE MANAGEMENT (2)
PR: TPA 2200, TPA 2223, or TPA 2232. A practical course in the working organizational function of the stage manager in theatre, with emphasis on management relations for the theatre, including all fields of management in box office to publicity.

TPA 3510 INTRODUCTION TO PUPPETRY (3)
PR: Completion of the four required 2000 level courses. Principles and methods of puppetry with a historical survey of major forms and practical problems with laboratory production. Open to non-majors with CI.

TPA 3840 PUPPETRY PERFORMANCE AND PRODUCTION (4)
PR: TPA 3810. The creation, building, rehearsal, and performance of plays for puppet theatre. May be repeated one time for additional elective credit, with CI, to total of 8 hours. Open to non-majors with CI.

TPA 4010 PROJECT DESIGN: HONORS (3)
PR: One of TPA 4020, TPA 4040, TPA 4060 and portfolio review. A workshop for students in scenery, lighting, and costume design admitted only by recommendation of instructor and review of portfolio. Consideration will be given to integrating the design for setting, costumes, and lights; under special circumstances credit may be given for actualized production design.

TPA 4020 LIGHT DESIGN (4)
PR: ART 3301C, TPA 3221, TPA 4211 and portfolio review. The aesthetic and practical application of the elements of design in costume for theatre presentation. A requirement in the tech/design track/scenic.

TPA 4040 COSTUME DESIGN (4)
PR: ART 3301C, TPA 4264 and TPA 2232 and portfolio review. The aesthetic and practical application of the elements of design in costume for theatre presentation. A requirement in the tech/design track/costume.

TPA 4060 SCENE DESIGN (4)
PR: TPA 4211, TPA 4266 and ART 3301C and portfolio review. The aesthetic and practical application of the elements of design in scenery for theatre presentation. A requirement in the tech/design track/scenic.

TPA 4081 SCENE PAINTING (2)
PR: TPA 3086. A practical course in the painting of stage scenery—media and application. Open to non-majors with CI.

TPA 4211 STAGECRAFT AND DRAFTING (3)
PR: TPA 3086. A practical course in drafting for the stage, scenic construction and application. A requirement in the tech/design/scenic and lighting.

TPA 4230 COSTUME CONSTRUCTION (3)
PR: TPA 3086, TPA 2232. A practical course in the drafting of workable patterns for costuming the actor. Materials, skills, and techniques for construction of costumes and costume accessories for stage will be treated. Included topics are millinery, footwear, jewelry, masks, armor, corselet; both period and modern.

TPA 4240 STAGE PROPERTIES: TECHNIQUES AND MATERIALS STUDIO (2)
PR: TPA 3086. Demonstration and experience with comparatively newer materials used in construction of stage properties. Modeling of prototypes and basic casting techniques. Organization of shop. Open to non-majors.

TPA 4281 PRACTICUM IN TECHNICAL SUPERVISION (2)
PR: One of TPA 4211, or TPA 4230. A study of the technical operation and organization for the theatre technician in costume or in scenery-lighting. Advanced problems in technology and organization.

TPA 4402 THEATRE MANAGEMENT WORKSHOP (2)
PR: completion of the first two years of the theatre program. The study of management relations for the theatre, including all fields of management from box office to publicity.

TPP 2110 VOICE-BODY-IMPROVISATION (3)
Exploring the elements basic to acting skills—a participation course. Required of all theatre majors. Open to non-majors.
TPP 3111 WORKSHOP FOR TEXT ANALYSIS (3)
PR: Completion of the four required 2000 level theatre courses. The techniques of textual and script analysis related to the composition of performance. Required of all theatre majors. May be taken by non-majors with TPP 2110 and CI.

TPP 3121 IMPROVISATION I (3)
PR: Completion of the four required 2000 level courses. An intensive study in improvisation as an enhancement of the actor's skills. Exercises and theatre games as flexible forms which accommodate improvisation and physical invention are examined and used to develop group creativity. Open to non-majors with CI.

TPP 3122 IMPROVISATION II (3)
PR: TPP 3121; audition. A concentrated study of advanced techniques in improvisational skills as applied to the use of scenario. Depending on ensemble capabilities, the course will culminate in a classroom improvisational presentation. Open to non-majors with PR.

TPP 3235 THEATRE FOR SPECIAL AUDIENCES (3)
PR: Completion of the four required 2000 level courses and/or CI. The preparation and performance of a production for a special audience (ethnic, children, aged, institutionalized, etc.) With CI, may be repeated one time as additional elective credit (total of 6 hours). Open to non-majors with CI.

TPP 3500 BODY DISCIPLINES (2)
PR: Completion of four required 2000 level theatre courses. A laboratory course in various disciplines or systems in controlling and understanding the body's motive powers, with focus on their use for the stage performer. Repeatable for credit. Required of all theatre majors with a performance concentration. Open to upper-level non-majors with CI. May be repeated for credit.

TPP 3510 SPECIAL SKILLS IN MOVEMENT (2)
PR: TPP 3500. Stage combat, circus and acrobatic techniques, and other special techniques of movement. Repeatable for credit. Open to non-majors with CI.

TPP 3790L VOICE PREPARATION FOR THE ACTOR (2)
PR: Completion of the four required 2000 level theatre courses. A laboratory in voice production and corrective speech for the actor. Repeatable for credit. Required of all theatre majors with a performance concentration. Open to upper-level non-majors with CI. May be repeated for credit.

TPP 4140 SCENE STUDY II (4)
PR: TPP 4150 and audition. Methodology and styles. Examination of the actor's craft and skills needed to fulfill the demands of various theatre forms. Special attention will be paid to the history of acting styles. Required of all theatre majors with a performance concentration.

TPP 4150 SCENE STUDY I (4)
PR: TPP 3111 and audition. Basic scene study. Special problems in movement and speech to be integrated with character development, rehearsal techniques, and performance composition. Required of all theatre majors with a performance concentration.

TPP 4152 SCENE STUDY III (4)
PR: TPP 4140 and audition. Advanced scene study. Required of all theatre majors with a performance concentration.

TPP 4180 SCENE STUDY HONORS (3)
PR: TPP 4152; admittance by competitive audition. The aesthetics of acting. The various theories of art. A studio course.

TPP 4220 AUDITION WORKSHOP FOR THE ACTOR (2)
PR: TPP 4150 and 4140 or CI. Preparation for professional audition; discussion of professional objectives. May be repeated twice (to a total of 9 hours credit).

TPP 4250 MUSIC THEATRE WORKSHOP (3)
PR: TPP 3111. Special problems in acting as applied to the musical theatre.

TPP 4310, 4311 DIRECTING I, II (3, 3)
PR: TPP 4150. An elective sequence in directing. A workshop course in which the student first encounters the basic tasks of the director by preparing and directing one or two scenes and then progresses to more complex scene work in a variety of styles and finally proceeds to the short play or theatre piece.

TPP 4450 WRITING FOR THE THEATRE (3)
PR: Completion of the first two years as a theatre major and CI. An elective in writing for the theatre, starting with explorations of theatre as a medium, exercise in theatre form and techniques and progressing to an advanced workshop in plays and other styles of theatre pieces.
May be repeated for credit. Open to non-majors with CI.

TPP 4920 SENIOR WORKSHOP FOR ACTORS (3)
PR: TPP 4152, TPP 3500, TPP 3790L. A workshop in advanced vocal and movement techniques. Required for all theatre majors with a performance concentration.

GRADUATE COURSES

THE 5902 DIRECTED READING (1-4)
PR: CI and CC. Reading in topics of special interest to the student. Contract defining scope of projects, materials used, expected results and credit hours assigned must be completed prior to registration. May be repeated for different topics.

THE 5909 DIRECTED STUDIES (1-6)
PR: CC. Independent studies in the various areas of Theatre. Course of study and credits must be assigned prior to registration.

THE 5931 SELECTED TOPICS IN THEATRE (1-8)
PR: CI. The content of the course will be governed by the student demand and instructor interest. May be lecture or class discussion or studio format. May be repeated for credit for different topics only.

COLLEGE OF MEDICINE

ANATOMY


BMS 6100 CROSS ANATOMY (var.)
PR: Admission to College of Medicine.

BMS 6110 MICROSCOPIC ANATOMY (var.)
PR: Admission to College of Medicine.

BMS 6111 HUMAN ANATOMY (var.)
PR: Enrolled in College of Medicine.

BMS 6159 NEUROANATOMY (var.)
PR: Admission to College of Medicine.

BMS 6169 ANATOMY SEMINAR (0)
PR: Consent of Chairman, Department of Anatomy.

BMS 7170 REGIONAL ANATOMY I—Head and Neck (var.)
PR: Enrolled in the College of Medicine.

BMS 7171 REGIONAL ANATOMY II—Thorax, Abdomen, Pelvis and Perineum (var.)
PR: Enrolled in the College of Medicine.

BMS 7172 REGIONAL ANATOMY III—Extremities (var.)
PR: Enrolled in the College of Medicine.

BMS 7174 MEDICAL DEVELOPMENT ANATOMY and Teratology (var.)
PR: Enrolled in the College of Medicine.

BMS 7175 ADVANCED NEUROANATOMY (var.)
PR: Enrolled in the College of Medicine.

BMS 7176 ADVANCED MICROSCOPIC ANATOMY (var.)
PR: Enrolled in the College of Medicine.

BMS 7177 APPLIED NEUROANATOMY (var.)
PR: Enrolled in the College of Medicine.

BMS 7178 CROSS SECTIONAL ANATOMY (var.)
PR: Enrolled in the College of Medicine.

BMS 7186 INTRODUCTION TO RESEARCH (var.)
PR: Enrolled in College of Medicine.

BMS 7187 ADVANCED HUMAN ANATOMY (var.)
PR: Completion of Basic Medical Science and Clerkships. CR: Department approval.
**BMS 7188 SELECTED TOPICS IN HUMAN ANATOMY**  
PR: Completion of Basic Medical Science and Clerkships. CR: Department approval.

**GMS 6600C CORE COURSE IN HUMAN ANATOMY**  
PR: Admission to Ph.D. Program in Medical Sciences.

**GMS 6601 METHODS OF ELECTRON MICROSCOPY IN MEDICAL RESEARCH**  
PR: GMS 6600, GMS 6608, or CC.

**GMS 6602 NEUTRAL CORRELATES OF BEHAVIOR**  
PR: GMS 6600, or CC.

**GMS 6603 COMPARATIVE NEUROANATOMY**  
PR: GMS 6600, or CC.

**GMS 6604 HUMAN EMBRYOLOGY**  
PR: GMS 6600, or CC.

**GMS 6605 COMPARATIVE HEMATOLOGY**  
PR: GMS 6600, or CC.

**GMS 6606 ANATOMICAL ILLUSTRATIONS AND METHODS**  
PR: GMS 6600, or CC.

**GMS 6607 HISTORY OF ANATOMY**  
PR: GMS 6600, or CC.

**GMS 6608 ADVANCED MICROSCOPIC ANATOMY**  
PR: GMS 6600, or CC.

**GMS 6609 ADVANCED HUMAN GROSS ANATOMY**  
PR: GMS 6600, or CC.

**GMS 6610 ADVANCED NEUROANATOMY**  
PR: Admission to GMS program and acceptance into the Anatomy department.

**GMS 6611 INTRODUCTION TO ANATOMICAL RESEARCH**  
PR: Admission to GMS program and acceptance into the Anatomy department.

**GMS 6612 SUPERVISED TEACHING IN HUMAN ANATOMY**  
PR: GMS 6608, 6609, or 6610 and acceptance into the Anatomy department.

**ANESTHESIOLOGY**

Chairperson: R. S. Hodes; Professor: R. S. Hodes, B. W. Wright; Associate Professor: R. E. Benway, J. Barsa; Assistant Professor: A. Bayani, C. J. Zakroff; Other faculty: J. Elinge, C. L. Redderson, R. B. Silver.

**MEL 7760 ANESTHESIOLOGY ELECTIVE**  
PR: Enrolled in College of Medicine.

**BIOCHEMISTRY**

Chairperson: J. G. Cory; Professor: J. G. Cory; Associate Professors: W. L. Adair, Jr., D. C. Eichler, R. Kennedy Keller, G. C. Ness, L. P. Solomonson, M. T. Williams; Assistant Professor: M. J. Barber; Other Faculty: R. P. Pollet, R. A. Olsson.

**BMS 6200 BIOCHEMISTRY**  
PR: Admission to College of Medicine.

**BMS 6230 BIOCHEMISTRY SEMINAR**  
PR: CI.

**BMS 7260 RESEARCH IN BIOCHEMISTRY**  
PR: Enrolled in College of Medicine.

**BMS 7262 MOLECULAR BASIS OF METABOLIC REGULATIONS**  
PR: Admitted to College of Medicine.

**BMS 7271C EXPERIMENTAL ONCOLOGY**  
PR: Admission to College of Medicine.

**GMS 6103 METABOLIC BASIS OF DISEASE**  
PR: GMS 6200 or CC.

**GMS 6200C CORE COURSE IN MEDICAL BIOCHEMISTRY**  
PR: Admission to Ph.D. Program in Medical Sciences.

**GMS 6414 BIOLOGICAL MEMBRANES-STRUCTURE AND FUNCTION**  
PR: GMS 6200 or CC.

**GMS 6415 LIPID METABOLISM AND REGULATION**  
PR: GMS 6200 or CC.

**GMS 6416 MACROMOLECULAR METABOLISM**  
PR: GMS 6200 or CC.

**COMPREHENSIVE MEDICINE**


**BMS 6821 PUBLIC HEALTH AND PREVENTIVE MEDICINE**  
PR: Admission to the College of Medicine.

**HSC 6160 HEALTH CARE ORGANIZATION AND MANAGEMENT**  
General principles of planning, management, evaluation, and behavior of public and private health care organizations at the local, state, national and international levels.

**HSC 6412 EPIDEMIOLOGY AND HEALTH STATISTICS**  
Study of quantitative methods to evaluate the distribution and determinants of disease in populations and to assess data and evaluate conclusions using statistical principles.

**HSC 6560 PATHOBIOLGY OF HUMAN DISEASE I**  
A basic study of broad pathological areas of biological injury, genetic, and inborn errors of metabolism, host-parasite relationships. In addition, the pathobiology of human disease will be closely related to general biology in order to provide a strong foundation for the public health student.

**MEL 7111 ETHICS IN MEDICINE**  
PR: Enrolled in College of Medicine.

**MEL 7112 COMMUNICATION IN CLINICAL MEDICINE**  
PR: Enrolled in College of Medicine.

**MEL 7113 WRITING AND SPEAKING SKILLS IN MEDICINE**  
PR: Enrolled in College of Medicine.

**MEL 7114 THE HISTORY OF MEDICINE**  
PR: Enrolled in College of Medicine.

**MEL 8206 INTRODUCTION TO REHABILITATION MEDICINE**  
PR: Admission to the College of Medicine.

**MEL 8207 INTRODUCTION TO ELECTROMYOGRAPHY**  
PR: Admission to the College of Medicine.

**MEL 8208 EPIDEMIOLOGICAL METHODS**  
PR: Admission to the College of Medicine.

**MEL 8209 LABORATORY RESEARCH IN TROPICAL MEDICINE**  
PR: Admission to the College of Medicine.

**MEL 8211 OCCUPATIONAL HEALTH**  
PR: Enrolled in College of Medicine.

**MEL 8330 SOCIAL PROBLEMS IN MEDICINE**  
PR: Enrolled in College of Medicine.

**MEL 8900 INDEPENDENT STUDY IN HUMAN VALUES**  
PR: Enrolled in College of Medicine.

**MEL 8930 SPECIAL TOPICS IN COMPREHENSIVE MEDICINE**  
PR: Enrolled in College of Medicine.

**FAMILY MEDICINE**

Chairperson: C. E. Aucremann; Associate Professors: R. J. Ham, I. A. MacPhail; Assistant Professors: H. J. Brownlee, Jr., B. Breiter, T. T. Gladfelter, T. E. Hamilton, J. E. Perchalski, T. F. Seehausen, J. R. Warren; Visiting Assistant Professor: H. L. Gunter.

**MEL 7255 RESIDENCY CLERKSHIP FOR STUDENTS IN FAMILY MEDICINE**  
PR: Enrolled in College of Medicine.

**MEL 7257 GERIATRIC ELECTIVE IN FAMILY MEDICINE**  
PR: Enrolled in College of Medicine.
MEL 7258 ELECTIVE CLERKSHIP FOR RURAL MEDICINE  
PR: Enrolled in College of Medicine.

MEL 7259 EMERGENCY MEDICINE CLERKSHIP  
PR: Enrolled in College of Medicine.

MEL 8259 CLERKSHIP FOR CLINICAL INVESTIGATION IN FAMILY MEDICINE  
PR: Enrolled in College of Medicine.

BCC 8171 FAMILY PRACTICE PRECEPTORSHIP  
PR: Enrolled in College of Medicine.

INTERDISCIPLINARY

MEL 7320 EXTRAMURAL CLERKSHIP  
PR: Enrolled in College of Medicine.

MEL 7102 PERINATOLOGY  
PR: Enrolled in College of Medicine.

MEL 7103 PEDIATRIC CARDIOLOGY AND PHYSIOLOGY  
PR: Enrolled in College of Medicine.

MEL 7104 DEPARTMENTAL OVERVIEWS  
PR: Enrolled in College of Medicine.

MEL 7106 CLINICAL LABORATORY IMMUNOLOGY  
PR: Enrolled in College of Medicine.

MEL 7107 IMMUNOLOGY OF PARASITIC INFECTIONS  
PR: Enrolled in College of Medicine.

MEL 7108 OBSTETRIC AND GYNECOLOGIC PATHOLOGY  
PR: Enrolled in College of Medicine.

MEL 7109 OUTPATIENT PSYCHIATRY AND PRIMARY CARE  
PR: Enrolled in College of Medicine.

BCC 9100 AMBULATORY CARE ROTATION  
PR: Enrolled in College of Medicine.

GMS 7418 DIRECTED RESEARCH  
PR: Gr. Ph. D. level. Repeatable (S/U only.)

GMS 7930 SELECTED TOPICS  
PR: Departmental Core Course or CC.

GMS 7939 GRADUATE SEMINAR  
PR: Departmental Core Course or CC.

GMS 7908 DISSERTATION: DOCTORAL  
PR: Must be admitted to Doctoral Candidacy. Repeatable. (S/U only.)

INTERNAL MEDICINE


BMS 6810 INTRODUCTION TO MEDICINE  
PR: Admission to College of Medicine.

BMS 6830 PHYSICAL DIAGNOSIS  
PR: Admission to College of Medicine.

BCC 6110 MEDICINE CLERKSHIP  
PR: Admission to College of Medicine.

MEL 7303 ELECTROCARDIOGRAPHIC INTERPRETATION AND CONSULTATIVE CARDIOLOGY  
PR: Enrolled in College of Medicine.

MEL 7321 CLINICAL DERMATOLOGY  
PR: Enrolled in College of Medicine.

MEL 7335 CLINICAL ENDOCRINOLOGY AND METABOLISM  
PR: Enrolled in College of Medicine.

MEL 7306 GASTROENTEROLOGY ELECTIVE  
PR: Enrolled in College of Medicine.

MEL 7310 INFECTIOUS DISEASES AND TROPICAL MEDICINE  
PR: Enrolled in College of Medicine.

MEL 7313 CLINICAL NEPHROLOGY  
PR: Enrolled in College of Medicine.

MEL 8304 TUTORIAL IN CLINICAL CARDIOLOGY  
PR: Enrolled in College of Medicine.

MEL 8308 AMBULATORY HEMATOLOGY-ONCOLOGY  
PR: Enrolled in College of Medicine.

MEL 8309 HEMATOLOGY  
PR: Enrolled in College of Medicine.

MEL 8316 AMBULATORY MEDICAL ONCOLOGY  
PR: Enrolled in College of Medicine.

BCC 8121 NEUROLOGY OF AMBULATORY PATIENTS  
PR: Enrolled in College of Medicine.

MEL 8334 ACTING MEDICINE INTERNSHIP  
PR: Enrolled in College of Medicine.

MEL 8335 AMBULATORY CARE IN INTERNAL MEDICINE  
PR: Enrolled in College of Medicine.

MEL 8315 CLINICAL ALLERGY/IMMUNOLOGY  
PR: Enrolled in College of Medicine.

MEL 8330 SOCIAL PROBLEMS IN MEDICINE  
PR: Enrolled in College of Medicine.

MEL 8336 AMBULATORY CARE ELECTIVE-ENDOCRINOLOGY AND METABOLISM  
PR: Enrolled in College of Medicine.

MEL 8362 CLINICAL CARDIOLOGY  
PR: Enrolled in College of Medicine.

MEL 8337 CLINICAL CARDIOLOGY II (TGH)  
PR: Enrolled in College of Medicine.

MEL 8339 CLINICAL RHEUMATOLOGY ELECTIVE  
PR: Enrolled in College of Medicine.

MEL 8388 RESEARCH IN RHEUMATOLOGY IMMUNOLOGY  
PR: Enrolled in College of Medicine.

MEL 8346 PULMONARY DISEASE  
PR: Enrolled in College of Medicine.

MEL 8341 PULMONARY DISEASE-TGH  
PR: Enrolled in College of Medicine.

MEL 8342 ACTING MEDICINE INTERNSHIP: ORLANDO REGIONAL MEDICAL CENTER  
PR: Enrolled in College of Medicine.

MEL 8343 CLINICAL CARDIOLOGY III-ORLANDO REGIONAL MEDICAL CENTER  
PR: Enrolled in College of Medicine.

MEL 8344 MEDICAL ASPECTS OF NEUROLOGICAL DISEASE  
PR: Enrolled in College of Medicine.

MEL 8349 MEDICAL ONCOLOGY  
PR: Enrolled in College of Medicine.

MEL 8346 GERIATRIC INTERNAL MEDICINE  
PR: Enrolled in College of Medicine.

MEL 8347 ADULT EMERGENCY MEDICINE  
PR: Enrolled in College of Medicine.

MEL 8370 BIOSTATISTICS/EPIEMIOLOGY  
PR: Enrolled in College of Medicine.
BCC 8121 CLINICAL NEUROLOGY
PR: Enrolled in College of Medicine.

MEL 8344 MEDICAL ASPECTS OF NEUROLOGICAL DISEASE
PR: Enrolled in College of Medicine.

MEL 8676 NEUROLOGY OF AMBULATORY PATIENTS
PR: Enrolled in College of Medicine.

OBSTETRICS/GYNECOLOGY


BCC 6130 OBSTETRICS-GYNECOLOGY CLERKSHIP
PR: Admission to College of Medicine.
PSYCHIATRY AND BEHAVIORAL MEDICINE


BCC 6160 SURGERY CLERKSHIP
PR: Admission to College of Medicine.
MEL 7800 GENERAL SURGERY ELECTIVE
PR: Enrolled in College of Medicine.
MEL 7801 GENERAL SURGERY PRECEPTORSHIP
PR: Enrolled in College of Medicine.
MEL 7802 PLASTIC SURGERY ELECTIVE-OFFICE BASED
PR: Enrolled in College of Medicine.
MEL 7803 PLASTIC SURGERY ELECTIVE, HOSPITAL BASED, TAMPA GENERAL HOSPITAL
PR: Enrolled in College of Medicine.
MEL 7804 PLASTIC SURGERY ELECTIVE, HOSPITAL BASED, V.A. HOSPITAL
PR: Enrolled in College of Medicine.
MEL 7805 PLASTIC AND RECONSTRUCTIVE SURGERY ELECTIVE
PR: Enrolled in College of Medicine.
MEL 7806 PLASTIC SURGERY PRECEPTORSHIP
PR: Enrolled in College of Medicine.
MEL 7807 THORACIC SURGERY ELECTIVE
PR: Enrolled in College of Medicine.
MEL 7808 CARDIAC SURGERY ELECTIVE
PR: Enrolled in College of Medicine.
MEL 7809 TRAUMA/BURN ELECTIVE
PR: Enrolled in College of Medicine.
MEL 7812 NEUROSURGERY ELECTIVE
PR: Enrolled in College of Medicine.
MEL 7815 OTOLARYNGOLOGY ELECTIVE
PR: Enrolled in College of Medicine.
MEL 7816 OTOLARYNGOLOGY PRECEPTORSHIP
PR: Enrolled in College of Medicine.
MEL 7817 ORTHOPEDIC ELECTIVE-INPATIENT
PR: Enrolled in College of Medicine.
MEL 7818 PEDIATRIC SURGERY ELECTIVE
PR: Enrolled in College of Medicine.
MEL 7819 RENAL TRANSPLANT SURGICAL ELECTIVE
PR: Enrolled in College of Medicine.
MEL 7821 SURGERY OF THE HAND ELECTIVE
PR: Enrolled in College of Medicine.
MEL 7822 CLINICAL UROLOGY ELECTIVE
PR: Enrolled in College of Medicine.
MEL 7823 ORTHOPAEDIC ELECTIVE
PR: Enrolled in College of Medicine.
ASTRONOMY

UNDERGRADUATE COURSES

AST 2000 ASTRONOMY OF THE SOLAR SYSTEM (4)
Introduction to the Astronomy of the Solar System. Course level assumes no Physics or Mathematics background. Only simple math will be used. Topics covered include properties of light, stellar coordinates, time keeping, eclipses, formation and dynamics of the solar system, properties of the sun and planets, space exploration of planets and the moon, life on other worlds. This course is complementary to but independent of AST 2006. Either may be taken before the other or taken by itself.

AST 2006 STELLAR ASTRONOMY AND COSMOLOGY (4)
An introduction to Astrophysics and the structure of the universe. Course level assumes no Physics or Mathematics background. Only simple math will be used. Topics covered include properties of light, stellar coordinates, measurement of the physical properties of stars, formation, structure and evolution of stars, normal and peculiar galaxies, cosmology. This course is complementary to but independent of AST 2005. Either may be taken before the other or taken by itself.

AST 2032C ILLUSTRATIVE ASTRONOMY (3)
Constellations, use of small telescopes, etc., apparent motions of celestial objects, comets and meteors, seasons, weather. Current events in the space program. Planetarium and open sky demonstrations. Lab.

AST 3043 HISTORY OF THE SCIENCE OF ASTRONOMY (3)
To familiarize seriously interested students with the history of astronomy and the influence of this discipline on the development of human knowledge.

AST 3044C ARCHAEOASTRONOMY (3)
Pr: Jr. or Sr. Standing or CI. Astronomical concepts and observational techniques used by prehistoric/ancient peoples for detecting change of seasons, constructing calendars, predicting eclipses, etc. Particular attention is given to Stonehenge, and to works of N.A. Indians, the Maya and Aztecs, and the Egyptians. Lec.-Lab.

AST 3552 NAVIGATION (3)
Pr: Some knowledge of geometry, algebra and trigonometry. Timekeeping, use of sextant, constellations, navigation with minimum equipment, some spherical astronomy.

AST 3930 SELECTED TOPICS IN ASTRONOMY (1-4)
Pr: CI. Course content will depend upon the interest of the faculty member and student demand. May be repeated up to 8 credit hours.

GRADUATE COURSES

AST 5566 INTRODUCTION TO CELESTIAL MECHANICS (3)
Pr: MAC 3413 and some knowledge of differential equations, or CI. The two-body problem, introduction to Hamiltonian systems and canonical variables, equilibrium solutions and stability, elements of perturbation theory.

AST 5932 SELECTED TOPICS IN ASTRONOMY (1-5)
Pr: Senior or advanced junior standing or CI. Intensive coverage of special topics to suit needs of advanced students.

BIOLOGY


UNDERGRADUATE COURSES

APB 2110 ENVIRONMENT (3)
Pr: BSC 2933. The application of basic principles of ecology to relevant problems and topics relating to man's environmental interaction through consideration of scientific and popular literature. For non-majors.

APB 2140 FOODS AND DRUGS (3)
Pr: BSC 2933. The application of basic biological principles to relevant problems and topics in nutrition and drugs through the consideration of scientific and popular literature. For non-majors.

APB 2250 SEX, REPRODUCTION AND POPULATION (3)
Pr: BSC 2933. The application of basic biological principles from subject areas to relevant problems and topics through the consideration of scientific and popular literature. For non-majors.

APB 3110 MAN, MICROBE AND MOLECULE (3)

BOT 210C FUNDAMENTALS OF BOTANY (4)
Pr: BSC 210C. Cell division, genetics, reproduction and development, physiology. Lec.-lab.

BOT 4663 INTRODUCTION TO TROPICAL BIOLOGY (4)

BSC 210C FUNDAMENTALS OF BIOLOGY (4)
A brief review of living organisms, respiration, photosynthesis, cell structure, and specialization. Lec.-lab.

BSC 2932 SELECTED TOPICS IN BIOLOGY (1-4)
May be repeated.

BSC 2933 TOPICS IN HUMAN BIOLOGY (3)
Pr: MAC 3453. Lectures, individual reading, movies, classroom discussions, and evaluation of selected biological topics, reflecting biological principles. For non-majors.

BSC 3263 INTRODUCTORY MARINE BIOLOGY (3)
Pr: 1 year major's Biology or CI. An introduction to the marine environment, the types of organisms found inhabiting a variety of marine habitats, and the adaptations of the organisms to those habitats. Emphasis is placed on shallow water Florida environments. Majors and non-majors.

BSC 4100 UNDERGRADUATE RESEARCH (1-4)
Pr: CI and CC. Individual investigation with faculty supervision.

BSC 4930 SEMINAR IN BIOLOGY (1)
Senior or advanced junior standing. May be repeated once. (S/U only.)

**BSC 4933 SELECTED TOPICS IN BIOLOGY** (1-3)
Each topic is a course in directed study under supervision of faculty member.

**BSC 6907 INDEPENDENT STUDY** (var.)
PR: CI and CC: Independent study in which student must have a contract with an instructor. Repeatable. (S/U only.)

**BSC 6910 DIRECTED RESEARCH** (var.)
Master's level. Repeatable. (S/U only.)

**BSC 6912 GRADUATE RESEARCH METHODS** (1-4)
Special course to be used primarily for the training of graduate research assistants. Variable credit, repeatable. Limited to a cumulative total of 4 credits per student. (S/U only.)

**BSC 6932 SELECTED TOPICS IN BIOLOGY** (1-4)
PR: CI and CC.

**BSC 6935 GRADUATE SEMINAR IN BIOLOGY** (1)
PR: CI and CC. (S/U only.)

**BSC 6945 GRADUATE INSTRUCTION METHODS** (1-3)
PR: CI and CC. Special course to be used primarily for the training of graduate teaching assistants. Variable credit, repeatable. Limited to a cumulative total of 4 credits per student. (S/U only.)

**BSC 7912 DIRECTED RESEARCH** (var.)
PR: GI and CC. Ph.D. level. Repeatable. (S/U only.)

**BSC 7980 DISSERTATION: DOCTORAL** (var.)
PR: CI and CC. Must be admitted to Doctoral Candidacy. Repeatable. (S/U only.)

**PCB 515C CYTOGENETICS** (3)
PR: PCB 4023C. Survey of the structure and function of cytoplasmic and nuclear components of plant and animal cells. Lec.-lab.

**PCB 5235C PRINCIPLES OF IMMUNOLOGY** (3)
PR: PCB 4012C or MCB 3010C. Course will emphasize the biological principles involved in the vertebrate immune response. It will present the homeostatic, defense, and detrimental aspects of the immune system in terms of basic cellular and molecular mechanisms. Techniques will be described to familiarize the student with the types of immunological tools available to the cellular and molecular biologist.

**PCB 5525C MOLECULAR GENETICS** (3)
PR: PCB 3063. Detailed examination of DNA, RNA and protein synthesis; the effects of mutations on proteins, cellular control; selected aspects of viral, bacterial, and fungal genetics.

**PCB 5855C NEUROPHYSIOLOGY** (3)
PR: PCB 4023C. A comparative analysis of the physicochemical basis and evolution of nervous systems and sensory mechanisms.

**PCB 6176C ULTRASTRUCTURE TECHNIQUES IN ELECTRON MICROSCOPY** (4)

**PCB 6356 TROPICAL ECOLOGY** (2)
PR: PCB 4043C. Graduating student. A discussion of a series of related ecological topics to illustrate the features peculiar to the tropics.

**PCB 6426C POPULATION BIOLOGY** (3)
PR: PCB 4043C. Introduction to population dynamics with emphasis on the ecological components of population growth, competition, and predation.

**PCB 6456C BIOMETRY** (3)
PR: MAC 2243 and MAC 2244. An introduction to statistical procedures for research in biological sciences. Experimental design, analysis of data, and presentation of results are emphasized. Lec.-dis.

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**BOTANY**

### UNDERGRADUATE COURSES

**BOT 3143C FIELD BOTANY** (3)
PR: BOT 2010C. Identification and classification of native and naturalized flowering plants of Florida including historical, climatic and floristic aspects of plant communities. Conducted largely in the field. Lec.-lab.

**BOT 3823C HORTICULTURAL BOTANY** (2)
PR: Course in botany or biology. Application of principles of botany to give an understanding of basic horticultural operations; seed sowing, dormancy growth requirements, vegetative propagation, pruning, and related problems. Lec.-lab.

**BOT 4223C PLANT ANATOMY** (3)
PR: BOT 2010C. Comparative studies of tissue and organ systems of fossil and present-day vascular plants. Functional and phylogenetic aspects stressed. Lec.-Lab.

**BOT 4434C MYCOLOGY** (3)
PR: BOT 2010C. A survey of the fungi with emphasis on their taxonomy, morphology, physiology and economic importance. Lec.-lab.

**BOT 4503 PLANT PHYSIOLOGY** (4)
PR: PCB 4023C. Fundamental activities of plants; absorption, translocation, transpiration, metabolism, growth, and related phenomena. Lec.-lab.

**BOT 4713C PLANT TAXONOMY** (4)
PR: BOT 2010C. Identification and classification of the more interesting vascular plants of Florida; angiosperm evolution; principles of taxonomy. Conducted largely in the field. Lec.-lab.

**BOT 4933 SEMINAR IN BOTANY** (1)
PR: Senior or advanced junior standing. May be repeated once. (S/U only.)

### GRADUATE COURSES

**BOT 5185 MARINE BOTANY** (3)
PR: BOT 2010C, PCB 4043C. A field course in marine plants with emphasis on ecology and functional morphology. Field work will stress the ecological aspects of plants in a subtropical marine environment in Florida. Lec.-lab.

**BOT 5405C PHYCOLOGY** (3)
PR: BOT 2010C. A detailed survey of the algae emphasizing both taxonomy and morphology of fresh and marine water forms; field and laboratory investigations, including individual projects. Lec.-lab.

**BOT 5605 PLANT ECOLOGY** (3)

**BOT 5725C EVOLUTION OF FLOWERING PLANTS** (3)
PR: BOT 4713C. A phylogenetic study of Angiosperms; relationship of the principal orders and families, problems of nomenclature, identification of specimens, comparisons of recent systems of classification, dissection of representative flower types. Field trips and lab work. Lec.-lab.

**BOT 5938 SELECTED TOPICS IN BOTANY** (1-3)
Each topic is a course in directed study under supervision of a faculty member.

**BOT 6516 PLANT BIOCHEMISTRY** (2)
PR: BOT 4503. A study of plant metabolism with emphasis on the biosynthetic pathways and their regulation.
BOT 6516L LABORATORY IN PLANT BIOCHEMISTRY
PR: BOT 4503. An intensive exposure to the methods used in experimenting with plant material.

BOT 6716C BIOCHEMICAL SYSTEMATICS
PR: BOT 3712C or equivalent. Application of cytology, ecology, genetics, biochemistry, and morphological analysis to the study of evolution and classification of species of higher plants. Lec.-lab.

BOT 6916 INDEPENDENT STUDY
PR: CI and CC. Independent study in which student must have a contract with an instructor. Repeatable. (S/U only.)

MCB 6971 THESIS: MASTER'S
PR: CI and CC. Repeatable. (S/U only.)

*Students will be required to pay travel expenses for field trips.

MICROBIOLOGY

UNDERGRADUATE COURSES

APB 4053C APPLIED AND ENVIRONMENTAL MICROBIOLOGY
PR: CI and CC. Introduction to the biology of disease. Lec.-lab.

MCB 3010C INTRODUCTION TO MICROBIOLOGY
PR: BSC 2010 and 1 year College Chemistry. Organic chemistry and a course in genetics is recommended. Introduction to the biology of microorganisms: structure, physiology, and ecology of bacteria, algae, viruses, protozoa and lower fungi. The laboratory involves preparation of culture media, staining, pure culture methodology, isolation of microbes from nature, enumeration techniques, resistance to infectious disease. Lec.-lab.

MCB 4115 DETERMINATIVE BACTERIOLOGY
PR: MCB 3010C. Survey of bacterial classification; detailed examinations of bacteria important to man in agriculture, in industry and as pathogens. Lec.-lab.

MCB 4404 MICROBIAL PHYSIOLOGY
PR: MCB 3010C, PCB 4023C. A study of physiological and metabolic phenomena pertinent to the growth, development, regulation, inhibition and death of microorganisms and to the chemical alterations they catalyze. Lec.-lab.

MCB 4505C VIROLOGY
PR: MCB 3010C. The biology of viruses associated with plants, animals, and bacteria will be considered; the nature of viruses, mechanisms of viral pathogenesis, and interactions with host cells. Lec.-lab.

MCB 4934 SEMINAR IN MICROBIOLOGY
PR: Senior or advanced junior standing. May be repeated. (S/U only.)

GRADUATE COURSES

APB 5575C MEDICAL MYCOCOLOGY
PR: MCB 3010C. A survey of the yeasts, molds, and actinomycetes most likely to be encountered by the bacteriologists, with special emphasis on the forms pathogenic for man.

MCB 5206 PUBLIC HEALTH AND PATHOGENIC MICROBIOLOGY
PR: MCB 3010C. A comprehensive survey of pathogenic microbes responsible for disease in man and other animals and the impact of these infectious agents on the public health. These pathogens will be studied with respect to their morphology, cultivation, mechanisms of pathogenicity, laboratory diagnosis, and epidemiology. Lec.-lab.

MCB 5605 MICROBIAL ECOLOGY
PR: MCB 3010C. A study of the theory and methodology of the quantification of microbial processes in natural habitats with special emphasis on aquatic and terrestrial systems. Lec.-lab.

MCB 5936 SELECTED TOPICS IN MICROBIOLOGY
Each topic is a course in directed study under supervision of a faculty member.

MCB 6459 ADVANCED TOPICS IN CHEMICAL MICROBIOLOGY
PR: MCB 4404, Biochemistry. An in-depth study of metabolic and physiological phenomena associated with microorganisms, especially bacteria, including growth, regulations, unique metabolic traits, morphogenesis, cell division, cell death and survival mechanisms. Lec.-lab.

MCB 6919 INDEPENDENT STUDY
PR: CI and CC. Independent study in which student must have a contract with an instructor. Repeatable. (S/U only.)

MCB 6971 THESIS: MASTER'S
PR: CI and CC. Repeatable. (S/U only.)

PCB 5325C TERRESTRIAL ANIMAL ECOLOGY
PR: PCB 4043C. Field and laboratory investigations of the basic principles of ecology as applied to terrestrial animals. Lec.-lab.

PCB 6376C PHYSIOLOGICAL ECOLOGY
PR: CI and CC. Effect of environmental factors on animal function at

ZOOGY 255

ZOOLOGY

UNDERGRADUATE COURSES

ENY 4004 INTRODUCTION TO ENTOMOLOGY
PR: ZOO 3203 OR ZOO 3823C. An introduction to general aspects of insect morphology, development, and classification. The identification of local forms will be emphasized. Lec.-lab.

PCB 3700 HUMAN ANATOMY AND PHYSIOLOGY
PR: BSC 2010C and ZOO 2010C. Lectures and discussions on the structure and function of the human body. For non-majors. Lec.-lab.

PCB 4184C HISTOLOGY
PR: ZOO 2010C. Comparative approach to the study of tissues and the relation of their structure and function. Lec.-lab.

