SAI 301  (6)  SAI 577  (4)
SAI 302  (6)  SAI 578  (4)
SAI 311  (6)  SAI 580  (4)
SAI 312  (6)  SAI 598  (1-12)
SAI 313  (6)  SAI 620  (4)
SAI 498  (1-12)  SAI 621  (4)
SAI 511  (6)  SAI 622  (4)
SAI 513  (6)  SAI 680  (4)
SAI 571  (6)  SAI 698  (1-12)
SAI 572  (6)  SAI 699  (1-9)
SAI 574  (6)  SAI 681  (1-12)
SAI 576  (4)

In addition, sufficient and appropriate course work (approved by a speech pathology adviser) will be included to meet the preparation requirements of the American Speech and Hearing Association for the Certificate of Clinical Competence.

Requirements for the M.S. Degree in Audiology Post-Baccalaureate (AUD):

General requirements for graduate work are to be found in this bulletin under the section titled "Division of Graduate Studies." A minimum of 45 credits is required as well as sufficient course work and practicum to meet the American Speech and Hearing Association's requirement for clinical certification in audiology. The student with an existing bachelor's degree and appropriate prerequisites may plan a program from among the following courses:

SAI 512  (6)  SAI 571  (6)
SAI 513  (6)  SAI 572  (6)

SAI 573  (6)  SAI 574  (6)
SAI 579  (4)  SAI 580  (4)
SAI 580  (1-12)  SAI 598  (1-12)
SAI 673  (4)  SAI 674  (4)
SAI 675  (4)

Plus one of the following:
SAI 579  (4)
SAI 675  (4)
SAI 684  (6)
SAI 685  (6)

Requirements for the Combined Undergraduate/Graduate M.S. Degree in Audiology (AUF):

A minimum of 225 credits is required for the combined program. In addition to the General Distribution requirements the following courses will be required for all programs:

SAI 301  (6)  SAI 573  (4)
SAI 302  (6)  SAI 574  (4)
SAI 311  (6)  SAI 579  (4)
SAI 312  (6)  SAI 580  (4)
SAI 313  (6)  SAI 598  (1-12)
SAI 498  (1-12)  SAI 673  (4)
SAI 512  (6)  SAI 674  (4)
SAI 513  (6)  SAI 675  (4)
SAI 571  (6)

SAI 572  (6)  SAI 573  (6)
SAI 579  (4)

Plus one of the following:
SAI 579  (4)
SAI 574  (6)
SAI 580  (4)
SAI 684  (6)

In addition sufficient and appropriate course work (approved by an audiology adviser) must be included to meet the preparation requirements of the American Speech and Hearing Association for the Certificate of Clinical Competency in Audiology.
The present site of the St. Petersburg campus was acquired from the federal government in 1965. In the fall of 1968 a modest offering of resident credit courses was made available to local students of junior, senior or graduate standing. By the 1972-73 academic year, in excess of 1,500 students were enrolled in courses on the St. Petersburg campus. The continuity and scope of academic programs has been strengthened each year, thus permitting more students to enroll on a full-time basis. The expansion of academic programs has been accompanied by a corresponding increment of student services, library facilities, administrative services, and student organizations.

**Academic Programs**

The St. Petersburg campus, which offers only upper level and graduate courses, enrolls students in programs from the Colleges of Education, Engineering, Natural Sciences, Social and Behavioral Sciences, Language and Literature, and Business Administration. All courses taken on the St. Petersburg campus receive full resident credit. Academic requirements for graduation from the University of South Florida are the same for students on either campus.

The St. Petersburg campus resident faculty numbers approximately 55. This core of resident faculty members is supplemented by professors who commute from the Tampa campus, thus increasing the scope and variety of academic services available to students on the St. Petersburg campus.

At present, complete upper level academic programs leading to the baccalaureate degree are available to students majoring in: elementary education, engineering technology, English, psychology, history, engineering administration, accounting, management, sociology, English education, geography and social science education.

Partial baccalaureate and master's programs are available to students who wish to major in political science, philosophy, religion, criminal justice, mass communications, special education, vocational education, guidance and counseling, mathematics, marketing, finance, economics, aging and speech communication.

While at present it is not possible for students to complete work at the master's level on the St. Petersburg campus, each quarter selected graduate courses are offered by the Colleges of Business Administration, Education, Engineering, Social and Behavioral Sciences, Language and Literature, and Natural Sciences.

**Library Facilities**

The library resources of the St. Petersburg campus are adequate to satisfy most of the students' library needs. In addition, a system for intercampus library loans has been developed, making it possible for St. Petersburg campus students to secure circulating materials from the Tampa campus library without going to Tampa. Of course, if students wish to travel to Tampa they have complete access to library facilities there.

**Student Affairs**

*Counseling* in vocational, social and personal matters is available through the Counseling Services. Job placement is also coordinated through the Office of Student Affairs.

*Emergency medical service* is provided for students who incur injury or illness while on campus. Comprehensive health care is available through the Health Center on the Tampa campus.

*Financial Aid* information is available in the Office of Student Affairs.

*Residence halls* are available on the Tampa campus only.

*Student Activities.* On-campus student activities include a swimming pool-recreation complex, billiard and ping pong tables, film series and a sports equipment check-out. In addition, many community cultural and recreational resources are available to students at a reduced price through a program of direct student subsidization. Membership in both professional and recreational clubs is also available to students.

**Admissions**

Admissions procedures for students entering the University may be completed through the Admissions Office on the St. Petersburg campus. Admissions policies for entrance into the University are the same on both campuses.
COURSE DESCRIPTIONS

Courses offered for credit by the University of South Florida are listed on the following pages in alphabetical order according to subject area.

The first line of each description includes the prefix and course number, title, and number of credits. Credits separated by a colon indicate concurrent lecture and laboratory courses taught as a unit:

**PHY 201-202. GENERAL PHYSICS (4:1)**

Credits separated by commas indicate unified courses offered in different quarters.