PCB 4743C ANIMAL PHYSIOLOGY
PR: PCB 4023C. Advanced presentation of mechanisms employed by animals to interact with their environment and to maintain their organization. (Fall Sem.) Lec.-lab.

ZOO 3320C VERTEBRATE ANATOMY
PR: ZOO 2010C. Anatomy of selected vertebrate types emphasizing evolutionary trends. (Spring Sem.)

ZOO 3823C BIOLOGY OF TERRESTRIAL ARTHROPODS
PR: ZOO 2010C. An introduction to the biology of insects, spiders and centipede and millipede groups. Lectures and laboratories will emphasize anatomy, physiology, behavior, and ecology of these organisms. Field work will be required. Lec.-lab.

ZOO 4503C ANIMAL SOCIAL BEHAVIOR
PR: ZOO 2010C. An introduction to comparative animal behavior (Ethology), with emphasis on communication, social use of space, and behavioral evolution. Lec.-lab.

ZOO 4583C PRIMATE SOCIAL BEHAVIOR
PR: ZOO 4503C. An introduction to primate social behavior and behavioral ecology.

ZOO 4693 ANIMAL EMBRYOLOGY
PR: PCB 4023C. Structural and functional events involved in differentiation and morphogenesis. Lec.-lab.

ZOO 4893 WILDLIFE AND FISH MANAGEMENT
PR: ZOO 2010C and PCB 4043C. An introduction to the principles of wildlife and fisheries management. Certain methods and techniques utilized in the management of exploited animal species will be introduced. Designed primarily for students interested in the wildlife and fish management profession.

GRADUATE COURSES

ENY 5501 AQUATIC ENTOMOLOGY
PR: ENY 4004. Taxonomy, development, and ecology of aquatic insects with emphasis on local forms. Lec.-lab.

PCB 5306C LINMLNOLOGY
PR: CI and CC. An introduction to the physical, chemical, and biological nature of fresh-water environments. Lec.-lab.

PCB 5325C TERRESTRIAL ANIMAL ECOLOGY
PR: PCB 4043C. Field and laboratory investigations of the basic principles of ecology as applied to terrestrial animals. Lec.-lab.

PCB 6376C PHYSIOLOGICAL ECOLOGY
PR: CI and CC. Effect of environmental factors on animal function at
the cellular and organ system level with emphasis on control and mechanism. Lec.-lab.

PCB 5756 COMPARATIVE METABOLISM (2)
PR: PCB 4023C and BCH 3033. Some knowledge of Animal Phylogeny will be assumed. A presentation of various metabolic pathways found in invertebrate animals including specializations related to parasitism and facultative anaerobiosis.

PCB 6816C COMPARATIVE ENDOCRINOLOGY (3)
PR: PCB 5725C. An analysis of the similarities and differences between the hormonal mechanisms of mammals, other vertebrates, and invertebrates. Lec. only.

ZOO 5235C PARASITOLOGY (4)
PR: ZOO 2010C. Fundamentals of animal parasitology and parasitism, the biology of selected animal parasites, including those of major importance to man. Lec.-lab.

ZOO 5425C HERPETOLOGY (4)
PR: ZOO 3713C, CI and CC. Major aspects of amphibian and reptilian biology emphasizing fossil history, evolutionary morphology, sensory physiology, life history and reproductive behavior. Lec.-lab. Field trip.

ZOO 5455C ICHTHYLOGY (4)
PR: ZOO 3713C. Systematics of fishes, including major classification, comparative anatomy, embryology, and general distribution. Lec.-dist. (Also offered under Marine Science.)

ZOO 5475C ORNITHOLOGY (4)

ZOO 5485C MAMMALOGY (4)
PR: ZOO 3713C, CI and CC. The biology of mammals, including systematics, ecology, natural history, and geographical distribution. Lec.-lab.

ZOO 5555C MARINE ANIMAL ECOLOGY (4)
PR: PCB 4034C and ZOO 3203C. Investigation of energy flow, biogeochemical cycles, and community structure in marine environments. Lec.-lab.

ZOO 5815C BIOGEOGRAPHY (3)
PR: One year major's Biology. Principles and general patterns of terrestrial and marine animal and plant distributions.

ZOO 5926 SELECTED TOPICS IN ZOOLOGY (1-3)
PR: CI. Each topic is a program in directed study under supervision of a faculty member.

ZOO 6596C ADVANCED ANIMAL BEHAVIOR (3)
PR: ZOO 4503C, CI and CC. Recent advances in comparative animal behavior (ethology). Lec.-lab.

ZOO 6616C EXPERIMENTAL EMBRYOLOGY (3)
PR: ZOO 4693, CI and CC. Lectures, laboratories, readings and discussions relating to contemporary advances in the area of biochemistry of development. Experimental techniques will be studied. Lec.-lab.

ZOO 6997 INDEPENDENT STUDY (var.)
PR: CI and CC. Independent study in which student must have a contract with an instructor. Repeatable. (S/U only.)

ZOO 6971 THESIS: MASTER'S (var.)
PR: CI and CC. Repeatable. (S/U only.)

CHEMISTRY


UNDERGRADUATE COURSES

BCH 3033 INTRODUCTORY BIOCHEMISTRY (3)
PR: BCH 3030 or CHM 3211 and BSC 2010C. Introduction to the chemistry and intermediary metabolism of biologically important substances. Lec.

BCH 3033L BASIC BIOCHEMISTRY LABORATORY (2)
PR: BCH 3033. Practical work in determination and characterization of important biomolecules. Lec.-lab.

CHM 1015 FOUNDATIONS OF UNIVERSITY CHEMISTRY (3)
A survey of modern chemistry designed particularly for those with a poor preparation in algebra and/or chemistry as a preliminary to CHM 2045. Lec.

CHM 2030 INTRODUCTION TO GENERAL, ORGANIC AND BIOCHEMISTRY I (3)
First half of a two-semester sequence. Fundamental concepts of general, organic, and biological chemistry. No credit for science majors.

CHM 2031 INTRODUCTION TO GENERAL, ORGANIC AND BIOCHEMISTRY II (3)
PR: CHM 2030. Second half of general, biological and organic chemistry. No credit for science majors.

CHM 2045 GENERAL CHEMISTRY I (3)
CHM 2045. Students are expected to have performed well in the placement exam or to have satisfactorily completed CHM 1015. Fundamentals of chemistry, mass and energy relationships in chemical changes, equilibrium, chemical kinetics, atomic and molecular structure, descriptive chemistry of selected elements. Lec.-dist.

CHM 2045L GENERAL CHEMISTRY I LABORATORY (1)
PR: CHM 2045. Laboratory portion of General Chemistry I. Introduction to laboratory techniques; study of properties of elements and compounds; synthesis and analysis of natural and commercial materials.

CHM 2046 GENERAL CHEMISTRY II (3)
PR: CHM 2045 OR EQUIVALENT. Continuation of General Chemistry. Lec.-dist.

CHM 2046L GENERAL CHEMISTRY II LABORATORY (1)
PR: CHM 2045L. Laboratory portion of General Chemistry II. Continuation of chemistry laboratory.

CHM 3020 CURRENT ISSUES IN CHEMISTRY (3)
A survey of the important current issues in which chemistry affects our lives: e.g., environment, drugs, cancer, warfare, etc. No credit for chemistry majors.

CHM 3120C ELEMENTARY ANALYTICAL CHEMISTRY (4)

CHM 3200 ORGANIC CHEMISTRY I (4)
PR: CHM 2046 or equivalent. Fundamental organic chemistry principles. Structure, nomenclature, properties, preparation, reactions of hydrocarbons, alkyl halides, alcohols, phenols, ethers, sulfur analogs and other compounds. A one-semester course.

CHM 3210 ORGANIC CHEMISTRY I (3)
PR: CHM 2046, CHM 2046L. Fundamental principles of organic chemistry. Lecture.

CHM 3210L ORGANIC CHEMISTRY LABORATORY I (2)

CHM 3211 ORGANIC CHEMISTRY II (3)
PR: CHM 3210 or equivalent. Continuation of organic chemistry. Lecture.

CHM 3211L ORGANIC CHEMISTRY LABORATORY II (2)

CHM 3400 ELEMENTARY PHYSICAL CHEMISTRY I (3)
PR: CHM 2046, CHM 2046L, MAC 2444, MAC 2445, PHY 2051, PHY 2052, PHY 2051L. Introduction to thermodynamics. Properties of solutions with emphasis on biological applications.

CHM 3401 ELEMENTARY PHYSICAL CHEMISTRY II (3)
PR: CHM 3400. Reaction kinetics, enzyme kinetics, macromolecular systems, radiochemistry, molecular spectroscopy, and chemical bonding.

CHM 3402C ELEMENTARY PHYSICAL CHEMISTRY LABORATORY (1)
CR: CHM 3400 and/or CHM 3401. A physical chemistry laboratory with emphasis on modern techniques and instruments. Lab.

CHM 3600 INTERMEDIATE INORGANIC CHEMISTRY (4)
PR: CHM 2046, CHM 2046L. Fundamental principles of inorganic chemistry. Lec.-lab.

CHM 4060 USE OF THE CHEMICAL LITERATURE (1)
Discussions and assignments using abstracts, bibliographies, indices, encyclopedias, journals, patent files, and other information sources to obtain chemical and technical material and including written and oral presentations. Career information and opportunities also discussed.

Placement examination for admission to CHM 2045 offered the first day of registration each semester, during the summer FOCUS program, and is available during weeks of scheduled classes. Students should consult registration schedules or chemistry office for time and place.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 4070</td>
<td>HISTORICAL PERSPECTIVES IN CHEMISTRY</td>
<td>3</td>
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<tr>
<td></td>
<td>PR: CHM 2046; or senior standing, and CI. A study in depth of the historical and philosophical aspects of outstanding chemical discoveries and theories. Lec.-dis.</td>
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</tr>
<tr>
<td>CHM 413C</td>
<td>METHODS OF CHEMICAL INVESTIGATION I</td>
<td>4</td>
<td>PR: CHM 3120C, CHM 3211, CHM 3211L, CHM 4060, CHM 4410. Theory and applications of instrumental methods in chemical research, chemical synthesis and analysis; electrochemical and calorimetric techniques, separation methods, spectrosopy, statistical analysis of data, computer data handling, and individual projects.</td>
</tr>
<tr>
<td>CHM 4200</td>
<td>BIOMOLECULES I</td>
<td>3</td>
<td>PR: CHM 3211. Nature, structure, elucidation, synthesis and (in selected cases) organic chemical mechanisms of biochemical involvement of the major classes of organic compounds found in living systems. Lec.</td>
</tr>
<tr>
<td>CHM 4410</td>
<td>PHYSICAL CHEMISTRY I</td>
<td>3</td>
<td>PR: CHM 3120C and MAC 3282 or MAC 3412, and PHY 2052 or PHY 3042. Thermodynamics, the states of matter, solutions. Lec.</td>
</tr>
<tr>
<td>CHM 4411</td>
<td>PHYSICAL CHEMISTRY II</td>
<td>3</td>
<td>PR: CHM 4410. Introduction to quantum mechanics and molecular spectroscopy. Lec.</td>
</tr>
<tr>
<td>CHM 4610</td>
<td>ADVANCED INORGANIC CHEMISTRY</td>
<td>3</td>
<td>PR: CHM 4410 or CI. An advanced theoretical treatment of inorganic compounds. Lec.</td>
</tr>
<tr>
<td>CHM 4905</td>
<td>INDEPENDENT STUDY</td>
<td>(1-3)</td>
<td>PR: CI. Specialized independent study determined by the student's needs and interests. The written contract required by the College of Natural Sciences specifies the regulations governing independent study. May be repeated (S/U only).</td>
</tr>
<tr>
<td>CHM 4932</td>
<td>SELECTED TOPICS IN CHEMISTRY</td>
<td>(1-3)</td>
<td>PR: CI. The course content will depend on the interest of faculty members and student demand.</td>
</tr>
<tr>
<td>CHM 4970</td>
<td>UNDERGRADUATE RESEARCH</td>
<td>(1-3)</td>
<td>PR: CI. (S/U only.)</td>
</tr>
<tr>
<td>CHS 4100C</td>
<td>RADIOCHEMISTRY</td>
<td>3</td>
<td>PR: CHM 3120. Theory and application of natural and induced radioactivity. Emphasis on the production, properties, measurement, and uses of radioactive tracers. Lec.-lab.</td>
</tr>
<tr>
<td>CHS 4200</td>
<td>INDUSTRIAL CHEMISTRY</td>
<td>3</td>
<td>PR: CHM 3211 or CI. The general composition and properties of products in the petroleum, rubber, plastics, fiber, and detergent industries will be examined. Quality requirements imposed by the end use and new product development will be emphasized. (Sem I)</td>
</tr>
<tr>
<td>CHS 4300</td>
<td>FUNDAMENTALS OF CLINICAL CHEMISTRY</td>
<td>3</td>
<td>PR: BCH 3033. Theoretical and practical aspects of the analysis of various body fluids, with emphasis on the medical significance. Clinical chemistry majors must take CHS 4301 concurrently. Lec.</td>
</tr>
<tr>
<td>CHS 4301L</td>
<td>CLINICAL LABORATORY</td>
<td>(2-12)</td>
<td>PR: BCH 3033 and CHM 3120C. Laboratory experience in some of the most important clinical determinations. CHS 4300 must be taken concurrently. Lec. lab.</td>
</tr>
<tr>
<td>CHS 4302</td>
<td>CLINICAL CHEMISTRY PRACTICE</td>
<td>(2-12)</td>
<td>PR: CI. Laboratory practice in clinical chemistry laboratories in the Tampa Bay area. (S/U only.)</td>
</tr>
<tr>
<td>CHS 4310C</td>
<td>INSTRUMENTAL ANALYSIS</td>
<td>(4)</td>
<td>PR: CHM 4412 or CI. Theory and practice of instrumental methods of chemical analysis. Lec.-lab.</td>
</tr>
</tbody>
</table>

**Graduate Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>BCH 5065</td>
<td>BIOCHEMISTRY CORE COURSE</td>
<td>3</td>
<td>PR: Either CHM 3211, CHM 3211L, and CHM 3400 or CHM 4410 or graduate standing. A one-semester survey course in biochemistry for graduate students in chemistry, biology, and other appropriate fields and for particularly well-qualified undergraduates, Lec.</td>
</tr>
<tr>
<td>BCH 6066</td>
<td>GENERAL BIOCHEMISTRY I</td>
<td>4</td>
<td>PR: BCH 5065 or CI. First semester of a rigorous two-semester general biochemistry course for chemistry and biology graduate students whose primary interests are in this field. Lec.</td>
</tr>
<tr>
<td>BCH 6067</td>
<td>GENERAL BIOCHEMISTRY II</td>
<td>4</td>
<td>PR: BCH 6066. Continuation of General Biochemistry I. Lec.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCH 6506</td>
<td>ADVANCED BIOCHEMISTRY I. ENZYMES</td>
<td>3</td>
<td>PR: BCH 6067 or CI. A study of biochemical systems with emphasis on enzymes. Lec.</td>
</tr>
<tr>
<td>BCH 6766</td>
<td>ADVANCED BIOCHEMISTRY II. BIOLOGIC MECHANISMS</td>
<td>3</td>
<td>PR: BCH 6067 or CI. A study of biochemical systems with emphasis on mechanisms of biological reaction. Lec.</td>
</tr>
<tr>
<td>BCH 6767</td>
<td>ADVANCED BIOCHEMISTRY III. BIOPHYSICAL CHEMISTRY</td>
<td>3</td>
<td>PR: BCH 6067 or CI. A study of biochemical systems with emphasis on physical methods of experimentation and interpretation. Lec.</td>
</tr>
<tr>
<td>CHM 5225</td>
<td>INTERMEDIATE ORGANIC CHEMISTRY</td>
<td>3</td>
<td>PR: CHM 3211, CHM 3211L, or equivalent. This course will extend organic chemistry beyond the undergraduate level and will emphasize concepts of stereochemistry and reaction mechanisms.</td>
</tr>
<tr>
<td>CHM 5425</td>
<td>APPLICATIONS IN PHYSICAL CHEMISTRY</td>
<td>3</td>
<td>PR: CHM 4412. Applications of chemical theory to chemical systems.</td>
</tr>
<tr>
<td>CHM 5430</td>
<td>CHEMICAL THERMODYNAMICS</td>
<td>3</td>
<td>PR: CHM 4412 or CI. The applications of thermodynamic theory to the study of chemical systems with emphasis on the energetics of reactions and chemical equilibria. Lec.</td>
</tr>
<tr>
<td>CHM 5621</td>
<td>PRINCIPLES OF INORGANIC CHEMISTRY</td>
<td>3</td>
<td>PR: CHM 4411 or CI. Chemical forces, reactivity, periodicity, and literature in inorganic chemistry; basic core course. Lec.</td>
</tr>
<tr>
<td>CHM 5631</td>
<td>SELECTED TOPICS IN CHEMISTRY</td>
<td>(1-3)</td>
<td>PR: CI. The following courses are representative of those that are taught under this title: Natural Products, Stereochemistry, Reactive Intermediates, Photochemistry, Instrumental Electronics, Advanced Lab Techniques, Heterocyclic Chemistry, etc.</td>
</tr>
<tr>
<td>CHM 6150</td>
<td>ADVANCED ANALYTICAL CHEMISTRY</td>
<td>3</td>
<td>PR: CI. A study of complete analytical process, including sample handling, separation, the interpretation of data. Emphasis placed on separations and statistics. Lec.</td>
</tr>
<tr>
<td>CHM 6280</td>
<td>ADVANCED ORGANIC CHEMISTRY III. NATURAL PRODUCTS</td>
<td>3</td>
<td>PR: CHM 5225 or CI. A study of any of several of the following topics; terpenes, steroids, vitamins, alkaloids, prophyrin, purine, and antibiotics.</td>
</tr>
<tr>
<td>CHM 6440</td>
<td>CHEMICAL KINETICS</td>
<td>3</td>
<td>PR: CI. Theory and methods for the study of reaction rates and the elucidation of reaction mechanisms. Lec.</td>
</tr>
<tr>
<td>CHM 6460</td>
<td>STATISTICAL THERMODYNAMICS</td>
<td>3</td>
<td>PR: CI. Application of statistical mechanics to thermodynamics, the relation of molecular structure to thermodynamic properties. Lec.</td>
</tr>
<tr>
<td>CHM 6480</td>
<td>QUANTUM CHEMISTRY</td>
<td>3</td>
<td>PR: CI. Introduction to elementary quantum mechanics. Atomic structure and spectra. Lec.</td>
</tr>
<tr>
<td>CHM 6625</td>
<td>CHEMISTRY OF THE LESS FAMILIAR ELEMENTS</td>
<td>3</td>
<td>PR: CI. An integrated treatment of the conceptual and factual aspects of the traditionally less familiar elements, including noble gases, non-metals, alkali and alkaline-earth metals, and the transition elements. Lec.</td>
</tr>
<tr>
<td>CHM 6658</td>
<td>STRUCTURAL INORGANIC CHEMISTRY</td>
<td>3</td>
<td>PR: CHM 5621 or CI. Modern theories of bonding and structure of inorganic compounds, including coordination theory, stereo-chemistry, solution equilibria, kinetics, mechanisms of reactions, and use of physical and chemical methods. Lec.</td>
</tr>
<tr>
<td>CHM 6697</td>
<td>INDEPENDENT STUDY (var.)</td>
<td></td>
<td>Independent study in which student must have a contract with an instructor. Repeatable. (S/U only.)</td>
</tr>
<tr>
<td>CHM 6698</td>
<td>GRADUATE SEMINARS IN CHEMISTRY</td>
<td>(1)</td>
<td>PR: Admission to graduate program in chemistry. Required every semester (when offered) for all students enrolled in chemistry graduate program. Requires participation in and attendance at the weekly</td>
</tr>
</tbody>
</table>
undergraduate courses

GLY 2016 PHYSICAL GEOLOGY (4)
Study of minerals, rocks, and processes of the earth's crust. Introduction to origin and classification of earth's materials and landforms. Lec.-lab.

GLY 2100 EARTH HISTORY (4)
PR: A course in geology. Study of the physical and biological history of the earth including evolution of the major groups of organisms, continental drift, and interpretation of ancient environments. Lec.-lab.

GLY 2850 ENVIRONMENTAL GEOLOGY (3)
A first course in geology emphasizing environmental aspects of the earth's crust, such as earthquakes, depletion of the earth's resources, water supply problems, and geologic land use and planning. No credit for geology majors.

GLY 3006 GEOLOGY OF OUR NATION'S PARKS (3)
Representative parks used to illustrate current concepts in geology. For the non-science student. No credit for geology majors.

GLY 3400 STRUCTURAL GEOLOGY (4)
PR: 12 hours of geology, MAC 1104 or equivalent or CI. Study of the origin and development of structural features of the earth's crust. Applications of principles of geology, physics, and mathematics to understanding relationships of strata and interpreting structural features. Study of regional tectonics and major structural provinces. Lec.-lab.

GLY 3610 PRINCIPLES OF INVERTEBRATE PALEONTOLOGY (4)
PR: GLY 2100 or CI. Emphasis on morphology and habits of fossil invertebrate groups as they evolved through geologic time. Comparisons with modern examples of similar organisms. Stratigraphic distribution of major groups. Lec.-lab.

GLY 3830 GEOLOGY FOR ENGINEERS (3)
PR: Junior standing in College of Engineering or CI. An examination of geologic materials and processes designed for engineering students; classification and properties of earth materials, surface processes, site investigation techniques, applications of geology to the solution of engineering problems. (No credit toward the geology major, or for those with credit for GLY 2016.)

graduate courses

GLY 5241 GENERAL GEOCHEMISTRY (3)
PR: One year college chemistry, GLY 4200 or CI/AGE, formation and evolution of the earth with application of basic chemical concepts and processes that govern the distribution of elements in geologic environments.
GLY 5245 ANALYTICAL TECHNIQUES IN GEOLOGY (4)
PR: One year college chemistry, GLY 4220 or Cl. Use and application of modern analytical methods including X-ray, atomic absorption, and other geochemical techniques. Interpretation and statistical analysis of data acquired. Lec.-lab.-field trips.

GLY 5310 IGNEOUS AND METAMORPHIC PETROLOGY (4)
PR: GLY 4220. Systematic study of igneous and metamorphic rocks and complexes, including origin, composition, and classification. Use of the polarizing microscope for thin section analysis will be emphasized, and other modern methods of study will be employed. Lec.-lab.

GLY 5490 PRINCIPLES OF APPLIED GEOPHYSICS (4)
PR: Senior or advanced junior standing, one year of Physics or Cl. Elementary treatment of gravimetric, magnetic, electric, and seismic geophysical techniques as applied to site investigation and mineral deposits. Lec.-lab.-field trips.

GLY 5615 ADVANCED STRATIGRAPHIC PALEONTOLOGY (3)
PR: GLY 3610, GLY 4550 or Cl. Morphology, geologic distribution and stratigraphic ranges of important invertebrate guide fossils. Lec.-lab.-field trips.

GLY 5792 GEOLOGICAL FIELD EXCURSION (2)
PR: GLY 3400, GLY 4550, and GLY 4750. Lectures and 2-3 week field excursion to study regional geology, structure and lithogenesis of geologic complexes. Mapping and outcrop description techniques are emphasized. Destination of trip varies. Trip requires camping and vigorous physical activity. Lec.-field trip.

GLY 5825 ADVANCED HYDROGEOLOGY (4)
PR: GLY 4820, MAC 3282 or MAC 3412 or Cl. Flow systems, analytical and numerical solutions to ground water flow problems. Emphasis on the theoretical aspects of ground water flow systems and their interaction with the geologic framework. Lec.-lab.-field trips.

GLY 5890 STATISTICAL MODELS IN GEOLOGY (3)
PR: STA 3023 or equivalent or Cl. Application of statistical methods to geological problems. Emphasis on sampling plans, nature of geologic distributions, and application of analyses of variance to solving geological problems. Lec.

GLY 5932 SELECTED TOPICS IN GEOLOGY (1-4)
PR: Senior or advanced junior standing and Cl. Each topic is a course in directed study under supervision of a faculty member. All areas of geology included. Departmental permission required prior to registration.

GLY 6250 CLAY MINERALOGY (3)
PR: Graduate standing in geology or Cl. Composition, structures, origin, and diagenesis of clay minerals. Identification of clay minerals by X-ray diffraction techniques.

GLY 6290 SEDIMENTARY GEOCHEMISTRY (3)
PR: GLY 5241 or Cl. Fundamentals of aqueous geochemistry in relation to chemical and biochemical precipitation of sedimentary materials. Geochemical fluids with emphasis on diagenesis.

GLY 6345 SEDIMENTARY PETROGRAPHY (4)
Classification, petrographic description and interpretation of sedimentary rocks including depositional environments and diagenesis. Lec.-lab.

GLY 6410 GEOLOGY OF NORTH AMERICA (2)
PR: Graduate or Cl. Regional structure, stratigraphy, and history of North America.

GLY 6420 GLOBAL TECTONICS (2)
PR: Graduate standing or Cl. Development of the global tectonic hypothesis, modern global tectonic theory, and application of the theory in selected regions of the earth.

GLY 6575 COASTAL SEDIMENTATION (3)
PR: GLY 4555 or equivalent. Study of modern coastal sedimentary environments with emphasis on beaches, inlets, deltas, estuaries, and marshes. Analysis of sedimentary process and resulting morphologic development of sediment bodies. Lec.-lab.-field trips.

GLY 6660 MARINE PALEOECOLOGY (3)
PR: GLY 3610, GLY 4555 or Cl. Interpretation of the relationships between ancient organisms and their environment with emphasis on the substrate. Applications of modern benthic marine environments and sediment-organism relationships to fossil record. Lec.-field trips.

GLY 6735 SELECTED TOPICS IN GEOLOGY (1-4)
PR: Cl. May be repeated for credit.

GLY 6828 GROUND-WATER GEOCHEMISTRY (3)
PR: one year of college chemistry, GLY 4820, GLY 5241, or Cl. Chemical behavior of ground water. Includes interaction of water with aquifer materials, salt-water intrusion, chemical impacts of waste disposal, use of chemical tracers, and transport of hazardous chemicals. Methods of sampling and data interpretation are emphasized. Lec.

GLY 6905 INDEPENDENT STUDY (var.)
Independent study in which student must have a contract with an instructor. Repeatable. (S/U only.)

GLY 6910 DIRECTED RESEARCH (var.)
PR: GES. Master's level. Repeatable. (S/U only.)

GLY 6931 GRADUATE SEMINAR (1)
PR: CC. May be repeated for credit. (S/U only.)

GLY 6933 ADVANCED TOPICS IN GEOLOGY (2)
PR: Graduate standing in Geology. Study of current topics in Geology. Required of all graduate students in Geology. May be repeated for credit.

GLY 6971 THESIS; MASTER'S (var.)
Repeatable. (S/U only.)

MARINE SCIENCE

UNDERGRADUATE COURSES
OCE 3001 INTRODUCTION TO OCEANOGRAPHY (3)
Topics in biological, chemical, geological, and physical oceanography presented in lectures by a number of specialists in these fields. (Also listed under Geology.)

GRADUATE COURSES
OCE 5050 BIOLOGICAL OCEANOGRAPHY (3)
PR: Graduate standing, Cl. The study of life in the sea with reference to distribution, reproduction, adaptation, competition, and populations. Lec.-lab.

OCE 6567 PHYTOPLANKTON ECOLOGY (3)
PR: BS in biology, OCE 5050, or Cl. An introduction to the physiology and ecology of marine phytoplankton. Emphasis will be on those variables and interactions which regulate photosynthesis, production, nutrient kinetics and regeneration, growth, spatial distribution, losses and succession.

OCE 6567L METHODS IN PHYTOPLANKTON ECOLOGY (3)
PR: BS in biology, OSC 5050, or Cl. Laboratory and field procedures for identification, culture techniques, enumeration, growth and nutrient uptake rates, photosynthesis, biomass estimates, enzyme kinetics, etc. will be covered. Practical application of the techniques will be made in class designed experiments and/or a 5-10 day research cruise.

OCE 6664 MARINE ZOOGEOGRAPHY (3)
PR: BS in biology, OCE 5050, or Cl. The geographical distribution of animals in the marine environments of the world including the major habitats of the benthic and pelagic realms. Studies of the relationships between distributional and evolutionary patterns.

OCE 6666 ECOLOGICAL PHYSIOLOGY (3)
PR: BS in biology, 1 year general and organic chemistry, OCE 5050, or Cl. The study of the physiological mechanisms that enable organisms to live in their environment, and deal with changes in the environment. Coursework is focused on aquatic ecotones. Topics include osmotic and ionic regulation, nitrogen excretion, feeding and digestion, respiration, temperature and energetics. Lab separate.

OCE 6671 METHODS IN BIOLOGICAL OCEANOGRAPHY (1)
PR: Cl. To acquaint students with field and laboratory equipment and techniques currently used in biological oceanography. Emphasis will be on field problems especially those requiring research at sea.

OCC 5050 CHEMICAL OCEANOGRAPHY (3)
PR: CHM 2046 and Cl. The ocean as a chemical system, including composition, physical-chemical aspects, role of nutrients, trace metals, interaction between bottom and overlying water, modern methods of analysis in routine use in oceanography. Lec.-lab.

OCC 5067 MARINE POLLUTION (3)
PR: OCC 5050 or Cl. Marine pollutant sources, reservoirs, transport processes, and dynamics. Topics include heavy metals, chlorinated...
hydrocarbons, radio activity, petroleum, pathogenists, and thermal pollution including functional and physiological responses of marine organisms.

OCC 6057 METHODS IN CHEMICAL OCEANOGRAPHY (1)
PR: OCC 5050 or CI. An intensive study of the use and limitations of field and laboratory equipment which is a standard part of chemical oceanographic research into the behavior of dissolved and particulate constituents in seawater.

OCC 6216 MARINE ORGANIC CHEMISTRY (3)
PR: BS in biology or chemistry, biochemistry, OCC 5050 or CI. Distribution and biogeochemical cycling of organic matter in the oceans. Topics include carbohydrates, proteins, lipids, humics, phenornes, interaction with trace metals, isotopic fractionation, microbial alterations, and biochemical tracers.

OCE 5085 MARINE POLICY (2)
PR: OCE 3001 or CI. Course explores marine problems and their impact on society. Topics of interest include financing and organization of marine science; regulation (local, state, and federal) of uses of marine waterways, and the sea; political, social and legal problems associated with marine pollution and the recovery and development of marine resources, preservation and public decision-making in the marine sphere.

OCE 5934 SELECTED TOPICS IN OCEANOGRAPHY (1-3)
PR: CI. Special topics in biological, chemical, geological, and physical oceanography.

OCE 6908 INDEPENDENT STUDY (var.)
Independent study in which student must have a contract with an instructor. Repeatable. (S/U only.)

OCE 6934 SELECTED TOPICS IN OCEANOGRAPHY (1-3)
PR: CI. Special topics in biological, chemical, geological, and physical oceanography.

OCE 6939 GRADUATE SEMINAR IN OCEANOGRAPHY (1)
PR: Graduate standing. May be repeated. (S/U only.)

OCE 6942L FIELD STUDIES IN MARINE SCIENCE (3)
PR: One of the following: OCE 5050, OCE 6671, OCC 5050, OCE 6057, OCG 6075, OCP 5051, OCP 6056, or CI. Combination of classroom study with the collection, analysis, and interpretation of field data to attack specific problems in marine science both for deep sea and nearshore environments.

OCE 6971 THESIS: MASTER'S (var.)
Repeatable. (S/U only.)

OCE 6972 DIRECTED RESEARCH (var.)
PR: G. Master's level. Repeatable. (S/U only.)

OCE 7910 DIRECTED RESEARCH (var.)
PR: GR. Ph.D. level. Repeatable. (S/U only.)

OCC 5050 GEOLOGICAL OCEANOGRAPHY (3)
PR: Graduate standing or CI. An introduction to the physical, historical sedimentary, and structural geology of the ocean basins and their borders. Lec-lab.

OCC 5455 MARINE ISOTOPE GEOCHEMISTRY (3)
PR: Chemical Oceanography or CI. Study of stable and radioactive isotope variations in the marine environment and the use of these variations as elemental tracers and in determining ages and rates and paleoclimatic conditions.

OCC 6075 METHODS IN GEOLOGICAL OCEANOGRAPHY (1)
PR: OCC 5050 or CI. Description and application of the modern Techniques used to investigate geology and geophysics.

OCC 6086 GEOLOGY OF CONTINENTAL MARGINS (3)
PR: B.S. in geology, OCC 5050, or CI. Analysis of tectonic, structural and stratigraphic development and general geologic history of the major types of continental margins. Includes interpretation of seismic data.

OCC 6356C STRATIGRAPHIC INTERPRETATION OF SEISMIC DATA (2)
PR: B.S. in Geology, OCC 5050, or CI. Study of seismic reflection data for the purpose of determining structural/sedimentary development, facies distribution, and general geological history of stratigraphic packages. Course includes fundamentals of seismic reflection and depositional sequence/seismic facies analyses.

OCC 6551C SCANNING ELECTRON MICROSCOPY: THEORY AND TECHNIQUE (4)
PR: Graduate standing, one year physics, or CI. Theory and practical application of the scanning electron microscope and the energy dispersive X-ray analyzer. Emphasis is on independent operation of the instruments, preparation techniques for specimens, and interpretation of results.

OCC 6656C MARINE MICROPALeONTOLOGY (4)
PR: B.S. in geology or biology, OCC 5050, or CI. Introduction to the microscopic marine fauna and flora found in the fossil sedimentary record. Emphasis is placed on the ecology, paleoecology, paleontology, and biostratigraphic record of calcareous and siliceous microfossils.

OCP 5851 PHYSICAL OCEANOGRAPHY (3)
PR: Graduate standing, CI, PHY 3042. The world ocean including its morphology, physical properties, currents, waves, tides, heat budget, and related topics. Lec.-lab.

OCP 6056 METHODS IN PHYSICAL OCEANOGRAPHY (1)
PR: MAC 3413, OCC 5050 or OCP 5051, and CI. Field and laboratory techniques for acquisition, reduction, display, and discussion of physical oceanographic data (e.g., waves, tides, currents, dissolved and suspended constituents).

PCB 6476 DYNAMICS OF MARINE BENTHIC COMMUNITIES (3)
PR: EGN 2210, ZOO 5555C, or CI. Theoretical approach to the study of benthic communities in fluctuating and constant environments. Methods of analysis of benthic data will be evaluated and discussed. Computer programs will be utilized for analysis wherever possible. Lec.-lab.

ZOO 5456C ICHTHYOLoGY (4)
PR: CI or senior or graduate status; BSC 2010C, BSC 2012, PCB 4674 (helpful), ZOO 3713C (helpful). The evolution systematics, and ecology of fishes. (Also listed under Zoology.)

ZOO 6256 ZOOPLANKTON BIOLOGY (4)
PR: B.S. in biology, OCB 5050, or CI. The taxonomy and biology of marine zooplankton with emphasis on tropical-subtropical fauna.

MATHEMATICS


UNDERGRADUATE COURSES

COP 3215 COMPUTER APPLICATIONS OF MATHEMATICS (3)
CR: MAC 3412 or CC. Computer applications to mathematics, especially calculus, with FORTRAN programming.

MAA 4211 ADVANCED CALCULUS I (4)
PR: MAC 3413, with a grade of "C" or better; MHF 3102 and MAS 3103 or CI. Concepts of limit, continuity, differentiation, and integration of functions in one and several variables. Major topics include partial differentiation, Riemann-Stieltjes integrals, improper integrals, infinite series, uniform convergence, implicit-function theorems, line and surface integrals, vector analysis.

MAA 4212 ADVANCED CALCULUS II (4)
PR: MAA 4211. Continuation of MAA 4211.

MAC 1104 COLLEGE ALGEBRA AND TRIGONOMETRY (4)
PR: Two years of secondary school mathematics including one year of algebra or HCC mathematics course MAT 1033, taught on USF campus of CC; pass placement test in algebra. Real numbers and their properties, algebraic expression, equations and inequalities, functions, polynomials, exponential and logarithmic functions. Angles, trigonometric functions, properties and graphs of trigonometric functions, right triangles, laws of sines and cosines, polar coordinates. (No credit for MAC 1104 for students with credit in MAC 2243 or MAT 2034.)

MAC 1114 COLLEGE TRIGONOMETRY (2)
PR: Pass placement test. Angles, Trigonometric functions, properties and graphs of trigonometric functions, right triangles, laws of sines and cosines, polar coordinates. (No credit for students with credit in MAC 1104.)

MAC 2243 ELEMENTARY CALCULUS I (4)
PR: Pass placement test in algebra. Students should have two years of
secondary school mathematics including one year of algebra or HCC mathematics course MAT 1033 taught on USF campus or CC. Algebra, functions, differentiation, applications. MAC 2243-MAC 2244 is primarily for student from Biological Sciences, Social Sciences and Business. (No credit for math majors or students with credit in MAC 3281 or MAC 3411.)

MAC 2244 ELEMENTARY CALCULUS II (4)
PR: MAC 2243. Antiderivatives, the definite integral, techniques of integration, logarithmic and exponential functions, applications. (No credit for Mathematics majors or students with credit in MAC 3282 or MAC 3412.)

MAC 3281 ENGINEERING CALCULUS I (3)
PR: MAC 1004 with a "C" or better or CC. Pass placement tests in algebra and trigonometry. Differentiation, limits, differentials, extrema, indefinite integral. (No credit for students with credit in MAC 2243 or MAC 3411.)

MAC 3282 ENGINEERING CALCULUS II (3)
PR: MAC 3281. Definite integral, trigonometric functions, log, exponential, applications. (No credit for students with credit in MAC 2244 or MAC 3412.)

MAC 3283 ENGINEERING CALCULUS III (3)
PR: MAC 3282. Techniques of integration, numerical methods, analytic geometry, polar coordinates, Vector algebra, applications. (No credit for students with credit in MAC 3413.)

MAC 3411 CALCULUS I (4)
PR: MAC 3204 with a grade of "C" or better or CC. Pass placement tests in algebra and trigonometry. Limits, derivatives, applications. (No credit for students with credit in MAC 2243 or MAC 3281.)

MAC 3412 CALCULUS II (4)
PR: MAC 3411 with a grade of "C" or better or CC. Antiderivatives, the definite integral, applications, log, exponential and trig functions. (No credit for students with credit in MAC 2244 or MAC 3282.)

MAC 3413 CALCULUS III (4)
PR: MAC 3412 with grade of "C" or better or CC. Integration, polar coordinates, conic sections, vectors, indeterminate forms and proper integrals. (No credit for students with credit in MAC 3282.)

MAD 3100 APPLICATIONS-ORIENTED ALGEBRA (3)
PR: MAC 3281 or MAC 3411 or CI. An introduction to the aspects of discrete mathematics which are fundamental to digital computation. Topics include graphs, coding theory, Boolean algebras, finite state automatics, automata, languages, groups, and other models of computation.

MAD 4401 NUMERICAL ANALYSIS (4)
PR: MAS 3103; ability to program a digital computer. Interpolation and quadrature, finite differences, numerical solution of algebraic and transcendental equations, numerical solution of differential equations, computer techniques.

MAP 4302 DIFFERENTIAL EQUATIONS (3)
PR: MAC 3413. First order linear and nonlinear differential equations, higher order linear equations, applications.

MAS 3103 LINEAR ALGEBRA (3)
PR: MAC 3411 or CI. Vectors, matrices, systems of linear equations, linear transformations.

MAS 4156 VECTOR ANALYSIS (2)
PR: MAC 3413. The algebra and calculus of vectors, applications, general coordinates, introduction to tensor analysis. (No credit for both MAA 4211 and MAS 4156.)

MAS 4301 ELEMENTARY ABSTRACT ALGEBRA (3)
PR: MHF 3102 or CC. Groups, rings, integral domains, fields, integers, the rational, real and complex number systems.

MAT 2034 COLLEGE MATHEMATICS (3)
PR: Passing score on placement test. Students should have the equivalent of two years high school math including one year of algebra or HCC mathematics course MAT 1033 taught on USF campus. Real numbers and their properties, algebraic expressions, equations, and inequalities, functions, polynomials, exponential and logarithmic functions. Not for math majors. (No credit for students with credit in MAC 1104.)

MAT 4906 INDEPENDENT STUDY (1-4)
PR: CI. Specialized independent study determined by the student's needs and interests. The written contract required by the College of Natural Sciences specifies the regulations governing independent study. May be repeated (S/U only).

MAT 4930 SELECTED TOPICS IN MATHEMATICS (1-4)
PR: CI. The course content will depend on the interest of faculty members and student demand.

MGF 2130 MODERN MATHEMATICS WITH MICROCOMPUTERS (4)
PR: Same as for MGF 2202. Topics in finite math, real vs. computer number systems, inequalities, functions, graphs, introduction to basic programming and microcomputers, exact and approximate solutions of algebraic equations, probability, computer simulations of models.

MGF 2202 FINITE MATHEMATICS (3)
PR: Passing score on placement test. Students should have the equivalent of two years high school math including one year of algebra or HCC mathematics course MAT 1033 taught on USF campus. Linear functions, matrices and systems of linear equations, linear programming, logic sets, permutations and combinations, introduction to statistics, introduction to probability.

MHF 3102 SET THEORY (3)
PR: MAC 3411 or CC. Relations, functions, order, cardinal numbers.

MTG 3204 INFORMAL GEOMETRY (3)
PR: Concepts of length, congruence, similarity, transformations in the plane, ruler and compass constructions, impossible constructions, coordinate systems, graphs, lines and curves. (Open only to Elementary Education majors.)

MTG 4212 GEOMETRY (4)
PR: MAC 3411. Emphasis on axiomatics, advanced Euclidean geometry, elements of projective geometry, non-Euclidean geometries.

STA 3023 INTRODUCTORY STATISTICS I (4)
PR: STA 3023 or CC. Factorials, multiple curvilinear regression; response surfaces; Latin square, Split plots, incomplete blocks designs; distribution free methods.

STA 3040 ELEMENTARY PROBABILITY (3)
PR: STA 3023 or CC. Counting techniques, probability, expectation, probability distributions, the law of large numbers. (No credit for Mathematics majors. Credit for Department of Biology majors.)

STA 4321 INTRODUCTION TO STATISTICS (3)

STA 4442 INTRODUCTION TO PROBABILITY (3)
PR: MAC 3413, MIF 3102. Introduction to probability theory using calculus. Basic ideas of probability and random variables, discrete probability functions, continuous probability densities including normal, gamma, $x^2$, and Weibull, and transformations of random variables.

GRADUATE COURSES

MAA 5306 REAL ANALYSIS I (3)

MAA 5307 REAL ANALYSIS II (3)
PR: MAA 5306. Continuation of MAA 5306.

MAA 5402 COMPLEX ANALYSIS I (3)
PR: MAA 4211. Complex numbers, analytic functions and mappings, integrals.

MAA 5403 COMPLEX ANALYSIS II (3)
PR: MAA 5402. Power series, residues and poles, conformal mappings.

MAA 5405 APPLIED COMPLEX ANALYSIS (3)
Complex numbers, analytic and harmonic functions. Series. Contour integrals, residue theory. Conformal mappings. (A survey course emphasizing techniques and applications.) (No credit for students with credit in MAA 5402 and MAA 5403.)

MAA 6406 COMPLEX ANALYSIS I (3)

MAA 6407 COMPLEX ANALYSIS II (3)
PR: MAA 6406. Continuation of MAA 6406.

MAA 6516 INTRODUCTION TO FUNCTIONAL ANALYSIS I (3)

MAA 6517 INTRODUCTION TO FUNCTIONAL ANALYSIS II (3)
PR: MAA 6516. Continuation of MAA 6516.

MAA 6616 MEASURE AND INTEGRATION I (3)
PR: MAA 5307. Abstract measure and integration in sigma rings, Application to Euclidean spaces, Fubini's Theorem, Radon-Nikodym
Theorem, Lp spaces.

M A A 6617 MEASURE AND INTEGRATION II
PR: MAA 6616. Continuation of MAA 6616.

M A D 5305 INTRODUCTION TO GRAPH THEORY
PR: CC. Brief introduction to classical graph theory (4-color theorem, etc.), directed graphs, connected digraphs, condensations, incidence matrices, Polya's Theorem, networks.

M A D 6407 ANALYSIS OF NUMERICAL METHODS

M A D 6510 ANALYSIS OF ALGORITHMS
PR: CC. Mathematical theory associated with algorithms for computer information processing; expected time and space requirements of algorithms, comparison of algorithms, construction of optimal algorithms, theory, underlying particular algorithms.

M A D 6616 ALGEBRAIC AUTOMATA THEORY
PR: MAA 5312 or CC. Algebraic automata theory.

M A D 6617 ALGEBRAIC CODING THEORY
PR: MAD 6616 or CC. Algebraic coding theory.

M A E 5874 ABSTRACT ALGEBRA FOR TEACHERS
PR: MAS 3103 and MAS 4301 and bachelor's degree or CC. Groups, fields, vector spaces as they relate to high school algebra and geometry. (No credit for Mathematics majors.)

M A E 5876 MATHEMATICAL ANALYSIS FOR TEACHERS
PR: MAC 5413 and bachelor's degree or CC. Advanced consideration of limits, continuity, derivatives, differentials. (No credit for Mathematics majors.)

M A P 5205 MATHEMATICAL OPTIMIZATION THEORY I

M A P 5316 INTERMEDIATE DIFFERENTIAL EQUATION I

M A P 5317 INTERMEDIATE DIFFERENTIAL EQUATION II
PR: MAP 5316. Topics selected from oscillation and comparison theorems, stability and asymptotic behavior, perturbation theory, nonlinear special functions.

M A P 5345 APPLIED PARTIAL Differential EQUATIONS
PR: MAP 4302 and CC. Separation of variables, the heat equation, wave equation, Laplace's equation, classification, Green's functions, with emphasis on applications.

M A P 5407 METHODS OF APPLIED MATHEMATICS

M A P 6206 MATHEMATICAL OPTIMIZATION THEORY II

M A P 6336 THEORY OF ORDINARY DIFFERENTIAL EQUATIONS
PR: MAP 5316 or MAP 5407 or CC. Advanced topics selected from: existence and uniqueness theory, singularity theory, asymptotics and stability, eigenfunctions, perturbations, topological methods.

M A P 6356 PARTIAL DIFFERENTIAL EQUATIONS
PR: MAP 5345 or CC. Classification of second order equations, Cauchy problems, Dirichlet and Neumann problems, mixed problems, properties of solutions.

M A P 6375 NUMERICAL TECHNIQUES FOR PARTIAL DIFFERENTIAL EQUATIONS

M A S 5146 ADVANCED LINEAR ALGEBRA
PR: MAS 3103, M HF 3102, or CC. Vector spaces, linear independence, dimensions, matrices, linear transformations.

M A S 5215 NUMBER THEORY
PR: CC. Congruences, quadratic residues, selected topics.

M A S 5311 ALGEBRA I
PR: MAC 3413, MAS 5146, M HF 3102. An introduction to group theory.

M A S 5312 ALGEBRA II
PR: MAA 5311. An introduction to Galois theory.

MAT 5932 SELECTED TOPICS
PR: Seniors or Junior Standing and CC. Each topic is a course of study. (1-4)

MAT 6908 INDEPENDENT STUDY
PR: Independent study in which student must have a contract with an instructor. Repeatable. (S/U only.)

MAT 6919 DIRECTED RESEARCH
PR: Graduate level. Repeatable. (S/U only.)

MAT 6915 GRADUATE RESEARCH METHODS
Special course to be used primarily for the training of graduate research assistants. Variable credit, repeatable. Limited to a cumulative total of 5 credits per student. (S/U only.)

MAT 6932 SELECTED TOPICS
PR: CC. 01-Topology, 02-Analysis, 03-Algebra, 04-Related Mathe­matics, 05-Graph Theory, 06-Number Theory, 07-Mathematics for Physics, 08-Probability, 09-Statistics, 10-Complex Analysis.

MAT 6939 GRADUATE SEMINAR
PR: Direction of this seminar is by a faculty member. Students are required to present research papers from the literature. (S/U only.)

MAT 6971 THESIS: MASTER'S
Repeatable. (S/U only.)

MAT 7912 DIRECTED RESEARCH
PR: GR. Ph. D. level. Repeatable. (S/U only.)

MAT 7980 DISSERTATION: DOCTORAL
PR: Must be admitted to Doctoral Candidacy. Repeatable. (S/U only.)

M H F 5302 ELEMENTARY MATHEMATICAL LOGIC
PR: CC. Truth tables, tautologies, quantifiers, rules of inference, informal proofs in mathematics.

M H F 5404 HISTORY OF MATHEMATICS
PR: MAC 3413. Traces the development of mathematical ideas through history. Special emphasis is placed on those concepts which led to the Calculus. This course is open to majors and non-majors alike.

M H F 6306 LOGIC AND FOUNDATIONS
PR: CC. Propositional calculus, Post's theorem, first order and equality calculus, models, completeness and consistency theorems. Godel's theorems, recursive functions.

M T G 5316 TOPOLOGY I

M T G 5317 TOPOLOGY II
PR: MTG 5316. Continuation of MTG 5316.

M T G 6326 ADVANCED TOPOLOGY
PR: MTG 5317 and CC. Function spaces, compactifications, covering spaces, other topics.

S TA 5166 APPLIED STATISTICAL METHODS
PR: STA 4442 and CC. Statistical inference in physical and engineering sciences utilizing sample probability distributions, point and interval estimation and test of significance, 3 lecture periods and 1 lab period.

S TA 5167 APPLIED STATISTICAL METHODS II
PR: STA 5166. Applications of analysis of variance and covariance, regression analysis use of x² for contingency tables and goodness of fit procedures, 3 lecture periods and 1 lab period.

S TA 5206 STOCHASTIC PROCESS
PR: STA 5447. Basic concepts of stochastic processes, finite Markov chains, random walks with applications to life sciences and engineering.

S TA 5324 MATHEMATICAL STATISTICS
PR: STA 5447. Sample distribution theory, point & interval estimation theory, and theory of hypothesis testing.

S TA 5446 PROBABILITY THEORY I
PR: MAA 4212 or MAA 5306. Concepts of probability theory, axioms of probability, random variables, probability distributions and distributions of functions of stochastic variables.

S TA 5447 PROBABILITY THEORY II

S TA 5526 NON-PARAMETRIC STATISTICS
PR: STA 5326, CC. Theory and methods of non-parametric statistics, order statistics, tolerance region and their applications.
STA 6208 LINEAR STATISTICAL MODELS (3)
PR: STA 5167 or STA 5326. Distribution theory for linear statistical models. Results applied to multiple regression, polynomial regression, balanced and unbalanced experimental designs, analysis of covariance.

STA 6746 MULTIVARIATE STATISTICAL ANALYSIS (3)
PR: STA 6876. The multivariate normal, estimation of mean vector and covariance matrix, correlation analysis, generalized $x^2$-statistics and testing of the general linear hypothesis.

STA 6876 TIME SERIES ANALYSIS (4)
PR: STA 5326. Basic concepts of the theory and applications of time series analysis to include filtering, forecasting modeling, spectral analysis of univariate realizations with applications.

**MEDICAL TECHNOLOGY**


**UNDERGRADUATE COURSES**

MLS 3031 INTRODUCTION TO MEDICAL TECHNOLOGY (1)
PR: Senior standing and acceptance into an approved affiliated hospital. An introduction to the principles and practices of medical technology and their relationship to patient care. A hospital internship course for medical technology majors.

MLS 4215 CLINICAL MICROSCOPY I (2)
PR: Senior standing and acceptance into an approved affiliated hospital. Lecture and laboratory instruction such as urinalysis, parasitology, and histological technique. A hospital internship course for medical technology majors.

MLS 4216 CLINICAL MICROSCOPY II (4)
PR: Senior standing and acceptance into an approved affiliated hospital. A continuation of MLS 4215. A hospital internship course for medical technology majors.

MLS 4309 HEMATOLOGY (6)
PR: Senior standing and acceptance into an approved affiliated hospital. Introduction to the study of hematological disorders. A hospital internship course for medical technology majors.

MLS 4405 CLINICAL BACTERIOLOGY (6)
PR: Senior standing and acceptance into an approved affiliated hospital. Lecture and laboratory instruction in the methods of study of bacterial morphology, physiology, and classification of bacteria, especially those related to disease. A hospital internship course for medical technology majors.

MLS 4545 CLINICAL CHEMISTRY II (4)
PR: Senior standing and acceptance into an approved affiliated hospital. A continuation of MLS 4625C, including procedures required for serology, transfusions, blood preservation, and antibody studies. A hospital internship course for medical technology majors.

MLS 4605C CLINICAL LABORATORY INSTRUMENTAL ANALYTICAL TECHNIQUES (1)
PR: Senior standing and acceptance into an approved affiliated hospital. Instruction in the use of special laboratory instruments such as automated instruments, use of radioisotopes, and techniques of measuring basal metabolism. A hospital internship course for medical technology majors.

MLS 4625C CLINICAL CHEMISTRY I (6)
PR: Senior standing and acceptance into an approved affiliated hospital. Instruction in the techniques and procedures for use in clinical chemical analyses. A hospital internship course for medical technology majors.

**PHYSICS**


**UNDERGRADUATE COURSES**

PHS 3101 MATHEMATICAL ANALYSIS OF PROBLEMS IN MECHANICS AND ELECTRICITY (2)
PR: One year of non-calculus general physics. CR: MAC 3283 or MAC 3413. Designed for students who have not had the general physics sequence using calculus. Review of mechanics and electricity emphasizing problems which involve the use of calculus. Semesters: Fall, Spring.

PHS 3102 PROBLEMS IN GENERAL PHYSICS I (1)
CR: PHS 3040. First semester of two semester sequence of general physics problems. A course designed to allow those interested students to investigate problems not covered in the general physics course. Lec. Semesters: Fall, Spring, Summer.

PHS 3103 PROBLEMS IN GENERAL PHYSICS II (1)

PHS 4802 ACOUSTICS FOR COMMUNICACOLOGY (3)
Non-Mathematical study of general wave motion and associated phenomena. Acoustic resonance and response of the ear. Introduction to harmonic analysis of complex wave-forms with application to testing with pure tones and various types of waves. Acoustic instrumentation. (No credit for science majors.) Semesters: Fall, Spring.

PHS 4814 FUNDAMENTAL ACOUSTICS (3)
PR: PHS 3223 or CI. Vibrations of elastic media, sound generation and propagation. Acoustical, electrical, and mechanical energy conversion. Underwater acoustics. Fall Semester.

PHS 4828 ENERGY AND ENVIRONMENTAL PROBLEMS (3)
Social, economic, and political aspects of energy, including energy conservation, energy alternatives, personal use of solar energy, and changing life styles. Field trips and audio-visual presentations play important roles.

PHS 2050, 2050L GENERAL PHYSICS AND LABORATORY (3,1)
First semester of a two semester sequence of general physics (mechanics, heat, electricity, wave motion, optics) and laboratory for science students. Must be taken concurrently and, if dropped, then dropped simultaneously. Semesters: Fall, Spring, Summer.

PHS 2051, 2051L GENERAL PHYSICS AND LABORATORY (3,1)
CR: PHS 2050, PHS 2050L. Second semester of general physics and lab for science students. Must be taken concurrently and, if dropped, then dropped simultaneously. Semesters: Fall, Spring, Summer.

PHS 3020 CONCEPTUAL PHYSICS (4)
A qualitative, non-mathematical investigation of physics, emphasizing its influence on life today. (No credit for physics or mathematics majors) Semesters: Fall, Spring, Summer.

PHS 3040, 3040L GENERAL PHYSICS AND LABORATORY (3,1)
CR: MAC 3281 or MAC 3411. First semester of a two semester sequence of general physics (mechanics, wave motion, sound, thermodynamics, geometrical and physical optics, electricity, and magnetism) and laboratory for physics majors and engineering students. Must be taken concurrently and, if dropped, then dropped simultaneously. Semesters: Fall, Spring, Summer.

PHS 3040, 3041L GENERAL PHYSICS AND LABORATORY (3,1)
CR: MAC 3282 or MAC 3412. PHS 3040, PHS 3040L. Second semester of general physics and laboratory for physics majors and engineering students. Must be taken concurrently and, if dropped, then dropped simultaneously. Semesters: Fall, Spring, Summer.

PHS 3123 MODERN PHYSICS (3)

PHS 3223 MECHANICS I (3)
CR: MAC 3283 or MAC 3413 and either CR: PHS 3040 or CR: PHS 3101. First semester of a two semester sequence. Review of vector algebra and vector calculus. Dynamics of single particles and systems of particles; central forces; rotation about an axis; statics; and virtual work. Fall Semester.

PHS 3323C ELECTRICITY AND MAGNETISM I (4)
CR: PHS 3041, MAC 3283 or MAC 3413. Electromagnetic circuits; resistance, capacitance, inductance, direct and alternating current circuits, thermoelectricity, and instrumentation. Laboratory. First semester of sequence PHS 3323C, PHS 4324.
PHY 3424 OPTICS
PR: PHS 3101 or PHY 3041; CR: MAC 3283 or MAC 3413. Reflection, refraction, dispersion, interference, diffraction, polarization, and laboratory. Fall Semester.

PHY 3822L INTERMEDIATE LABORATORY
PR: PHS 3101 or PHY 3041 or equivalent. Experiments in modern physics, including the area of atomic, nuclear, solid state and wave phenomena. Fall Semester.

PHY 4224 MECHANICS II
PR: PHY 3223; CR: MAP 4302. Continuation of PHY 3223. Coupled oscillators and normal modes; moving coordinate systems; Lagrange’s and Hamilton’s equations; inertia tensor; general rotation of rigid bodies. Spring Semester.

PHY 4324 ELECTRICITY AND MAGNETISM II

PHY 4404 Holography for Film Media
PR: Junior standing in any major of CC. Practical instruction and laboratory experience in the making of holograms. Qualitative theory of lasers and holography. (For non-majors.) Spring Semester.

PHY 4526 STATISTICAL PHYSICS

PHY 4604 QUANTUM MECHANICS I
PR: PHY 3123 or CR: Postulates, Schrodinger’s equation, one-dimensional problems, matrix mechanics, uncertainty principle, angular momentum, and central forces. First semester of sequence PHY 4604, PHY 5624. Fall Semester.

PHY 4744C ELECTRONICS FOR RESEARCH
PR: General Physics or CR. Direct and alternating current circuits, transients, rectification, amplification; feedback, pulse circuits, and integrated circuits, laboratory. (No credit for physics or mathematics majors.) Semesters: Fall, Spring.

PHY 4823L ADVANCED LABORATORY
PR: PHY 3822L. Experimental work primarily related to nuclear physics. Emphasis on modern physical experimental techniques employing some of the new types of equipment. Spring Semester.

PHY 4905 INDEPENDENT STUDY
PR: CI. Specialized, independent study determined by the student’s need and interest. The written contract required by the College of Natural Sciences specifies the regulations governing independent study. May be repeated. (S/U only.)

PHY 4910 UNDERGRADUATE RESEARCH
PR: Senior or advanced junior standing and CC. An individual investigation in the laboratory or library or both, under the supervision of the instructor. Credit hours and other contractual terms, are to be determined by student/instructor agreement. (S/U only.) Semesters: Fall, Spring, Summer.

PHY 4930 PHYSICS SEMINAR
PR: Senior or advanced junior standing or CC. All undergraduate physics majors must enroll in this course at least twice and are expected to attend all Physics Colloquia. (S/U only.) Semesters: Fall, Spring, Summer.

PHY 4936 SELECTED TOPICS IN PHYSICS
PR: Senior or advanced junior standing and CC. Each topic is a course in directed study and under the supervision of a faculty member.

GRADUATE COURSES

PHS 5113 METHODS OF THEORETICAL PHYSICS I
PR: MAP 4302 or CR. Applications of mathematical techniques to classical and modern physics. Vector spaces including Hilbert space, orthogonal functions, generalized functions, Fourier analysis, transform calculus, and variational calculus. Fall Semester.

PHS 5114 METHODS OF THEORETICAL PHYSICS II
PR: MAP 4302 or CR. Applications of mathematical techniques to classical and modern physics. Selected topics in complex analysis, differential and integral equations, numerical methods, and probability theory. Spring Semester.

PHS 5304 NUCLEAR PHYSICS
PR: PHY 4604 or CR. Nuclear forces, nuclear models, nuclear structure, decay, nuclear reactions, and high energy physics. Spring Semester.

PHS 5405 SOLID STATE PHYSICS I

PHS 5505 PLASMA PHYSICS I
PR: PHY 4324 or CR. Introduction to Boltzmann, magnetohydrodynamic and orbit approaches to plasmas. Longitudinal and electromagnetic waves in plasmas. Collisions and radiation. Instabilities. Fall Semester.

PHS 6136 PHYSICAL APPLICATIONS OF GROUP THEORY
PR: PHS 5113 or CR. Matrices, symmetry elements and point groups, reducible and irreducible representations, molecular vibrations, selection rules, rotation groups and atomic levels, molecule orbitals and electronic energies, space groups and spectra of crystals, crystal field theory and symmetry. (Offered alternate years.)

PHS 6204 ATOMIC AND MOLECULAR SPECTRA
PR: PHY 4604 or CR. Hydrogen atom, one electron systems, central field and vector models, perturbations, Zeeman and Stark effect, hyperfine structure, atomic structure calculations, diatomic spectra, rotational and vibrational analyses, intensities, temperatures from spectra, isotope effects. Fall Semester.

PHS 6426 SOLID STATE PHYSICS II
PR: PHY 5405 or CR. Optical, electrical and magnetic properties of insulators, superconductivity, imperfections in solids. Second semester of sequence PHS 5405, PHS 6426. Fall Semester.

PHS 6525 PLASMA PHYSICS II
PR: PHS 5505 or CR. An analytical study of the various types of wave phenomena in plasmas describable by the continuum equations, the Boltzmann-Vlasov equation or the Boltzmann equation. Spring Semester.

PHS 6607 THEORY OF RELATIVITY
PR: PHS 5113 or CR. The special and general theory of relativity, including the gravitational field equations, applications of the special theory, experimental tests of the general theory and various topics of current research interest. (Offered alternate years.)

PHY 5624 QUANTUM MECHANICS II
PR: PHY 4604 or CR. Symmetries, identical particles, scattering, approximation methods, Dirac equation, field quantization. Spring Semester.

PHY 5722C ELECTRONICS

PHY 5937 SELECTED TOPICS IN PHYSICS
PR: Senior or advanced standing and CC. Each topic is a course in directed study under the supervision of a faculty member.

PHY 6246 CLASSICAL MECHANICS
PR: PHS 5113 or CR. Dynamics of particles and systems of particles, Lagrange’s equation, central forces, rigid body dynamics. Fall Semester.

PHY 6346 ELECTROMAGNETIC THEORY I
PR: PHY 4325 or CR. Electrostatics, magnetostatics, potential and boundary value problems. Maxwell’s equations. First semester of sequence PHY 6346, PHY 6347. Fall Semester.

PHY 6347 ELECTROMAGNETIC THEORY II
PR: PHY 6346 or CR. Electromagnetic waves, wave guides and resonant cavities, diffraction, relativistic-particle kinematics and dynamics, plasmas and magnetohydrodynamics. Spring Semester.

PHY 6449 FOURIER OPTICS AND SYSTEMS
PR: Linear Systems Analysis (EEL 4102) or PHS 5113. A study of optical applications of linear systems and Fourier transforms.

PHY 6536 STATISTICAL MECHANICS

PHY 6846L EXPERIMENTAL PHYSICS
PR: Graduate standing. Laboratory techniques frequently required in experimental research. Includes manipulation of glass, production and measurement of vacuums, production and measurement of thin films, and use of various machine tools. Fall Semester.

PHY 6999 INDEPENDENT STUDY
PR: Independent study in which student must have a contract with an instructor. Repeatable. (S/U only.)

PHY 6911 DIRECTED RESEARCH
PR: GR. Master’s level. Repeatable. (S/U only.)

PHY 6935 GRADUATE SEMINAR
All physics graduate students are expected to enroll in this course Sem. 1 each year. (S/U only) Semesters: Fall, Spring, Summer.

PHY 6938 SELECTED TOPICS IN PHYSICS (1-10)
PR: CC. Each topic is a course in directed study under the supervision of a faculty member.

PHY 6940 GRADUATE INSTRUCTION METHODS (1-3)

Special course to be used primarily for the training of graduate teaching assistants. Variable credit, repeatable. Limited to a cumulative total of three credits per student. (S/U only.)

COLLEGE OF NURSING

NURSING


UNDERGRADUATE COURSES

HUN 3201 NUTRITION (3)
PR: Course work in chemistry and biology or, permission of faculty. Open to majors and non-majors. The study of fundamental principles of normal nutrition as they relate to human life and growth from conception through senescence, interpretation of current nutrition information, and application of nutrition knowledge in the establishment of good eating habits.

NUR 3130 NURSING PROCESS II (2)
PR: Permission of faculty. Development of the nursing process as it relates to normal and high risk childbearing families, maturing families with children, and families with complex health problems. Integrates pathophysiology, nutrition, pharmacology, and essential psychomotor skills of all ages.

NUR 3130L NURSING INTERVENTION II (3)
PR: Permission of faculty. Clinical nursing practice linked with Nursing Process II and focuses on maturing families and their health needs. Incorporates psychomotor skills, nutrition pharmacology, psychosocial and community aspects.

NUR 3321 NURSING PROCESS III (2)
PR: Permission of faculty. Development of nursing process as it relates to mental health-psychiatric nursing needs of clients. Includes pathophysiology, nutrition, pharmacology and essential psychomotor skills of all ages.

NUR 3321L NURSING INTERVENTION III (2)
PR: Permission of faculty. Clinical nursing practice course linked to Nursing Process III. Focuses on meeting the mental health-psychiatric nursing needs of clients of all ages. Includes pathophysiology, nutrition, pharmacology, essential psychomotor skills and community aspects.

NUR 3612 NURSING PROCESS I (3)
PR: Permission of faculty. Introduction to the nursing process and its application with stable families in the childbearing and child-rearing years. Essential psychomotor skills will be included.

NUR 3612L NURSING INTERVENTION I (2)
PR: Permission of faculty. Clinical nursing practice focuses on healthy families in a variety of settings. Includes essential psychomotor skills, nutrition, pharmacology, psychosocial and community aspects.

NUR 3641L NURSING PRACTICUM I (3)
PR: All preceding courses in prescribed curriculum plan or permission of Dean. Clinical practice providing experience in application of the nursing process with selected multi-problem individuals and families in primary care settings.

NUR 3641 NURSING PROCESS IN PRIMARY CARE (3)
PR: RN students only. Admission to major or faculty permission. Focus on use of assessment skills and nursing process in serving healthy and multi-problem clients in primary care settings. Functional skills examination included.

NUR 3722C CLIENT ASSESSMENT I (2)
PR: Admission to nursing major or permission of faculty. Introduces knowledge and skills essential for biopsychosocial assessment of individuals in primary, secondary and tertiary care settings with emphasis on history-taking and physical assessment. Includes practice of physical assessment skills.

NUR 3723C CLIENT ASSESSMENT II (2)
PR: Permission of faculty. Expands knowledge and skills essential for biopsychosocial assessment of needs of clients and families in primary, secondary, or tertiary care settings with emphasis on data collection from secondary sources and interpretation of data with respect to clients' nursing needs.

NUR 4430 NURSING PROCESS IV (1)
PR: Permission of faculty. Introduction to nursing process of the well elderly with clients in primary care settings. Included are theories and changes in aging with socio-economic factors affecting the health and care of the elderly.

NUR 4430L NURSING INTERVENTION IV (1)
PR: Permission of faculty. Clinical nursing practice in primary care settings. Includes use of multiple essential assessment skills, development of therapeutic relationships, nutrition and psychosocial health aspects with well elderly.

NUR 4636 NURSING PROCESS V (2)
PR: Permission of faculty. Introduction to nursing with clients in secondary and tertiary care settings, including fluid and electrolyte balance, surgical care cycle and disturbances in cell growth and proliferation. Includes pathophysiology, nutrition, psychosocial aspects, pharmacology and psychomotor skills.

NUR 4636L NURSING INTERVENTION V (3)
PR: Permission of faculty. Clinical nursing practice in secondary care settings (linked to Nursing Process V). Includes essential psychomotor skills, pharmacology, nutrition, and psychosocial health aspects.

NUR 4651 NURSING PROCESS VI (2)
PR: Permission of faculty. Development of the nursing process for clients of all ages (including mother and infants) with problems arising from electrolyte, metabolic, endocrine and genitourinary disturbances. Includes pathophysiology, nutrition, pharmacology, essential psychomotor skills, and psychosocial and community health aspects.

NUR 4651L NURSING INTERVENTION VI (2)
PR: Permission of faculty. Clinical nursing practice in secondary and/or tertiary care settings (linked to Nursing Process VI) with clients of all ages with problems arising from electrolyte, metabolic, endocrine and genitourinary disturbances. Includes pathophysiology, nutrition, pharmacology, essential psychomotor skills, psychosocial and community health aspects.

NUR 4652 NURSING PROCESS VII (2)
PR: Permission of faculty. Development of the nursing process for clients of all ages with problems arising from disturbances in oxygenation. Includes pathophysiology, nutrition, pharmacology, psychosocial, essential psychomotor skills and community health aspects.

NUR 4652L NURSING INTERVENTION VII (2)
PR: Permission of faculty. Clinical nursing practice in secondary and/or tertiary care settings (linked to Nursing Process VII) with clients of all ages with problems arising from disturbances in oxygenation. Includes essential psychomotor skills, pathophysiology, nutrition, pharmacology, psychosocial and community health aspects.

NUR 4653 NURSING PROCESS VIII (2)
PR: Permission of faculty. Development of the nursing process for clients of all ages with problems arising from disturbances in coordination, perception, or sensory function. Includes pathophysiology, nutrition, essential psychomotor skills, pharmacology, psychosocial and community aspects.

NUR 4653L NURSING INTERVENTION VIII (2)
PR: Permission of faculty. Clinical nursing practice in secondary or tertiary care settings (linked to Nursing Process VIII) with clients of all ages with problems arising from disturbances in coordination, perception or sensory function. Includes pathophysiology, essential psychomotor skills, nutrition, pharmacology, psychosocial and community aspects.
NUR 4654 NURSING PROCESS IN COMPLEX SITUATIONS (4)  
PR: RN. Previous courses in sequence or permission of Dean. Content focuses on clinical management of clients of all ages with common and complex health-illness problems.

NUR 4654L NURSING PRACTICUM II (4)  
PR: RN. Permission of Dean. Application of theory from NUR 4654 in management of care for clients with complex health problems in a variety of health care settings.

NUR 4910C INDEPENDENT STUDY (1-5)  
PR: Open to majors and non-majors. Individual or group investigation of problems relevant to the health of individuals or groups. Project requirements individually planned with faculty preceptor. May be repeated to maximum of 5 credits.

NUR 4930 SELECTED TOPIC IN NURSING (2-8)  
PR: Junior or senior standing or permission of faculty. Content will depend upon student demand and faculty interest and may focus on any area relevant to nursing practice. May involve class, seminar, and/or clinical laboratory and may be repeated for different topics.

*NUR 4943C NURSING PRACTICUM III (5)  
PR: All preceding courses in prescribed curriculum plan or permission of Dean. Individually planned experience in a clinical and/or functional area of professional nursing which is related to student's professional goals. Associated seminars and/or institutes. (S/U only.)

NUR 4943L PRECEPTORSHIP (6)  
PR: Permission of faculty. Concentrated clinical nursing practice under preceptorship guidance. The nature and goals of the experience will be determined collaboratively by students, faculty and personnel from cooperating agencies where students elect experience.

NUU 3500 NURSING CORE I (3)  
PR: Admission to nursing major or permission of faculty. The first of a series of courses that focus on progressive development of professional nursing roles and responsibilities and its relationship to the role of other health care professionals. Includes examination of theories relevant to professional nursing practice (communication, systems, leadership, scientific methodology, role learning, change, stress), historical development of nursing, and trends in nursing and health care, and ethical-legal aspects of health care.

NUU 3501 NURSING CORE II (2)  
PR: Permission of faculty. Continuation of Nursing Core I.

NUU 3502 NURSING CORE III (2)  
PR: Permission of faculty. Continuation of previous core courses.

NUU 4133 TRANSCULTURAL NURSING (2)  
PR: Open to both students and caregivers in health-related fields. Designed to assist students to become aware of own values as related to various cultural groups and to identify health practices and beliefs of these groups, health resources available and adaptive measures by caregivers to meet their needs.

*NUR 4550 NURSING INQUIRY I (2)  
PR: All preceding courses in prescribed curriculum plan or permission of Dean. This course will emphasize the relationship between research and the improvement of nursing practice and health care. Attention will be directed toward the need for research in nursing, areas currently being investigated, ethical issues, the research process, and the implementation of the results of nursing research.

NUU 4504 INTERMEDIATE NURSING CORE (4)  
PR: Admission to the major. Designed to assist registered nurses in building on previous knowledge and experience in the following areas: research, roles, issues, and historical developments in nursing: ethico-legal matters; leadership and management; quality assurance; health team dynamics.

NUU 4505 NURSING CORE IV (2)  
PR: Permission of faculty. Continuation of previous core courses with emphasis on issues and trends related to nursing roles in the health care delivery system and on nursing research.

NUU 4506 NURSING CORE V (3)  
PR: Permission of faculty. Continuation of previous core courses with continued research emphasis and seminars related to problems of transition from student to practitioner including reality shock, use of supervision, self-evaluation, professional development and setting career goals.

*Courses available only to students currently enrolled.

GRADUATE COURSES

NGR 6030C (formerly NUR 6751C) ADULT HEALTH ASSESSMENT (3)  
PR: Admission to program or permission of faculty. Advanced Physiological and Psychological assessment skills and includes a theoretical and practical approach based on nursing process.

NGR 6120 (formerly NUU 6216) MANAGEMENT IN CLINICAL NURSING PRACTICE (2)  
PR: Admission to program or permission of faculty. Focuses on theory development in nursing, including theory development, relationships of theoretical frameworks, and analysis of conceptual models as a basis for nursing diagnosis.

NGR 6140 (formerly NUR 6270) ADVANCED PHYSIOLOGIC ASSESSMENT (4)  
PR: Admission to program or permission of faculty. Focus on cellular physiology and the feedback and control mechanism of bodily functions at the cellular, organ and system level.

NGR 6141 (formerly NUR 6721) ADVANCED PATHIOPHYSIOLOGY (2)  
PR: Advanced Physiologic Assessment. A conceptual approach which focuses on disease mechanisms to establish a sound scientific base for clinical assessment and management of common health problems of adults.

NGR 6150 (formerly NUR 6227) PHARMACOLOGY FOR ADVANCED NURSE CLINICIANS (2)  
PR: Permission of Faculty. Concentrated clinical nursing practice (preceptorship) under faculty guidance. The nature and goals of the experience will be determined collaboratively by students, faculty and personnel from cooperating agencies where students elect experience.

NGR 6155 (formerly NUR 6293) FACTORS INFLUENCING HEALTH CARE (2)  
PR: Admission to program or permission of faculty. An interdisciplinary course that focuses on contemporary social, political and economic issues related to health care and legal-ethical concepts applicable to the decision-making process in nursing practice, education and research.

NGR 6200C (formerly NUR 6507C) ADULT NURSING (5)  
PR: Advanced Physiologic Assessment. Exploration and testing of theoretical knowledge of growth and development in adulthood (rhythms, immunology and inflammation, pain, and abuse) and application in advanced adult nursing.

NGR 6250 (formerly NUR 6513) GERONTOLOGICAL NURSING I (3)  
PR: Permission of faculty. This foundation course in gerontological nursing emphasizes the physiological and psychological aspect of nursing of the well-elderly, including functional assessment.

NGR 6251 (formerly NUR 6514) GERONTOLOGICAL NURSING II (3)  
PR: Social Policy in Aging or permission of faculty. Theoretical and clinical experience which emphasizes the health maintenance and environmental interaction of the well-elderly.

NGR 6252 (formerly NUR 6515) ISSUES IN GERONTOLOGY (2)  
PR: Admission to program or permission of faculty. A multidisciplinary focus on current developments in gerontology in the fields of biology, psychology, medicine, nutrition, economics, adult education, sociology and nursing.

NGR 6253 (formerly NUR 6517) GERONTOLOGICAL NURSING PRACTICUM I (4)  
PR: Permission of faculty. Clinical practicum which emphasizes effective nursing intervention in acute and chronic illness in the elderly including: treatment of illness, prevention of complications, rehabilitation and health education.

NGR 6254 (formerly NUR 6518) GERONTOLOGICAL NURSING PRACTICUM II (4)  
PR: Gerontological nursing sequence course or permission of faculty. Practicum experience emphasizes leadership/management principles which assist the gerontological nurse in health care delivery of the elderly.

NGR 6255 (formerly NUR 6516) PHYSIOLOGICAL AND PSYCHOLOGICAL ASPECTS OF GERONTOLOGICAL NURSING (2)  
PR: Admission to program or permission of faculty. A study of the physiological and psychological changes in gerontological patients and....
NGR 6703 (formerly NUU 6222) ADVANCED ROLE DEVELOPMENT  
PR: Permission of faculty. Combined lecture/seminar focusing on an exploration of role theory and its application to advanced nursing roles.  

NGR 6710 (formerly NUU 6230) CURRICULUM AND INSTRUCTION IN NURSING EDUCATION  
PR: Permission of faculty. Trends and issues in curriculum development, faculty role, instructional strategies, internal and external factors influencing decisions in curriculum and instruction and implications for their utilization in nursing programs.

NGR 6712 (formerly NUU 6171) NURSING EDUCATION IN INSTITUTIONS OF HIGHER EDUCATION  
PR: Permission of faculty. An examination of the historical development of nursing education within higher education, issues in higher education and their effect on nursing education, and the future role of nursing education in institutions of higher education.

NGR 6800 (formerly NUU 6370) NURSING RESEARCH  
PR: Theory Development in Nursing. Includes an overview of research in nursing, identification of researchable problems, design and analysis of studies, proposals and research methodologies and strategies applicable to nursing.

NGR 6905 (formerly NUR 6905) INDEPENDENT STUDY  
Repeatable. (S/U only.)

PUBLIC HEALTH PROGRAM

HEALTH POLICY AND MANAGEMENT

GRADUATE COURSES

ECP 6536 HEALTH ECONOMICS  
PR: ECO 2023 or equivalent and CI. The microeconomic analysis of the structure of the health care industry and the economic incentives facing physicians, patients, and hospitals will be studied.

HSC 6160 HEALTH CARE ORGANIZATION AND MANAGEMENT I  
PR: CI. General principles of planning, management, evaluation, and behavior of public and private health care organizations at the local, state, national, and international levels.

HSC 6170 THEORY AND METHODS OF HEALTH PROGRAM PLANNING AND EVALUATION  
PR: HSC 6160 or CI. An in-depth orientation to the concepts of planning and evaluation and their application to decision-making in local, regional, state, national, and international health programs.

HSC 6175 HEALTH SERVICES PLANNING AND EVALUATION  
PR: HSC 6441 or CI. Study of health services planning concepts, methods, and evaluation, with an emphasis on facilities and manpower planning, providing an in-depth orientation to information requirements for health planning, and methods to cover gaps of information.

PHC 6101 HEALTH CARE ORGANIZATIONS  
PR: HSC 6160 or CI. This course presents an overview of principles in the design and structure of health care organizations and their relationship to the regulatory environment at the Federal, State and Local levels.

PHC 6110 INTERNATIONAL HEALTH AND HEALTH CARE SYSTEMS  
PR: CI. Study of the global health problems and trends, translated to needs and demands; socio-economic and political impact on health delivery; prevailing international systems compared to the U.S. system; the role of international health agencies.