**HTY 211, 212. AMERICAN HISTORY (4,4)**

Credits separated by a hyphen indicate variable credit:

**EDR 633. PRACTICUM IN READING (3-6)**

The following abbreviations are utilized in various course descriptions:

- PR Prerequisite
- CI With the consent of the instructor
- CC With the consent of the chairman of the department or program
- CR Corequisite
- lec-lab. Lecture and laboratory

Course descriptions are listed under the following department and program headings (prefix in parentheses):

- Accounting (ACC)
- Afro-American Studies (AFA)
- Aging Studies (AGE)
- American Studies (AMS)
- Anthropology (ANT)
- Art (ART)
- Astronomy (AST)
- Biology (BIO)
- Botany (BOT)
- Chemistry (CHM)
- Classics and Ancient Studies (CLS)
- Cooperative Education (COE)
- Criminal Justice (CJP)
- Dance (DAN)
- Developmental Courses:
  - Developmental English (DEE)
  - Developmental Mathematics (DMA)
  - Developmental Reading (DRE)
  - Developmental Study Skills (DRS)
- Economics (ECN)
- Education:
  - Art Education (EDA)
  - Curriculum (EDC)
  - Elementary Education (EDE)
  - English Education (EDT)
  - Foreign Language Education (EDX)
  - Foundations (EDF)
  - Guidance (EDG)
  - Humanities Education (EDY)
  - Junior College Education (EDH)
  - Library-Audiovisual Education (EDL)
  - Music Education (EDM)
  - Natural Science-Mathematics Education (EDN)
- Physical Education for Teachers (EDP)
- Measurement-Research-Evaluation (EDQ)
- Reading Education (EDR)
- Social Science Education (EDW)
- Special Education (EDS)
- Vocational and Adult Education (EDV)
- Engineering:
  - Basic Engineering (EGB)
  - Electrical and Electronic Systems (EGE)
  - Energy Conversion and Mechanical Design (EGR)
  - Industrial Systems (EGS)
  - Structures, Materials, & Fluids (EGX)
  - Computer Service Courses (ESC)
  - Engineering Technology (ETK)
  - English (ENG)
  - Environment (ENV)
  - Finance (FIN)
  - General Business Administration (GBA)
  - General Education (CBS)
  - Geography (GPY)
  - Geology (GLY)
  - History (HTY)
  - History of Ideas (HII)
  - Humanities (HUM)
  - Interdisciplinary Language-Literature (LLI)
  - Linguistics (LIN)
  - Management (MAN)
  - Marine Science (OGY)
  - Marketing (MKT)
- Mass Communications (COM)
- Mathematics (MTH)
- Medicine (MED)
- Modern Languages:
  - General Modern Language (MOL)
  - Arabic (ARA)
  - French (FRE)
  - German (GER)
  - Greek (GRE)
  - Hebrew (HEB)
  - Italian (ITA)
  - Portuguese (POR)
  - Romance (Rom)
  - Russian (RUS)
  - Spanish (SPA)
- Music (MUS)
- Natural Sciences (NAS)
- Nursing (NUR)
- Off-Campus Term (OCT)
- Philosophy (PHI)
- Physical Education, Elective (PEB)
- Physical Sciences (PHS)
- Physics (PHY)
- Political Science (POL)
- Psychology (PSY)
- Rehabilitation Counseling (REH)
- Religious Studies (REL)
- Social Sciences, Interdisciplinary (SSI)
- Sociology (SOC)
- Speech Communication (SPE)
- Speech Pathology & Audiology (SAI)
- Theatre Arts (TAR)
- Women's Studies (WSP)
- Zoology (ZOO)

Cross-Listing of Departments and Programs Alphabetically by Prefix

| ACC  | Accounting   |
| AFA  | Afro-American Studies |
| AGE  | Aging Studies   |
| AMS  | American Studies |
| ANT  | Anthropology    |
| ARA  | Arabic (Modern Languages) |
| ART  | Art           |
| AST  | Astronomy     |
| BIO  | Biology       |
| BOT  | Botany        |
| CBS  | General Education |
| CHM  | Chemistry      |
| CJP  | Criminal Justice |
| CLS  | Classics and Ancient Studies |
COE Cooperative Education
COM Mass Communications
DAN Dance
DEE Developmental English
DMA Developmental Mathematics
DRE Developmental Reading
DRS Developmental Study Skills
EDA Art Education (Education)
ECN Economics
EDE Elementary Education (Education)
EDF Foundations (Education)
EDG Guidance (Education)
EDH Junior College Education (Education)
EDM Music Education (Education)
EDN Natural Science-Mathematics Education (Education)
EDP Physical Education for Teachers (Education)
EDQ Measurement-Research-Evaluation (Education)
EDR Reading Education (Education)
EDS Special Education (Education)
EDT English Education (Education)
EDV Vocational & Adult Education (Education)
EDW Social Science Education (Education)
EDX Foreign Language Education (Education)
EDY Humanities Education (Education)
EDG Basic Engineering (Engineering)
EGE Electrical & Electronic Systems (Engineering)
EGR Energy Conversion & Mechanical Design (Engineering)
EGS Industrial Systems (Engineering)
EGX Structures, Materials & Fluids (Engineering)
ENG English
ENV Environment
ESC Computer Service Courses (Engineering)
ETK Engineering Technology
FIN Finance
FRE French (Modern Languages)
GBA General Business Administration
GER German (Modern Languages)
GLY Geology
GPY Geography
GRE Greek (Modern Languages)
HEB Hebrew (Modern Languages)
HII History of Ideas
HTY History
HUM Humanities
ITA Italian (Modern Languages)
LIN Linguistics
LLI Interdisciplinary Language-Literature
MAN Management
MED Medicine
MKT Marketing
MOL Modern Languages
MTH Mathematics
MUS Music
NAS Natural Sciences
NUR Nursing
OCT Off-Campus Term
OGY Marine Science
PEB Physical Education, Elective
PHI Philosophy
PHS Physical Sciences
PHY Physics
POL Political Science
POR Portuguese (Modern Languages)
PSY Psychology
REH Rehabilitation Counseling
REL Religious Studies
ROM Romance (Modern Languages)
RUS Russian (Modern Languages)
SAI Speech Pathology and Audiology
SOC Sociology
SPA Spanish (Modern Languages)
SPE Speech Communication
SSI Social Sciences, Interdisciplinary
TAR Theatre Arts
WSP Women’s Studies
ZOO Zoology

CBS (General Education) Course Numbering Changes
Effective Fall Quarter (I), 1973