PHC 6150 HEALTH POLICY ANALYSIS  
PR: HSC 6160. A detailed study of policies, policy making, and policy analysis in health services and their relationship to health planning, management, and health care delivery.

EPIDEMIOLOGY AND HEALTH STATISTICS

HSC 6412 EPIDEMIOLOGY AND HEALTH STATISTICS  
PR: CI. Study of quantitative methods to evaluate the distribution and determinants of disease in populations and to assess data and evaluate implications for nursing practice.

Specialized individualized study determined by students' needs and interests which requires an approved contract with a faculty member.

GND 6931 (formerly NUR 6931) SELECTED TOPICS  
(1-4) Seminars for the analysis and discussion of selected issues in nursing of topical concern to student and faculty.

GND 6945 (formerly NUR 6945) PRACTICUM IN CLINICAL NURSING I  
PR: Adult Nursing. Intensive directed study in advanced professional nursing which focuses on testing of nursing theories, teaching strategies and management of selected patients.

GND 6946 (formerly NUR 6946) PRACTICUM IN CLINICAL NURSING II  
PR: Practicum in Clinical Nursing I. A summative clinical experience which focuses on the role of the advanced nurse clinician as a clinical specialist or adult primary care nurse.

GND 6947 (formerly NUR 6947) PRACTICUM IN NURSING EDUCATION  
PR: Course requirements for nursing educational functional minor; permission of faculty. Instructional experiences which utilize educational concepts and instructional strategies in a variety of educational settings in nursing.

GND 6971 (formerly NUR 6971) THESIS: MASTER'S  
Repeatable. (S/U only.)

ENVIRONMENTAL AND OCCUPATIONAL HEALTH

HSC 6413 EPIDEMIOLOGY OF INFECTIOUS AND NON-INFECTION DISEASES  
(3) PR: HSC 6411 or CI. A study of the distribution and determinants of specific infectious and non-infectious human diseases of public health importance using epidemiological methods.

HEALTH EDUCATION

HES 6125 FOUNDATIONS OF HEALTH EDUCATION  
(3) PR: HES 6125. Study and application of techniques which facilitate learning of information to effectively influence health attitudes and behavior.

HES 6255 EDUCATIONAL TECHNIQUES FOR HEALTH EDUCATION  
(3) PR: HES 6125. Study and application of techniques which facilitate learning of information to effectively influence health attitudes and behavior.

HES 6275 PROGRAM DEVELOPMENT AND EVALUATION IN HEALTH EDUCATION  
(3) PR: HES 6125 or CI. Analysis, development, and evaluation of health education programs in various community settings.

ENVIRONMENTAL AND OCCUPATIONAL HEALTH

HSC 6431 OCCUPATIONAL HEALTH  
(3) CI. The study of historical, epidemiologic, administrative, and legal and clinical aspects of health workers and of the workplace.

HSC 6435 INDUSTRIAL HYGIENE  
(3) CI. A study of the recognition, evaluation, and control of the workplace affecting the health of employees.

HSC 6436 ENVIRONMENTAL AND OCCUPATIONAL HEALTH  
(3) PR: CI. The study of major environmental and occupational factors that contribute to development of health problems in industrialized and developed countries.

HSC 6455 SAFETY MANAGEMENT PRINCIPLES AND PRACTICES  
(3) PR: CI. The study of safety management as it relates to hazard identification, accident investigation and training, enabling the safety man-
AFRICAN AND AFRO-AMERICAN STUDIES

Director: F. U. Ohaegbulam; Professor: F. U. Ohaegbulam; Associate Professors: J. W. Dudley, K. R. Glover, J. C. Reniek; Other Faculty: S. Garcia, J. Smith, P. Stith, P. Taylor

UNDERGRADUATE COURSES

AFS 2001 INTRODUCTION TO AFRO-AMERICAN STUDIES

AFS 4150 AFRICA AND THE UNITED STATES
An examination of the historical and current political, economic, and cultural relations between the United States and Africa. (Also listed under International Studies.)

AFS 4331 SOCIAL INSTITUTIONS AND THE GHETTO
A study of social institutions as they relate to the American Black ghetto, with emphasis on social systems operating within and on the ghetto.

AFS 4335 BLACK WOMEN IN AMERICA
PR: WST 2010 or 2011, or AFS 2001, or CI. An interdisciplinary survey of the contemporary experience of black women in America, including the African roots, myths and realities surrounding that experience. (Offered for credit in Women's Studies or African and Afro-American Studies.

AFS 4900 DIRECTED READINGS
(2-3)
Independent readings in a particular area of African and Afro-American Studies, selected by student and instructor.

AFS 4931 SELECTED TOPICS IN AFRO-AMERICAN STUDIES
(1-3)
Topics offered are selected to reflect student needs and faculty interests, In depth study in such areas as the Black Student and the American

HSC 6560 PATHOBIOLOGY OF HUMAN DISEASE I
PR: CI. A basic study of broad pathological areas of biological injury, genetic and inborn errors of metabolism, and host-parasite relationships. In addition, the pathobiology of human disease is closely related to general biology in order to provide a strong foundation for the public health students.

HSC 6565 PATHOBIOLOGY OF HUMAN DISEASE II
PR: HSC 6560. For students with limited background in the biological sciences, particularly anatomy and physiology, and CI. Overview of the distinct pathogenesis and etiology of selected acute and chronic diseases and their preventive aspects and impacts on the health care system. Provides basic knowledge on disease and illness patterns and their relationship to health services planning.

HSC 6907 INDEPENDENT STUDY: PUBLIC HEALTH
(1-3)
PR: CI. Independent study determined by the student's needs and interests. May be repeated when subjects vary. (S/U only.)

HSC 6920 SOCIAL AND BEHAVIORAL SCIENCES APPLIED TO HEALTH
(3)
PR. CI. A review of the conceptual, empirical, and theoretical contributions of the social and behavioral sciences as they contribute to an understanding of health and illness.

HSC 6934 SELECTED TOPICS: PUBLIC HEALTH
(1-3)
PR: CI. The content of this course will be governed by student demand and instructor interest. May be repeated for credit for different topics only.

HSC 6945 SUPERVISED FIELD EXPERIENCE
(1-12)
PR. CI. Internship in a Public Health agency or setting. Application of administrative, program, and/or research models now employed in government and private Public Health organizations. (S/U only.)

HSC 6977 SPECIAL PROJECT: MASTER OF PUBLIC HEALTH
(1-3)
PR: CI. In depth study of a selected issue in Public Health. A topic will be selected by each student according to needs and interests. (S/U only.)

EDUCATIONAL PROCESS; the Black Experience in the Americas; European Expansion in Africa to 19th century; Contemporary Economic Problems in Africa.

AFH 3100 INTRODUCTION TO AFRICAN HISTORY
(3)
An outline survey of pre-colonial African history including a prefatory introduction to the use of primary sources (such as archaeology, oral tradition, cultural anthropology, comparative linguistics, documents) in reconstructing the African past. (Also listed under History.)

AFH 3200 AFRICAN HISTORY SINCE 1850
(3)
Survey of the colonial and post-colonial history of Africa. Emphasis on the impact of European and other alien influences on the continent, emergence of independent African states and post independence problems of nation building and economic development. (Also listed under History.)

AFS 3311 THE AFRICAN DIASPORA AND PAN-AFRICANISM
(3)
An examination of the African Diaspora and the influence of African culture and civilization on the growth and development of world culture; and the historical quest for racial and continental pan-Africanism including Garveyism.

AFS 4321 EDUCATIONAL DEVELOPMENT IN THE AFRICAN WORLD
(3)
An examination of educational systems and experiences of African peoples' cultural past and needs for their future. Attention to changing structures and functions of education as manifestations of governmental and societal needs and desires.

AFS 4910 RESEARCH AND FIELD STUDIES
(1-3)
A course linking the study pursued by the student with research and work projects in the Tampa Black community.

AMH 3571, 3572 AFRO-AMERICAN HISTORY
(3, 3)
A survey of the African-American history in the Western Hemisphere. Emphasis on the experience in North America (AMH 3571, 1943-1865; AMH 3572 1865-to present.)

CPO 4204 GOVERNMENT AND POLITICS OF AFRICA
(3)
Designed to provide the information and analytical tools necessary to interpret current Sub-Saharan African politics. Survey of political
organization in traditional African societies; politics under colonial rule; the struggle for independence, and post-independence politics.  

**CPO 4244 GOVERNMENT AND POLITICS OF EAST, CENTRAL AND SOUTHERN AFRICA**  
(3)  
In depth study of political developments, ideologies and modernization in East, Central and Southern Africa including race relations and white minority rule in Southern Africa.

**CPO 4254 GOVERNMENT AND POLITICS OF WEST AFRICA**  
(3)  
In depth study of government, political systems and processes in West Africa including political developments, ideologies, problems and prospects of political and economic development and military regimes in the area.

**ECP 4143 BLACK AMERICANS IN THE AMERICAN ECONOMIC PROCESS**  
(3)  
Brief economic history of Black Americans emphasizing the impact of racial discrimination and evaluating proposals for improvement as they apply to Black Americans and other minority groups.

**HUM 3420 ARTS AND MUSIC OF THE AFRICAN PEOPLE**  
(3)  
An examination of the visual arts—painting, sculpture, architecture and music of Sub-Saharan Africa; their meaning and impact on the arts and music of the Western World.

**INR 4254 AFRICA IN WORLD POLITICS**  
(3)  
Study of international relations in the new Africa including the relations of the new states with major world powers and their role in the United Nations.

**PHM 4120 CONTEMPORARY BLACK PHILOSOPHY**  
(3)  
Major themes and participants in the Black liberation movement since 1900.

**PUP 3313 BLACKS IN AMERICAN POLITICAL PROCESS**  
(3)  
An examination of the political experience of blacks in the American political process including their political socialization, and struggle to become effective participants in the American political process.

**GRADUATE COURSES**

**AFH 5205 SEMINAR: AFRICA FROM COLONIAL TIMES TO THE PRESENT**  
(3)  
PR: CI. An in-depth examination of Africa's colonial heritage and post-independence efforts at nation building, economic development and eradication of the remnants of colonialism, and other topics such as relations between African states and the former colonial powers and other major world powers.

**AFH 5295 SEMINAR: AFRICA CONTEMPORARY ISSUES**  
(3)  
PR: CI. An in-depth examination of major contemporary social and political issues in the African continent including their domestic and international dimensions.

**INR 5257 SEMINAR: AFRICA AND THE UNITED STATES IN WORLD AFFAIRS**  
(3)  
PR: CI. An in-depth examination of African-American relations since colonial days in the New World and in Africa with emphasis on the post World War II period.

**SSI 5934 SELECTED TOPICS**  
(1-3)  
PR: CI plus senior standing or graduate status. May be repeated. To provide advanced students with interdisciplinary study of selected topics. (Also offered under Social Sciences Interdisciplinary.)

**ANTHROPOLOGY**

Chairperson: G. Kushner; Professors: M.V. Angrosino, R.T. Grange, Jr., G. Kushner, A. Shiloh, J.R. Williams, A.W. Wolfe; Associate Professors: J.J. Smith, C.W. Wienker; Assistant Professors: S. Greenbaum, P.P. Waterman, N.M. White, L.M. Whiteford; Courtesy Faculty: Assistant Professor: J.D. Uzzell; Other Faculty: M.D. Vesperi.

**UNDERGRADUATE COURSES**

**ANT 2000 INTRODUCTION TO ANTHROPOLOGY**  
(3)  
The crosscultural study of the human species in biological and social perspective. Surveys the four major branches of anthropology: Physical anthropology (human biology), archaeology (the analysis of the prehistoric and historic remains of human cultures), anthropological linguistics (the analysis of language in its cultural context) and cultural anthropology (the crosscultural study of peoples living in the world today, be they in tribal, peasant, or urban societies.)

**ANT 3005 THE ANTHROPOLOGICAL PERSPECTIVE**  
(3)  
For non-anthropology majors only. Presents the basic concepts of anthropology as they are relevant to contemporary life. Aims at enabling the student to understand the anthropologist's crosscultural view of the human species as adapting through bio-social means to life on this planet. May not be counted for credit toward an anthropology major.

**ANT 3100 ARCHAEOLOGY**  
(3)  
PR: ANT 2000 or CI. The crosscultural study of humankind from its beginnings up to and including the historic period through the recovery, description, an analysis of the remains of past cultures and societies.

**ANT 3410 CULTURAL ANTHROPOLOGY**  
(3)  
PR: ANT 2000 or CI. Discussion of major methods and orientations to the crosscultural study of the world's peoples. Representative case studies are used to demonstrate variations in human adaptations and to encourage an appreciation of diverse values and lifestyles.

**ANT 3511 PHYSICAL ANTHROPOLOGY**  
(3)  
PR: ANT 2000 or CI. Non-human primates, the fossil record and the biology of races are surveyed in order to understand the human animal as a product of biosocial phenomena. Anatomy, genetics, culture and evolution are emphasized.

**ANT 3610 ANTHROPOLOGICAL LINGUISTICS**  
(3)  
PR: ANT 2000 or CI. The comparative study of language in its cultural context, especially emphasizing the role of language in the cultural interpretation of physical and social reality.

**ANT 4034 HISTORY OF ANTHROPOLOGICAL THEORY**  
(3)  
PR: Senior standing with major in anthropology or equivalent. The major concepts that form the anthropological view of humanity are viewed in historical perspective. Basic ideas of the western philosophical tradition are analyzed from the Greeks to the 19th century when they became incorporated into the new discipline of anthropology. 20th century anthropological developments on these themes are considered.

**ANT 4124 FIELD METHODS IN ARCHAEOLOGY**  
(4)  
PR: ANT 3000 or CI. Normally offered as part of a Summer Field Session. Students also take Florida Archaeology and Laboratory Methods in Archaeology. Emphasis on appropriate methods of archaeological excavation and recovery and recording of data.

**ANT 4133 UNDERWATER ARCHAEOLOGY**  
(3)  
PR: ANT 3000 or CI. Methods, theory and history of underwater archaeology. Diving history and physiology are considered. Emphasis on underwater archaeology as anthropology and the management of underwater archaeological resources.

**ANT 4153 NORTH AMERICAN ARCHAEOLOGY**  
(3)  
PR: ANT 3000 or CI. An examination of the evidence regarding the human settlement of North America from its beginnings through the development of aboriginal culture to the period of European conquest. Emphasis on the comparative study of material culture at selected sites from all time periods. No field work is involved.

**ANT 4158 FLORIDA ARCHAEOLOGY**  
(4)  
PR: ANT 3100 or CI. The content of prehistoric cultures such as Paleoindian, Weeden Island, and Safety Harbor are reviewed and examined in terms of their temporal and spatial relationships to each other and the Eastern U.S. Normally offered as part of a Summer Field Session. Students also take Field Methods in Archaeology and Laboratory Methods in Archaeology.

**ANT 4162 SOUTH AMERICAN ARCHAEOLOGY**  
(3)  
PR: ANT 3100 or CI. Describes and analyzes the sequence of cultural development in prehistoric South America. Cultures such as the Inca, Chavin, Mochica, Wari, Chimú are included. Emphasis on the environmental setting and the relationship between cultural ecology and the growth of civilization.

**ANT 4163 MESOAMERICAN ARCHAEOLOGY**  
(3)  
PR: ANT 3100 or CI. The chronological sequence from its beginnings through Protohistoric development is described and analyzed. Cultures such as the Maya, Aztec, Mixtec, Zapotec, Olmec, and Toltec are included, with emphasis on the environmental setting and the relationship between cultural ecology and the growth of civilization.

**ANT 4172 HISTORICAL ARCHAEOLOGY**  
(3)  
PR: ANT 3100 or CI. A survey and analysis of archaeology focused on the historic period. Laboratory research with data recovered from historic sites in addition to classwork.

**ANT 4180 LABORATORY METHODS IN ARCHAEOLOGY**  
(4)
PR: ANT 3100 or Cl. Normally offered as part of a Summer Field Session. Students also enroll in Florida Archaeology and Field Methods in Archaeology. Data recovered in excavation are cleaned, catalogued, identified, and analyzed in the laboratory.

ANT 4181 MUSEUM METHODS
PR: ANT 3100 and Cl. Design, preparation and installation of exhibits in the Department of Anthropology Teaching Exhibit Gallery. Emphasis on theory, research, design and construction. Discussion of museum-related issues such as administration and curation.

ANT 4182 CONTEMPORARY PROBLEMS IN ARCHAEOLOGY
PR: ANT 3100 or Cl. Focuses on the development of current archaeological method and theory. Examines the relationship between archaeology and the other branches of anthropology.

ANT 4226 ANTHROPOLOGY OF ART
PR: ANT 3410 or Cl. An examination of the relationship between the visual arts (sculpture, painting, masks, carving, etc.) and culture in non-Western societies. Emphasis on formal symbolic and functional reasoning and the production of cultural products and symbols of belief. Consideration of diffusion and change of art forms, commercial and ethnic arts, and role of the artist.

ANT 4231 FOLKLORE
PR: ANT 3410 or Cl. Focuses on ethnographic techniques and works of literature and art. The relationship between the visual arts and culture in contemporary society is studied cross-culturally. Main themes include the study of the development of culture; comparison of curing practices; medical systems in their relationship to ideology. Emphasis on understanding the role of medicine, and the behavior of both practitioners and patients in modern societies.

ANT 4241 ANTHROPOLOGY OF RELIGION
PR: ANT 3410 or Cl. The cross-cultural study of the social and cultural aspects of religion. Religious activities in traditional and modern societies, ethnographic photography as offered under Women's Studies. Focuses on the development of current anthropological method and theory. Examines the relationship between archaeology and the other branches of anthropology.

ANT 4302 WOMEN IN CROSS-CULTURAL PERSPECTIVE
PR: ANT 3410 or Cl. Focuses on various theories, models and beliefs about male-female behaviors and interactions in human cultures throughout history and in various societies in the world today. (Also offered under Women's Studies.)

ANT 4305 VISUAL ANTHROPOLOGY
PR: ANT 3410 or Cl. The use of photographic techniques for the cross-cultural recording and analysis of human activities. The study of ethnographic photography as both art and science, and the production of an anthropological study that expresses the goal of "visual literacy." Review and evaluation of the uses of visual techniques and the evidence they provide to the social scientist.

ANT 4312 CULTURES OF NATIVE NORTH AMERICA
PR: ANT 3410 or Cl. An examination of the evidence for the origin and antiquity of human beings in North America and of patterns of regional development until the period of contact with European colonists. Emphasis on varieties of ecological adaptation, social, political and religious systems, enucleation and worldview, folklore and visual art.

ANT 4316 CULTURES OF THE CONTEMPORARY UNITED STATES
PR: ANT 3410 or Cl. Special concerns include the American community, change and continuity in American values and lifestyles, and the historical background and recent manifestations of human problems in the United States.

ANT 4326 CULTURES OF MESOAMERICA
PR: ANT 3410 or Cl. Focuses on the history, contemporary values and interpersonal relationships, and patterns of rural and urban life in Mesoamerica. Guatemala and Mexico are emphasized.

ANT 4340 CULTURES OF THE CARIBBEAN
PR: ANT 3410 or Cl. Main themes include: the depopulation of the aboriginal population and the resettlement of the area via slavery, immigration; contemporary cultural attitudes; contemporary ethnic heterogeneity; economic problems of Third World microstates; development of a modern social and political consciousness. Religious diversity, music, the graphic arts and the literature of the contemporary Caribbean will also be surveyed.

ANT 4367 CULTURES OF THE MIDDLE EAST
PR: ANT 3410 or Cl. Delineates the environment and cultural ecology of the Middle East and analyzes how they have influenced the variety of subcultures of the region. The rise and fall of the "little tradition" of the enduring folk cultures will be analyzed. Contemporary culture change will be analyzed in a temporal perspective.

ANT 4432 CULTURE AND PERSONALITY
PR: ANT 3410 or Cl. The relationship between the individual and society is studied cross-culturally. Main themes include child-rearing practices, psychosomatic illness and curing. Discussion of theories and models of personality development with special reference to their applicability to the emerging field of cross-cultural mental health.

ANT 4442 URBAN ANTHROPOLOGY
PR: ANT 3410 or Cl. The cross-cultural study of urbanization, urbanism and human problems associated with metropolitan environments. Emphasis on the ethnography of city life and its relationship to the practical applications of urban research.

ANT 4462 MEDICAL ANTHROPOLOGY
PR: ANT 3410 or Cl. The study of health and human behavior in cross-cultural perspective. Main themes include: the impact of disease on the development of human culture; comparative studies of curing practices; medical systems in their relationship to ideology. Emphasis on understanding the role of medicine, and the behavior of both practitioners and patients in modern societies.

ANT 4495 RESEARCH METHODS IN CULTURAL ANTHROPOLOGY
PR: Cl. The stages in the development and execution of ethnographical research are discussed and practiced. Literature search, hypothesis formulation, selection of data collection techniques, elicitation of information, data analysis and report presentation are stressed. Research design models from the case literature are studied and supervised and research in the local community is designed and carried out.

ANT 4542 CULTURE AND PHYSICAL ANTHROPOLOGY
PR: ANT 3511 or Cl. A survey of the many ways in which behavior and technology influence sociobiology of prehistoric and modern human populations. Phenomena such as mating practices, urbanization and dietary habits are related to humans as animals. Behavior genetics and sociobiology are covered.

ANT 4552 EVOLUTIONARY BIOLOGY OF THE PRIMATES
PR: ANT 3511 or Cl. A survey of non-human primates focusing on biological and evolutionary patterns. Anatomy, genetics and evolution are stressed; major primate types are surveyed for their biological and ecological adaptations. Primate sociobiology is discussed.

ANT 4581 MODERN HUMAN PHYSICAL VARIATION
PR: ANT 3511 or Cl. An overview of evolution and biological variations of human races. Anatomical, morphological and physiological patterns are surveyed geographically. Cultural influences on racial biology are explored.

ANT 4586 PREHISTORIC HUMAN EVOLUTION
PR: ANT 3511 or Cl. A survey of the fossil record from the early primates through the ascent of Homo sapiens sapiens, focusing on the human lineage. Biosocial patterns and cultures of the past are also covered.

ANT 4620 LANGUAGE AND CULTURE
PR: ANT 3610 or Cl. Examines the relationships between language and culture in cross-cultural perspective. Explores the extent to which languages shape the world views of their speakers. Emphasis on the nature and degree of fit between linguistics and other cultural systems of knowledge.

ANT 4705 APPLIED ANTHROPOLOGY
PR: ANT 3410 or Cl. A review of approaches applying the anthropological perspective to contemporary human problems. Particular emphasis placed on public policy issues in United States society. Discussion of the historical development of applied anthropology, problems of economic development of the Third World, and the ethics of applied research and intervention.

ANT 4723 ANTHROPOLOGY AND EDUCATION
PR: ANT 3410 or Cl. Examines the processes through which human beings learn to become functioning members of a society. Crosscultural analysis of patterns of education based on crosscultural data. Discussion of problems of minority education and the teaching of anthropological methods in primary/secondary schools.

ANT 4750 ETHNOGRAPHY OF COMMUNICATION
PR: ANT 3610 or Cl. Examines the role of language and other modes of communication in the social settings of speech communities. Student field projects focus on the crosscultural description and analysis of patterns of communication in ethnographic contexts.

ANT 4901 DIRECTED READING
PR: Cl. Individual guidance in concentrated reading on a selected topic in anthropology. Contract required prior to registration.

ANT 4907 INDIVIDUAL RESEARCH
(1-4)
ANT 4930 SPECIAL TOPICS IN ANTHROPOLOGY (3)
PR: CI. Topics to be chosen by students and instructor permitting newly developing subdisciplinary special interests to be explored. May be repeated as topics vary.

ANT 4935 SENIOR SEMINAR IN ANTHROPOLOGY (3)
PR: Senior standing with major in anthropology, or equivalent. Through discussion of readings and student papers, students rethink and reevaluate anthropology as a discipline and the integration of its branches and specialty fields. Students develop and articulate their current images of anthropology.

GRADUATE COURSES

ANT 5904 DIRECTED READING (1-4)
PR: CI. Individual guidance in a selected research project. Contract required prior to registration.

ANT 5915 INDIVIDUAL RESEARCH (2-4)
PR: CI. Individual guidance in a selected research project. Contract required prior to registration.

ANT 5937 SEMINAR IN ANTHROPOLOGY (2-4)
PR: Graduate standing. Topics to be chosen by students and instructor.

ANT 6186 SEMINAR IN ARCHAEOLOGY (2)
PR: Graduate standing. One of four core courses required of all students. A critical survey of archaeology emphasizing contributions to applied anthropology. Open to non-majors.

ANT 6196 METHODS IN PUBLIC ARCHAEOLOGY (3)
PR: Graduate standing. Field techniques, methods of collection, analysis, and interpretation of data. May be repeated up to 6 credit hours as topics vary. Open to non-majors. Lec.-lab, field trips.

ANT 6197 SELECTED TOPICS IN PUBLIC ARCHAEOLOGY (3)
PR: Graduate standing. Current topical issues in public archaeology. May be repeated up to 6 credit hours as topics vary. Open to non-majors.

ANT 6198 REGIONAL PROBLEMS IN PUBLIC ARCHAEOLOGY (3)
PR: Graduate standing. Contemporary problems in public archaeology in the context of a specific region. May be repeated up to 6 credit hours as topics vary. Open to non-majors.

ANT 6447 SELECTED TOPICS IN URBAN ANTHROPOLOGY (3)
PR: Graduate standing. Current topical issues in urban anthropology. May be repeated up to 6 credit hours as topics vary. Open to non-majors.

ANT 6448 REGIONAL PROBLEMS IN URBAN ANTHROPOLOGY (3)
PR: Graduate standing. Contemporary problems in urban anthropology in the context of a specific region. May be repeated up to 6 credit hours as topics vary. Open to non-majors.

ANT 6463 REGIONAL PROBLEMS IN MEDICAL ANTHROPOLOGY (3)
PR: Graduate standing. Contemporary problems in medical anthropology in the context of a specific region. May be repeated up to 6 credit hours as topics vary. Open to non-majors.

ANT 6469 SELECTED TOPICS IN MEDICAL ANTHROPOLOGY (3)
PR: Graduate standing. Current topical issues in medical anthropology. May be repeated up to 6 credit hours as topics vary. Open to non-majors.

ANT 6490 SEMINAR IN CULTURAL ANTHROPOLOGY (2)
PR: Graduate standing. One of four core courses required of all students. A critical survey of cultural anthropology emphasizing contributions to applied anthropology. Open to non-majors.

ANT 6588 SEMINAR IN PHYSICAL ANTHROPOLOGY (2)
PR: Graduate standing. One of four core courses required of all students. A critical survey of physical anthropology emphasizing contributions to applied anthropology. Open to non-majors.

ANT 6676 SEMINAR IN ANTHROPOLOGICAL LINGUISTICS (2)
PR: Graduate standing. One of four core courses required of all students. A critical survey of anthropological linguistics emphasizing contributions to applied anthropology. Open to non-majors.

ANT 6706 CONTEMPORARY APPLIED ANTHROPOLOGY (3)
PR: Graduate standing. A critical survey of applied anthropology as practiced today in the major branches of anthropology focusing on applied medical and urban anthropology. Open to non-majors.

ANT 6766 RESEARCH METHODS IN APPLIED ANTHROPOLOGY (3)
PR: Graduate standing. Research design, data collection, and data analysis for applied anthropologists with urban and medical interests. Emphasis will be on non-quantitative research methods. Open to non-majors.

ANT 6908 INDEPENDENT STUDY (var.)
Independent study in which student must have a contract with an instructor. Repeatable.

ANT 6915 DIRECTED RESEARCH (INTERNSHIP) (var.)
PR: Graduate level. Repeatable. (S/U only.)

ANT 6971 THESIS: MASTER'S (var.)
Repeatable. (S/U only.)

ANT 7703 HISTORY AND THEORY OF APPLIED ANTHROPOLOGY (4)
PR: CI. The history and theoretical development of applied anthropology including cultural resources management are discussed in the contexts of the over-all development of anthropology as a discipline and profession. Open to non-majors.

ANT 7704 LEGAL AND ETHICAL ASPECTS OF APPLIED ANTHROPOLOGY (4)
PR: CI. Examination of the development and nature of professional ethics in applied anthropology, including legal and quasi-legal regulations pertaining to human subjects research, cultural resources management, historic preservation, privacy, and freedom of information. Open to non-majors.

ANT 7760 RESEARCH METHODS IN APPLIED ANTHROPOLOGY (4)
PR: CI. Critical review of specific approaches to the development, management, and analysis of sociocultural data. Emphasis on qualitative and quantitative applications of field oriented research designs. Repeatable as topics vary. Open to non-majors.

ANT 7902 DIRECTED INDIVIDUAL STUDY (1-15)
PR: CI. An advanced reading program of selected topics in applied anthropology under the supervision of an anthropology faculty member. A written contract describing requirements must be signed by the student and faculty member prior to registration. Repeatable. (S/U only.)

ANT 7912 DIRECTED RESEARCH (1-15)
PR: CI. An advanced directed research project in a selected topic of applied anthropology under the supervision of an anthropology faculty member. Repeatable. (S/U only.)

ANT 7932 SEMINAR IN APPLIED ANTHROPOLOGY (1-4)
PR: CI. A critical examination of problems and issues relevant to contemporary applied anthropology such as the professional practice of applied anthropology. Repeatable as topics vary. Open to non-majors.

ANT 7933 SELECTED TOPICS IN APPLIED ANTHROPOLOGY (4)
PR: CI. An overview of applied anthropology in its relation to a major mode of public/private activity e.g. planning, clinical practice, policy advocacy. Repeatable as topics vary. Open to non-majors.

ANT 7934 THE CLIENTELE OF APPLIED ANTHROPOLOGY (4)
PR: CI. Review of the literature and practice of applied anthropology focusing on a specific segment or interest group within contemporary society. Typical offerings include: ethnic minorities, age categories, communities, the poor, migrants, public/private organizations and industry. Repeatable as topics vary. Open to non-majors.

ANT 7936 APPLIED ANTHROPOLOGY AND HUMAN PROBLEMS (4)
PR: CI. Examination of specific problem areas of social significance and policy relevance. Typical offerings include: substance abuse, disease, mental health, international development, urban design, education. Repeatable as topics vary. Open to non-majors.

ANT 7945 DOCTORAL INTERNSHIP IN APPLIED ANTHROPOLOGY (1-15)
PR: Admission to Doctoral Candidacy, Cl. Supervised training in practicing anthropology in a non-academic setting focusing on the applications of anthropology. A written contract describing requirements must be signed by the student, the faculty advisor, and the agency supervisor prior to registration. Repeatable. (S/U only.)

**ANT 7980 DOCTORAL DISSERTATION** (1-15)
PR: Admission to Doctoral Candidacy. Repeatable. (S/U only.)

**COMMUNICOLE**


**UNDERGRADUATE COURSES**

**SPA 2001 SURVEY OF COMMUNICATION DISORDERS** (2)
A general survey course concerning the nature and prevention of disorders of communication.

**SPA 3020 INTRODUCTION TO COMMUNICATION DISORDERS** (4)
The scope of speech pathology as a profession and field of study. An introduction to speech and language disorders (articulation, stuttering, voice, aphasia, etc.): etiologies, major treatment approaches, and research findings.

**SPA 3080 INTRODUCTION TO RESEARCH PROCEDURES IN COMMUNICOLE** (4)
Perspective on research in speech pathology and audiology. Introduction to multivariate design considerations as they apply to research in speech and hearing laboratory and clinical settings. Analysis of basic hypothesis testing.

**SPA 3101 ANATOMY OF THE SPEECH AND HEARING MECHANISM** (4)
The neurological and anatomical basis of communication disorders. Comparisons of normal and pathological organic structures and their functional dynamics.

**SPA 3110 INTRODUCTION TO HEARING SCIENCE** (4)
The scope of audiology as a profession and field of study. An introduction to the study of hearing impairments: classifications, etiologies, major treatment approaches, and research findings.

**SPA 3117 INTRODUCTION TO SPEECH SCIENCE** (4)
Concentrated study of the acoustic, physiological and perceptual aspects of sound as related to normal and pathological speech communication. Introduction to instrumentation and measurement procedures.

**SPA 4004 COMMUNICATION DISORDERS IN THE PUBLIC SCHOOLS** (3)
PR: Cl. An examination of the speech, language and hearing problems affecting school-age children and the classroom teacher's role in the detection, prevention and amelioration of communication disorders.

**SPA 4040 STRUCTURE OF SIGN LANGUAGE** (3)
PR: Cl. Semiotic and linguistic consideration of American Sign Language (ASL). Includes aspects of phonology, syntax, semantics, and discourse in ASL.

**SPA 4050 INTRODUCTION TO PRACTICUM** (1-12)
Observation and participation in speech pathology and audiology practicum in the University clinical laboratory.

**SPA 4250 COMMUNICATION DISORDERS I: VOICE/ARTICULATION/STUTTERING** (3)

**SPA 4255 COMMUNICATION DISORDERS II: CEREBRAL PALSY/CLEFT PALATE/APHASIA** (3)
PR: LIN 3010, LIN 4040, LIN 4710 and admission to program. An introduction to communication disorders associated with the peripheral speech mechanism (articulation, voice etc.); identification, etiologies, and major treatment approaches.

**SPA 4333 INTRODUCTION TO AMERICAN SIGN LANGUAGE** (1)
Introduction to the elements of body language, gesture, and facial expression as related to manual communication. Also discusses aspects of physical contact as a communication tool. Open to interested non-majors as well as Communicole majors.

**SPA 4334 FUNDAMENTALS OF FINGERSPELLING** (2)
PR: Cl. A concentrated study of technique in fingerspelling emphasizing clarity and rhythm in expression as well as receptive understanding.

**SPA 4336 BASIC AMERICAN SIGN LANGUAGE** (2)
Introduction to American Sign Language (ASL) as used in the deaf community. General discussion of ASL structure and introduction to various manual communication systems and philosophies. Emphasis on building a basic vocabulary. One hour laboratory course (SPA 5380) to be taken concurrently. Open to all majors.

**SPA 4363 NATURE AND NEEDS OF THE HEARING IMPAIRED** (4)
A study of the effects of auditory disorders upon the organization and expression of behavioral patterns as they relate to motivation, adjustment and personality.

**SPA 4930 SELECTED TOPICS** (3)
PR: Cl. Intensive study of topics in Speech Pathology, Audiology, and/or Aural (Re)Habilitation (Deaf Education) conducted under the supervision of a faculty member. May be repeated for a total of 9 credit hours.

**GRADUATE COURSES**

**SPA 5002 THE SCIENCE OF COMMUNICATION DISORDERS** (4)
PR: SPA 3020 or SPA 3110 or Cl. The application of behavioral and learning principles to the study of the normal development of speech, language and hearing and to the management of disorders.

**SPA 5132 AUDIOLINGUISTIC INSTRUMENTATION** (4)
PR: Cl. Calibration, usage and specific applications of specialized instruments available in dealing with the identification and measurement of hearing disorders.

**SPA 5201 COMMUNICATION DISORDERS: ARTICULATION** (3)
PR: Cl. An examination of normal and deviant articulatory acquisition and behavior. Presentation of major theoretical orientations and the therapeutic principles based upon them.

**SPA 5210 COMMUNICATION DISORDERS: VOICE** (3)
PR: Cl. A comprehensive study of the medical and physical aspects of voice disorders. Primary emphasis is on therapeutic management.

**SPA 5222 COMMUNICATION DISORDERS: STUTTERING** (3)
PR: Cl. A comprehensive study of the diagnosis and modification of stuttering based on a two-factor model. Other major theories are considered and evaluation procedures are developed.

**SPA 5303 AUDIOLINGUISTIC: HEARING SCIENCE** (4)
The study of the physiological acoustics of the auditory periphery; the neuroanatomy and electrophysiology of the central auditory system; and psychoacoustic principles as they relate to clinical audiologic measurement paradigms.

**SPA 5312 PERIPHERAL AND CENTRAL AUDITORY TESTS** (4)
PR: Cl. The study of behavioral and electrophysiologic clinical tests designed to assess the function of the peripheral and the central auditory system. Tests which incorporate non-speech stimuli and those which utilize speech stimuli will be included.

**SPA 5380 AMERICAN SIGN LANGUAGE LABORATORY** (1)
A laboratory course designed to offer students added practice with the material being presented in the manual communications coursework through video and audio tapes. To be taken concurrently with each level of manual communication.

**SPA 5384 INTERMEDIATE AMERICAN SIGN LANGUAGE** (4)
PR: SPA 4336 and Cl. A continuation of the basic course which expands the student's signing skills and introduces American Sign Language (ASL) idioms. Provides a greater opportunity for skill development in ASL structure and idiomatic usage. One hour laboratory course (SPA 5380) to be taken concurrently.

**SPA 5388 ADVANCED AMERICAN SIGN LANGUAGE** (4)
PR: SPA 5384 and Cl. A continuation of the study of American Sign Language (ASL) at the advanced skill level. Added emphasis on idioms, body language, and facial expression as an integral part of ASL. A one hour laboratory course (SPA 5380) is to be taken concurrently. Open to all majors.
SPA 5600 MANAGEMENT OF COMMUNICATION DISORDERS
PR: CL. The planning of programs for individuals with speech, language, and hearing impairments. Includes administration of programs in public schools, clinics, and private practice.

SPA 5601 NEUROLOGICAL CORRELATES OF LANGUAGE
PR: CC or delegate. Review of the anatomy and physiology of the nervous system. Discuss neurological correlates or receptive and expressive language in verbal and non-verbal transmission and feedback.

SPA 6231 CEREBRAL PALSY
PR: CL. A study of the medical, physical, occupational, speech, language, and hearing problems of the cerebral palsied. Therapy techniques are reviewed and evaluated.

SPA 6245 CLEFT PALATE
PR: CL. An in-depth study of speech, language and hearing problems associated with cleft lip and cleft palate. Consideration is given to a multidisciplinary approach to therapy and rehabilitation.

SPA 6305 SPECIAL AUDITORY TESTS
PR: SPA 5312 or CL. Theory and application of techniques for administering hearing tests to determine site of lesion, including those requiring special instrumentation.

SPA 6312 TECHNIQUES OF AUDITORY TRAINING AND SPEECH READING
PR: CL. A careful analysis of the visual and auditory sense modalities as input systems used to facilitate communication in the hearing impaired. Methods employed in the habilitation of both modalities will be presented.

SPA 6329 PROCEDURES AND MATERIALS FOR THE HEARING IMPAIRED
PR: Major in Aural (Re)Habilitation or CL. Curricular adaptation, methods and techniques, organization necessary for teaching the hearing impaired.

SPA 6329 READING FOR THE HEARING IMPAIRED
PR: RED 4310, RED 4515, major in Aural (Re)Habilitation and CL. Techniques and materials for reading teaching to children with auditory disorders. Evaluation and analysis of contemporary programs and methods.

SPA 6381 SPEECH FOR THE HEARING IMPAIRED
PR: SPA 3020, SPA 3110, SPA 4363. Application and evaluation of techniques for teaching symbolic functioning to children with hearing impairments. Consideration of developmental and remedial aspects of reading.

SPA 6386 ADVANCED MANUAL COMMUNICATION AND BASIC INTERPRETING
PR: SPA 4333 or equivalent and CL. A continuation of basic course which expands students signing skills and presents an exposition of sign systems aimed at signing in an English language context.

SPA 6345 HEARING AIDS
PR: Participation in speech pathology and audiology practicum in the University clinical laboratory and selected field settings.

SPA 6505 PRACTICUM
PR: CL. Participation in speech pathology and audiology practicum in the University clinical laboratory and selected field settings.

SPA 6553 ADVANCED DIFFERENTIAL DIAGNOSIS AND TREATMENT PLANNING
PR: CL. The interpretation of evaluation results and the integration of these data in order to make a differential diagnosis leading to an appropriate therapy plan. The administration, evaluation, and reporting of more advanced evaluation techniques not covered in SPA 5552.