<table>
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<th>Former CBS Courses</th>
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<th>Prefix and Number</th>
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<td>CBS 211, 212</td>
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<td>CBS 217, 218</td>
<td>RUS 201, 202</td>
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<td>CBS 223</td>
<td>BIO 255, 256, 257</td>
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<td>CBS 255, 256, 257</td>
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<td>CBS 301, 302</td>
<td>SSI 100, 300</td>
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<td>CBS 308, 315, 316, 317</td>
<td>HUM 308, 315, 316, 317</td>
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<td>SSI 405, 406, 407</td>
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<tr>
<td>CBS 405, 406, 407</td>
<td>NAS 409, 410</td>
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Former: CBS Courses  New: Prefix and Number

| CBS 100 | ENG 100 |
| CBS 101, 102 | ENG 101, 102, 103 |
| CBS 109, 110 | MTH 109, 110 |
| CBS 111, 112 | FRE 101, 102 |
| CBS 114, 115 | GER 101, 102 |
| CBS 117, 118 | RUS 101, 102 |
| CBS 120, 121 | SPA 101, 102 |
| CBS 123, 124 | ITA 101, 102 |
| CBS 201, 202, 203 | SSI 201, 202, 383 |
| CBS 205, 206, 207 | BIO 205, 206, 207 |
| CBS 208, 209, 210 | PHY 208, 209, 210 |

CBS: CBS Courses  Prefix: Prefix and Number

| CBS 211, 212 | FRE 201, 202 |
| CBS 214, 215 | GER 201, 202 |
| CBS 217, 218 | RUS 201, 202 |
| CBS 220, 221 | SPA 201, 202 |
| CBS 223 | BIO 255, 256, 257 |
| CBS 255, 256, 257 | (cr. hrs. changed from 3 to 4) |
| CBS 301, 302 | SSI 100, 300 |
| CBS 308, 315, 316, 317 | HUM 308, 315, 316, 317 |
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| CBS 403, 404 | SSI 405, 406, 407 |
| CBS 405, 406, 407 | NAS 409, 410 |
| CBS 409, 410 | (cr. hrs. changed from 5 to 4) |
ACC 412. FEDERAL
ACC 424. ADVANCED AUDITING (3)
ACC 413. FEDERAL
ACC 423. AUDITING (3)

A. Fisher, G. Gray, S. Kahn, R. Welker; Dunn, G. Edgecomb.

Associate Professors:
Chairman:

Introduction to estate, gift and social security taxes.

Accounting for home office and branch operations through an understanding of accounting statements and reports.

FOR SENIORS AND GRADUATE STUDENTS

ACC 501. ACCOUNTING CONCEPTS AND METHODOLOGY I (3)
A study of basic accounting principles including the recording of transactions and the preparation and interpretation of financial statements.

ACC 502. ACCOUNTING CONCEPT AND METHODOLOGY II (3)
PR: ACC 501. A continuation of ACC 501. Consideration is given to budgeting and cost accounting. Emphasis is placed upon the analysis of financial condition and business operations through an understanding of accounting statements and reports.

FOR GRADUATE STUDENTS ONLY

ACC 601. MANAGERIAL ACCOUNTING AND CONTROL (3)
PR: Business Core or equivalent. A study of the relevancy and limitations of accounting measurement as a basis for business decision-making. Includes a review of fundamental accounting measurement theory and related tax implications.

ACC 602. MANAGERIAL ACCOUNTING AND CONTROL (3)
PR: ACC 601. The relevancy and limitation of cost information in business decision-making. Emphasis is oriented towards the role of cost accounting measurements in: (1) planning and controlling current operations; (2) special decisions and long-range planning; (3) inventory valuation and income determination.

ACC 605. DEVELOPMENT OF ACCOUNTING THOUGHT (3)
PR: 24 quarter hours in accounting or CI. A study and evaluation of the development and evolution of current account theory and measurement concepts. The definition of accounting objectives and goals and the development of measurement models.

ACC 606. CONTEMPORARY ACCOUNTING THOUGHT (3)
PR: ACC 605 or CI. Concentrated study of current problems areas in the field of accountancy.

ACC 607. SYSTEMS THEORY AND QUANTITATIVE APPLICATIONS (3)
PR: ACC 602 or equivalent, GBA 333 or equivalent. The design and operation of contemporary accounting systems including the relevance of data processing and statistical methods to the system of financial information and control.

ACC 611. FEDERAL TAX RESEARCH AND PLANNING (3)
PR: ACC 411 or CI. A study of the development of tax law and its implication in business decision. Tax planning and tax research are emphasized.

ACC 621. MANAGEMENT COST ANALYSIS AND CONTROL (3)
PR: 24 quarter hours of accounting of CI. Measurement, interpretation, planning, and control of costs by means of predetermined standards and variance analysis. Use of accounting and statistical information in preparing budgets and controlling operations.

ACC 623. ETHICS AND RESPONSIBILITIES IN PROFESSIONAL ACCOUNTANCY (3)
PR: ACC 423 or equivalent. The study of elements of public accounting practice, professional conduct, auditing principles and reporting standards. The relationship of the field of public accounting to federal and state agencies.

ACC 681. INDEPENDENT RESEARCH (1-6)
PR: CI. Directed studies along lines of student's research.
AFRO-AMERICAN STUDIES

Director: J. W. Dudley; Associate Professors: S. A. Akintove (visiting), F. U. Ohaegbulam; Assistant Professors: K. R. Glover, W. A. Smith; Instructor: C. I. White.

LOWER LEVEL COURSES

AFA 230. INTRODUCTION TO AFRO-AMERICAN STUDIES (4)
Fundamental perspectives on the nature and meaning of the Afro-American experience and the role of Afro-American Studies in articulating major problems in American and world society. (Formerly AFA 130.)

AFA 333. INTRODUCTION TO AFRICAN HISTORY (4)
An outline survey of precolonial 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.

AFA 334. AFRICAN HISTORY SINCE 1850 (4)
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.

AFA 335-336. AFRO-AMERICAN HISTORY (4, 4)
A survey of the Afro-American history in Western Hemisphere. Emphasis on the experience in North American (AFA 335: 1493-1865; AFA 336: 1865- to present.) (Formerly AFA 261-262.)

AFA 337. BLACKS IN AMERICAN POLITICAL PROCESS (4)
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.