SPA 6825 RESEARCH PROCEDURES IN SPEECH PATHOLOGY AND AUDIOLOGY
PR: CL. Advanced research and experimental design techniques employed in clinical and laboratory settings in speech pathology and audiology.

SPA 6906 INDEPENDENT STUDY
Independent study in which students must have a contract with an instructor. Repeatable. (S/U only.)

SPA 6910 DIRECTED RESEARCH
PR: G. Master's level. Repeatable. (S/U only.)

SPA 7931 SEMINAR IN COMMUNICATION DISORDERS
PR: CL. Seminars addressing the central research and clinical issues related to the diagnosis and treatment of communication disorders.

CRIMINAL JUSTICE


UNDERGRADUATE COURSES

CJ 3003 CRIME AND JUSTICE IN AMERICA
A non-technical survey of the nature of crime in the United States and the ways in which our society seeks to deal with criminal offenders and victims of crime. May be taken by both majors and non-majors for credit.

CJ 3020 SURVEY OF THE CRIMINAL JUSTICE SYSTEM
PR: PSY 2012, SOC 2000, or equivalent, or CL. An introduction to the structure and operation of law enforcement, prosecution, the courts, and corrections. Also includes brief coverage of major reported crimes.

CJ 3280 CRIMINAL LAW I
PR: CJ 3020, POS 2041 or CL. Examines the historical basis of the American criminal law system, the substantive elements of the crime, and court procedures.
CCJ 4110 AMERICAN LAW ENFORCEMENT SYSTEMS (3)
PR: Junior standing or CCJ 3020 or CI. Provides a comprehensive examination of the American law enforcement system at the federal, state, and local levels and an assessment of career opportunities within the community.

CCJ 4130 THE LAW ENFORCEMENT OFFICER AND THE COMMUNITY (3)
PR: Junior standing plus CCJ 4110 or CI. Examines the area of human relations especially as it applies to police functions within the community. Topics of justice and discrimination are emphasized.

CCJ 4283 CRIMINAL LAW II (3)
PR: CCJ 3280. Emphasizes the Constitutional issues and rules that are applied and enforced by the courts while processing criminal cases.

CCJ 4330 ALTERNATIVES TO INCARCERATION (3)
PR: Junior standing plus CCJ 4360 or CI. This course explores a variety of alternatives to imprisoning the offender, including parole, diversion, and other community-based intervention and treatment approaches.

CCJ 4340 INTERVENTION TECHNIQUES AND STRATEGIES (3)
PR: Senior standing or CI. Introduces the student to theories and methods underlying treatment modalities currently employed in corrections.

CCJ 4360 AMERICAN CORRECTIONAL SYSTEMS (3)
PR: Junior standing plus CCJ 3620 or CI. Analysis of the different treatment philosophies and techniques currently in use in the field, with special attention to experimental and demonstration programs.

CCJ 4450 CRIMINAL JUSTICE ADMINISTRATION (3)
This course is designed to provide an in-depth examination of both the practical and theoretical aspects of the administration of criminal justice agencies. The major focus will be on law enforcement and correctional agencies.

CCJ 4501 JUVENILE JUSTICE SYSTEM (3)
PR: CCJ 3020 or CI. Provides coverage of the juvenile and family courts, their clientele, and the complex of human services agencies and facilities that contribute to efforts at juvenile correctional intervention.

CCJ 4604 ABNORMAL BEHAVIOR AND CRIMINALITY (3)
PR: CCJ 3620, or CI. A systematic introduction to the relationship between mental illness and criminality, with focus on psychiatric labeling of deviant behavior and its implications for the handling of the criminal offender.

CCJ 4700 RESEARCH METHODS IN CRIMINAL JUSTICE II (3)
PR: Junior standing or CI. Beginning with the scientific method, the tools commonly used to analyze criminal justice data will be emphasized. Recommended for students who intend to continue their education beyond the B.A. Required of students attending the MA program in CCJ at USF. This course may not be taken for credit if the student has already successfully completed STA 3122, GEB 3121, or STA 3023.

CCJ 4822 PRIVATE SECURITY SYSTEMS (3)
PR: Junior standing plus CCJ 4110 or CI. Examines some of the principal methods and techniques currently used to reduce or prevent losses due to theft and casualty.

*CCJ 4900 DIRECTED READINGS (1-3)
PR: CI. This course is specifically designed to enable advanced students the opportunity to do in-depth independent work in the area of criminal justice. Each student will be under the close supervision of a faculty member of the program. No more than five hours of CCJ 4900, CCJ 4910 or any combination of the two will be accepted toward the minimum number of hours required for the major.

*CCJ 4910 DIRECTED RESEARCH (1-3)
PR: CI. This course is designed to provide students with a research experience in which they will work closely with faculty on the development and implementation of research projects in the area of criminal justice. No more than five hours of CCJ 4900, CCJ 4910 or any combination of the two will be accepted toward the minimum number of the major.

*NOTE: CCJ 4900 & CCJ 4910. (a) Students wishing to enroll must make arrangements with a faculty member during the semester prior to actually taking the course. (b) A minimum of four (4) CCJ courses must have been completed satisfactorily prior to enrollment. (c) First consideration will be given to Criminal Justice majors, and (d) individual/faculty members may add additional requirements at their discretion.

CCJ 4934 SEMINAR IN CRIMINAL JUSTICE MAJORS (3)
PR: Senior standing and CI. This variable topic seminar will consider the various changes occurring in the field of criminal justice with added emphasis on career responsibilities in the field.

CCJ 4940 INTERNSHIP FOR CRIMINAL JUSTICE MAJORS (3)
PR: Senior standing. The internship will consist of placement with one or more of the agencies comprising the criminal justice system. This course will enable the students to gain meaningful field experience related to their future careers. The three-hour block of credit will require a minimum of ten hours of work per week within the host agencies in addition to any written work or reading assignments. See requirements for the B.A. degree in Criminal Justice for the number of hours required. (S/U only.)

*Courses available only to students currently enrolled.

CJT 4110 CRIMINAL INVESTIGATION (3)
Covers the major components of criminal investigation, with special attention to the scientific aspects of criminal investigation and the management of major cases.

GRADUATE COURSES

CCJ 6205 THE JUDICIAL PROCESS (3)
PR: CCJ 6285 or CI. Designed to equip the student with an understanding of the evolution and current features which characterize the structure and operations of county, state, and federal courts.

CCJ 6285 LAW AND CRIMINAL JUSTICE (3)
An exposition of historical and contemporary legal principles, procedures, and issues as reflected in Constitutional provision, statutes and case law.

CCJ 6305 THEORY, PRACTICE, AND RESEARCH IN CORRECTIONS (3)
Examination of the complex interrelationships between theory and practice in corrections, as these are affected by empirical research and systematic program evaluation.

CCJ 6345 SUPERVISION AND TREATMENT STRATEGIES (3)
Designed to acquaint the beginning graduate student with general conditions, skills and techniques required to provide effective correctional treatment or intervention with adult and juvenile offenders.

CCJ 6402 THEORY, PRACTICE, AND RESEARCH IN LAW ENFORCEMENT (3)
This issues-oriented course explores the relationships among theory, practice, and research as these are reflected in the problems and challenges which confront law enforcement.

CCJ 6405 LAW ENFORCEMENT ADMINISTRATION (3)
This course is designed to examine the major elements of law enforcement administration and management. Special attention is given to the organization theory and scientific management of law enforcement agencies.

CCJ 6455 CORRECTIONAL ORGANIZATION AND ADMINISTRATION (3)
This course is intended to provide a comprehensive overview of the state of the art of correctional organization and administration. This course blends together the most current information from the managerial and behavioral sciences.

CCJ 6466 RESOURCE DEVELOPMENT AND ACQUISITION (3)
Provides introduction to practical experience in securing financial assistance for criminal justice agencies. Stress is placed on proposal development, planning, analysis of criteria, and feasibility of funding for specific projects.

CCJ 6475 SYSTEMS ANALYSIS IN CRIMINAL JUSTICE (3)
PR: CCJ 6709. Time is spent on the design of both existing and student created systems, with emphasis on the role of system analysis as it applies to management information systems, and computer-based systems.

CCJ 6605 THEORETICAL APPROACHES TO CRIMINAL BEHAVIOR (3)
An introduction to, and comparison of, major historical and contemporary theories that seek to explain criminal behavior.
**CCJ 6705 SYSTEMATIC INQUIRY IN CRIMINAL JUSTICE** (3)
Introduces the basic concepts, terminology, techniques, approaches, and issues in criminal justice research, with emphasis on relationships among theory and research, legal bibliography, and ethical issues involved in systematic inquiry.

**CCJ 6709 RESEARCH AND EVALUATION IN CRIMINAL JUSTICE I** (3)
PR: CCJ 6705. Introduction to empirical research techniques and principles, statistics, data management, and management information procedures.

**CCJ 6716 RESEARCH AND EVALUATION IN CRIMINAL JUSTICE II** (3)
PR: CCJ 6709. Principles and methods of program evaluation and evaluative research in criminal justice. Focuses on application of research strategies under constraints of politics, deadlines, financial limits, and other field circumstances.

**CCJ 6723 CORRECTIVE PLANNING** (3)
Provides an in-depth examination of urban correctional planning processes, with emphasis on personnel development, budgeting, and facility plans and their implementation.

**CCJ 6724 LAW ENFORCEMENT PLANNING** (3)
This course will examine contemporary law enforcement planning and will focus on techniques and skills required to forecast future needs of police agencies in rapidly expanding metropolitan areas.

**CCJ 6910 DIRECTED RESEARCH** (var.)
PR: GR. Master’s level. Repeatable. A maximum of 3 hours may be counted toward the minimum number of hours required by the department for the Master’s degree. (S/U only.)

**CCJ 6920 PRO SEMINAR IN CRIMINAL JUSTICE** (1-2)
One hour is required for all students. Provides a forum for presentation and discussion of research ideas by faculty, students, and guests, with a view toward development of thesis topics. Should be taken during first semester in program.

**CCJ 6935 TOPICS IN CRIMINAL JUSTICE** (3)
PR: Graduate standing in Department of Criminal Justice. This course provides opportunity for analysis and discussion of major concern in criminal justice that are not covered in regular courses. May be repeated with different subject matter.

**CCJ 6971 THESIS: MASTER’S** (var.)
PR: CCJ 6705. Repeatable. A maximum of six hours may be counted toward the minimum number of hours required for the Master’s degree. (S/U only.)

**CCJ 6974 AREA PROJECT** (3)
PR: Graduate standing in the Department and CI. Repeatable. Required of students not using the thesis option. A maximum of three hours may be counted toward the minimum number of hours required for the Master’s degree. (S/U only.) May be repeated up to 12 credit hours.

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**GEOGRAPHY 3000 WORLD REGIONAL GEOGRAPHY** (4)
Comparative and analytical analysis of representative regions of the world with emphasis on cultural, political, economic, and physical diversity.

**GEOGRAPHY 3002 GENERAL GEOGRAPHY** (4)
Selected topics in regional and topical geography offered as survey courses. Open to all students.

**GEOGRAPHY 3194 REGIONAL GEOGRAPHY** (4)
Variable title course to systematically study and compare special regions identified by the instructor.

**GEOGRAPHY 3202 GEOGRAPHY OF ANGLO-AMERICA** (4)

**GEOGRAPHY 3260 GEOGRAPHY OF THE SOUTHEAST** (4)

**GEOGRAPHY 3270 GEOGRAPHY OF FLORIDA** (4)

**GEOGRAPHY 3390 GEOGRAPHY OF MIDDLE AMERICA** (4)

**GEOGRAPHY 3360 GEOGRAPHY OF THE GULF OF MEXICO** (4)

**GEOGRAPHY 3400 GEOGRAPHY OF LATIN AMERICA** (4)

**GEOGRAPHY 3410 GEOGRAPHY OF SOUTH AMERICA** (4)

**GEOGRAPHY 3500 GEOGRAPHY OF EUROPE** (4)

**GEOGRAPHY 3554 GEOGRAPHY OF THE USSR** (4)

**GEOGRAPHY 3660 GEOGRAPHY OF AFRICA** (4)

**GEOGRAPHY 3781 GEOGRAPHY OF ASIA** (4)

**GEOGRAPHY 1930 GEOGRAPHY OF CURRENT EVENTS** (3)
Application of basic geographic principles of the analysis of contemporary events in various parts of the world.

**GEOGRAPHY 3013 SYSTEMATIC GEOGRAPHY** (4)
Principles and concepts of the discipline; maps, earth-sun relations, weather, and climate.

**GEOGRAPHY 3070 SYSTEMATIC GEOGRAPHY** (4)
PR: GEO 3013. Continuation of GEO 3013; soil, water, rocks, minerals, and landforms.

**GEOGRAPHY 3402 HUMAN GEOGRAPHY** (4)
Systematic treatment of man’s activities on earth; population, settlement, agriculture, industry, trade, transportation, and political aspects are among those considered.

**GEOGRAPHY 3901 ELEMENTS OF GEOGRAPHY** (1)
Independent study; various topics in physical and cultural geography. (S/U only.)

**GEOGRAPHY 3931C WEATHER AND MAN** (4)
The interrelationship between the atmospheric environment and man.

**GEOGRAPHY 4040C MAP INTERPRETATION** (4)
PR: GEO 3370. Analysis and synthesis of various types of maps and map projections.

**GEOGRAPHY 4100C CARTOGRAPHY** (4)
PR: GEO 3370. Map compilation and graphic presentation.

**GEOGRAPHY 4114C GEOGRAPHIC TECHNIQUES AND METHODOLOGY** (4)
PR: GEO 3370. Selected topics in various geographic techniques and methodologies and their application.

**GEOGRAPHY 4124C AIR PHOTO INTERPRETATION** (4)
PR: GEO 3370. Detection, identification, and analysis of objects on the earth’s surface. Techniques other than photographic are also considered.

**GEOGRAPHY 4164C QUANTITATIVE METHODS** (4)
PR: GEO 3370. Statistical analysis in geographic research.

**GEOGRAPHY 4200C PHYSICAL GEOGRAPHY** (4)
PR: GEO 3370. Intensive study of a topic selected from physical geography.

**GEOGRAPHY 4210 PHYSIOGRAPHY** (4)

**GEOGRAPHY 4280C HYDROLOGY** (4)
PR: GEO 3370. Hydrologic cycle; precipitation, evapotranspiration, water budget, streamflow, and probability analysis.

**GEOGRAPHY 4340 MAN AND NATURAL HAZARDS** (4)
The impact of hurricanes, tornadoes, earthquakes, sink holes, tidal waves, fire, freezes, and droughts on people; attempts to overcome or avoid these hazards.

**GEOGRAPHY 4372 CONSERVATION** (4)
The distribution, exploitation, and conservation of physical and human resources, ecology.

**GEOGRAPHY 4390 WATER RESOURCES** (4)
A general overview of the hydrologic cycle and the impact of cultural development of its various components. May also include a survey of regional water problems.

**GEOGRAPHY 4420 CULTURAL GEOGRAPHY** (4)
PR: GEO 3370. The relationships of culture and nature, from pre-historic times to the present.

**GEOGRAPHY 4440 POPULATION GEOGRAPHY** (4)
An analysis of contemporary patterns in world and regional distributions of people and geographical factors underlying these patterns and their changes.

**GEOGRAPHY 4460 HISTORICAL GEOGRAPHY** (4)
Survey of evolving landscapes through time; analysis is made by means of systematic and regional methods in order to reconstruct the changing culture-nature equation.

**GEOGRAPHY 4470 POLITICAL GEOGRAPHY** (4)
PR: GEO 3370. The geographic factors underlying political decisions and influencing their outcome; the geographic consequences of these decisions; geopolitics.

**GEOGRAPHY 4500 ECONOMIC GEOGRAPHY** (4)
PR: GEO 3370. The spatial organization of economic production, consumption, and exchange systems.
### UNDERGRADUATE COURSES

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<td>GEO 3200 APPLIED GERONTOLOGY</td>
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<td>GEO 4327 LONG-TERM CARE ADMINISTRATION I</td>
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<td>MET 4002 CLIMATOLOGY (4)</td>
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### GERONTOLOGY

**Chairperson:** T. A. Rich; **Professors:** J. J. Kosberg, T. J. Northcutt, J. T. A. Rich, S. V. Saxson; **Associate Professors:** A. S. Gilmore, W. P. Mangum, L. C. Mullins; **Assistant Professor:** J. L. Garcia; **Visiting Faculty:** Professor: W. Vasey; Other Faculty: B. Burton, R. Cairl, A. D. Entine, M. J. Etten, D. R. Kenerson, E. Kleine, L. Leavengood.

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GEY 4930 SENIOR SEMINAR
PR: CI. This course will provide upper level students with a seminar experience in discussing topics of interest and social relevance in the field of aging. Each student will be required to prepare a seminar paper and present it.

GEY 4935 SPECIAL TOPICS IN GERONTOLOGY
Courses on topics such as pre-retirement, mental health, human services organization, nursing home administration, the older woman, and elder abuse will be offered. May be repeated up to 6 credit hours.

GEY 4941 LONG TERM CARE PRACTICUM
CR: GEY 4329. A supervised placement in an appropriate agency or setting serving older people. The placement is part-time and for the purpose of introducing the student to a wide range of settings and services for the elderly.

GEY 4945 FIELD PLACEMENT
PR: CI. Internship in an agency or community setting. A full-time assignment to an agency or organization, engaged in planning or administering programs for older people if in the BA program and to a nursing home if in the BS program.

GRADUATE COURSES

GEY 5620 SOCIOLOGICAL ASPECTS OF AGING
PR: CI. Examines, within a sociological frame of reference, the interrelationships between the aged (or aging) and the structure and function of the social systems and its major institutionalized subsystems.

GEY 5630 ECONOMICS AND AGING
PR: CI. Examines basic economic systems as they impact the aged. Emphasis is on applied aspects of economic planning, pensions, insurance, social security, and other support systems.

GEY 5642 PERSPECTIVES ON DEATH AND DYING
PR: CI. Study of the various psychological, medical, legal, and religious problems caused by dying and death, and of how individuals and groups have responded to the past and present.

GEY 5645 MID-LIFE DEVELOPMENT
PR: CI. The life space of middle age is explored through an examination of the physical, social, and psychological forces which influence this period of the human life span.

GEY 6325 SOCIAL POLICY AND PLANNING FOR GERONTOLIGISTS
PR: CI. This course is designed to provide an empirical and analytical base for understanding the major issues and trends involved in existing and proposed programs and services in the field of aging at local, state, and federal levels.

GEY 6350 WORKING WITH THE ELDERLY
PR: CI. An introduction to personality theory and concepts of adjustment with an overview of counseling techniques and rehabilitative efforts with the aged.

GEY 6450 GERONTOLOGICAL RESEARCH AND PLANNING I (3)
PR: CI. Social research and planning methods in the field of gerontology. Directed to the consumers of research findings—persons whose positions call for the ability to interpret, evaluate, and apply the findings produced by others.

GEY 6455 GERONTOLOGICAL RESEARCH AND PLANNING II
PR: CI. As a continuation of GEY 6450, this course will center on quantitative methodology as it applies to the field of gerontology. It will be aimed at preparing the student for more advanced data analysis.

GEY 6500 INSTITUTIONAL ADMINISTRATION
PR: CI. This course deals with the management problems and practices in the administration of institutions in the field of aging. Consideration is given to federal and state legislation, the management of people, and fiscal management.

GEY 6600 PHYSICAL AND PSYCHOLOGICAL ASPECTS OF AGING
Study of normal functioning of major organ systems of the body and basic psychological processes as related to the aging process, changes in functioning in perceptual, motor and cognitive areas from the developmental perspective.

GEY 6901 DIRECTED READING (1-4)
PR: CI. A reading program of selected topics under the supervision of a faculty member. May be repeated up to 4 semester hours. (S/U only.)

GEY 6910 DIRECTED RESEARCH (1-4)
PR: CI. Master's level. May be repeated up to 4 credit hours. (S/U only.)

GEY 6930, 6931, 6932, 6933 SEMINAR IN SOCIAL

GERONTOLOGY
PR: CI. Designed to give the graduate student an opportunity to integrate concepts within the field of gerontology, and relate these to other fields of study. Guest lecturers from a variety of disciplines participate in the seminar. (S/U only.)

GEY 6934 SPECIAL TOPICS IN GERONTOLOGY
PR: CI. Courses on topics such as pre-retirements, mental health, human services organization and senior center administration. May be repeated for credit with different subject matter up to 6 credit hours.

GEY 6940 FIELD PLACEMENT
PR: CI. Internship in an agency or setting. An assignment to an agency or organization engaged in planning or administering programs for older people or in providing direct services to older people. (S/U only.)

GEY 6971 THESIS: MASTER'S (VAR.)
PR: CI. Thesis: Master's (var.) Repeatable. (S/U only.)

HISTORY


UNDERGRADUATE COURSES

AFH 3100 INTRODUCTION TO AFRICAN HISTORY
An outline survey of pre-colonial African history including a pre-colonial introduction to the use of primary sources (such as archaeology, oral tradition, cultural anthropology, comparative linguistics, documents) in reconstructing the African past. (Also offered under Afro-American Studies.)

AFH 3200 AFRICAN HISTORY SINCE 1850
Survey of the Colonial and post-colonial history of Africa. Emphasis on the impacts of European and other alien influences on the continent, emergence of independent African states, and post-independence problems of nation building and economic development. (Also offered under Afro-American Studies.)

AMH 2010, 2020 AMERICAN HISTORY I, II
A history of the United States with attention given to relevant developments in the Western Hemisphere, AMH 2010: European origins to 1877; AMH 2020: 1877 to present.

AMH 3110 AMERICAN COLONIAL HISTORY TO 1750
A study of the evolution of American society from the Age of Reconnaissance to 1750. Attention is given to the transformation from colonies to provinces with emphasis on ethnocultural conflict, religion, labor systems, and political culture.

AMH 3130 THE AMERICAN REVOLUTIONARY ERA
Emphasis on the causes of the American revolution, the nature of Constitution-making, and the establishment of the federal system. Also examines the significance of loyalty, violence, and slavery in American society from 1750-1789.

AMH 3140 THE AGE OF JEFFERSON
A comprehensive study of American society and political culture from 1789-1828. Focuses on demographic trends, party systems, expansionism, Indian policy, labor, and ethno-cultural conflicts.

AMH 3160 THE AGE OF JACKSON
The United States from 1828-1850, with emphasis on social and political conflict. Consideration of evangelicalism, reform, labor movements, urbanization, and political activity in the antebellum era.

AMH 3170 THE CIVIL WAR AND RECONSTRUCTION
An examination of political, social, and economic climate of the 1850's that led to the American Civil War. The course does focus upon the war itself in its military, diplomatic, and political consequences through the end of the Reconstruction (1877).

AMH 3201 THE UNITED STATES, 1877-1929
A study of America from the end of Reconstruction to the stock market crash. Ranging over political, social, and diplomatic developments, the course covers industrialization, reform, imperialism, feminism, race relations and World War I.

AMH 3252 THE UNITED STATES SINCE 1929
The United States from the Great Depression to the present. Covering
political, social and diplomatic developments, examines the New Deal, World War II, the Cold War, Viet Nam, civil rights, feminism and Watergate.

AMH 3402 THE OLD SOUTH
A study of the American South from its colonial origins to the fall of the Confederacy in 1865. Emphasis on slavery and race, the Southern frontier, the development of sectional consciousness, and the coming of the Civil War.

AMH 3403 THE SOUTH SINCE 1865
(4)
Southern history since the surrender at Appomattox. Topics covered include Reconstruction, the Populist revolt, race relations, demog­ogy and disfranchisement, Southern women, and the Civil Rights Movements.

AMH 3420 FLORIDA HISTORY
(3)
A history of Florida from Spanish discovery to the present. Examines Florida as an area of European conflict, the emergence of Florida within its regional setting, acquisition by the U.S. and subsequent political, economic and cultural growth.

AMH 3428 TAMPA HISTORY
(3)
Emphasizing the post-Civil War period, examines the origins of Tampa and the factors which made Tampa the center of a growing metropoli­tan area. The Tampa past will be studied against the state, national, and international developments.

AMH 3460 AMERICAN URBAN HISTORY
(4)
A study of American cities from the colonial period to the present. Through an examination of economic, political, social and physical developments, the course traces both the opportunities and problems presented by urban life.

AMH 3500 AMERICAN LABOR HISTORY
(4)
A study of American workers from the colonial period to the present. Examines the changing nature of work, its effects of workers (including minorities and women), and their responses as expressed in strikes, unions, and political action.

AMH 3510 U.S. DIPLOMATIC HISTORY TO 1898
(3)
The development of American Foreign Relations in the Agricultural era.

AMH 3511 U.S. DIPLOMATIC HISTORY IN THE 20TH CENTURY
(3)
A history of American Foreign Relations in the Industrial era.

AMH 3530 IMMIGRATION HISTORY
(4)
A study of the composition and character of the "American" people with emphasis on the period from 1840s to the 1920s. Examines old­world backgrounds of immigrants and their responses to the new world's social, economic and political conditions.

AMH 3540 UNITED STATES MILITARY HISTORY
(4)
A study of American military policy and practices from colonial days to the present. Attention is given both to tactics and to strategy in the unfolding formulation and development of American armed might.

AMH 3545 WAR AND AMERICAN EMPIRE
(4)
The U.S. evolved in 200 years from 13 colonies to the number one power in the world. To achieve this goal we utilized war to achieve empire. This course will examine the link between American War and empire from the Revolution through Viet Nam.

AMH 3800 HISTORY OF CANADA
(4)
A study of Canadian experience from its French origins through the British conquest to its present multi-racial character. Attention will also be given to the forces of nationalism, separatism, and regionalism.

ASH 3403 ANCIENT AND IMPERIAL CHINA
(4)
An historical survey of the foundation and flowering of Chinese civilization with primary emphasis on cultural, intellectual, and institutional elements, from the paleolithic period in the early Manchu Dynast­y (17th century).

ASH 3404 MODERN CHINA
(4)
Political, economic, and social history of China from the time of the first major Western contacts (17th-18th Centuries) through the consol­idation of socialism in the late 1950's, and the Great Leap Forward.

ASH 3501 HISTORY OF INDIA
(4)
A study of the major themes of Indian history from the Indus culture to the present. Emphasis will be given to the Classical, Mogul and British periods as well as the modern independent sub-continent.

EUA 2101, 2102 ANCIENT HISTORY I, II
(3,3)
An introductory survey of ancient history. EUH 2101 treats the Near East and Greece from the origins of civilization to the full develop­ment of the Hellenistic kingdoms prior to conflict with Rome. EUH 2102 deals with Rome through the Regal, Republican, and Imperial periods, from the beginnings of civilization in Italy to the division of

EUAH 2121, 2122 MEDIEVAL HISTORY I, II
(3,3)
A thematic survey of the Middle Ages. EUH 2121 deals with the nascent, Christian civilization of Europe, circa 300-1050. EUH 2122 treats the mature medieval civilization of Europe, circa 1050-1500.

EUH 2200 MODERN EUROPEAN HISTORY I, II
(3,3)
A thematic survey of Europe in the modern age. EUH 2200 treats the period from the Renaissance to the French Revolution; EUH 2201, from the French Revolution to the present.

EUH 3142 RENAISSANCE AND REFORMATION
(4)
A history of Europe from the Renaissance to the Thirty Years' War (1400-1618). The cultural, social, and economic characteristics will provide the framework for artistic, philosophical, religious, and political developments.

EUH 3181 MEDIEVAL CULTURE
(4)
A survey of thought, culture, and art in the Middle Ages. Medieval attitudes as manifested in literature, art, philosophy, education, and religion; with emphasis upon Medieval man's changing perception of himself and his world.

EUH 3185 VIKING HISTORY
(4)
The role of the Vikings in the shaping of Western history. A compre­hensive survey of their institutions, outlook and daily life. Viking expansion into Europe and North America.

EUH 3188 MEDIEVAL SOCIETY
(4)
A study of the daily life and attitudes of the medieval nobleman, peasant, townsman, and the agrarian-economic community and society which affected their lives.

EUH 3189 MEDIEVAL POLITICS
(4)
An inquiry into the nature, distribution, and use of political power during the Middle Ages, in such institutions as feudalism, monarchy, cities, and the church.

EUH 3302 ABSOLUTISM AND ENLIGHTENMENT
(4)
A history of Europe from the beginning of the Thirty Years' War to the outbreak of the French Revolution. Political and intellectual develop­ments will be assessed in the light of society and the economy.

EUH 3305 HISTORY OF NINETEENTH CENTURY EUROPE
(4)
A comparative study of economic, political, social, and intellectual developments in nineteenth century Europe.

EUH 3306 HISTORY OF TWENTIETH CENTURY EUROPE
(4)
A comparative study of economic, political, social, and intellectual developments in twentieth century Europe.

EUH 3300 BYZANTINE HISTORY
(4)
A survey of the Byzantine (Eastern Roman) Empire from its founda­tion in A.D. 330 to its collapse in 1453. Emphasis on the relationship between the Byzantine Empire and the court of European history and on its cultural heritage.

EUH 3401 CLASSICAL GREECE
(4)
A study of ancient Greece focusing on the brilliant period following the Persian Wars, but embracing as well the formative Bronze, Middle, and Archaic ages, and the decline culminating in the conquest of Greece by Philip II of Macedon in 338 B.C.

EUH 3402 HELLENISTIC GREECE
(4)
A study focusing on the career of Alexander the Great and on the Greek and Macedonian conquest of Imperial Persia. Also treated are the great hellenistic kingdoms prior to Rome's conquest of the eastern Mediterranean.

EUH 3412 ROMAN REPUBLIC
(4)
A study of the Roman Republic from 509 B.C. to the assassination of Julius Caesar in 44 B.C., with a prelude treating Rome's early develop­ment under royal rule. Political growth and change provide the frame­work for the treatment.

EUH 3413 ROMAN EMPIRE
(4)
A study of Imperial Rome from the assassination of Julius Caesar in 44 B.C. to the death of the emperor Constantine in A.D. 337. Emphasized is Rome's government of a vast Mediterranean empire including much of the Near East and Europe.

EUH 3461 GERMAN HISTORY TO 1870
(4)
A political, social, and cultural approach to the history of the German­ies from 1500 through 1870, with emphasis on the Protestant Reforma­tion, the rise of Brandenburg-Prussian, and the unification under Bismarck.

EUH 3462 GERMAN HISTORY 1870 TO PRESENT
(4)
A political, social and cultural approach to the history of the German Empire from 1870 through the 1970's. The nation's two attempts to try for world power status are highlighted, as well as the Weimar Republic,
prototype of the embattled democracy.
EUH 3501 BRITISH HISTORY TO 1688
A study of major developments in British history from the 15th century to 1688.
EUH 3502 BRITISH HISTORY 1688 TO PRESENT
A study of the major themes of British history since the Glorious Revolution including social, political, and economic developments leading to the creation of the modern democratic welfare state.
EUH 3530 BRITISH EMPIRE AND COMMONWEALTH
A study of the development of the British Empire from the age of initial expansion overseas to the creation of the multinational commonwealth. Included are examinations of theory and myth of colonialism as well as the literature of imperialism.
EUH 3572 RUSSIAN HISTORY TO 1865
A survey of the social, political, economic, and cultural development of Russia from the year 800 to 1865. Topics include the personality of Russian rulers, the origins of Russian Socialism, and Russia's relationship to the West.
EUH 3572 RUSSIAN HISTORY 1865 TO PRESENT
An analysis of the tradition from late imperial society to the contemporary Soviet system. Emphasis will be placed on continuity and change in the economic, political, and cultural aspects of Russia from 1865 to present.
HIS 3461 SCIENCE AND CIVILIZATION
A thematic study of the interrelationship of science and society in modern history emphasizing the institutional forms, value structures, and social relations in science as they have developed from the scientific revolution to the present.
HIS 3930 SPECIAL TOPICS
This course is designed to emphasize a selected historical problem or issue that is meaningful and challenging to the student. A variety of instructional approaches will be taken to the material. Topics will be changed each semester.
HIS 4152 THEORY OF HISTORY
Recommended to the taken during the senior year. Required of all history majors. An analysis of the foundations of historical knowledge and historical methodology. Includes a survey of historical thinking and writing from ancient times to the present.
HIS 4153 ORAL HISTORY
A study of the craft and technique of Oral History. The course focuses on a number of historical studies which have utilized interviews as an instrument of historical research. Students will be expected to complete original field research.
HIS 4900 DIRECTED READING
PR: CI. Arrangement with instructor prior to registration. Readings in special topics.
HIS 4920 COLLOQUIUM IN HISTORY
Reading and discussion of selected topics in the various fields of history. The subject and scope of inquiry will be determined by the instructor for each section. May be repeated for credit.
HIS 4936 PRO-SEMINAR IN HISTORY
PR: CI. Advanced topics in the various fields of History. Emphasis on discussion of assigned readings and on research and writing of a major paper. Required of all history majors. May be repeated up to 12 credit hours.
LAH 3021 SPAIN, PORTUGAL, AND IBERIAN EMPIRES
A study of peoples of the Iberian peninsula from the late medieval period to 1580. Emphasis falls on emergence of the Iberian states and the rise of the Spanish-Portuguese empires in the Western Hemisphere from 1492 to 1898.
LAH 3022 MODERN LATIN AMERICA
A study of the emergence of the Latin American states. The course will examine developments in Latin America during the nineteenth and twentieth centuries. Special attention is given to the Third World character of the region.
LAH 3430 HISTORY OF MEXICO
Mexican history from pre-Columbian cultures to the twentieth century. Emphasis falls on the colonial political economy, social development, the wars of independence, development of the 19th century Mexican state and the Mexican revolution.
LAH 3470 HISTORY OF THE CARIBBEAN
A thematic study of the circum-Caribbean from pre-Columbian cultures to the twentieth century, emphasizing the development of the Caribbean political economy with emphasis on monoculture, plantation society, and colonial/neocolonial relationships.
LAH 3480 HISTORY OF CUBA
Cuban history from pre-Columbian cultures to the Cuban Revolution. Emphasis on colonization, the sugar economy, the struggles for independence, the political economy of the Republic, and the 20th century revolutionary process.
LAH 3600 HISTORY OF BRAZIL
Brazil from the 16th century to the present. Emphasis on the Portuguese conquest and settlement, emergence of the Empire and republic, the 20th century quest for modernity and leadership in Latin America.
WOH 3270 REVOLUTIONS IN THE MODERN WORLD
A comparative study of the major revolutions in world history. Emphasis is placed on the testing of various theories and models of the revolutionary process in the context of concrete historical examples.
WST 3210 WOMEN IN WESTERN CIVILIZATION I
Survey of women in the ancient Near East, ancient Greece, ancient Rome, early Middle Ages. Origins of Western attitudes toward sex roles, female sexuality, relation of power to gender. (May also be taken for credit in Women's Studies.)
WST 3220 WOMEN IN WESTERN CIVILIZATION II
Survey of European women from the late Middle Ages to the twentieth century; differing consequences of historical change for women and men. (May also be taken for credit in Women's Studies.)
WST 4309 THE FEMALE EXPERIENCE IN AMERICA
PR: WST 2010, or WST 2011, or CI. The female experience in America, in historical context, viewed through the writings of various classes, races, ethnic groups. Current research on American women by feminist historians. (May also be taken for credit in Women's Studies.)
WST 4310 FEMINISM IN AMERICA
PR: WST 2010, or WST 2011, or CI. Emergence of the women's movement in 19th century America: origins, theoretical and practical issues, relation to European feminism. Sources, issues, implications of 20th century feminism. (May also be taken for credit in Women's Studies.)
GRADUATE COURSES
HIS 6085 INTERNSHIP IN HISTORY
PR: CI. Supervised field placement in a local agency involved in historical planning and preservation. Students will receive practical experience in the fields of archival management, architectural preservation, and state and local research. (S/U only.)
HIS 6112 ANALYSIS OF HISTORICAL KNOWLEDGE
PR: Graduate standing. A study of History as a form of knowledge with emphasis on explanatory models and the relationships of social science theory to the problems of historical analysis.
HIS 6904 DIRECTED RESEARCH
(PR) Reading and discussion course organized around an in-depth examination of selected topics within the fields. Emphasis of the course is on the review of the historiographical, methodological and interpretative advances as they affect the topics under study. Repeatable as topics vary.
HIS 6939 SEMINAR IN HISTORY
Research in selected topics within the fields selected by the instructor. Repeatable as topics vary. (S/U only.)
HUMAN SERVICES
UNDERGRADUATE COURSES
HUS 3001 INTRODUCTION TO HUMAN SERVICES
An introduction to the field of human services. Study of the professions and agencies involved in providing human services. Analysis of the values and ethics of various professional associations.
HUS 3502 (Formerly HUS 3300) SOCIAL POLICY
IN THE UNITED STATES
PR: HUS 3001 or CI. Historical development of social policy in the
United States. The impact of industrialization and urbanization on the
individual and family. The changing roles of family, community, state,
nation and current issues.

HUS 4020 THE LIFE CYCLE
An examination of individuals and the biological and psychosocial
changes which occur during infancy, childhood, adolescence, young
adulthood, middle age and old age.

HUS 4100 (Formerly MHT 4302) INTERVIEWING
PR: HUS 3001 or CI. The principles and techniques of interviewing.
Use of interviewing in information gathering, research and helping
relationships and developing skills in communication across cultural,
and social age barriers.

HUS 4700 PLANNING AND EVALUATION OF HUMAN SERVICES PROGRAMS
PR: HUS 3001 or CI. Review of approaches to planning, coordination,
and evaluation of human services programs in health, rehabilitation,
wellfare and community action programs. Applications of planning and
evaluation techniques.

SOW 4332 COMMUNITY ORGANIZATION AND DEVELOPMENT
PR: HUS 3001 or CI. An interdisciplinary approach to community
organization and development. A synthesis of social, cultural, psycholog-
ical, economic, and political information concerning community
structure and change.

GRADUATE COURSES
HUS 5325 INTERVENTION TECHNIQUES (Formerly HUS 5224)
PR: HUS 3001 or CI. Attention will be given to techniques of
intervention at individual, small group, and community levels.
The need for crisis intervention program in modern society.

HUS 5505 MINORITY AGING
This course treats the general issues, concerns and problems relevant to
researchers and practitioners in the field of minority aging. Available to
both majors and non-majors.

INTERNATIONAL STUDIES
Director: M.T. Orr; Professors: C.W. Arnade, H.W. Nelsen, F.J.
Ohaegbulam, M.T. Orr; Professor Emeritus: R.A. Warner; Associate
Professors: A. Hechiche, S.M. Stoudinger, Assistant Professor: M.M.
Amen, D. Slider; Assistant Professor Emeritus: J.W. Palm.

UNDERGRADUATE COURSES
AREA STUDIES
These multidisciplinary area study courses (AFS 3930, ASN 3000, ASN
3030, EUS 3000 and LAS 3001) deal with one or more countries of a region
and will selectively emphasize their anthropological, economic, geogra-
phic, historical, religious, political and sociological aspects, and current
problems. Each course may be repeated when countries of concentration
vary.

AFS 3930 AFRICA
PR: CI. A supervised program of interdisciplinary materials in areas of
specific interest. May be repeated as topics vary.

ASN 3000 ASIA
PR: CI. A supervised program of interdisciplinary study of contemporary
(1949-present) China's political and economic development, foreign affairs, social system and
culture.

ASN 3030 THE MIDDLE EAST
PR: CI. A supervised program of interdisciplinary study of the Middle East
and its role in world politics.

AFS 4150 AFRICA AND THE UNITED STATES
PR: CI. A multidisciplinary study of the role of Africa in the development of
the United States and Africa. (Also offered under African and Afro-American Studies.)

ASN 3012 JAPAN TODAY
PR: CI. A supervised program of interdisciplinary research in areas of
specific interest. May be repeated.

ASN 3014 CHINA TODAY
PR: CI. A supervised program of interdisciplinary research in areas of
specific interest. May be repeated.

AFS 3022 SOVIET UNION TODAY
PR: CI. A supervised program of interdisciplinary study of Soviet life and
Soviet citizen today and their impact on the role of the Soviet Union in the world.

INR 2085 WORLD TENSIONS
PR: CI. A supervised program of interdisciplinary study of the major causes and
consequences of events which
lead to serious social disturbances between and within the independent
states of the world.

INR 3141 INTERNATIONAL NUCLEAR POLICY
PR: CI. A supervised program of interdisciplinary study of international
relations and policy of nuclear disarmament.

INR 3336 INTELLIGENCE AND U.S. FOREIGN POLICY
PR: CI. A supervised program of interdisciplinary study of the role of intelligence
and the intelligence community in U.S. foreign policy, with emphasis on the period since
World War II.

INR 3503 THE UNITED NATIONS AND PEACE
PR: CI. A supervised program of interdisciplinary study of the United Nations,
with emphasis on the role of the United Nations in the maintenance of
peace and security.

INTR 4083 READINGS SEMINAR IN SINO-SOVIET RELATIONS
PR: CI. A supervised program of interdisciplinary study of the Sino-Soviet
relations, with emphasis on the period since 1956, and broader interna-
tional ramifications.

SSI 1211 WORLD PERSPECTIVE
PR: CI. A supervised program of interdisciplinary study of the international
system, major world regions and problems.

SSI 2261 WORLD IDEOLOGIES
PR: CI. A supervised program of interdisciplinary study of the international
system, major world regions and problems.

SSI 3128 ENERGY AND FOREIGN POLICY
PR: CI. A supervised program of interdisciplinary study of the role of energy in
foreign policy.

SSI 3221 AMERICA'S ROLE IN THE WORLD
PR: CI. A supervised program of interdisciplinary study of America's role in
the international system, major world regions and problems.

SSI 3370 COMPARATIVE MILITARY SYSTEMS
PR: CI. A supervised program of interdisciplinary study of the role of military
forces in the international system, major world regions and problems.

SSI 3930 SELECTED TOPICS IN THE SOCIAL SCIENCES
PR: CI. A supervised program of interdisciplinary study of the role of social
sciences in the international system, major world regions and problems.

SSI 3955 INTERNATIONAL STUDIES
PR: CI. A supervised program of interdisciplinary study of the role of social
sciences in the international system, major world regions and problems.

SSI 4900 DIRECTED READINGS
PR: CI. A supervised program of interdisciplinary study of the role of social
sciences in the international system, major world regions and problems.

ISS 4910 DIRECTED RESEARCH
PR: CI. A supervised program of interdisciplinary research in areas of
specific interest. May be repeated.

ISS 4931 SELECTED TOPICS
PR: CI. A supervised program of interdisciplinary research in areas of
specific interest. May be repeated.

ISS 4936 SENIOR SEMINAR
PR: Senior standing and CI. To provide an integrating seminar experi-
ence for majors in International Studies.

WST 3275 WOMEN IN THE DEVELOPING WORLD
PR: CI. A supervised program of interdisciplinary study of the role of women
in the international system, major world regions and problems.

OFF-CAMPUS TERM
Director: D. K. Lupton

UNDERGRADUATE COURSES
IDS 4900 DIRECTED READINGS
PR: OCT Program approval. Open to all students approved for OCT
Program. Provides students with community related readings. May be repeated up to 8 credit hours.

IDS 4910 DIRECTED RESEARCH (1-4)
PR: OCT Program approval. To provide students with community related research experience in areas of specific interest. May be repeated up to 8 credit hours.

IDS 4942 OFF-CAMPUS TERM SOCIAL ACTION PROJECT (1-4)
PR: OCT Program approval. May be repeated up to 4 credit hours.

IDS 4943 OFF-CAMPUS TERM SPECIAL PROJECT (1-2)
PR: OCT Program approval. (S/U only.)

IDS 4955 OFF-CAMPUS TERM INTERNATIONAL PROGRAM (1-2)
PR: OCT Program approval. (S/U only.)

POLITICAL SCIENCE


UNDERGRADUATE COURSES

CPO 3002 INTRODUCTION TO COMPARATIVE POLITICS (4)
Comparison and analysis of representative European and non-Western political systems.

CPO 4034 POLITICS OF THE DEVELOPING AREAS (4)
An analysis of the ideologies, governmental structures, and political processes of selected nations of the non-Western world.

CPO 4930 COMPARATIVE GOVERNMENT AND POLITICS OF SELECTED COUNTRIES OR AREAS (4)
Studies political systems with common elements. Structure, process, domestic and foreign politics, and regional roles are considered. May be repeated up to 12 credit hours as topics vary.

INR 3002 INTRODUCTION TO INTERNATIONAL RELATIONS (4)
Concepts and analytical tools applied to events such as politics among nations, control of foreign policies, types of actors, war and peace.

INR 3102 AMERICAN FOREIGN POLICY (4)
Analysis of the development and scope of United States foreign policy, emphasizing goals and objectives, policy formulation and implementation, themes and issues.

INR 4035 INTERNATIONAL POLITICAL ECONOMY (4)
Analysis of the development and politics of the international economic system, focusing on questions of cooperation and conflict in trade, aid, and investment relationships.

INR 4334 DEFENSE POLICY (4)
Analytic institutional factors contributing to formulation of defense policy and the impact of such policy on international relations.

INR 4403 INTERNATIONAL LAW (4)
Examines essential components of the international legal system; recognition; succession; sea, air and space law, treaties, diplomats, International court of Justice; laws of war, etc. Introduces the student to legal reasoning as employed in the international context.

INR 4502 INTERNATIONAL ORGANIZATIONS (4)
Study of the operations and structure of international organizations and effects on world politics; background and achievement of the UN; regional organizations and multi-national corporations.

PAD 3003 INTRODUCTION TO PUBLIC ADMINISTRATION (4)
Examination of organizational behavior and change, policy process, public management, financial administration, and personnel management from the perspective of public and social delivery.

PAD 4202 PUBLIC FINANCIAL ADMINISTRATION (4)
Analysis of problems in the growth and development of public budgetary theory and Federal budgetary innovations.

POS 2041 AMERICAN NATIONAL GOVERNMENT (3)
Analysis of basic principles and procedures of the American governmental system with emphasis on current issues and trends.

POS 2112 STATE AND LOCAL GOVERNMENT AND POLITICS (3)
Analysis of the structure and function of state and local governments, of the social and political influences that shape them, and of the dynamics of their administrative processes.

POS 3142 INTRODUCTION TO URBAN POLITICS AND GOVERNMENT (4)
Governmental and political structures and processes as they function in urban areas, with special focus on municipalities and locally based public services.

POS 3145 GOVERNING METROPOLITAN AREAS (4)
Examines governmental units and interactions in metropolitan areas, proposals for changes in governance, and policy areas of area-wide concern, such as human services.

POS 3173 SOUTHERN POLITICS (4)
Examines changes in electoral policies in the South, and the role of interest groups and the state and federal government in facilitating change.

POS 3182 FLORIDA POLITICS AND GOVERNMENT (4)
A study of Florida political culture, political parties and elections, the legislative, executive, and judicial systems, and policy patterns. Open to majors and non-majors.

POS 3273 PRACTICAL POLITICS (4)
PR: POS 2041 or POS 3453 or CI. Coordinated scholarly and practical activity through class lecture and supervised field work in local political parties and election campaigns.

POS 3283 JUDICIAL PROCESS AND POLITICS (4)
The organization, development, and mechanical functioning of American court systems and the causes and consequences of judicial behavior from an empirical perspective.

POS 3453 POLITICAL PARTIES AND INTEREST GROUPS (4)
Analysis and understanding of role, functions, structure, and composition of such, and their impact on American governmental institutions.

POS 3461 INTRODUCTION TO LAW AND POLITICS (4)
Nature of law, legal process, relationship to political life of constitutional law, administrative law, the judicial process, and private law.

POS 3713 EMPirical POLITICAL ANALYSIS (4)
Fundamentals of empirical political inquiry: systematic data collection and quantitative analysis techniques. Laboratory exercises using the computer are required.

POS 4165 COMMUNITY LEADERS AND POLITICS (4)
Analysis of the roles and powers of mayors, city managers, council members, and interest and ethnic groups; distribution of community power.

POS 4204 POLITICAL BEHAVIOR, PUBLIC OPINION, AND ELECTIONS (4)
Analysis of economic and socio-psychological factors influencing mass and elite political behavior; voting behavior, public opinion, and political activism.

POS 4413 THE AMERICAN PRESIDENCY (4)
The presidency as a political institution; analysis of powers; legislative, administrative, political, and foreign policy leadership; crisis management and decisionmaking; White House staffing; limits on power.

POS 4424 THE AMERICAN CONGRESS (4)
Organization, procedures, committee system, party leadership, relations with governmental and non-governmental organizations and agencies, oversight, decision-making processes, House/Senate comparisons.

POS 4614 CONSTITUTIONAL LAW I (4)
PR: POS 2041. Leading social problems, principle institutions, and the scope of powers. Analysis of Supreme Court decisions, scholarly commentaries, and the writings of leading public figures.

POS 4624 CONSTITUTIONAL LAW II (4)
PR: POS 2041. Analysis of Supreme Court decisions and scholarly commentaries on the constitutional rights of individuals.

POS 4693 WOMEN AND THE LAW (4)
Issues concerning the legal aspects of sex and sex-based discrimination as embodied in statutory and case law. Open to majors and non-majors. (Also offered under Women's Studies.)

POS 4905 INDEPENDENT STUDY (1-4)
PR: 3.0 average in Political Science and CI. Specialized study determined by the student's needs and interests. (S/U only.)

POS 4910 INDIVIDUAL RESEARCH (1-6)
GRADUATE COURSES

CPO 5934 SELECTED TOPICS IN COMPARATIVE POLITICS
Studies specific substantive areas in comparative politics such as political economy or the politics of specific countries or regions. May be repeated for credit as topics vary.

CPO 6007 SEMINAR IN COMPARATIVE POLITICS
Extensive examination of the major theories and approaches used in the study of comparative politics. Seminar format.

CPO 6036 POLITICS OF DEVELOPING AREAS
Advanced study of ideologies, politics, political institutions, and the socioeconomic conditions that influence them in developing nations.

INR 5906 ISSUES IN INTERNATIONAL RELATIONS
Explore specific topics and provides the student with an opportunity for indepth study of historical and contemporary problems in international politics. May be repeated for credit as topics vary.

INR 6007 SEMINAR IN INTERNATIONAL RELATIONS
Advanced study of international relations, including survey of basic literature, analysis of numerous theoretical and methodological approaches, and analysis of major issues.

INR 6036 SEMINAR IN INTERNATIONAL POLITICAL ECONOMY
PR: POS 5734 or CI. Advanced study of the development and politics of the international economic system focusing on theoretical and empirical analyses of cooperation and conflict in trade, aid, and investment relationships.

INR 6107 AMERICAN FOREIGN POLICY
Objectives, formulation, and execution of foreign policy; critical issues and problems confronting the United States. Study of various conceptual, methodological, and theoretical approaches.

POS 5004 ISSUES IN AMERICAN NATIONAL AND STATE GOVERNMENT
Selected topics of study in American government. May be repeated for credit as topics vary.

POS 5155 ISSUES IN URBAN GOVERNMENT AND POLITICS
Selected issues and topics in Urban Government and politics. May be repeated for credit as topics vary.

POS 5734 POLITICAL RESEARCH METHODS
A survey of methods, problems, and issues in political research and analysis for the advanced student.

POS 5764 COMPUTER APPLICATIONS IN POLITICAL SCIENCE
The student will be introduced to the use of modern computers as a research tool. Computer lab component.

POS 6045 SEMINAR IN AMERICAN GOVERNMENT AND POLITICS
Advanced study of the institutions and processes of American national government and politics.

POS 6095 SEMINAR IN INTERGOVERNMENTAL RELATIONS
Advanced study of selected topics of institutions, processes, and behavior of American state governments and Florida government. May be repeated as topics vary.

POS 6127 ISSUES IN STATE GOVERNMENT AND POLITICS
Advanced study of selected topics in institutions, processes, and behavior of American state governments and Florida government. May be repeated as topics vary.

POS 6157 SEMINAR IN URBAN GOVERNMENT AND POLITICS
Analysis of literature with emphasis on urban political behavior, development of various theories, and propositions regarding governmental structure and the formation and implementation of public policy.

POS 6247 ISSUES IN POLITICAL BEHAVIOR AND SOCIALIZATION
Advanced study of selected topics in political behavior and socialization, including participation and activism, voting, public opinion, and leadership. May be repeated as topics vary.

POS 6415 THE AMERICAN PRESIDENCY
Analysis of problems and powers of the modern Presidency with emphasis on crisis management, staffing, legislative leadership, and decision making.

POS 6427 THE LEGISLATIVE PROCESS
Analysis of formal and informal decision-making processes in legislative bodies, with emphasis on U.S. House of Representatives and U.S. Senate. Executive-legislative conflict and cooperation; input/output analysis.

POS 6455 POLITICAL PARTIES AND INTEREST GROUPS
Analysis of status, functions, and characteristics of political parties and interest groups as well as their interactions with political processes, actors, and institutions.

POS 6607 CONSTITUTIONAL LAW
PR: Graduate standing or consent of instructor. Advanced study of legal, political, philosophic and methodological problems in constitutional law.

POS 6698 SEMINAR IN LAW AND POLITICS
PR: Graduate standing. Advanced study of institutions and processes in the field of law and politics. May be repeated as instructor and content vary.

POS 6706 SCOPE AND METHODS OF POLITICAL SCIENCE
Introduction to advanced study; the major approaches and methodologies for acquiring political knowledge, intellectual foundations, and applications in various subfields.

POS 6850 INDEPENDENT STUDY
PR: 3.0 average in Political Science. Specialized independent study determined by the student's needs and interests and with the consent of the instructor. (S/U only.)

POS 6919 DIRECTED RESEARCH
PR: GR Master's level. Repeatable. (S/U only.)

POS 6934 SELECTED TOPICS IN POLITICAL SCIENCE
Selected topics, issues, and problems in political science for advanced graduate students. May be repeated for credit as topics vary.

POS 6942 FIELD WORK IN POLITICAL SCIENCE
PR: 3.0 average in Political Science and CI. Application of research models now employed in governmental agencies, including development of a structured research proposal.
PSYCHOLOGY


UNDERGRADUATE COURSES

CBH 4004 COMPARATIVE PSYCHOLOGY (3)
PR: PSY 3213 or CI. The study of the evolution of behavior, similarities, and differences in capacities for environmental adjustment and for behavioral organization among important types of living beings.

CLP 3003 PSYCHOLOGY OF ADJUSTMENT
Genetic, organic, and learned factors involved in the processes of personal adjustment: applications of mental health principles to everyday living. Not for major credit.

CLP 4143 ABNORMAL PSYCHOLOGY (3)
PR: PSY 3213 or CI. Descriptions, theoretical explanations, research evidence, and treatment of maladaptive behavior.

CLP 4414 BEHAVIOR MODIFICATION (3)
PR: PSY 3213 and CI. Introduction to behavior analysis, and application of learning principles, behavioral measurement, research designs, and interventions in treatment settings.

CLP 4433 PSYCHOLOGICAL ASSESSMENT (3)
PR: PSY 3213. A consideration of the instruments for intellectual and personality assessment including their applications, development, and potential abuses. Students may not receive credit for both CLP 4433, and EDF 3430.

DEP 3043 CHILD PSYCHOLOGY
Developmental and psychosocial aspects of childhood, including hereditary, maturation, psychological, and social determinants of child behavior. Not for major credit.

DEP 4005 DEVELOPMENTAL PSYCHOLOGY (3)
PR: PSY 3213 or CI. Survey of methods, empirical findings, and theoretical interpretations in the study of human and animal development.

EXP 4046 SENSORY PROCESSES (3)
PR: PSY 3213 or CI. Available to both majors and non-majors. Psychophysical and neurophysiological data and theory underlying sensory processes. Visual, auditory, chemical, and somatosensory systems, with particular emphasis on visual processes.

EXP 4204C PERCEPTION (3)
PR: PSY 3213 or CI. How man perceives his environment. Topics include sensory basis of perception, physical correlates of perceptual phenomena, and the effects of individual and social factors on perception.

EXP 4304 MOTIVATION (3)
PR: PSY 3213 or CI. An examination of human and animal motivations from both physiological and psychological viewpoints.

EXP 4404 PSYCHOLOGY OF LEARNING (3)
PR: PSY 3213 or CI. Survey of methods, empirical findings, and theoretical interpretations in conditioning and instrumental learning.

EXP 4523C HUMAN MEMORY (3)
PR: PSY 3213 or CI. Survey of methods, empirical finding, and theoretical interpretations of human learning, information processing, and verbal learning.

INP 3101 APPLIED PSYCHOLOGY (3)
The application of psychological principles and the functions of psychologist in education, government, industry, and clinical practice.

INP 4004 INDUSTRIAL PSYCHOLOGY (3)
PR: PSY 3213 or CI. Applications of psychological principles to industry. Topics include: selection, training, motivation, job satisfaction, supervision, decision-making.

PPE 4004 PERSONALITY (3)
PR: PSY 3213 or CI. Methods and findings of personality theories and an evaluation of constitutional, biosocial, and psychological determinants of personality.

PSB 4013C NEUROPSYCHOLOGY (4)
PR: PSY 3213 or CI. Gross neural and physiological components of behavior. Structure and function of the central nervous system as related to emotion, motivation, learning, and theory of brain functions.

PSY 2012 AN INTRODUCTION TO CONTEMPORARY PSYCHOLOGY (3)
A broad view of psychology for both majors and non-majors with special emphasis on the more applied areas of psychology (e.g., social psychology, abnormal psychology, personality, and developmental psychology).

PSY 3013 GENERAL PSYCHOLOGY (3)
PR: PSY 2012 or CI. Designed as an in-depth examination of the basic principles and concepts of psychology. Extensive coverage will be given to the areas of learning, perception, and neuropsychology. Two lectures, one discussion/lab.

PSY 3022 CONTEMPORARY PROBLEMS IN PSYCHOLOGY (3)
The content of this course varies depending on the needs and interest of students and faculty. Offerings include in-depth coverage of specialized aspects of psychology applied to contemporary problems not studied in general introductory courses.

PSY 3213 RESEARCH METHODS IN PSYCHOLOGY (4)
PR: PSY 3213. Detailed coverage of the research designs and statistical techniques having the greatest utility for research problems in psychology. Emphasis on topics from analysis of variance.

PSY 4040 SYSTEMATIC PSYCHOLOGY (3)
PR: PSY 3213 or CI. The historical roots of modern psychological theories, investigation of the various schools of psychology such as behaviorism, Gestalt psychology, psychoanalysis, and phenomenological psychology.

PSY 4913 DIRECTED STUDY (1-3)
PR: Upper division standing and CI. The student plans and conducts an individual research project or program of directed readings under the supervision of a faculty member. May be repeated with a maximum of 3 semester hours.

PSY 4931 SELECTED TOPICS: SEMINAR (3)
PR: Upper division standing and CI. Graduate-type seminar designed to provide the advanced undergraduate student with an in-depth understanding of a selected sub-area within psychology. May be repeated with a maximum of six hours credit.

PSY 4932 HONORS SEMINAR
PR: Admission to honors program in psychology and CI. Graduate-type seminar designed to provide the honors student with an opportunity to present, discuss, and defend his own research and to explore in-depths topics in several areas of psychology. May be repeated with a maximum of nine hours credit.

PSY 4970 HONORS THESIS
PR: Admission to honors program in psychology and CI. The student under supervision of a faculty member will formalize, conduct, analyze, and report in writing a research project in psychology.

SOP 3742 PSYCHOLOGY OF WOMEN
An examination of theories of female personality in historical perspective. Current research on sex differences, socialization, sexuality, psychology of reproduction. Emerging roles of women as related to social change and developmental tasks of the life cycle. (Also offered under Women’s Studies.)

SOP 4004 SOCIAL PSYCHOLOGY
PR: PSY 3213 or CI. Survey of methods, empirical findings, and theoretical interpretations in the study of an individual’s behavior as it is affected by others.

SOP 4714C ENVIRONMENTAL PSYCHOLOGY
PR: PSY 2012 or PSY 3013 or CI. Explores the influences of environment or behavior. Topics considered include crowding, privacy, territorial behavior, environmental design, and pollution effects. Designed for both psychology majors and non-majors.

GRADUATE COURSES

CLP 6166 PSYCHOPATHOLOGY
PR: Admission to graduate program in psychology or CI. Exploration of current approaches to the understanding of pathological behavior and implications for theories of personality. A survey of treatment methods is included.

CLP 6438 PSYCHOLOGICAL ASSESSMENT
PR: CI. Courses cover theory, research, and applications of psychological assessment in areas such as interviewing, intellectual and cognitive functioning, neuropsychodiagnostic, and personality testing. May be repeated with credit with different subject matter.

CLP 6477 BEHAVIORAL DISORDERS OF CHILDREN
PR: CI. Causative factors in behavior deviations common to children and adolescents. Thorough study of selected childhood mental disorders and a survey of ameliorative techniques for treating childhood behavior difficulties.

CLP 6937 TOPICS IN CLINICAL-COMMUNITY PSYCHOLOGY
PR: CI. Courses on topics such as humanistic psychology, community psychology, and clinical neuropsychology. May be repeated for credit with different subject matter.

CLP 7188 PSYCHOTHERAPY AND BEHAVIOR CHANGE
PR: CI. Study of the theoretical, empirical, and applied foundations of the major systems of therapeutic intervention. May be repeated for credit with different subject matter.

CLP 7379 GRADUATE SEMINAR IN CLINICAL-COMMUNITY PSYCHOLOGY
PR: CI. Seminars on topics such as psychopathology, community psychology, clinical issues, personality, and developmental psychology. May be repeated for credit with different subject matter.

DEP 6058 DEVELOPMENTAL PSYCHOLOGY
PR: Admission to graduate program in psychology or CI. Basic survey of research and theory in human development with an emphasis on early developmental processes. Core requirement for all graduate students in psychology.

EXP 6208 PERCEPTION
PR: Admission to graduate program in psychology or CI. Current data and theory of perceptual processes. Consideration of psychological and psychological variables in perception, and applications of information theory and signal detection theory.

EXP 6307 MOTIVATION AND EMOTION
PR: CI. A detailed examination of human motivation and emotion from both the physiological and psychological viewpoints.

EXP 6406 LEARNING
PR: Admission to graduate program in psychology or CI. Survey of research methods, results, and theories in animal and human classical and instrumental (operant) conditioning. Core requirement for all graduate students in Psychology.

EXP 6526 HUMAN MEMORY
PR: Admission to graduate program in psychology or CI. Review of methods, findings, and theoretical interpretations associated with the study of acquisition and retention of information.

EXP 6608 COGNITIVE PSYCHOLOGY
PR: Admission to graduate program in Psychology or CI. A survey of the research and theory dealing with higher mental processes. Core requirement for all graduate students in Psychology.

EXP 6930 TOPICS IN EXPERIMENTAL PSYCHOLOGY
PR: CI. Courses on topics such as operant behavior, electrophysiological methods, psychophysiology, and memory. May be repeated for credit with different subject matter.

EXP 7099 GRADUATE SEMINAR IN EXPERIMENTAL PSYCHOLOGY
PR: CI. Seminars on topics such as learning, perception, physiological psychology, cognitive processes, and quantitative methods. May be repeated for credit with different subject matter.

INF 6056 INDUSTRIAL PSYCHOLOGY
PR: Admission to graduate program in psychology or CI. An introduction to the major areas of Industrial-Organization Psychology including the topics of selection and placement, training, criterion development and performance appraisal, job satisfaction and motivation, and organizational theory and structure.

INF 6935 TOPICS IN INDUSTRIAL-ORGANIZATIONAL PSYCHOLOGY
PR: CI. Courses on topics such as industrial psychology, testing in industry, human factors psychology, and training in industry. May be repeated for credit with different subject matter.

INF 7097 GRADUATE SEMINAR IN INDUSTRIAL-ORGANIZATIONAL PSYCHOLOGY
PR: CI. Seminars on topics such as industrial psychology, evaluation of performance in industry, and human factors. May be repeated for credit with different subject matter.

PPE 6058 PERSONALITY
PR: Admission to graduate program in psychology or CI. Survey of research and theories of personality, including its relationship to the development of normal and abnormal behavior, core requirement for all graduate students in psychology.

PSB 6856 PHYSIOLOGICAL PSYCHOLOGY
PR: Admission to graduate program in psychology or CI. Introduction to data and research methods in Physiological Psychology. Topics include neurophysiology and neuromotony, sensory and motor systems, and internal regulation. Core requirement for all graduate students in psychology.

PSY 6217 RESEARCH METHODS AND MEASUREMENT
PR: CI. Courses in research strategies, design and analysis, and measurement theory in psychological experimentation. Inferential statistics, correlation methods, and interpretation. May be repeated for credit with different subject matter.

PSY 6218 GRADUATE RESEARCH METHODS
Special course to be used primarily for the training of graduate research assistants. Variable credit, repeatable. Limited to a cumulative total of five credits per student. (S/U only.)

PSY 6907 INDEPENDENT STUDY
Independent study in which student must have a contract with an instructor. Repeatable. (S/U only.)

PSY 6917 DIRECTED RESEARCH
PR: Gr. Master’s level. Repeatable. (S/U only.)

PSY 6946 PRACTICUM AND INTERNSHIP IN CLINICAL PSYCHOLOGY
PR: CI. Supervised training in community and university settings in the application of psychology. May be repeated for credit.

PSY 6947 GRADUATE INSTRUCTION METHODS
Special course to be used primarily for the training of graduate teaching assistants. Variable credit, repeatable. Limited to a cumulative total of five credits per student. (S/U only.)

PSY 6971 THESIS: MASTER’S
Repeatable. (S/U only.)

PSY 7780 PROGRAM EVALUATION
(3)
PUBLIC ADMINISTRATION

Director: D.C. Menzel; Professor: J. E. Jreisat; Associate Professors: M.E. O'Donnell, F.W. Swierczek.

PAD 5035 ISSUES IN PUBLIC ADMINISTRATION AND PUBLIC POLICY
(4)
Selected issues and topics in Public Administration and Public Policy. May be repeated for credit as topics vary.

PAD 5333 CONCEPTS AND ISSUES IN PUBLIC PLANNING
(4)
PR: URP 4050 or URP 6056. Analysis of basic concepts, issues, and strategies of planning; policy determination, collection of information, and decision-making.

PAD 5417 PUBLIC PERSONNEL ADMINISTRATION
(4)
A study of the major functions in public personnel, including recruiting, selection, testing, training, and development, and employee and human relations in the public service.

PAD 5605 ADMINISTRATIVE LAW
(4)
An examination of the constitutional and statutory bases and limitations of the administrative process, administrative adjudication, rule making, and the judicial review of such actions.

PAD 5612 ADMINISTRATIVE REGULATION
(4)
Analysis of the regulatory functions and processes in the American political system: regulatory commissions, their functions, powers, management, reforms, and relationship with other branches of government.

PAD 5807 ADMINISTRATION OF URBAN AFFAIRS
(4)
Analysis of the role of the administrator at the municipal level: the division of functions; policy formation; alternative governmental structures; effects on the administrative process.

PAD 5836 COMPARATIVE PUBLIC ADMINISTRATION
(4)
How organizations and managers perform within a particular environment, potential impact of innovation, and how service is accomplished in a variety of socio-economic environments.

PAD 6037 BUREAUCRACY AND PUBLIC POLICY
(4)
Analysis of the formal, informal, and societal characteristics of public bureaucracies. A study of the implementation of public policy by bureaucratic agencies.

PAD 6060 SEMINAR IN PUBLIC ADMINISTRATION
(4)
Examination of major theoretical and practical developments in public administration with focus on organization theory and current research trends in the field.

PAD 6105 SEMINAR IN PUBLIC ORGANIZATIONAL CHANGE
(4)
Introduction to problems, diagnosis, strategies, and methodology of changing public organizations.

PAD 6207 PUBLIC FINANCIAL ADMINISTRATION
(4)
An examination of the fiscal organization of federal, state and local governments. Current problems in budgeting, revenue and indebtedness are considered.

PAD 6228 STATE AND LOCAL BUDGETING
(4)
An examination of the budgetary systems and practices of state and local governments with emphasis on preparation, authorization, execution and control.

PAD 6306 URBAN POLICY ANALYSIS
(4)
Examination of the organizational and administrative aspects of planning, program development, reporting and evaluation at local levels by state, regional, and other agencies.

PAD 6327 SEMINAR IN PROGRAM EVALUATION
(4)
Focus on program cycle-planning, development, implementation and evaluation, needs assessment, goal setting, designing alternative program structures, and grant writing.

PAD 6907 INDEPENDENT STUDY
(1-4)
A flexible format for conceptual or theoretical studies in public administration. CI. Majors and non-majors. May be repeated up to 4 credit hours. (S/U only.)

PAD 6908 SPECIAL PROJECT IN PUBLIC ADMINISTRATION
(3-6)
A required thesis-like quality research project or policy design and report. Majors only. May be repeated up to 6 credit hours. (S/U only.)

PAD 6915 DIRECTED RESEARCH
(1-6)
A flexible format for structured field research in public administration. CI. Majors and non-majors. May be repeated up to 6 credit hours. (S/U only.)

PAD 6934 SELECTED TOPICS IN PUBLIC ADMINISTRATION
(1-4)
A flexible format to offer specialized courses not available within the regular curriculum. Majors and non-majors. May be repeated as topics vary.

PAD 6946 FIELD WORK IN PUBLIC ADMINISTRATION
(1-6)
A structured learning and work experience in a public agency or non-profit organization. CI. Majors only. May be repeated up to 6 credit hours. (S/U only.)

URP 5131 IMPLEMENTATION MEASURES IN URBAN/REGIONAL PLANNING I
(4)
Basic legal concepts of land-use planning and implementation with the use of legal reference materials and academic works; zoning, subdivision regulation, public uses, and environmental issues. Majors and non-majors. Cross-listed with Political Science.

URP 5132 IMPLEMENTATION MEASURES IN URBAN/REGIONAL PLANNING II
(4)

URP 6056 CITY AND REGIONAL PLANNING
(4)
A review of goals, objectives, and interrelationships between regional and city planning; intergovernmental and policy issues. Majors and non-majors. Cross-listed with Political Science.

REHABILITATION COUNSELING
Chairperson: C.M. Pinkard; Professor: W.G. Emmer; Associate Professors: J.F. Dickman, P. Gross, M.J. Landsman, C.M. Pinkard, J.D. Rasch.
GRADUATE COURSES

EGC 5065 REHABILITATION: CONCEPTS AND THEORETICAL ISSUES
An introduction to the rehabilitation process in the public and private sector. An integration of concepts and procedures from the medical, socio-psychological, and human service disciplines.

EGC 5376 MEDICAL ASPECTS OF DISABILITY
A survey of medical conditions and disabilities encountered by rehabilitation counselors. Examines the relationship of client handicaps to rehabilitation programming.

EGC 5493 SEMINAR IN PRINCIPLES AND PRACTICES OF REHABILITATION COUNSELING I
PR: CI. Counseling and case management procedures appropriate to meeting the needs of handicapped individuals in the rehabilitation process. Must be taken concurrently with EGC 5850. (S/U only.)

EGC 5496 THEORETICAL ISSUES IN APPLIED ALCOHOL ABUSE IN REHABILITATION COUNSELING

EGC 5725 INTERPERSONAL ASPECTS OF REHABILITATION COUNSELING I
PR: CI. Focuses on the utilization of one's self in the counseling relationship. Emphasis is on the experiential exploration and development of interpersonal skills.

EGC 5850 PRACTICUM I
PR: CI. Supervised experience and participation in counseling in a variety of rehabilitation settings. Must be taken concurrently with EGC 5493. (S/U only.)

EGC 5905 DIRECTED STUDIES
PR: CI. Supervised rehabilitation studies relevant to student's professional development. May be repeated for a maximum of 8 hours credit.

EGC 6205 EVALUATION IN THE REHABILITATION PROCESS
PR: CI. Examines assessment procedures utilized in the rehabilitation process and critical issues in the evaluation of the handicapped.

EGC 6374 VOCATIONAL EVALUATION AND ADJUSTMENT SERVICES OF THE HANDICAPPED AND DISADVANTAGED
An introduction to various systems of vocational evaluation including samples, situation assessment and on-the-job evaluation. Includes adjustment services.

EGC 6375 PLACEMENT METHODS AND PROCESSES
PR: CI. An in-depth examination of placement methods and processes with handicapped individuals. Includes a survey of work requirements in different occupations and how these relate to specific functional limitations.

EGC 6417 APPLICATIONS OF LEARNING PRINCIPLES
PR: CI. Application of various learning principles and procedures to special problems encountered in rehabilitation.

EGC 6468 PSYCHOSOCIAL ASPECTS OF DISABILITY IN REHABILITATION COUNSELING
PR: CI. Personal, social, psychological, and environmental aspects of disability in America relevant to rehabilitation counseling with handicapped individuals.

EGC 6470 PRACTICUM IN APPLIED ALCOHOL ABUSE IN REHABILITATION COUNSELING
PR: EGC 5496. An extension of EGC 5496 with emphasis on field work in alcoholism and alcoholism treatment.

EGC 6476 REHABILITATION OF THE DEAF AND HEARING IMPAIRED: ASSESSMENT AND EVALUATION
PR: SPA 2001, SPA 4333, SPA 4363, SPA 4050, EGC 6205, EGC 6374 or CI. An in-depth examination of assessment and evaluation issues in the rehabilitation of the deaf and hearing impaired.

EGC 6477 REHABILITATION OF THE DEAF AND HEARING IMPAIRED: COUNSELING AND CASE MANAGEMENT
PR: EGC 6476, EGC 6727, SPA 6335, or CI. Procedures and processes of case management and counseling for deaf clientele.

EGC 6494 SEMINAR IN PRINCIPLES AND PRACTICES OF REHABILITATION COUNSELING II
PR: EGC 5493, EGC 5850. Continuation of EGC 5493. Must be taken concurrently with EGC 6851. (S/U only.)

EGC 6497 THEORETICAL AND EXPERIENTIAL APPROACHES TO COUNSELING THE ALCOHOL ABUSER
PR: EGC 5496 and CI. An extension of EGC 5496 with emphasis on experiential approaches to counseling the alcohol abuser.

EGC 6566 GROUP WORK IN REHABILITATION COUNSELING
PR: CI. Theoretical and empirical issues of group process are examined in the context of an ongoing group. Emphasis is an application to counseling.

EGC 6677 ADVANCED GROUP WORK IN REHABILITATION COUNSELING
PR: CI. Extension of EGC 6566 with emphasis on field work.

EGC 6727 INTERPERSONAL ASPECTS OF REHABILITATION COUNSELING II
PR: EGC 5725. An extension and intensification of skills developed in EGC 5725.

EGC 6767 RESEARCH IN REHABILITATION
PR: CI. The evaluation and utilization of available research studies and the development of research skills. An individual research project is required.

EGC 6851 PRACTICUM II
PR: EGC 5493, EGC 5850. Continuation of EGC 5850. Must be taken concurrently with EGC 6494. (S/U only.)

EGC 6855 INTERNSHIP IN REHABILITATION
PR: CI. Student placement in an approved intern setting for a minimum of 600 hours of supervised experience. (S/U only.)

EGC 6906 INDEPENDENT STUDY
Independent study in which student must have a contract with an instructor. Repeatable. (S/U only.)

EGC 6915 DIRECTED RESEARCH
PR: GR. Master's level. Repeatable. (S/U only.)

EGC 6934 SEMINAR IN REHABILITATION COUNSELING (1-4)
PR: CI. Selected issues and problems in rehabilitation counseling with subject and scope to be determined by instructor. May be repeated for credit with different content.

EGC 6971 THESIS: MASTER'S
Repeatable. (S/U only.)

SOCIAL SCIENCES (INTERDISCIPLINARY)


UNDERGRADUATE COURSES

SSI 4162 THE CITY AND URBANIZATION
An interdisciplinary perspective will be used to analyze the emergence of the city and the urban revolution. Urban planning and governance will be examined in looking at how urban areas deal with social and physical problems.

SSI 4164 URBAN SOCIAL ISSUES: AN INTERDISCIPLINARY APPROACH
This course is designed to examine current social issues from an interdisciplinary perspective. Topic selection will be within the broad framework of technological changes, economic conditions, political ideologies, and their impact on changing social patterns.

STA 3122 SOCIAL SCIENCE STATISTICS
A study of statistical terms and methods to provide students with knowledge and understanding of statistics.

GRADUATE COURSES

SSI 5934 SELECTED TOPICS
PR: CI plus senior standing or graduate status. Interdisciplinary studies with course content dependent on student demand and instructor's interest. May be repeated as topics vary.

SSI 6900 DIRECTED READINGS
PR: CI and graduate status. A supervised program of intensive reading of interdisciplinary materials of specific interest. May be repeated.

SSI 6910 DIRECTED RESEARCH
PR: GR. Master's level. Repeatable. (S/U only.)
SOCIAL WORK

Chairperson: P.L. Smith; Professor: G.M. St. L. O'Brien; Associate Professors: T. Howard, W.S. Hutchison, Jr., F.C. Johnson, B. Yegidis Lewis, J.C. Renick, P.L. Smith; Assistant Professors: R. Martin, R.L. White, R. Willett; Visiting Faculty: W. Vasey; Instructor: A.J. Floyd; Courtesy Faculty: Professor: J.J. Kosberg; Associate Professor: D. Boone; Instructor: L. Middleton.