AFA 341. ARTS AND MUSIC OF THE AFRICAN PEOPLE (4)
An examination of the visual arts—painting, sculpture, architecture and music of African people in the Sub-Saharan Africa, the Caribbean and the United States. Particular attention to how blacks have expressed the meaning, suffering and triumph of their lives through legitimate theatre, visual arts, and musicals and the role of black artists in the historical struggle for black consciousness and liberation.

AFA 343. THE AFRICAN DIASPORA AND PAN-AFRICANISM (4)
An examination of the African Diaspora and the influence of African culture and civilization on the growth and development of world cultures. Emphasis on the extent to which African culture has enriched the development of mankind, the cultural significance of African voyages and migrations to Asia, Europe and the Americas, and the historical quest for racial and continental pan-Africanism including Garveyism.

AFA 428. GOVERNMENT AND POLITICS OF AFRICA (4)
Designed to provide the information and analytical tools necessary to interpret current Sub-Saharan African politics. Survey of political organizations in traditional African societies; politics under colonial rule; the struggle for independence, and post-independence politics.

AFA 431. SOCIAL INSTITUTIONS AND THE GHETTO (4)
A study of social institutions as they relate to the American Black ghetto, with emphasis on social systems operating within and on the ghetto. (Formerly AFA 302.)

AFA 432. BLACK AMERICANS IN THE AMERICAN ECONOMIC PROCESS (4)
Brief economic history of Black America emphasizing the impact of racial discrimination and evaluating proposals for improvement as they apply to Black Americans and other minority groups. (Formerly AFA 310.)

AFA 438. AFRICA IN WORLD POLITICS (4)
Study of international relations in the new Africa including the relations of the new states with the major world powers and their role in the United Nations.

AFA 440. CONTEMPORARY BLACK PHILOSOPHY (4)
Major themes and participants in the Black liberation movement since 1950. (Formerly AFA 410.)

AFA 442. GOVERNMENT AND POLITICS OF WEST AFRICA (4)
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.

AFA 443. GOVERNMENT AND POLITICS OF EAST, CENTRAL AND SOUTHERN AFRICA (4)
In depth study of political developments, ideologies and modernization in East, Central and Southern Africa including race relations and white minority rule and Portuguese colonialism in Southern Africa.

AFA 444. EDUCATIONAL DEVELOPMENT IN THE AFRICAN WORLD (4)
An examination of educational systems as experiences of African peoples' cultural past and needs for their future. In tracing the development of education in the African world, close attention will be paid to changing structures and functions of education as manifestations of governmental needs and desires. Similarities and contrasts of African and Afro-American educational patterns will be explored.

AFA 481. RESEARCH AND FIELD STUDIES (1-4)
A course linking the study pursued by the student with research and work projects in the Tampa Black community.

AFA 483. SELECTED TOPICS IN AFRO-AMERICAN STUDIES (1-4)
Topics offered are selected to reflect student needs and faculty interests. In depth study in such areas as the Black Student and the American Educational Process, The Black Experience in the Americas, European Expansion in Africa to 19th century; Contemporary Economic Problems in Africa.

AFA 485. DIRECTED READINGS (2-4)
Independent readings in a particular area of Afro-American Studies, selected by student and instructor.

AFA 491. SENIOR SEMINAR (4)
In-depth study of a particular topic in the area of Afro-American Studies. Individual research by students required.

AFA 499. SEMINAR IN TEACHING BLACK STUDIES (4)
An examination of instructional media, resources and approaches relevant to the study of teaching of the black experience.

AGING STUDIES (GERONTOLOGY) (AGE)


UPPER LEVEL COURSES

AGE 301. INTRODUCTION TO GERONTOLOGY (3)
This course is designed to be an introduction to the study of aging. The aging process is viewed from a multi-disciplinary
perspective including the biological, psychological, and sociological aspects of aging.

AGE 315. APPLIED GERONTOLOGY (4)
PR: CI. This course is designed to provide an integration of empirical data in the study of aging with practical experience in working with older people. Students will spend time actually working with older people in an agency or institutional setting and then will use experiences in conjunction with other available data to gain perspective in this field.

AGE 325. CULTURE, SOCIETY AND AGING (4)
This course is designed to allow the student to consider aging within the context of culture and society. Emphasis will be given to cultural attitudes toward aging in the U.S. and to implications of cultural attitudes for human behavior.

AGE 405. SEMINAR IN SELECTED TOPICS IN SOCIAL GERONTOLOGY (3)
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.

FOR SENIORS AND GRADUATE STUDENTS

AGE 501. PHYSIOLOGY OF AGING (3)
PR: CI. Lectures and discussion concerned with the biological bases of the aging phenomenon as it occurs on the levels of the cells, organs, tissues, and organism.

AGE 502. PSYCHOLOGY OF AGING (3)
PR: CI. Consideration of basic psychological processes as related to the aging process, changes in functioning and perceptual motor and cognitive areas from the developmental perspective.

AGE 503. SOCIOLOGICAL ASPECTS OF AGING (3)
PR: CI. Examines, within a sociological frame of reference, the inter-relationships between the aged (or aging) and the structure and function of the social system and its major institutionalized subsystems.

AGE 504. AGING AND PERSONALITY (2)
PR: CI. An introduction to personality theory and concepts of adjustment with an overview of counseling techniques and rehabilitative efforts with the aged.

AGE 507. ECONOMICS AND AGING (3)
PR: CI. A study of the basic processes of macroeconomic thought in the modern mixed economy and what influences these processes have on the subject of aging. The course will include discussions on economic issues pertinent to aging such as income maintenance, problems, theories of consumption and income, and labor force problems.

AGE 509. LEISURE FOR THE AGING (2)
PR: CI. This seminar consists of general data and observations on trends and research in the leisure field, directed theoretical analysis of these studies as they pertain to the elderly and contact with progress by visits, interviews, and reports.

AGE 585. DIRECTED READINGS (1-3)
PR: CI. A reading program with topics in gerontology conducted under the supervision of a faculty member.

FOR GRADUATE STUDENTS ONLY

AGE 603. SOCIAL RESEARCH METHODS APPLIED TO GERONTOLOGY (3)
PR: CI. Systematic study of the methods and techniques employed in social, psychological, and health studies of population groups. Directed toward the consumers of research findings—persons whose positions call for the ability to interpret, evaluate, and apply the findings produced by others.