UNDERGRADUATE COURSES

SOW 3101 HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT I
PR: All pre-core courses and SOW 3203. Restricted to Social Work majors, others by Department permission. An integrating human behavior-social environment course emphasizing dynamics of behavior and environmental factors as they relate to social work practice with individuals, and families and groups. (3)

SOW 3102 HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT II
PR: SOW 3101. Restricted to Social Work majors; others by Department permission. An integrating course emphasizing dynamics of behavior and environmental factors as they relate to social work practice with organizations and communities. (3)

SOW 3203 INTRODUCTION TO SOCIAL WELFARE AND SOCIAL WORK
An introductory course tracing the development of the American social welfare system and the development of social work as a major profession within that system. (4)

SOW 3403 RESEARCH AND STATISTICS FOR SOCIAL WORK
PR: All pre-core courses and SOW 3203. Restricted to Social Work majors, others by Department permission. The purpose of this course is twofold: to familiarize the student with research as it is practiced in the profession of Social Work; and to equip the student with those theoretical understandings necessary to be a critical consumer of social work research. (4)

SOW 4233 SOCIAL WELFARE: POLICY & PROGRAM
PR: All pre-core courses and SOW 3203. Restricted to Social Work majors, others by Department permission. An advanced policy course taking an analytical approach to contemporary social welfare policy issues and current social welfare programs. (4)

SOW 4242 CHILD WELFARE: PROGRAMS AND ISSUES
Restricted to Social Work majors; others by Departmental permission. Presents organization, program, and current policy issues related to public child welfare service provision. (3)

SOW 4341 MULTI-METHODS OF SOCIAL WORK PRACTICE I: MICRO-SYSTEM INTERVENTION
PR or CR: SOW 3101; SOW 3403. Restricted to Social Work majors; others by Department permission. Practice course emphasizing development of skills from practicum knowledge. Interventive methods with individuals, families and small groups. Some agency field work required. (5)

SOW 4343 MULTI-METHODS OF SOCIAL WORK PRACTICE II: MACRO-SYSTEM INTERVENTION
PR: All pre-core courses, SOW 4341, SOW 4233, and SOW 3102 may be taken as PR or CR. Restricted to Social Work majors, others by Department permission. Second practice course emphasizing intervention at the community and organizational level. Builds upon theoretical and practical content of SOW 4341. Some agency field work required. (5)

SOW 4355 INTERVENTIVE METHODS FOR CHILD WELFARE
Restricted to Social Work majors, others by Departmental permission. This course provides knowledge for assessing and skill development for intervening in child welfare situations. (3)

SOW 4510 FIELD PLACEMENT
PR: Completion of all social work core courses except SOW 4361. Restricted to social work majors in Senior year. Supervised field placement in a social welfare organization consisting of 35 hours per week in the field for ten hours per week in an integrated practice seminar which constitutes the third and final course in the practice sequence. (10)

SOW 4900 DIRECTED READINGS
PR: Completion of four social work courses including SOW 3403, upper division standing, and Department permission. Content dependent upon student interest and ability. A contract will be jointly developed by student and instructor specifying nature of work to be completed and approved by Program Chairperson. May be repeated up to 6 credit hours. (1-6)

SOW 4930 VARIABLE TOPICS IN SOCIAL WORK
Restricted to Social Work majors; others by Department permission. Variable title courses to expand on the four sequence areas in the Social Work core curriculum. Allows focus on areas relevant to student's educational interest. (1-3)

GRADUATE COURSES

SOW 5930 SELECTED TOPICS IN SOCIAL WORK
Restricted to Social Work majors, both graduate and undergraduate; others by Department permission. Course is taken as an elective. Variable title courses will selectively expand specific social work content areas. May be repeated in varying topic areas. (1-4)

SOW 6105 NORMATIVE DEVELOPMENT AND THE SOCIAL ENVIRONMENT
PR: Consent of chairperson. Interaction of biological, psychological, social, and cultural environments on growth and adaptation. (5)

SOW 6121 THEORETICAL PERSPECTIVES ON DYSFUNCTIONING
PR: Consent of chairperson. Addresses the spectrum of psychosocial responses to disease, injury, development disabilities and stress of both chronic and acute states: identifies major forms of psychopathology and central modes of adaptation. (3)

SOW 6126 DYNAMICS OF DYSFUNCTIONING IN CHILDREN AND YOUTH
PR: Consent of chairperson. Specific disease, injury and stress states; etiology and typical response patterns. Parallels dysfunctional states addressed concurrently in treatment course. (2)

SOW 6129 DYNAMICS OF DYSFUNCTIONING IN THE ADULT AND ELDERLY
PR: Consent of chairperson. Study of specific dysfunctional states; etiology and typical response patterns. Parallels dysfunctional states addressed in concurrent treatment course. (2)

SOW 6235 TRENDS AND ISSUES IN SOCIAL POLICY AND SERVICES
PR: Consent of chairperson. Examines historical themes and analyzes programmatic development of present American social welfare system. Attention given to policy-clinical practice interaction. (4)

SOW 6356 TREATMENT METHODS WITH CHILDREN AND YOUTH
PR: Consent of chairperson. Differential psychosocial treatment related to various dysfunctional states with children and youth. Parallels dysfunctional states addressed in concurrent behavior course. (2)

SOW 6359 TREATMENT METHODS WITH ADULTS AND THE ELDERLY
PR: Consent of chairperson. Differential psychosocial treatment related to various dysfunctional states encountered in field with adults and the elderly. Parallels dysfunctional states addressed in concurrent behavior course. (2)

SOW 6360 SOCIAL WORK PRACTICE: THE PSYCHOSOCIAL PERSPECTIVE
PR: Consent of chairperson. Historical development of knowledge, skills and ethics of the profession. Psychosocial model of clinical practice is emphasized. Primary focus on individual modality. (5)

SOW 6362 INDIVIDUAL, FAMILY AND GROUP TREATMENT I
PR: Consent of chairperson. Emphasizes selection of techniques of the psychosocial model of treatment. Primary focus on family, couple, and parent-child problems. Group treatment modalities are introduced. (3)

SOW 6368 INDIVIDUAL, FAMILY AND GROUP TREATMENT II
PR: Consent of chairperson. Continuation of SOW 6362. Primary focus on psychosocial model of group treatment. Comparison with individual and family modality. (3)

SOW 6375 MACRO PRACTICE SEMINAR
SOW 6404 SOCIAL WORK MEASUREMENT AND DESIGN (3)
PR: Consent of chairperson. Assumes competence in fundamental techniques of descriptive and inferential statistics. Organized around modules and structured exercises designed to stimulate research issues and processes found in social work settings.

SOW 6432 MICRO AND MACRO RESEARCH EVALUATION (3)
PR: Consent of chairperson. Projects and exercises designed to simulate typical practice problems are coordinated. Preparatory for the field research project.

SOW 6435 FIELD RESEARCH (3)
PR: Consent of chairperson. Formal mechanism, under Departmental supervision, for conducting required agency-based research on some aspect of the agency's target population or service delivery system. (S/U only.)

SOW 6534 FIELD INSTRUCTION I (4)
PR: Consent of chairperson. Supervised field instruction in a social service agency consisting of approximately 20 hours per week plus a 2 hour practice seminar. (S/U only.)

SOW 6535 FIELD INSTRUCTION II (6)
PR: Consent of chairperson. Supervised field instruction in a social service agency consisting of approximately 32 hours per week plus a 2 hour practicum seminar. (S/U only.)

SOW 6536 FIELD INSTRUCTION III (4)
PR: Consent of chairperson. Supervised field instruction in a social service agency consisting of approximately 20 hours per week plus a 2 hour practice seminar. (S/U only.)

SOW 6900 DIRECTED READINGS (1-3)
PR: Admission to MSW program. A reading program in selected topics under supervision of a faculty member. A formal contract must be approved by the department chair. (S/U only.)

SOW 6931 SELECTED TOPICS IN SOCIAL WORK (1-4)
PR: CI. Restricted to MSW students; others by Department permission. Variable topic courses will selectively expand on the four sequence areas in the social work curriculum.

SOCILOGY

Chairperson: R. H. Wheeler; Associate Professors: G. A. Brandmeyer, J. B. Chmier, R. A. Hansen, D. P. Johnson, D. L. Jorgensen, M. B. Meyer, B. G. Gunter, and A. Han sensen. Departmental permission. Various facets of organizational research, various macro practice functions of the agency, such as supervision, program operations, and interagency relations.

SOW 4430 (formerly SOC 4531) COMPUTERS IN SOCIOLOGICAL RESEARCH (2)
PR: COC 3300 and STA 3122 or equivalent. Introduction to the uses of computers in sociological research. Major emphasis is upon the use of statistical packages (principally SPSS) in data analysis.

SOW 4910 (formerly SOC 4910) INDIVIDUAL RESEARCH (1-3)
PR: Four courses in sociology, including SYA 3300, upper division standing, at least 3.0 overall GPA, or CI. Content dependent upon interest and competence of student. A contract specifying the work to be done must be completed and signed by both the student and the chairperson of the department before registration for this course will be permitted. May be repeated for credit. Up to 3 credits may be counted towards meeting major electives requirement.

SOW 4930 (formerly SOC 4930) TOPICS IN SOCIOLOGY (3)
PR: 12 semester hours of Sociology and prior CI. May be repeated for credit. See class schedule for content.

SOW 4935 (formerly SOC 4935) SENIOR SEMINAR (3)
For seniors majoring in sociology or other social sciences. Major issues in sociology, stressing theory and research.

SYA 3700 (formerly SOC 3700) RACE AND ETHNIC RELATIONS (3)
PR: SYG 2000 or CI. Comparative study of interracial relations, social tensions, attitudes, and modes of adjustment in various areas of the world.

SYD 4020 (formerly DHE 4010) POPULATION (3)
PR: SYG 2000 or CI: upper division standing. Sociological determinants of fertility, mortality and migration; theories of population change.

SYD 4410 (formerly SOC 4316) URBAN SOCIOLOGY (3)
PR: SYG 2000 or CI: upper division standing. The social structure of the community in modern industrial societies. Analysis of community change.

SYD 4441 (formerly SOC 4320) COMPARATIVE RURAL SOCIOLOGY (3)
PR: SYG 2000 or CI. The study of rural life in the United States; compares the situation in the United States with that of other societies as well as other times in history; some aspects of rural peasant societies and experiments in rural community formation.

SYD 4800 SOCIOLOGY OF SEX ROLES (3)
PR: SYG 2000; WST 2010 or 2011; or CI. Historical and contemporary exploration of current issues relevant to sex roles in America. Emphasis on sex role differences, interpersonal relationships and institutional participation. (Also offered under Women's Studies.)

SYG 1010 (formerly SOC 1820) CONTEMPORARY SOCIAL PROBLEMS (3)
Application of sociological concepts and principles to the description and analysis of major social problems of modern societies. Does not count for sociology major credit.

SYG 2000 (formerly SOC 2000) INTRODUCTION TO SOCIOLOGY (3)
Nature and application of sociological concepts, theories, and methods; analysis of societies, associations and groups; social processes and social change.

SYG 2484 CAREERS IN SOCIOLOGY (1)
PR: One course in Sociology. An examination of sociology as a career base and basis for general education. Employment opportunities, occupational skills taught in the several courses, and other useful aspects of sociology will be discussed. Descriptions of the several subfields of specialization and a brief introduction to the courses taught in the department will lead to the student's making a tentative program schedule for his major. The value of sociology to the individual as a self actualizing person of unique worth will be stressed. (S/U only.)

SYG 2412 (formerly MAF 2001) MARRIAGE (3)
Study of pre-marital relations. Social, cultural, and personal factors related to success and failure in mate selection and marriage. Does not count for sociology major credit.
women's studies program

SYO 3120 (formerly MAF 3501) THE FAMILY (3)
PR: SYG 2000 or CI. Principles of family organization, social adjustment, and control. Maturation, socialization, and stability of the family.

SYO 3200 (formerly SOC 3211) SOCIOLOGY OF RELIGION (3)
PR: SYG 2000 or CI. Types, sources, and functions of religious behavior. Religious behavior in relation to other aspects of personality and culture.

SYO 3500 (formerly SOC 3422) SOCIAL ORGANIZATION (3)
PR: SYG 2000 or CI. Social organization in the broadest sense, including institutions and associations as well as variations in role and status.

SYO 3530 (formerly SOC 3410) SOCIAL STRATIFICATION (3)
PR: SYG 2000 or CI. Social status and social stratification, social class as a factor in behavior, social mobility.

SYO 4300 (formerly SOC 4221) POLITICAL SOCIOLOGY (3)
PR: SYG 2000 or CI. An examination of the social factors that affect government, politics, and political behavior.

SYO 4370 (formerly SOC 4262) OCCUPATIONS AND PROFESSIONS (3)
PR: Upper division standing or CI. A comparative analysis of professions, particularly medicine, law, teaching, allied health professions, engineering. Focus on process professionalizing service occupations like police work, business management, public administration and social work.

SYO 4400 (formerly SOC 4230) SOCIOLOGY OF MEDICINE (3)
PR: SYG 2000 or CI. An examination of the major theoretical and methodological tools used by sociologists in studying medical care. A representative sampling of medical sociological studies will be reviewed and discussed.

SYP 3000 (formerly SOC 3800) SOCIAL PSYCHOLOGY (3)
PR: PSY 2012 or SYG 2000. Behavior of the individual human being as affected by social and cultural influences of modern society.

SYP 4300 (formerly SOC 4350) COLLECTIVE BEHAVIOR (3)
PR: SYG 2000 or CI. Study of development of group and mass behavior—crowds, social movements.

SYP 4400 (formerly SOC 4402) SOCIETY IN TRANSITION (3)
PR: Introduction to Sociology and upper level standing. An analysis of the forces for change in contemporary society, utilizing a sociological perspective.

SYP 4420 (formerly SOC 4421) SOCIOLOGICAL IMPLICATIONS OF INDUSTRIALIZATION (3)
PR: SYG 2000 or CI. Socio-cultural elements which define and accompany the process of industrialization as observed in mature industrial nations.

SYP 4510 SOCIOLOGICAL ASPECTS OF DEVIANCY (3)
PR: SYG 2000, or CI. Definition and theories of deviancy applied to substantive areas such as drug use, sexual varieties, and other stigmatized activities, mental illness, and white collar crimes.

SYP 4520 (formerly SOC 4150) CRIMINOLOGY (3)
PR: SYG 2000 or CI. upper division standing. Etiology of criminal behavior; law enforcement, crime in the United States, penology and prevention.

SYP 4530 (formerly SOC 4130) JUVENILE DELINQUENCY (3)
PR: SYG 2000 or CI; upper division standing. The creation, distribution and use of arts from a sociological perspective; the social roles involved.

SYP 4640 (formerly LEI 4163) LEISURE IN SOCIETY (3)
Facts and trends of changing leisure-time patterns in the USA and other countries; various conceptualizations of leisure; relationships on non-work time to work attitudes, personality, family, community, subcultures, religion, value systems, social class, and the functions of government.

SYP 4650 (formerly LEI 4167) SPORT IN SOCIETY (3)
An examination of the broad issues concerning sport in both a historical and contemporary perspective. Sport will be viewed in relation to social institutions, economic considerations, mass media, and the sport group as a micro-social system.

Graduate Courses

SYA 5949 (formerly SOC 5949) SOCIOLOGICAL INTERNSHIP (1-6)
PR: Senior or graduate standing in Sociology plus CI. Supervised placement in community organization or agency for a minimum of 10 hours of volunteer work per week, and a weekly seminar on applying sociological skills and methods in the placement setting. May be repeated up to 6 credit hours. (S/U only.)

SYA 6126 (formerly SOC 6606) CONTEMPORARY SOCIOLOGICAL THEORY (3)
PR: Undergraduate course in sociological theory or CI. Emphasizes logical and conceptual dimensions of theory and theory construction.

SYA 6305 (formerly SOC 6502) METHODS OF RESEARCH (3)
PR: Course in Social Investigation or CI. Logic and practice of research; problems of observation and data collection, data processing, and evaluation.

SYA 6405 (formerly SOC 6526) SOCIOLOGICAL STATISTICS (4)
PR: STA 3122 or CI. Logic and application of parametric and non-parametric statistical analysis for sociological data.

SYA 6475 (formerly SOC 6302) COMMUNITY ANALYSIS (3)
PR: Course in Urban Sociology or CI. Theories of community and community organization. Methods of community study; problems of urban areas.

SYA 6505 (formerly SOC 6699) THE COMMUNICATION OF SOCIOLOGY (1)
PR: SYA 6305, SYA 6405, SYA 6126, or CI. Designed to help student define and formalize more effective efforts at communicating sociology. Majors only.

SYA 6909 (formerly SOC 6999) INDEPENDENT STUDY (var.)
Independent study in which student must have a contract with an instructor. Repeatable. (S/U only.)

SYA 6935 (formerly SOC 6265) INDUSTRIAL SOCIOLOGY (3)
PR: SYG 2000 or CI; upper division standing. Interaction, communication and authority in economic organization; the factory as a social system.

SYO 6125 (formerly MAF 6621) FAMILY ANALYSIS (3)
PR: Course in Family or CI. Theory of interpersonal relations and interaction in the modern family. Analysis of functions and roles.

SYO 6545 (formerly SOC 6426) COMPLEX ORGANIZATIONS (3)
PR: Course in Social Organizations or CI. Organizational Theory, bureaucratic models, authority, power legitimation, and types of formal organization.

SYP 5835 (formerly SOC 5825) SOCIOLOGY OF SMALL GROUPS (3)
PR: SYG 2000 or CI; upper division standing. Theory of small group structure, mechanics of interaction, observation of small groups.

SYP 5855 (formerly SOC 5804) SOCIAL INTERACTION (3)
PR: SYG 3000 or CI; upper division standing. Interpersonal influence, complex behavior, role, conflict, and social situational factors.

SYP 5405 (formerly SOC 5405) SOCIAL CHANGE (3)
PR: SYG 2000 or CI; upper division standing. Major theories of social and cultural change, and mechanisms of change in various societies.

SYP 6005 (formerly SOC 6805) SOCIAL PSYCHOLOGY SEMINAR (3)
PR: Course in Social Psychology or CI. Stresses contemporary developments in social psychological theory and empirical research.

SYP 6757 (formerly SOC 6106) DEVIANCE & CONTROL (3)
PR: Course in criminology or juvenile delinquency or CI. Theories of control and deviance with research application in problem areas.

Women's Studies Program

Director: J. Ochs horn; Professor: J. H. Williams; Associate Professors: M. Myerson, J. Ochs horn, J. B. Snook

Undergraduate Courses

AFA 4335 BLACK WOMEN IN AMERICA (3)
PR: WST 2010, 2011, or AFA 2001, or CI. An interdisciplinary survey of the contemporary experience of black women in America, including the African roots, myths, and realities surrounding that experience. (Offered for credit in Women's Studies or African and Afro-American Studies.)
ANT 4302 WOMEN IN CROSS—CULTURAL PERSPECTIVE (3)
PR: ANT 3410 or CI. Focuses on various theories, models and beliefs about male-female behaviors and interactions in human cultures throughout history and in various societies in the world today. (Also offered under Anthropology.)

LIT 3383 IMAGE OF WOMEN IN LITERATURE (4)
An historical literary analysis of stereotyped and liberated female images from Sappho through the emergence of the women’s movement. (May also be taken for credit in English.)

POS 4693 WOMEN AND LAW (4)
Issues concerning the legal aspects of sex and sex-based discrimination as embodied in statutory and case law. Open to majors and non-majors. (May also be taken for credit in Political Science.)

REL 3145 WOMEN AND RELIGION (4)
Status and roles of women as compared to men in the Judeo-Christian tradition. Contemporary issues of feminist theology, and the controversies surrounding them. (May also be taken for credit in Religious Studies.)

SOP 3742 PSYCHOLOGY OF WOMEN (3)
Theories of female personality. Current research on socialization, sexuality, reproduction. Emerging lifestyles and developmental tasks of the life cycle. (May also be taken for credit in Psychology.)

WST 2010 INTRODUCTION TO WOMEN’S STUDIES I (3)
Survey of major issues relevant to the female experience. The women’s movement: historical, psychological, sociological, anthropological perspectives.

WST 2011 INTRODUCTION TO WOMEN’S STUDIES II (3)
Survey of major issues relevant to the female experience: marriage and the family, sexuality, work, creativity.

WST 3210 WOMEN IN WESTERN CIVILIZATION I (4)
Survey of women in the ancient Near East, ancient Greece, ancient Rome, early Middle Ages. Origins of Western attitudes toward sex roles, female sexuality, relation of power to gender. (May also be taken for credit in History.)

WST 3220 WOMEN IN WESTERN CIVILIZATION II (4)
Survey of European women from the late Middle Ages to the twentieth century: differing consequences of historical change for women and men. (May also be taken for credit in History.)

WST 3275 WOMEN IN THE DEVELOPING WORLD (3)
Survey of status of women in Asia, Africa, Latin and Caribbean America, compared to that in USA, Canada, West Europe, Marxist-Leninist countries. (May also be taken for credit in International Studies.)

WST 3360 MEN AND SEXISM (4)
Ways in which sex role conditioning affects the lives of men. Factors in this conditioning, and alternatives to masculine sex role models.

WST 4309 THE FEMALE EXPERIENCE IN AMERICA (4)
PR: WST 2010, or WST 2011, or CI. The female experience in America, in historical context, viewed through the writings of women of various classes, races, ethnic groups. Current research on American women by feminist historians. (May also be taken for credit in History.)

WST 4310 FEMINISM IN AMERICA (4)
PR: WST 2010, or WST 2011, or CI. Emergence of the women’s movement in 19th century America: origins, theoretical and practical issues, relation to European feminism. Sources, issues, implications of 20th century feminism. (May also be taken for credit in History.)

WST 4320 WOMAN’S BODY/WOMAN’S MIND (4)
PR: WST 2010, or WST 2011, or CI. The influence of the health care system on the process which socializes people to traditional sex roles.

WST 4380 HUMAN SEXUAL BEHAVIOR (4)
The dynamics of human sexuality: biological, constitutional, cultural, and psychological aspects. The range of sexual behavior across groups. Sources of beliefs and attitudes about sex, including sex roles and especially female sexuality.

WST 4900 DIRECTED READINGS (1-3)
PR: Registration requires instructor’s written consent and signed contracts from instructor of choice. To provide advanced students with interdisciplinary research experience in areas of specific interest. May be repeated up to 6 credit hours.

WST 4930 SELECTED TOPICS (1-4)
PR: WST 2010 or CI. Study in special areas such as Women Writers, Southern Women, Communications.

WST 4935 SEMINAR IN WOMEN’S STUDIES (3)
PR: WST 2010 or CI. In-depth study of research in one or more areas of topical interest to students and staff. Research involvement by students required.
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*term expires

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See page 322
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Executive Assistant ................................. BARBARA COX
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Development .................. RICHARD T. BOWERS

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Fullbright Program Advisor ............................ SILVIA R. FIORE
Chairman, USF Press Editorial Board ................. SILVIA R. FIORE

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Director, University Police .......................... PAUL A. URACH
Director, Operations Analysis ....................... LYNDIA BLOCK HILL

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Assistant General Counsel .......................... BRYAN S. BURGESS
Assistant General Counsel .......................... DEBRA A. KING
Assistant General Counsel .......................... JEFFREY MOORE
Acting Director Equal Opportunity Affairs ........ JASPER CRAWFORD
Director, Human Resource Development ............. CYNTHIA A. BOLLINGER
Director, Labor/Management Relations ............... ROLAND C. CARRINGTON
Director, University Personnel Relations .......... PAULA N. KNAUS

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All members of the University of South Florida faculty and administrative staff, including teaching, research, administrative and professional personnel are listed below in alphabetical order. The listing includes name, current rank and field, first year of continuous appointment to any position in the institution, degrees, and institution and year of terminal degree, as of August 12, 1983. (A semicolon between degrees indicates different institutions.)

ABRAM, JACQUES ....................................... Professor (Music), 1963
   Diploma with Distinction, Juilliard School of Music, 1938

ACHENBACK, KARL E. .......................... Assistant Professor (Psychiatry), 1979
B.A.; Ph.D., University of Florida, 1966

ACKERMAN, DORIS .................................. University Librarian (Libraries), 1969
B.A.; M.L.S., Rutgers, 1969

ACKERMAN, JOHN R. ................................... Professor (Surgery), 1983 (Part time)
M.D., C.H.B., M.D., University of Cape Town, South Africa, 1965
Sc.B.; Ph.D., Georgetown University, 1972

ADAMS, PATRICIA B. ............................... Assistant Professor (Nursing), 1976
B.S.N., M.N., University of Florida, 1974

AGETT, JOHN A. ...................................... Director (Financial Aids, Student Affairs), 1980
B.A.; M.S., State University of New York at Albany, 1967

AGRESTI, DAVID L. ................................. Assistant Professor (Criminal Justice), 1973
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GOFOORTH, FRANCES S.   Associate Professor (Childhood and Language Arts Education), 1967
B.S. M.Ed., Ed.D., Indiana University, 1966

GOLD, GAY C.   Visiting Assistant Professor (Psychiatry), 1983
B.A.; M.A., Ed.D., Teachers College Columbia University, 1982

GOLDING, LOIS A.   Professor (Music Arts), 1962

GOLMAN, ALLEN L.   Professor (Internal Medicine), 1974
B.A.; B.S., M.D., University of Minnesota, 1968

GOLLOWAY, GLENN G.   Associate Professor (Psychiatry), 1976
B.A.; M.D., Cornell University Medical College, 1949

GOMEZ, OSBORNE L.   Director (Extension Library), 1965
St. Petersburg Community College

A.B.; M.A., M.S.L.S., Florida State University, 1969

GOMEZ, RAFAEL A.   Associate Professor (Radiology), 1977
B.S.; B.A.; M.D., University of Havana School of Medicine, 1943

GOMEZ-SANCHEZ, CELSO E.   Professor (Diabetes Center), 1980
M.D., University of San Marcos, Lima, Peru, 1968

GOMEZ-SANCHEZ, ELISE P.   Visiting Assistant Professor (Internal Medicine), 1983
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B.A.; D.V.M., Ph.D., Texas A&M University, 1982

GONDECK, ALLAN R.   Assistant Professor (Electrical Engineering), 1982
B.S.E.E., M.S.E.E.; Ph.D., University of Florida, 1973

GONZALEZ, JOE V.   Chairperson (Health Services, Florida Mental Health Institute), 1979
B.S.; M.B.A., University of Florida, 1961

GOODING, DOLORES K.   Instructor - Director (Industrial and Management System Engineering), 1975
St. Petersburg Community
B.S.E., M.S.E., University of South Florida, 1975

GOODMAN, ADOLPH W.   Distinguished Service Professor (Mathematics), 1964
B.Sc., M.A., Ph.D., Columbia University, 1947

GOODWIN, MELANIE L.   Visiting Instructor (PEDIATRICS), 1983
B.S.N.; M.S.N., University of California at Los Angeles, 1972.

GORDON, CHARLES A.   Coordinator (Undergraduate Advising, Education), 1968
B.A.; M.S.; Ed.D., Nova University, 1977

GORDON, HORACE C.   Lecturer (Electrical Engineering), 1973
B.E.E., M.S.E., University of South Florida, 1970

GOSSELIN, RENYOLD J.   Associate In (Business Administration), 1983
B.A.; B.A., M.B.A., University of South Florida, 1981

GOUDEL, JAMES A.   Professor (Philosophy), 1964
B.S., M.A., Ph.D., University of Michigan, 1953

GOYEN, HOWARD B.   Associate Professor (Humanities), 1963
Ph.D.; B.S.; M.A.; Ph.D., Florida State University, 1961

GRASTLEND, HARRY   Professor (Surgery), 1982
B.A.; M.S.; M.S., Southwestern Medical College, University of Texas, Dallas, 1945

GRANDON, GARY M.   Associate Director (Computer Research Center), 1981
B.S.; M.Ed.; Ph.D., University of Connecticut, 1978

GRAY, ROGER T., JR.   Professor (Anthropology), 1962
B.S.; M.A., Ph.D., University of Arizona, 1962

GRANT, JONATHAN   Visiting Assistant Professor (Biology), 1983
B.S.; Ph.D., University of South Carolina, 1981

GRAY, CAROLE A.   Assistant Professor (Economics), 1982
B.A.; M.A., Ph.D., University of Illinois, 1982

GREENHAIM, A. J.   Intercollegiate Athletic Coordinator (Intercollegiate Athletics), 1982
B.A., University of South Florida, 1982

GREENE, MARCIA   Coordinator (Development Office, University Relations), 1980
B.A., University of New Hampshire, 1957

GREENBAUM, SUSAN D.   Assistant Professor (Anthropology), 1981
B.A., M.A., Ph.D., University of Kansas, 1980

GREENE, THOMAS L.   Assistant Professor (Orthopaedic Surgery), 1983
B.S.; M.D., Ohio State University, 1975

GREEN, PATRICIA L.   Continuing Education Coordinator (Executive M.B.A. Program), 1981
B.S.; M.B.A., University of South Florida, 1983

GRIGG, ROBERT L.   Instructor (Mechanical Engineering), 1983
B.S.E., M.E., University of South Florida, 1980

GREGORY, J. IOAN   Associate Professor -Assistant Dean for Student Personnel and Outreach (Nursing), 1977
B.S., M.S.; Ph.D., University of Florida, 1977

GRIFFITH, JOHN E.   Professor (Civil Engineering and Mechanics), 1964
B.S., M.S., Ph.D., Pennsylvania State University, 1955, P.E.

GRIGG, VERNON H.   Lecturer (Economics), 1981
B.S., M.Ed., St. Petersburg Community

B.Com., B.A.; M.A.; Ph.D., Massachusetts Institute of Technology, 1954

GRIMES, MAX YNE M.   Assistant Director (Medical Center Library), 1972
B.A.; M.S., Louisiana State University, 1947
HENDERSON, STEPHEN J. ........ Research Assistant In (Engineering), 1978
B.A., University of Florida, 1976

HENDRY, CAROLE F. ................. Lecturer (Biology), 1967
B.A., M.A., University of South Florida, 1961

HENLEY, ELTON F. ..................... Professor (English), 1963
B.A., M.A., Ph.D., Florida State University, 1962

HENNING, RUPHOLDO E. .............. Professor (Electrical Engineering), 1971
B.S.E.E., M.S.E.E., Sc. D., Columbia University, 1954, P.E.

HENSEL, JAMES S. .................... Associate Professor (Marketing), 1976
St. Petersburg Campus
B.A.; M.B.A.; Ph.D., Florida State University, 1970

HENSON, THOMAS H. ................. Network Control Coordinator (Research Data Center), 1972
B.S.; M.Ed., Tennessee State College, 1972

HERANDER, MARK G. ................ Assistant Professor (Economics), 1979
A.B.; Ph.D., University of North Carolina, 1980

HERB, BARRY A. ....................... Coordinator (Medicine Learning Resource Center), 1980
B.S., M.A., Ohio State University, 1975

HERMAN, WALTER J. .................. Professor (Economics), 1960
B.S., M.B.A., Ph.D., Florida, 1965

HERTZ, GILMAN W. ..................... Professor (Elective Physical Education, Education), 1960
B.S., M.S., P.E.D., University of Indiana, 1956

HESS, EDWARD V., III ............... Student Affairs Coordinator (Cooperative Education and Placement, Student Affairs), 1976
B.S.; M.Ed., Tennessee State College, 1972

HESS, JEFFREY B. ..................... Assistant Professor (Ophthalmalogy), 1979 (Part time)
B.A.; M.D., Baylor College of Medicine, 1971

HEWITT, CHARLES F. .......... Associate Vice President (Student Affairs), 1972
B.S.; M.A.; Ed.D., Western Michigan University, 1972

HEWITT, NANCY A. ...................... Assistant Professor (History), 1981
B.A.; Ph.D., University of Pennsylvania, 1981

HICKS-WEBER, EILEEN D. .......... Assistant Research Scholar/Scientist (Biology), 1977
B.S.; M.S.; Ph.D., University of Berne, Switzerland, 1970

HICKMAN, JOHN W. ..................... Associate Dean-Professor (Medical Center Faculty Relations), 1970
B.S., M.D., Indiana University, 1955

HICKS, DALE A. ....................... Counselor/Adviser (Counseling Center for Human Development, Student Affairs), 1977
B.S.; M.A.; Ph.D., Bowling Green State University, 1977

HILBELIN, DON R. ...................... Assistant Professor (Anatomy), 1980
B.S.; M.D., The Medical College of Wisconsin, 1977

HILL, LYNDA B. ....................... Director (Operations Analysis, Administration and Finance), 1977
B.S.B.A., The American University, 1971

HILL, RAYMOND ....................... Associate Professor-Chairperson (Adult and Vocational Education), 1971!
B.S.; M.A., Ed. D. University of Alabama, 1975

HILL, ROSALIE A. ................. Academic Administrator (Academic Affairs), 1975
B.S.; M.Ed., Florida A&M University, 1977

HINDE, WILL M. ....................... Professor (Visual Arts), 1972
HINE, ALBERT C. ...................... Associate Professor (Marine Science), 1979
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A.B.; M.S.; Ph.D., University of South Carolina, 1975

HINES, CONSTANCE V. ............... Assistant Professor (Educational Measurement and Research), 1983
B.A.; M.A.; Ph.D., Ohio State University, 1981

HIRSCH, GERTRUDE ................. Professor (Biology), 1974
B.S.; M.S., Ph.D., Iowa State University, 1957

HINZ, JOHN ......................... Dean-Professor (St. Petersburg Campus), 1979
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HIRSCH, LEONARD P. ................. Associate Professor (Political Science), 1981
B.A.; M.A.; Ph.D., Northwestern University, 1980

HIRSCHBERG, EDGAR W. .............. Professor (English), 1960
B.A., M.A.; Ph.D., Yale University, 1951

HODGES, RICHARD S. ............... Professor-Chairperson (Anesthesiology), 1981
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B.A.; M.A.; Ph.D., University of Virginia, 1971

HOENIG, LEONARD J. ................ Assistant Professor (Internal Medicine), 1983
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B.A.; L.L.B.; Ph.D., Massachusetts Institute of Technology, 1977

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HOFFMAN, HUBERT A. ............... Professor (Professional Physical Education), 1966
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HOMAN, THEODORE B. ............... Professor (Humanities), 1962
A.B., M.A., Ph.D., University of the Pacific, 1959

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B.Ed., M.Ed., Florida State University, 1962

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B.A., M.A.T.; Ph.D., Union Graduate School, 1977

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B.M.; M.M., Cleveland Institute of Music, 1975

HOLMES, ROLAND C. ................. Assistant Professor (Geography), 1974
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A.B., M.S.; Ph.D., University of Chicago, 1979

HOLTZMAN, LILLIAN C. .............. Director (Space Utilization and Analysis), 1964
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HONKER, H. ANDREW .......... Associate Professor-Assistant Director (Physical Education, Student Affairs), 1969
B.S., M.S., University of Illinois, 1965

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HOPKINS, STANLEY C. ............... Assistant Professor (Surgery), 1983
B.S.; M.D.; M.C.M., McGill University, 1976

HOPKINS, THOMAS L. .......... Professor (Marine Science), 1967
St. Petersburg Campus
B.A., M.A.; Ph.D., Florida State University, 1964

HORACEK, MARGARET B. ....... Associate University Librarian (Medical Library), 1974
B.A., M.S.L.S., Kansas State Teachers College, 1974

HORNIGAN, FREDERICK J. .......... Associate Professor (Political Science), 1968
B.A., M.A., Ph.D., Indiana University, 1958

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HOUK, K. WESLEY ................. Associate Professor (Visual Arts), 1961
B.A.; M.F.A., University of Iowa, 1950

HOWARD, TINA U. ........ Associate Professor (Social Work), 1982
B.A.; M.S.W.; D.S.W., University of Alabama, 1981

HUZOM, KUO-HOM C. ............... Assistant Professor (Microbiology), 1983
B.S.; M.S.; Ph.D., University of Alabama, 1979

HUDSON, MICHAEL C. .......... Systems Coordinator (Fiscal Services and Budget, Medicine), 1976
B.A., University of Florida, 1976

HUG, WILLIAM G. ................. Professor (Dance), 1969
B.S., M.A., University of Illinois, 1960

HUBARY, WILLIAM E. .......... Associate Professor (Political Science), 1976
B.A., M.A., Ph.D., University of Iowa, 1972

HUSSAIN, SAJAD F. ................. Visiting Assistant Professor (Psychiatry) and Florida Mental Hospital Faculty, 1983 (Part time)
M.D., B.S., M.S. University, Baroda, India, 1967

HUSTING, EDWARD L. ............ Professor (Comprehensive Medicine), 1981
B.S.; M.P.H.; Ph.D., University of London, 1968

HUTCHCRAFT, GILBERT R. ....... Associate Professor (Education), 1977
Fi. Myers Campus
A.B.; M.S., Ed.D., Indiana University, 1970

HUTCHISON, WILLIAM S., JR. ...... Associate Professor (Social Work), 1977
B.A.; M.S.W., Florida State, 1970

HVIDZALDA, EVA V. ................. Associate Professor (Pediatrics), 1978
M.D., Charles University School of Medicine, Prague, Czechoslovakia, 1969

IERARDO, DOMENICK .......... Associate Professor (Languages), 1970
B.A.; M.A., Ph.D., New York University, 1974