AGE 605. INTERPERSONAL RELATIONS PRACTICUM (4)
PR: CI. A practicum involving students in group and individual settings in interaction with older persons. Content will include implications from interviewing, counseling, and current conceptions of personality in the aged.

AGE 606. INSTITUTIONAL ADMINISTRATION (3)
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 the economics of aging, federal and state legislation, the management of people, and fiscal management.

AGE 608. HUMAN RELATIONS IN ORGANIZATIONS (3)
PR: CI. An analytical view of the modern human relations movement with stress on development since the 1930's. Incorporates the philosophy of the behavioral sciences and alternative theories and relates them to the management process.

AGE 610. ADMINISTRATIVE APPLICATIONS OF DEMOGRAPHY (3)
PR: CI. Acquaints the student with various sources of demographic data and its use. Emphasis is placed upon applicability in program planning and student experience in locating, tabulating, and interpreting data from selected publications.

AGE 611. PROJECTS IN AGING I (1-6)
PR: CI. In-depth study of special topics with the objective of identifying problems for research and developing research proposals.

AGE 612. PROJECTS IN AGING II (1-6)
PR: AGE 611 and CI. A continuation of AGE 611.

AGE 691, 692, 693, 694. SEMINAR IN SOCIAL GERONTOLOGY (2)
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.

AGE 695. FIELD PLACEMENT (12)
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 (SU only.)

AMERICAN STUDIES (AMS)


UPPER LEVEL COURSES

AMS 301. INTRODUCTION TO AMERICAN CIVILIZATION (5)
Integration of major aspects of American life between 1898 and 1914. Should be taken the first term a student becomes an American Studies major. Elective for non-majors.

AMS 311. THE COLONIAL PERIOD (5)
Puritan heritage: The pattern of American culture as revealed through an examination of selected writings and pertinent slides and recordings dealing with the art, architecture and music of the period. Elective for non-majors.

AMS 312. THE AGRARIAN MYTH (5)
Frontier heritage: The pattern of American culture as revealed through an examination of selected writings and other pertinent materials dealing with American faith and the American frontier environment (the land, city, machine). Elective for non-majors.

AMS 313. REGIONALISM, NATIONALISM, INTERNATIONALISM (5)
Selected writing and other pertinent material are used to examine the relationships between nationalism and inter-
nationalism with a view toward understanding America’s development toward political and cultural maturity. Elective for non-majors.

AMS 383. SELECTED TOPICS IN AMERICAN STUDIES (4)  
Offerings include American Architecture, Americanization of English, Darwinism in America, American Folk Music, American Utopias and Communies.

AMS 481. INDIVIDUAL RESEARCH (1-5)  
The content of the course will be governed by student demand and instructor’s interest. Instructor’s approval required prior to registration.

ANTHROPOLOGY (ANT)


LOWER LEVEL COURSES

ANT 201. INTRODUCTION TO ANTHROPOLOGY (4)  
A general survey of physical anthropology, archaeology, linguistics, and cultural anthropology. Not recommended for freshmen.

ANT 301-321-331, or CI.

ANT 311. PHYSICAL ANTHROPOLOGY (4)  
PR: ANT 201. The comparative study of human physical variations and origins.

ANT 321. ARCHAEOLOGY (4)  
PR: ANT 201. The comparative study of past cultures and societies.

ANT 331. CULTURAL ANTHROPOLOGY (4)  
PR: ANT 201. The comparative study of cultures and societies.

ANT 371. THE ANTHROPOLOGICAL PERSPECTIVE (4)  
Anthropological concepts relevant to contemporary life. Designed for non-anthropology majors. May not be counted for credit toward an anthropology major.

ANT 401. SELECTED TOPICS IN LINGUISTIC ANTHROPOLOGY (3-6)  
PR: LIN 301. A detailed study of current issues such as the relationship of language and culture, ethnographic semantics, or paralinguistic phenomena. May be repeated as topics vary.

ANT 411. SELECTED TOPICS IN PHYSICAL ANTHROPOLOGY (3-6)  
PR: ANT 311. A detailed study of current issues such as paleo-pathology, human races, or social biology. May be repeated as topics vary.

ANT 421. SELECTED TOPICS IN ARCHAEOLOGY (3-6)  
PR: ANT 321. A detailed study of current issues such as the development of civilization, regional chronologies, or historical archaeology. May be repeated as topics vary.

ANT 431. SELECTED TOPICS IN CULTURAL ANTHROPOLOGY (3-6)  
PR: ANT 331. A detailed study of current issues such as socio-cultural change, ethnopsychology, or social structure. May be repeated as topics vary.

ANT 441. REGIONAL ANTHROPOLOGY (3-6)  
PR: ANT 331. A survey of cultures and societies in a limited area or region. May be repeated as topics vary: (1) Indians of North America; (2) Cultures of Africa; (3) Cultures of the Pacific; (4) Cultures of Mesoamerica; (5) Specified areas such as Asia, Southeastern U.S. or Florida depending on current interest and staff.

ANT 461. HISTORY OF ANTHROPOLOGICAL THEORY (4)  
PR: LIN 301, ANT 311-321-331, or CI. Survey and analysis of the development of theory and method.

ANT 471. METHODS IN ANTHROPOLOGY (3-6)  
PR: CI. Study and application of a selected field or laboratory method in anthropology. Prerequisites will depend on area of study and will be determined by consultation with instructor in advance of registration. May be repeated as topics vary: (1) Archeological Field Methods; (2) Laboratory Methods in Archeology; (3) Laboratory Methods in Physical Anthropology; (4) Field Methods in Cultural Anthropology; (5) Others as specified.

ANT 491. SENIOR SEMINAR IN ANTHROPOLOGY (4)  
PR: Senior standing with major in anthropology, or equivalent. A seminar approach to the integration of the fields of anthropology. Designed to help the student refocus and come to a better understanding of the nature of anthropology.

FOR SENIORS AND GRADUATE STUDENTS

ANT 571. SEMINAR IN ANTHROPOLOGY (3-6)  
PR: CI. Topics to be chosen by students and instructor.

ANT 581. INDIVIDUAL RESEARCH (3-6)  
PR: CI. Individual guidance in a selected research project.

ANT 585. DIRECTED READING (1-6)  
PR: CI. Individual guidance in concentrated reading on a selected topic in anthropology.

FOR GRADUATE STUDENTS ONLY

ANT 601. ANTHROPOLOGY TODAY (4)  
PR: CI. A graduate level survey of contemporary anthropology primarily intended for graduate students in Social Education.

ARABIC (ARA)—see Modern Languages

ART (ART)

### LOWER LEVEL COURSES

**ART 201. VISUAL CONCEPTS I (4)**

Studio problems supplemented by reading and discussion. Consideration of spatial organization of the two-dimensional surface.

**ART 202. VISUAL CONCEPTS II (4)**

Studio programs supplemented by reading and discussion. Consideration of three-dimensional organization of space and mass.

**UPPER LEVEL COURSES**

**ART 301. BASIC SEMINAR (2)**

Philosophical dimensions of art. Discussion of purposes of art and the relationship of art to life.

**ART 310. INTRODUCTION TO ART (3)**

An introductory course for the student who does not intend to major in art. (S/U only)

**ART 401. DRAWING I (4)**

PR: ART 201 and ART 301.

**ART 411. PAINTING I (4)**

PR: ART 201 and ART 301.

**ART 421. SCULPTURE I (4)**

PR: ART 202 and ART 301.

**ART 431. CERAMICS I (4)**

PR: ART 202 and ART 301.

**ART 441. LITHOGRAPHY I (4)**

PR: ART 201 and ART 301.

**ART 442. INTAGLIO I (4)**

PR: ART 201 and ART 301.

**ART 443. SILKSCREEN I (4)**

PR: ART 201 and ART 301.

**ART 453. ART SENIOR SEMINAR (3)**

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.

**ART 470. PREHISTORIC AND ANCIENT ART (4)**

A comprehensive study of Paleolithic, Neolithic, Egyptian, Assyrian and Mesopotamian painting, sculpture and architecture.

**ART 471. GREEK AND ROMAN ART (4)**

A comprehensive study of Aegean, Mycenaean, Etruscan, Greek and Roman painting, sculpture and architecture.

**ART 472. MEDIEVAL ART (4)**

A comprehensive study of early Christian, Byzantine and Medieval painting, sculpture, architecture and manuscript illumination.

**ART 473. RENAISSANCE ART (4)**

A comprehensive study of Renaissance and Mannerist painting, sculpture and architecture in Italy and Northern Europe.

**ART 474. 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.

**ART 475. NINETEENTH CENTURY ART (4)**

A comprehensive study of nineteenth century painting, sculpture and architecture in France and England.

**ART 476. TWENTIETH CENTURY ART (4)**

A comprehensive study of painting, sculpture and architecture from Cezanne to the present in Europe and the United States.

**ART 477. ORIENTAL ART (4)**

An introduction to concepts of the arts of China, Japan and other Far Eastern countries.

**ART 481. DIRECTED STUDY (1-6)**

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 491. IDEA SEMINAR (2)**

PR: ART 301. Readings, discussion. Subjects will change each quarter, determined by mutual student and faculty interests. May be repeated.

### Film and Video Arts Sequence

**ART 461. PHOTOGRAPHY I (4)**

PR: ART 201 and ART 301. Consideration of basic technical and aesthetic factors involved in using black and white still photography as a vehicle for visual artistic expression.

**ART 462. PHOTOGRAPHY II (4)**

PR: ART 461. Study of advanced technical and aesthetic factors involved in using photography and related media for visual and artistic expression.

**ART 464. INTRODUCTION TO THE PERSONAL FILM (4)**

PR: ART 465. Comparison of philosophical and technical distinctions between the personal film and theatrical or commercial release.

**ART 465. CINEMATOGRAPHY I (4)**

PR: ART 461 or CI. Consideration of basic technical and aesthetic factors involved in using black and white silent motion pictures as a vehicle for visual, artistic expression.

**ART 466. CINEMATOGRAPHY II (4)**

PR: ART 465. Consideration of basic technical and aesthetic factors involved in using color and sound motion pictures as a vehicle for visual, artistic expression.

**ART 467. SOUND TECHNIQUES (4)**

PR: ART 465. The recording and editing of sound for film. Collaboration with other departments, particularly Music and Theatre, is encouraged. To be taken concurrently with Cine II and Cine III whenever possible.

### FOR SENIORS AND GRADUATE STUDENTS

**ART 501. DRAWING (4)**


**ART 511. PAINTING (4)**

PR: ART 411. Advanced problems in the various painting techniques. Emphasis on individual creative expression. May be repeated.

**ART 521. SCULPTURE (4)**

PR: ART 421. Advanced problems in the various techniques of sculpture. Emphasis on individual creative expression. May be repeated.

**ART 531. CERAMICS (4)**

PR: ART 431. Advanced problems in the various ceramic techniques, including throw and glaze calculation. May be repeated.

**ART 541. LITHOGRAPHY (4)**

PR: ART 441. Advanced problems in various lithographic techniques. Emphasis on individual creative expression. May be repeated.

**ART 542. INTAGLIO (4)**

PR: ART 442. Investigations into more complex intaglio processes including photoengraving and color printing procedures. Emphasis on personal conceptual development in graphic media. May be repeated.

**ART 543. SILKSCREEN (4)**

PR: ART 443. Advanced problems in the various silkscreen techniques. Emphasis on individual creative expression. May be repeated.

**ART 570. CRITICAL STUDIES IN ART HISTORY (4)**

PR: CI. Specialized intensive studies in art history. Specific subject matter varies. To be announced at each course offering. May be repeated.

**ART 573. SEMINAR IN THE HISTORY OF ART HISTORY (4)**

PR: Four courses in Art History at the 400 level. An examination of the origins of Art History as a discipline and the changing nature of Art History from Vasari to the present.
**ART 581. RESEARCH (1-6)**
PR: CC. May be repeated.

**ART 591. TECHNIQUES SEMINAR (2)**
PR: ART 201, ART 202, ART 301 and CI. Concentration in specialized technical data and process. May be repeated.

**Film and Video Arts Sequence**

**ART 561. PHOTOGRAPHY (4)**
PR: ART 462. Advanced work in photography and related media leading to development of personal/expressive statements. May be repeated.

**ART 562. ADVANCED EDITING TECHNIQUES (4)**
PR: ART 465. Focus on advanced techniques and theory of editing for the film artist. May be repeated.