INGALLS, ROBERT P. ............... Associate Professor (History), 1974
B.A.; M.A., Ph.D., Columbia University, 1973
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B.A.; Ph.D., New York University, 1967
KELLER, RONALD K. Associate Professor (Biochemistry), 1975
B.S.; Ph.D., Vanderbilt University, 1973
KELLEY, ANNE E. Associate Professor (Political Science), 1963
B.S., M.S., Ph.D., Florida State University, 1961
KELLEY, JOHN E. Associate Professor (Mathematics), 1964
St. Petersburg Campus
B.S., M.S., Ph.D., University of Michigan, 1960
KENDALL, HARRY W. Professor (Physics), 1960
B.A., M.S., Ph.D., University of Florida, 1961
KENNERSON, ROBERT L. Professor (Mass Communications), 1966
B.A., M.C.S., Dartmouth College, 1938
KERN, ALLEN F. Research Assistant Professor (Adult and Vocational Education), 1974
B.A.; M.S.T.; M.S.Ed.; Ed.D., Nova University, 1979
KERN, ROBERT L. Professor (Mass Communications), 1972
B.A.; M.A., Syracuse University, 1970
KESSENROCK, ANGELA M. Instructor (Nursing), 1982
B.S.N.; M.S.N., University of Nebraska Medical Center College of Nursing, 1981
KETCHERSID, ARTHUR L. Assistant Director (Libraries), 1973
B.A., M.S.L.S., Florida State University, 1961
KETCHERSID, MARCIA J. Systems Coordinator (Computer Research Center), 1979
B.S., University of Central Florida, 1968
KHATOR, SURESH K. Assistant Professor (Industrial and Management Systems Engineering), 1983
B.E.; M.T.; Ph.D., Purdue University, 1975
KHORSANDIAN, JAN K. Assistant Professor (Music Arts), 1971
B.S., M.S., University of Illinois, 1970
KEIFER, H. CHRISTIAN Professor (English), 1960
B.A., M.A., Ph.D., Columbia University, 1961
KIM, KWANG HAE Professor (Computer Science and Engineering), 1979
B.S.; M.A.; M.S., Ph.D., University of California at Berkeley, 1974
KIMBLER, DELBERT L. Assistant Professor (Industrial and Management Systems Engineering), 1980
B.S.; M.S., Ph.D., Virginia Polytechnic Institute and State University, 1980
KINDE, STEWART W. Professor - Chairperson (Communicology), 1965
B.S., M.A., Ph.D., University of Florida, 1965
KINDER, BILLY N. Associate Professor (Psychology), 1976
B.S., Ph.D., University of South Carolina, 1975
KING, ALCY C. Counselor/Adviser (Business Administration), 1979
B.S., Florida A&M University, 1975
KING, ARLINE T. University Librarian (Libraries), 1964
B.A., M.A., M.S.L.S., Florida State University, 1970
KING, DEBRA A. Associate University Attorney (Legal Affairs), 1983
B.A., J.D., Florida State University, 1982
KING, EMGENE M. Professor (Nursing), 1980
B.S.N.E., M.S.N.; Ed.D., Columbia University, 1961
KING, RAYMOND C. Assistant Vice President (Housing and Auxiliary Services, Student Affairs), 1963
B.S.; M.A., Columbia University, 1961; Prof. Diploma
KING, SYLVIA C. Counselor/Adviser (Academic Services), 1974
B.S., M.A.T., M.S., Washington, D.C., 1965
KIRWAN, ALBERT D. Professor (Microbiology Science Program), 1981
A.B.; Ph.D., Texas A & M University, 1964
KLEIMAN, MICHAEL B. Associate Professor (Sociology), 1978
B.A.; M.A., Ph.D., Pennsylvania State University, 1979
KLEIN, THOMAS W. Associate Professor (Medical Microbiology), 1973
B.S., Ph.D., Creighton University, 1972
KLEINE, ESTHER S. Assistant in (Suncoast Gerontology), 1981
B.A., M.A., University of South Florida 1973
KLEINE, GEORGE-HELMUT Associate Professor (History), 1968
Ph.D., University Erlangen-Nurnberg, 1947
KLEPPINGER, RONALD R. Student Affairs Coordinator (Admissions, Student Affairs), 1969
B.A.; M.B.A., Rensselaer Polytechnic Institute, 1979
KLESIUS, JANELL P. Assistant Professor (Childhood Education), 1972
B.S.; M.A.; Ph.D., Florida State University, 1980
KLESIUS, STEPHEN E. Professor (Professional Physical Education, Education), 1969
B.S., M.A., Ph.D., Louisiana State University, 1968
KLINE, WILLIAM G. Director (Student Affairs), 1980 Sarasota Campus
B.A.; M.A., Villanova University, 1970
KLOCH, MARK C. Counselor/Adviser (Counseling Center for Human Development, Student Affairs), 1978
B.A., M.A., Ph.D., Catholic University of America, 1978
KNAUS, PATRICK N. Employee Relations Manager (Legal Affairs), 1982
B.A., M.A., University of Georgia, 1973
KNEEBURG, DON W. Associate Professor (Music Arts), 1968
B.A.; M.M., Indiana University, 1962
KNEGO, JOHN M. Associate Professor (Library, Media, and Information Studies Education), 1975
M.A., Ph.D., Indiana University, 1974
KNIGHT, EDITH G. Department Head-University Librarian (Librarians), 1975
B.A.; M.S.L.S., University of Kentucky, 1960
KNIPPEN, JOHN T. Associate Professor (Management), 1970
KNOX, ROBERT H. Professor (Humanities), New College USF, 1975 Sarasota Campus
A.B., Ph.D., Harvard University, 1959
KNUPEL, ROBERT A. Associate Professor (Obstetrics - Gynecology), 1979
B.S.; M.P.H.; M.D., New Jersey College of Medicine, 1973
KOEHLER, JERRY W. Dean - Associate Professor (School of Continuing Education), 1980
B.S.; M.A.; Ed.D., Pennsylvania State University, 1968
KORTHALS, JAN K. Assistant Professor (neurology), 1980
B.D.; Ph.D., Medical School, Warsaw, Poland, 1968
KOSBERG, JORDAN A. Professor (Gerontology), 1981
B.S., M.S.S.W.; Ph.D., University of Chicago, 1971
KOTLER, LOUISE L. Lecturer (Theatre), 1983
B.A.; M.F.A., Yale University, 1943
KOUSSER, BORIS Professor (Pediatrics), 1981
M.D., High Institute of Medicine, in Sofia, Bulgaria, 1959
KOYAC, MICHAEL G. Professor - Chairperson (Electrical Engineering), 1979
B.S.E.E.; M.S.E.E., Ph.D. in E.E., Northwestern University, 1970
KOVACS, TIBOR Visiting Instructor (Obstetrics-Gynecology), 1983
M.D., University of Budapest, 1956
KRABBEN, JOHN L. Visiting Instructor (Chemical Engineering), 1981
B.S.E.E.; M.B.A.; M.S.Ch.E., University of Illinois, 1969
KREIC, STANLEY C. Professor (Civil Engineering and Mechanics), 1972
B.S.E.E., Ph.D., Northwestern University, 1968, P.E.
KRAUS, ALLAN D. Professor (Electrical Engineering), 1971
B.E., M.S.M.E., M.E.E.; Ph.D., University of South Florida, 1976
KREIS, PETER M. Visiting Program Director (Pediatrics), 1974
B.A.; M.A., Fletcher School Law and Diplomacy, 1962
KRONSON, JEFFREY M. Professor (Visual Arts), 1963
B.S.; M.F.A., University of Michigan, 1963
KRUSCHITZ, WALTER H. Associate Professor (Physics), 1966
A.B.; M.A.; Ph.D., University of Michigan, 1961
KRZANOWSKI, JOSEPH J. Professor - Assistant Chairperson (Pharmacology), 1971
B.S.; M.D.; Ph.D., University of Tennessee, 1968
KUFFEL, CONSTANCE F. Instructor (Communicology), 1969
B.A., M.A., University of South Florida, 1968, C.C.C.
KUNAK, DENNY V. Assistant Professor (Industrial and Management Systems Engineering), 1983
B.E.; M.B.A.; D.Sc.; Ph.D., University of Utah, 1983
KUSHCHI, SHOZO Research Associate (Internal Medicine), 1981
KUSHNER, GILBERT Professor - Chairperson (Anthropology), 1970
B.A.; M.A., Ph.D., University of Arizona, 1968
KUTCHER, LOUIS W. JR. Assistant Professor (Sociology), 1967
A.B., M.A., Ph.D., University of Minnesota, 1972
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B.A. M.A.; M.Ph., Ph.D., Yale University, 1978
MUMME, ROY .................................. Assistant Professor (Childhood Education), Ft. Myers Campus, 1966
A.B., A.M.; M.Ed., University of North Carolina, 1953
MUNDAY, EDGAR ................................ Assistant Professor (Chemical, Mechanical Engineering), 1983
B.S.M.E.; M.S.M.E., Clemson University, 1978
MURPHY, ROBERT J. ................................ Associate Professor (Economics), 1966
B.A., M.A.; Ph.D., Fordham University, 1964
MURRAY, WILLIAM M. ................................ Assistant Professor (History), 1982
B.A.; Ph.D., University of Pennsylvania, 1982
MURTAUGH, M. ................................ Associate Professor (Radiology), 1983 (Part time)
B.A.; M.D., Temple University School of Medicine, 1971
MUSGRAVE, WALTER J. ................................ Professor (Psychological and Social Foundations Education), 1964 St. Petersburg Campus
A.B., M.A., Ed.D., University of Maryland, 1965
MUSHINSKY, HENRY R. ................................ Assistant Professor (Biology), 1979
B.S.; M.S.; Ph.D., Clemson University, 1973
MYERSON, MARLYN ................................ Associate Professor (Interdisciplinary Social Science), 1973
B.A.; M.A.; Ph.D., State University of New York at Buffalo, 1976
NAEHRING, DOUGLAS C. E. .......................... Associate Professor (Industrial and Management Systems Engineering), 1970 St. Petersburg Campus
B.E.; M.Sc., Ohio State University, 1949, P.E.
NAGEL, BOBBY J. .................................. Counselor to Students (Housing and Auxiliary Services, Student Affairs), 1981
B.A., M.S., Memphis State University, 1981
NAGLE, R. KENT .................................... Associate Professor (Mathematics), 1976
B.S., M.A., Ph.D., University of Michigan, 1975
NAZIAN, STANLEY J., JR. ............................ Assistant Professor (Psychology), 1979
B.S.; Ph.D., Marquette University, 1977
NELSEN, HARVEY W. .................................. Professor (Interdisciplinary Social Science), 1972
B.A., M.A.; Ph.D., George Washington University, 1972
NELSON, CARNOE T. E. ............................. Professor (Psychology), 1971
B.A.; Ph.D., Columbia University, 1966
NELSON, DOUGLAS L. ................................ Professor (Psychology), 1971
B.A.; M.A., Ph.D., University of Wisconsin, 1967
NELSON, LOUIS R. .................................. Director (Laboratory Animal Medicine)
Associate Professor (Medical Microbiology), 1971
B.S.; M.S.; D.V.M., Auburn University, 1955
NELSON, WILLIAM P. ................................. Professor (Internal Medicine), 1983
M.D., Georgetown University School of Medicine, 1956
NESMAN, EDGAR G. ................................. Professor (Sociology), 1968
B.S., M.S.; Ph.D., University of Florida, 1952
NESMAN, MARJORIE P. ............................... Counselor/Adviser (Student Personnel Office, Education), 1969 (Part time)
B.S., Michigan State University, 1952
NESS, GENE C. ..................................... Associate Professor (Biochemistry), 1974
B.S.; Ph.D., University of North Dakota, 1971
NESS, THOMAS E. ................................... Associate Professor -Chairperson (Marketing), 1971
A.B.; B.S.E.: M.S.I.A., Ph.D., Purdue University, 1968
NEUGAARD, EDWARD J. .............................. Professor (Languages), 1964
B.A.; M.A.; Ph.D., University of North Carolina, 1964
NEVILLE, DONALD D. ................................. Professor (Childhood Education), 1972
B.S.; M.Ed.; Ed.D., University of Florida, 1961
NEW, PETER K. .................................... Professor - Chairperson (Sociology), 1983
B.A.; M.A.; Ph.D., University of Missouri, 1960
NEWCOMBE, P. JUDSON .................................. Professor (Mathematics Education), 1970
B.A.; M.A.; Ph.D., Northwestern University, 1963
NICHOLS, PATRICIA M. ............................... Assistant in Research (Pediatrics), 1978
B.S.; M.S., University of Colorado Medical Center, 1978
NICKELS, BRADLEY J. .................................. Associate Professor (Visual Arts), 1970
B.D.; M.A.; Ph.D., University of Indiana, 1966
NICKERSON, DEBORAH A. ............................ Associate Professor (Biology), 1979
B.A.; Ph.D., University of Tennessee, 1979
NICOLOSI, GREGORY R. .............................. Associate Dean (Fiscal Management and Planning), Assistant Professor (Physics), 1972
B.S.; M.B.A.; Ph.D., Ohio State University, 1971
NIEMI, DANIEL J. .................................. Area Administrator (Housing and Auxiliary Services, Student Affairs), 1980
B.S.; M.A.; Central Michigan University, 1980
NIENHAUS, HARRY A. .............................. Associate Professor (Electrical Engineering), 1967
B.S.; M.S., University of St. Louis, 1964
NIXON, ROBERT L. ................................. Assistant Professor (Management), 1977
B.S.; M.S.; M.P.A., Ph.D., Cornell University, 1976
NOLAN, MICHAEL F. .............................. Associate Professor (Anatomy), 1975
B.S.; Ph.D., Medical College of Wisconsin, 1975
NOONAN, JOHN D. .................................. Associate Professor (Classics), 1975
B.A.; M.A.; Ph.D., Columbia University, 1977
NORD, HEINZ J. .................................. Associate Professor (Internal Medicine), 1973
M.D., University of Frankfurt and Freiburg Medical Schools, 1964
NORTHCUIT, TRAVIS J., JR. ......................... Professor - Director (Human Resources Institute), 1972
B.S., M.S.; Ph.D.; M.P.H., University of North Carolina, 1959
NORTON, BRYAN G. .............................. Associate Professor (Humanities), 1974
New College of USF, 1975 Sarasota Campus
A.B.; Ph.D., University of Michigan, 1970
OAKLEY, KAREN E. .................................. Visiting Assistant In (Pediatrics), 1983
B.S.; M.S., University of California, Berkeley, 1983
OBERHEFNER, SIGNE W. ............................. University Librarian (Libraries), 1974
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B.A.; M.L.S.; M.B.A., University of South Florida, 1982
O'BRIEN, GREGORY M. ST. L. ....................... Provost - Professor (Academic Affairs), Professor (Social Work), 1980
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O'BRIEN, RUTH W. .............................. Assistant Professor (Nursing), 1982
O'BRIEN, WILLIAM F. .............................. Associate Professor (Obstetrics and Gynecology), 1983
A.B.; M.D., New York University School of Medicine, 1974
OCHSCHORN, JUDITH .................................. Associate Professor (Interdisciplinary Social Science), 1969
B.A.; M.A.; Ph.D., The Union Graduate School, 1978
OCHSCHORN, MYRON G. ............................. Associate Professor (English), 1963
B.A.; M.A.; Ph.D., University of New Mexico, 1963
ODONNELL, MAURICE E. ........................... Associate Professor (Public Administration), 1966
B.S.; M.S.; Ph.D., University of Wisconsin, 1954
OGUR, BARBARA R. .......................... Assistant Professor (Internal Medicine), 1981
B.A.; M.D., University of Illinois, 1975
OHAEGHULAM, FESTUS U. ......................... Professor - Program Director (Afro-American Studies), 1972
B.A.; M.A.; Ph.D., University of Denver, 1967
O'HARA, ROBERT C. .................................. Professor (Languages), 1961
B.A.; B.A.; M.A., University of Louisville, 1953
OLESON, NORMAN L. .................................. Professor (Physics), 1969
B.S., M.S., Ph.D., University of Michigan, 1940
OLINE, LARRY W. .............................. Professor (Civil Engineering and Mechanics), 1967
B.A.; B.S.; M.S.; Ph.D., Georgia Institute of Technology, 1968, P.E.
OLSEN, EUGENE D. .............................. Professor (Chemistry), 1964
B.S.; Ph.D., University of Wisconsin, 1960
OLLISON, RAY A. .................................. Professor (Internal Medicine), 1976
M.D., George Washington University School of Medicine, 1956
O'MALLEY, REBECCA M. .............................. Assistant Professor (Chemistry), 1976
B.Sc.; Ph.D., University of Sheffield, England, 1970
ONEIL, CAROL A. .................................. Assistant Professor (Nursing), 1978
B.S.; M.A.; M.Ed, Columbia University, 1977
ORDONIO, ANDRES J. .............................. University Librarian (Libraries), 1975
(2 part time)
B.A.; B.S.; M.S.L.S., Kansas State Teachers College, 1969
ORLOSKY, DONALD E. .............................. Professor (Educational Leadership Education), 1969
A.B.; M.S., Ed.D., Indiana University, 1959
ORR, MARK T. .................................. Professor - Chairperson (Interdisciplinary Social Science), 1966
B.A., B.S.; Ph.D., University of North Carolina, 1954
ORTINAU, DAVID J. .............................. Assistant Professor (Marketing), 1979
B.S.; M.S.; Ph.D., Louisiana State University, 1979
OSULLIVAN, PETER B. .............................. Professor (Theatre), 1963
B.A., M.A., University of North Carolina, 1957
OTT, RUTH A. .................................. Counselor/Adviser (Academic Advising), 1975
Sarasota Campus
B.A., M.A., University of South Florida, 1982
OTTINGER, LOIS ............................. Assistant Professor (Nursing), 1983
B.S.N., M.S.N., University of Florida, 1971
OWEN, CHARLES R., JR. ........................... Assistant Professor (Music), 1981
B.M.; M.A., California State University, 1979
OWEN, TERENCE .................................. Professor (Chemistry), 1964
B.Sc.; Ph.D., University of Manchester, England, 1964
OWEN, WILLIAM D. .............................. Professor (Music Arts), 1964
B.M.; M.M., North Texas State University, 1960

PACIGA, JUNE E. Assistant in Research (Pathology), 1978

B.S., University of Illinois, 1972

PALEC, MILAN Lecturer (Fine Arts Events), 1982

M.F.A., Academy of Fine Arts, Prague, 1973

PALLS, TERRY L. Associate Professor (Humanities), New College of USF, 1974

B.A.; M.A., Ph.D., University of Kansas, 1974

PALMER, ROBERT E., SR. Associate Professor (Adult and Vocational Education), 1970

B.S., M.S., Ph.D., Florida State University, 1969

PANTHER, EDWARD D. Professor (Counselor Education), 1969

B.S., M.S., Ed.D., State University of New York at Buffalo, 1969

PAPPAS, GEORGE Professor (Visual Arts), 1966

B.S., M.A., Ed.D., Pennsylvania State University, 1957

PARADOX, LOIS J. Associate Professor (Medical Microbiology), 1973

A.B.; M.S., Ph.D., University of Michigan, 1960

PARIS, FRANCIS M. Deputy Director (Administration, Florida Mental Health Institute), 1983

B.S.; M.P.H., University of California, 1959

PARKER, JOHN W., JR. Professor (English), 1963

B.A.; M.A.; Ed.D., University of Kentucky, 1961, Ed.S.

PARKER, KEITH A. Associate Professor (History), 1966

B.A.; M.A., Ph.D., University of Maryland, 1965

PARRINO, BOB N. Counselor/Adviser (Counseling Center for Human Development, Student Affairs), 1982

B.A., M.A., Ph.D., University of South Florida, 1981

PARRISON, DONNA P. Assistant University Librarian (Libraries), 1981

B.A.; M.A., Florida State University, 1967

PARRISH, HENRY S. Associate Professor (Dance), 1980

B.A., Davidson College, 1957

PARRISH, JAMES A., JR. Professor-Chairperson (English), 1960

B.S.; M.A., Ph.D., Florida State University, 1955

PARROTT, MARY E. Assistant Professor (Mathematics), 1979

B.S., M.S., Purdue University, 1967

PARROTT, WILLIAM H. Associate Professor (Accounting), 1976

B.A.; M.Acc., Ph.D., University of Illinois, 1971

PATERSON, JAMES F. Assistant in Research (Pathology), 1978

B.A., DePaul University, 1976

PATOUILLE, LELAND D. Associate Director, Alumni Affairs (University Relations), 1982

B.A.; M.S., University of Tennessee, 1976

PATTERSON, GERALD E. Associate Professor (Adult and Vocational Education), 1971

B.S.; M.A., Ph.D., Ohio State University, 1970

PATTERSON, MICHAEL H. Director (University Physical Planning, Facilities Planning), 1973

B.A., University of Florida, 1969

PATTERSON, ROGER L. Chairperson (Aging Programs, Florida Mental Health Institute), 1975

B.A.; M.S., Ph.D., Florida State University, 1971

PATTON, JOHN T. Assistant Professor (Biology), 1983

B.S., Ph.D., Virginia Polytechnic Institute and State University, 1980

PAUL, JOHN H. Assistant Professor (Marine Science Program), 1983

B.A.; Ph.D., University of Miami, Florida, 1980

PAULSON, DARRYL G. Associate Professor (Political Science), 1974

St. Petersburg Campus

B.A.; M.S., Ph.D., Florida State University, 1975

PAVAN, MARY H. Visiting Assistant Professor (Pediatrics), 1981

A.B.; M.D., Harvard Medical School, 1972

B.A.; M.D., Harvard Medical School, 1972

B.S., University of Miami, Florida, 1980

PAULSON, DARRYL G. Associate Professor (Political Science), 1974

St. Petersburg Campus

B.A.; M.S., Ph.D., Florida State University, 1975

PEACEY, WALTER E., JR. Instructor (Childhood and Language Arts Education), 1970

B.A.; M.A., University of South Florida, 1971

PENNER, LOUIS A. Professor (Psychology), 1969

B.A.; M.A., Ph.D., Michigan State University, 1969

PEPPARD, VICTOR E. Associate Professor (Languages), 1975

B.A.; M.A., Ph.D., University of Michigan, 1974

PERCHALSKI, JOHN E. Assistant Professor-Program Director (Family Medicine), 1978 (Part time)

B.S.; M.D., University of Florida, 1967

PEREZ, JO ELLEN V. Assistant Professor (Administration, Education), 1981

B.A.; M.A.; Ph.D., University of South Florida, 1980

PERRIN, WILLIAM H. Athletic Head Coach (Intercollegiate Athletics), 1980

B.S., M.S., University of Florida, 1968

PERSEY, DAVID W. Assistant to Vice President (Student Affairs), 1979

B.S., M.S., Ph.D., Florida State University, 1979

PETERSON, DONOVAN D. Professor (Educational Leadership Education), 1968

B.S.; M.A.; Ph.D., University of Pittsburgh, 1970

PETTEGREW, LOYD S. Assistant Professor (Communication), 1982

B.A.; M.A.; Ph.D., University of Michigan, 1977

PETTIGREW, JAMES H. Academic Administrator (Cooperative Education and Placement, Student Affairs), 1981

B.S., M.Ed., Ed.D., University of Mississippi, 1981

PFEIFFER, ERIC A. Professor-Director (Suncoast Gerontology Center), 1978

A.B.; M.D., Washington University, 1960

PFIESTER, FRED C. Professor (Library, Media and Information Studies Education), 1976

B.S.; M.Ed.; A.M.L.S., Ph.D., University of Michigan, 1970

PFITZ, H. PHILIP Associate Professor-Program Director (Reading Education), 1967

B.A.; M.Ed. Ed.D., George Peabody College, 1966

PFOTENHAUER, JEAN P. Visiting Assistant In (Pediatrics), 1983

B.A.; M.S., University of California, Irvine, 1983

PHelps, CHRISTOPHER P. Associate Professor (Anatomy), 1976

A.B.; Ph.D., Rutgers University, 1973

PHELPS, STEVE W. Associate In (College Administration, Education), 1974

B.A.; M.A.A., University of South Florida, 1974

PHELPS, E. RAY Professor-Chairperson (Content Specializations/ Mathematics Education), 1971

B.S.; M.A.; Ph.D., Purdue University, 1971

Pierce, CARMEL J. Counselor/Adviser (Student Personnel Advising, Education), 1970 St. Petersburg Campus

B.S., University of South Carolina, 1945

PINKARD, CALVIN M. Associate Professor-Chairperson (Rehabilitation Counseling), 1964

A.B.; B.D.; M.A., Ph.D., University of Florida, 1939

POLF, JANET O. Assistant Professor (Natural Sciences), New College of USF Sarasota Campus

B.A.; M.S., Ph.D., University of Oregon, 1976

POLITO, JOSEPHINE T. Associate Professor (Childhood Education), 1977 Ft. Myers Campus

B.S.; M.S., Ph.D., Syracuse University, 1974

POLLET, ROBERT J. Professor (Internal Medicine), 1974

A.B.; M.D., New York University School of Medicine, 1969

POLLON, JAMES B. Assistant Dean-Professor (Pharmacology), 1971

B.S., M.D., Ph.D., Johann Wolfgang Von Goethe University of Frankfurt, 1971

PONTE, BLANCA A. Continuing Education Coordinator (English Language Institute), 1979

B.A.; M.A., University of South Florida, 1975

PORTER, D. THOMAS Associate Professor (Communication), 1982

B.A.; M.S., Ph.D., Florida State University, 1974

POSTEL, JOACHIM Assistant Professor (Surgery), 1982

B.S.; M.D., Ph.D., Johann Wolfgang Von Goethe University of Frankfurt, 1971

POTHOVEN, KENNETH L. Associate Professor-Chairperson (Mathematics), 1970

A.B.; M.A., Sp.A., Ph.D., Western Michigan University, 1969

POWELL, ROBERT W. Professor (Psychology), 1966

B.A.; M.A.; Ph.D., Florida State University, 1966

POWER, FRED B. Associate Professor (Finance), 1964

B.S., M.Ed., University of Florida, 1964

POWERS, PAULINE S. Associate Professor (Psychiatry), 1975

A.B.; M.D., University of Iowa, 1971

PREEDOR, EDWARD Professor (Music Arts), 1960

B.M., M.M., Eastman School of Music, 1937
B.S., M.S.; Ph.D., University of Connecticut, 1968
TOKOS, JANCICE O. ........... Associate Professor (Chemistry), 1972
B.S.; Ph.D., University of Rhode Island, 1969
TUBB, GARY N. ............... Assistant Professor (Library Media and Information Studies, Education), 1983
B.A.; M.A.; Ph.D., Texas A&M University, 1976
TUCKER, PAMELA ............ University Librarian (Libraries), 1972
B.A.; M.L.S., Emory University, 1972
TURBEVILLE, JOSEPH E., JR. .. Lecturer (Physics), 1964
B.A.; M.A., University of South Florida, 1968
TURNBULL, KRIS E. ....... Counselor to Students (Housing and Auxiliary Services, Student Affairs), 1982
B.A.; M.A., University of Missouri, 1980
TURNER, ROLLINS ............ Assistant Professor (Computer Science and Engineering), 1983
B.A.; M.S.E.E.; Ph.D., University of Massachusetts, 1982
TURNER, SANDRA V. ...... Visiting Assistant Professor (Library media and Information Services, Education), 1982
B.S.; M.A., Ph.D., University of South Florida, 1982
TURNER, STEPHEN P. .... Associate Professor (Sociology), 1975
St. Petersburg Campus
A.B.; A.M.; M.D., University of Missouri, 1975
TUTTLE, LESTER W., JR. .... Professor (Educational Leadership and Higher Education), 1964
UHRIG, SCOTT E. ............ Visiting Lecturer (Engineering), 1983
B.S.E.E.; M.S.E.E., University of South Florida, 1982
UNTERMANNA, .............. Associate Professor (Art and Music Education), 1968
B.S.; M.A., University of Southern California, 1979
UPCHURCH, SAM B. ........ Professor-Chairperson (Geology), 1974
A.B.; M.S., Ph.D., Northwestern University, 1970
UPRICHARD, A. EDWARD .... Associate Dean-Professor (College of Arts and Sciences), 1974
B.A.; M.D., Ph.D., Syracuse University, 1969
URAVICH PAUL A. ........... Director (University Safety and Security), 1973
B.S., M.Ed., Florida State University, 1970
VACHER, HENRY L. ........... Associate Professor (Geology), 1983
B.S.; M.S., Ph.D., Northwestern University, 1971
VALENTINE, VIRGINIA W. .. Lecturer (English), 1968
B.A.; M.A., Southern Methodist University, 1951
VAN COTT, MARY LOU ........ Instructor (Nursing), 1981
B.S., M.S., University of South Florida, 1981
VAN DURME, ALICE C. ...... Continuing Education Coordinator (Weekend College), 1982
B.A.; M.A., Ph.D., University of South Florida, 1975
VAN NESTE, ROY J. .......... Assistant Professor (History), 1971
B.A.; M.A., Ph.D., University of Wisconsin, 1972
VAN VLEET, EDWARD S. ..... Associate Professor (Marine Science), 1979 St. Petersburg Campus
B.S.; B.A.; M.S., Ph.D., University of Rhode Island, 1978
VAN VOORHIS, KENNETH R. . Professor-Chairperson (Psychology), 1970
B.S., M.B.A., D.B.A., Louisiana State University, 1971
VANDEN, HARRY E. ........ Associate Professor (Political Science), 1975
VARANASI, MURALI R. .... Associate Professor (Computer Science Engineering), 1980
B.S.; D.M.I.T.; M.S., Ph.D., University of Maryland, 1973
VARGO, GABRIEL A. ........ Assistant Professor (Marine Science), 1979
St. Petersburg Campus
B.S., M.S., Ph.D., University of Rhode Island, 1976
VARGO, SANDRA L. .......... Coordinator (Florida Institute of Oceanography), 1979
St. Petersburg Campus
B.S., M.S., Ph.D., University of Rhode Island, 1974
VASEY, FRANK B. .......... Associate Professor (Internal Medicine), 1977
B.A.; B.S.; M.D., University of Pennsylvania, 1968
VASTINE, JAMES P. ....... Assistant Department Head-University Librarian (Libraries), 1970
B.A.; M.S.L.S., Florida State University, 1965
VASTINE, SUSAN N. .......... Acting University Librarian (Libraries), 1983
(Part time)
B.A.; M.L.S., Emory University, 1965
VEGA, MANUEL .............. Associate Professor (Criminal Justice), 1965
Sarasota Campus
B.S., M.S., Ph.D., Florida State University, 1964
VERKAUF, BARRY S. ........ Associate Professor (Obstetrics and Gynecology), 1974
(Part time)
B.A.; M.D., Tulane University School of Medicine, 1963
VETTER, HAROLD J. ........ Professor-Chairperson (Criminal Justice), 1974
B.A.; M.A.; Ph.D., State University of New York at Buffalo, 1955
VICKERY, ANN C. ........... Assistant Professor (Comprehensive Medicine), 1980
B.A.; Ph.D., University of South Florida, 1980
VILLEME, MELVIN G. ....... Program Director (Student Personnel), 1971
B.A.; M.A., Ed.D., Ed.D., Nova University, 1975
VINCELETTE, JOYCE P. ...... Assistant Professor (Management), 1977
B.S.; M.B.A.; D.B.A., Indiana University, 1979
VINCENT, ALBERT L. ....... Associate Professor (Comprehensive Medicine), 1978
A.B.; M.A.; Ph.D., University of California, Los Angeles, 1976
VINCENT, CLARENCE E. ..... Lecturer (Marketing), 1983
St. Petersburg Campus
B.S., M.B.A.; D.B.A., Indiana University, 1961
VISCONTI, JAMES B. ....... Area Administrator (Housing and Auxiliary Services, Student Affairs), 1981
B.A.; M.Ed., University of Georgia, 1980
VOGEL, DENIS E. .......... Assistant Professor (Mass Communications), 1979
A.B.; M.A.; Ph.D., Florida State University, 1979
WADAS, JON J. ............... Director (Intercollegiate Athletics), 1982
B.S.; M.A., Arizona State University, 1972
WALBOLT, DANIEL R. ....... Vice President (Student Affairs), 1969
B.S.; J.D., New York University, 1965
WALDEN, ERIC L. ............ University Comptroller (Finance and Accounting), 1973
B.S.; M.B.A., Eastern Michigan University, 1973
WALLES, JAMES E. .......... Visiting Assistant Professor (Humanities), 1982
B.A.; M.A.; Ph.D., Florida State University, 1983
WALLING, ARTHUR K. ...... Assistant Professor (Orthopedic Surgery), 1982
B.S.; M.D., Creighton University, 1976
WALSH, RUTH M. .......... Assistant Professor (Management), 1969
A.B.; M.A.; Ph.D., University of South Florida, 1976
WALSH, JOHN D. .......... Assistant Professor (English), 1965
B.A.; M.A.; Ph.D., Vanderbilt University, 1972
WALTZ, ALFRED J. .......... Instructor (Management), 1979
B.S.; M.S., Georgia Institute of Technology, 1972
WALTZER, ARTHUR K. ...... Assistant Professor (Surgery), 1983
B.A., M.D., Vanderbilt School of Medicine 1961
WANG, TING-YEUNG .......... Associate Professor (Pathology), 1978
B.A., M.S., National Defense Medical Center, Taiwan, 1977
WARFIELD, NANCY R. ...... Assistant Professor (Music Arts), 1980
B.M., Oberlin Conservatory, 1977
WARREN, GRETCHEN W. ..... Associate Professor (Dance), 1983
B.A.; M.A.; Ph.D., Harvard University, 1983
WARREN, JOHN R. .......... Assistant Professor (Family Medicine), 1978
A.B., M.D., Indiana University School of Medicine, 1969
WASKY, PATRICIA P. ...... Assistant Professor (Anthropology), 1969
B.S.; M.A.; Ph.D., University of California, Berkeley, 1978
WATKINS, ALISON H. ....... Visiting Instructor (Pediatrics), 1982
B.S.; M.S., University of South Florida, 1981
WATKINS, ARMIN J. ........ Professor (Music Arts), 1960
B.M.; M.M.; D.M., Indiana University, 1957
WATKINS, GEORGE M. ...... Professor-Associate Chairperson (Surgery), 1975
B.A.; M.D., Vanderbilt University School of Medicine, 1960
WEATHERFORD, ROY C. ...... Associate Professor (Philosophy), 1972
B.A.; M.A.; Ph.D., Harvard University, 1972
WEAVER, LEE A. .......... Professor (Industrial and Management Systems Engineering), 1967
B.A.; M.S., Ph.D., University of Florida, 1972
WEBER, ELIZABETH A. ....... Associate University Librarian (SUP Extension Library), 1982 St. Petersburg Campus
B.A.; M.A., University of South Florida, 1976
WEBER, LEE A. .......... Associate Professor (Biology), 1977
B.A.; M.S., Ph.D., University of Connecticut, 1975
WEEKS, WILLIAM W. ....... Counselor to Students (Housing and Auxiliary Services, Student Affairs), 1982
B.S.; M.S., Florida State University, 1982
WEBLEY, RICHARD E. ...... Assistant Professor (Pediatrics), 1982
B.S.; M.D., University of South Florida, 1977
WEINBERG, HERMAN ....... Associate Professor (Professional Physical Education, Education), 1970
B.S.; M.A.; Ed.D., Temple University, 1969
WEINZIERL, JON E. .......... Associate Professor (Chemistry), 1973
FACULTY AND ADMINISTRATIVE STAFF

B.A., University of South Florida, 1981

YOUNT, RICHARD L. Director (Registrar), 1982
B.A.; M.Ed., University of Miami, Florida, 1972

ZAKROFF, CHARLES J. Assistant Professor (Anesthesiology), 1982
B.S.; M.D., Hahnemann Medical College and Hospital, 1978

ZBAR, FLORA I. Assistant Professor (English), 1965
B.A.; M.A., Florida State University, 1962

ZERLA, FREDRICK J. Associate Professor (Mathematics), 1963
B.A.; M.S., Ph.D., Florida State University, 1967

ZOBLE, ROBERT G. Assistant Professor (Internal Medicine), 1983
B.S., M.D., Ph.D., University of Miami, Florida, 1978

RETIRED FACULTY

AND ADMINISTRATIVE STAFF

ABBETT, WALTER R. Lecturer (Engineering), 1966-1980

ADAMS, PATRICIA W. Counselor and Adviser (Academic Services, Undergraduate Studies), 1965-1983

AGNES, FREDERIC F. (Deceased) Lecturer (Physical Science), 1960-1971

AGENS, JEANETTE F. Assistant Professor (Education), 1963-1972

ALLEN, EDMUND E. Associate Professor (Interdisciplinary Social Science), 1964-1981

ALLEN, JOHN S. (Deceased) President Emeritus, 1957-1970

ANDERSON, CELIA I. Assistant Professor (Education), 1967-1976

ANDERSON, DONALD J. Continuing Education Center Administrator (Regional Campus Affairs), 1967-1983 Ft. Myers Campus

ANDERSON, EVERETT S. Professor (Music), 1963-1982

ANDERSON, LOUIS V. Associate Professor (Psychological and Social Foundations Education), 1963-1980

ASHFORD, THEODORE Professor Emeritus (Chemistry), Dean Emeritus (Natural Sciences), 1960-1981

AULETA, MICHAEL S. Professor (Education), 1967-1973

AUSTIN, MARTHA L. Professor Emeritus (Reading Education), 1963-1980

BEAUCHAMP, GEORGE E. Associate Professor (English), 1960-1971

BELL, JOHN O. Lecturer (Interdisciplinary Social Science), 1969-1982

BILLINGSLEY, EDWARD B. Associate Professor (History), 1967-1977

BORDEN, ARTHUR R. Professor Emeritus (English Literature), New College of USF, 1975-1982 Sarasota Campus

BOWLWARE, JOE W. Lecturer (Geology), 1961-1973

BROITMAN, JACK R. Professor Emeritus (Mathematics), 1967-1976

BRUSCA, DONALD D. University Physician (Student Health Center), 1965-1973

BRYANT, FRED D. Director (Health Sciences Library, 1971-1984

CARR, ROBERT S. Visiting Lecturer (Mass Communications), 1968-1974

CATLIN, ROBERT A. Associate Professor (Political Science), 1977-1983

CHEN, CHUNG HNAN Professor Emeritus (Philosophy), 1965-1975

CLARK, CLARENCE C. (Deceased) Professor Emeritus (Physical Science), 1960-1969

CLEARY, FLORENCE D. (Deceased) Lecturer (Education), 1964-1969

CLOSE, JAMES A. Professor Emeritus (Finance), 1971-1975

CLOUGH, W. LYNNOND Professor Emeritus (Humanities), New College of USF, 1975-1980 Sarasota Campus

COOK, DORIS Department Head and University Librarian (Libraries), 1968-1979 St. Petersburg Campus

COOPER, RUSSELL M. (Deceased) Dean Emeritus (Liberal Arts), Professor (Interdisciplinary Social Science), 1959-1979

COVINGTON, HARRISON W. Dean Emeritus-Professor Emeritus (Fine Arts), 1961-1982

COWELL, GEORGE J. Professor Emeritus (Engineering), 1960-1973

CRAIG, CALVERT J. Associate Professor (Educational Leadership Education), 1967-1981

CRIEKENBERGER, MARGARET E. Professor Emeritus (Physical Education, Education), 1961-1979

DAUGHERTY, GEORGE G. Lecturer (Mass Communications), 1972-1980

DAVIS, WESLEY F. Professor (English), 1960-1983

DEAN, HARRIS W. Vice President Emeritus (Academic Affairs), 1961-1971

DEYO, WILLIAM A., JR. Associate Professor (Accounting), 1960-1973

DICKER, ANNAMARY Associate Professor (Music Arts), 1969-1983

DOTY, LOUIS F. Professor (Industrial and Management Systems Engineering), 1970-1983

DOWNEY, PAUL M. Professor Emeritus (Industrial Systems Engineering), 1966-1977

DOUBIS, LEADORE D. Associate Professor (Childhood and Language Arts Education), 1964-1980

DUNN, EDGAR H. Lecturer (Accounting), 1970-1981 St. Petersburg Campus

DwyER, ROY E. Lecturer (Childhood and Language Arts Education), 1967-1978

ERVIN, DONALD W. Instructor-Assistant Director (Sponsored Research), 1973-1983

FERNELIUS, W. CONRAD Distinguished Professor Emeritus (Chemistry), 1970-1975

FERNES, MARY W. Associate University Librarian (Libraries), 1971-1981 St. Petersburg Campus

FORMAN, GUY Professor Emeritus (Physics), 1962-1972

FOUZIT, LUCILLE C. (Deceased) Lecturer (Counseling Center), 1963-1973

FRENCH, SIDNEY J. (Deceased) Dean Emeritus (Academic Affairs) and Professor (Education), 1958-1969

GLENERSON, EMILE G. (Deceased) Associate Professor Emeritus (Foreign Languages), 1967-1977

GOLDSMITH, GEORGE H. Director (Financial Aids, Student Affairs), 1969-1982

GONZALEZ, JUAN O. Professor (Mechanical Engineering), 1965-1983

GRISCTI, WALTER E. Professor (Mass Communications), 1967-1983

HARLEY, JAY W. Instructor (English), 1960-1972

HAVEN, JULIA M. (Deceased) Professor Emeritus (Education), 1969-1974

HEARN, THOMAS K. Assistant Professor (Education), 1967-1977

HICKMAN, WILLIAM Assistant Professor (English), 1963-1969

HUMM, HAROLD J. Professor (Marine Science), 1966-1982

HUNNICUTT, CLARENCE W. (Deceased) Professor (Education), 1967-1977

JAESCHE, DONALD J. Associate Professor (Adult and Vocational Education), 1963-1979

JAMES, ROSELLA Assistant Professor (Economics), 1967-1979

JONSON, GORDON A. Professor (Music Arts), 1963-1981

JURGENSON, LOUIS C. Professor (Accounting), 1966-1981

KAPLAN, MAX Professor (Sociology), 1967-1978

KAUDE, EMIL (Deceased) Distinguished Lecturer Emeritus (Economics), 1968-1973

KELLER, WALTER D. Professor (Geology), 1970-1973

LAKELA, OLGA (Deceased) Research Associate (Botany), 1960-1970

LEVITI, ROBERT Director (Admissions, Student Affairs), 1968-1981

LINTON, JOE R. Associate Professor Emeritus (Biological Sciences), 1963-1982

ZUREICH, RAYMOND Director (Internal Auditing), 1981 B.S.; M.B.A., University of South Florida, 1972, C.P.A.

ZUSMAN, JACK Director (Florida Mental Health Institute), 1982 A.B.; M.A.; M.D.; M.P.H., Columbia University School of Public Health and Administrative Medicine, 1966

ZYCHLINSKI, LECH J. Research Associate (Pharmacology and Therapeutics), 1982 Ph.D., Medical Academy in Gdansk, Poland, 1978

ZYLSTRA, SAFE A. Associate Professor (Humanities), 1969 B.A.; B.B.; Ph.D., Emory University, 1969
LOW, EDMON (Deceased) ........ Librarian Emeritus (Sarasota Library), 1975-1980
LUCKENBACH, LEON R. (Deceased) .......... Associate Professor (Mathematics), 1960-1974
MCCLUNG, GENE .................. Professor (Accounting), 1960-1983
St. Petersburg Campus
MACKAY, E. MAXINE .... Professor Emeritus (Humanities), 1961-1980
MERRIAM, HARLAND C ........ Professor (Childhood and Language Arts Education), 1969-1981
MERRIAM, KEMPER W ........ Professor (Accounting), 1967-1982
MILLER, GEORGE H ........ Program Director (Southeast Center Cooperative Education Grant), 1960-1980
NELSON, G. ID E., JR .... Professor Emeritus (Biology), 1960-1981
NEUBERGER, HANS H .... Professor Emeritus (Geography), 1971-1974
NOER, RUDOLF J ........ Professor Emeritus (Surgery), 1970-1977
OBERMEYER, CHARLES (Deceased) .... Lecturer (American Idea), 1964-1970
O'HARE, LEO H ............... Lecturer (English), 1960-1969
PALM, JOHN W ....... Assistant Professor Emeritus (Interdisciplinary Social Science), 1970-1981
POPE, JAMES S ............. Lecturer (Education), 1969-1976
PRATHER, SAM ............. Associate Professor (Elective Physical Education), 1962-1983
PRESCOTT, GERALD R .... Associate Professor (Music Education), 1967-1972
RAY, JAMES D, JR ........ Dean-Professor (Natural Sciences), 1959-1983
RIMBEY, DONALD H ....... Professor (Energy Conversion Engineering), 1967-1980
ROBERSON, BRUCE W .......... Lecturer (Accounting), 1966-1976
St. Petersburg Campus
ROSE, DONALD C ............ Professor (Mathematics), 1960-1983
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