**ART 563. ADVANCED FILM TECHNIQUES (4)**
PR: ART 466. Description and demonstration of special film manipulation techniques for the artist. Optical printing, infra-red film, computer film-making, polyvision, television manipulated film. Students will create original experimental works. May be repeated.

**ART 564. ANATOMY OF THE PERSONAL FILM (4)**

**ART 565. CINEMATOGRAPHY (4)**
PR: ART 466. Advanced studio work using black and white, color and sound as technical and aesthetic factors in visual, artistic productions. May be repeated.

**ART 566. ANATOMY OF THE COLLABORATIVE FILM (4)**
PR: ART 465. Analysis of aesthetic and other selected aspects of film produced through collaborative efforts. May be repeated.

**ART 567. SEMINAR IN THE PERSONAL FILM (4)**
PR: ART 464, ART 466 and ART 566. Discussion of techniques, approaches and motivations open to and pursued by established film artists. May be repeated.

**ART 568. SELECTED TOPICS IN THE HISTORY OF FILM (4)**
PR: ART 569. In depth investigation of a selected period, development or school in the history of film as art. May be repeated.

**ART 569. PURE CINEMA AS AUTONOMOUS VISUAL EXPRESSION (4)**
PR: ART 461 or CI. Consideration of historical development in cinematography emphasizing uses of special technical and visual possibilities unique to the aesthetics of the film art. May be repeated.

**FOR GRADUATE STUDENTS ONLY**

**ART 611. PAINTING (4)**
PR: CI. May be repeated.

**ART 621. SCULPTURE (4)**
PR: CI. May be repeated.

**ART 631. CERAMICS (4)**
PR: CI. May be repeated.

**ART 641. LITHOGRAPHY (4)**
PR: CI. May be repeated.

**ART 642. INTAGLIO (4)**
PR: CI. May be repeated.

**ART 643. SILKSCREEN (4)**
PR: CI. May be repeated.

**ART 661. PHOTOGRAPHY (4)**
PR: CI. May be repeated.

**ART 665. CINEMATOGRAPHY (4)**
PR: CI. May be repeated.

**ART 670. ART HISTORY (4)**
PR: CI. May be repeated.

**ART 681. RESEARCH (1-5)**
PR: CI. May be repeated.

**ART 682. GRADUATE SEMINAR (2)**
PR: CI. Advanced course in the theoretical and conceptual foundations of the visual arts. The specific structure and content to be determined by the instructor. Must be repeated for a minimum of four hours.

**ART 683. GRADUATE SEMINAR: DIRECTED TEACHING (2)**
PR: CI. Students will collaborate with faculty, teaching in areas of their concentration.

**ART 684. GRADUATE SEMINAR: DOCUMENTATION (2)**
PR: CI. An advanced seminar focused on the problems of documenting in verbal form the development of a body of work in the visual arts.

**ART 699. THESIS: PRESENTATION OF WORK (1)**
PR: Consent of Graduate Committee. The final formal presentation of a body of works completed during the student’s program.

**ASTRONOMY (AST)**

(See also the sections entitled Physical Sciences and Natural Sciences)

**Chairman:** H. K. Eichhorn-von Wurmb; **Professors:** J. H. Hunter Jr., S. Sofia, R. E. Wilson; **Associate Professor:** E. J. Devinney Jr.; **Assistant Professors:** H. Smith Jr. (visiting), C. A. Williams; **Associate Curator:** J. A. Carr.

**LOWER LEVEL COURSES**

**AST 203. DESCRIPTIVE ASTRONOMY I (5)**
Aspects of the sky, the solar system. A nonmathematical course for those who are mainly interested in a qualitative treatment of the ideas about the physical universe. No credit for astronomy majors.

**AST 204. DESCRIPTIVE ASTRONOMY II (5)**
The stars, the universe. A nonmathematical course for those who are mainly interested in a qualitative treatment of the ideas about the physical universe. No credit for astronomy majors.

**UPPER LEVEL COURSES**

**AST 301. INTRODUCTORY ASTRONOMY (5)**
PR: MTH 122, 123, or CI. Aspects of the sky, the earth’s motion and time-keeping, the moon, eclipses, astronomical instruments, motions and physical features of planets, comets and satellites.

**AST 302. INTRODUCTORY ASTRONOMY (5)**
PR: AST 301 or CI. The stars, stellar atmosphere and interiors, interstellar matter, the local and exterior galaxies, cosmology.

**AST 351. HISTORY OF THE SCIENCE OF ASTRONOMY (5)**
To familiarize seriously interested students with the history of Astronomy and the influence of this discipline of the development of human knowledge.

**AST 361. ASTRONOMICAL OBSERVING AND MEASURING (1-3)**
PR: AST 301 and 302 or CI. Actual measurements at the telescope and in the laboratory; evaluation of the data. May be repeated up to three credit hours.

**AST 371. CONTEMPORARY THINKING IN ASTRONOMY (for non-specialists) (5)**
PR: Junior or senior standing or CI. Current concepts of astronomy and space science of general interests; background facts; artificial satellites, space probes; surface conditions of planets and evolution of the stars; cosmology.

**AST 413. GEOMETRY AND KINEMATICS OF THE UNIVERSE (4)**
PR: CI. Astronomical coordinate systems and their mutual relationships, navigation, time.
AST 443. STELLAR ASTROPHYSICS (5)
PR: AST 302 or CI, MTH 303. The physical characteristics of stars, their measurement, and their distribution. Analysis of stellar radiation. Double stars, associations, clusters, galaxies.

AST 481. UNDERGRADUATE RESEARCH (1-6)
PR: Senior or advanced junior standing and CI. Participation in professional research with a view to publication of results. May be repeated. (S/U only.)

AST 491. ASTRONOMY SEMINAR (1)
PR: Senior or advanced junior standing. May be repeated twice. (S/U only.)

FOR SENIORS AND GRADUATE STUDENTS

AST 521. INTRODUCTION TO CELESTIAL MECHANICS (5)
PR: AST 302 or CI, MTH 302, and some knowledge of perturbation theory.

AST 522. BINARY STARS (4)
PR: AST 302 or CI, MTH 302 or CI. Principles used to find the properties of astrometric, eclipsing, spectroscopic and visual binaries.

AST 533. STELLAR CONSTITUTION AND EVOLUTION (4)
PR: AST 443 or CI, PHY 405. CR: MTH 405. Internal constitution of stars, physics of gas spheres, energy generation in stars, theories of stellar evolution.

AST 536. INTRODUCTION TO RADIO ASTRONOMY (4)

AST 583. SELECTED TOPICS IN ASTRONOMY (1-6)
PR: Senior or advanced junior standing or CI. Intensive coverage of special topics to suit needs of advanced students.

FOR GRADUATE STUDENTS ONLY

AST 611. POSITIONAL ASTRONOMY (6)
PR: AST 413 or CI. The accurate determination of relative and absolute star positions and related problems.

AST 621. CELESTIAL MECHANICS (6)
PR: AST 521 or CI. Dynamics of the planetary system, space flight, theory of artificial satellites.

AST 631. STELLAR ATMOSPHERES (4)
PR: AST 443 & MTH 406 or CI. Basic observational data. Thermodynamics of the gaseous state. Elements of spectroscopy. The transfer equation (continuum and lines). The problem of calculation of atmospheres.

AST 661. PHOTOOMETRY (4)
PR: AST 302 or CI. MTH 305. Theoretical, observational and instrumental concepts required in astronomical photometry.

AST 663. STATISTICAL REDUCTION OF OBSERVATIONS (6)
PR: MTH 323, 445, or equivalents or CI. The theory of statistical adjustments (least squares) and applications.

AST 681. GRADUATE RESEARCH (1-15)
PR: CI. May be repeated. (S/U only.)

AST 683. SELECTED TOPICS IN ASTRONOMY (1-6)
PR: CI.

AST 688. RECENT ADVANCES IN ASTRONOMY WITH EMPHASIS ON THEIR IMPACT ON COLLEGE-LEVEL COURSES (3-6)
Not applicable toward thesis degree requirements. A course designed to consider and study the recent developments of Astronomy, especially those developments that have an effect on altering the basic concepts and ideas of the field and imply a change in the presentation of introductory material in the field. (S/U only.)

AST 689. DIRECTED TEACHING (3-9)
Not applicable toward thesis degree requirements. Supervised teaching for graduate teaching assistants in elementary and/or laboratory courses. A formalized, structured activity wherein a faculty member, by discussion and assignments, considers the principles, rationale, and modus operandi of elementary college courses. Designed to train teaching assistants and to provide help and training to those graduate students who plan to follow a college teaching profession. (S/U only.)

AST 691. GRADUATE SEMINAR (2)
PR: CI. May be repeated. (S/U only.)

AST 699. MASTER'S THESIS (1-9)
PR: CI. (S/U only.)

BIOLOGY (BIO)

(See also the sections on Botany, Natural Sciences, and Zoology)


LOWER LEVEL COURSES

BIO 201. FUNDAMENTALS OF BIOLOGY (1-4)
A phylogenetinc survey of the major animal groups accompanied by discussion of selected types. Lab-lab. Qtr. I.

BIO 202. FUNDAMENTALS OF BIOLOGY II (4)
An introduction to plant science; fundamentals of plant biology. Lab-lab. Qtr. II.

BIO 203. FUNDAMENTALS OF BIOLOGY III (4)
Origin and early evolution of life; Mendelian and population genetics; elementary ecology. Lab. Qtr. III.

BIO 205. FOOD, MEDICINE AND DRUGS (4)
The application of basic biological principles to relevant problems and topics in nutrition, medicine and drugs through the consideration of scientific and popular literature. For non-majors. Qtr. I-IV. (Formerly CBS 205)

BIO 206. GENES AND PEOPLE (4)
The application of basic biological principles of human heredity to relevant problems and topics through the consideration of scientific and popular literature. For non-majors. Qtr. I-IV. (Formerly CBS 206)

BIO 207. ENVIRONMENT (4)
The application of basic principles of ecology to relevant problems and topics relating to man's environmental interactions through consideration of scientific and popular literature. For non-majors. Qtr. I-IV. (Formerly CBS 207)

BIO 255. SEX, REPRODUCTION, AND POPULATION (4)
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. Qtr. I-IV. (Formerly CBS 255)

BIO 256. EVOLUTION (4)
The application of basic principles of evolution with an emphasis upon man through the consideration of scientific and popular literature. For non-majors. Qtr. I-IV. (Formerly CBS 256)

BIO 257. READINGS IN BIOLOGY (4)
Individual reading, classroom criticism and evaluation of
selected contemporary books reflecting biological principles. For non-majors. Qtr. I-IV. (Formerly CBS 257)

**UPPER LEVEL COURSES**

**BIO 315. MICROTECHNIQUE** (5)
PR: BIO 201-203. Theory and practice of tissue fixation, embedding, sectioning, and staining; chromosomal squash preparations; nuclear isolation techniques; photomicrography. Lec-lab.

**BIO 331. GENERAL GENETICS** (4)
PR: BIO 201-203. Introduction to genetics including the fundamental concepts of Mendelian, molecular, and population genetics. Lec. Qtr. I, II, III.

**BIO 345. MAN'S BIOLOGICAL ENVIRONMENT** (4)
PR: BIO 201-203. A biological consideration of man's deteriorating relationship with his environment. Emphasis on pollution, pesticides, and population. Qtr. II.

**BIO 351. INTRODUCTION TO MICROBIOLOGY** (5)
PR: BIO 201-203. Introduction to the biology of microorganisms: structure and physiology of bacteria, algae, viruses, rickettsiae, and protozoa; basic lab methods in microbiology. Lec-lab. Qtr. I, II, III, and IV.

**BIO 412. INTRODUCTION TO TROPICAL BIOLOGY** (5)
PR: BIO 201-203 or CI. The tropical environment and its effect on plant and animal communities. Plant and animal interactions and man's impact on the environment.

**BIO 431. EXPERIMENTAL GENETICS** (4)
PR: BIO 331 or CI. Experimental analysis of genetic systems. Lec-lab: 2 hr. lec.; 2-3 hr. labs.

**BIO 445. PRINCIPLES OF ECOLOGY** (4)
PR: BIO 201-203. An introduction to the basic principles and concepts of ecology at the ecosystem, community, and population level of organization. Lec-disc. Qtr. I and IV.

**BIO 465. ORGANIC EVOLUTION** (4)
PR: BIO 331, or CI. An introduction to modern evolutionary theory. Lectures on population genetics, adaptations, speciation theory, phylogeny, human evolution, and related areas. Qtr. I (even-numbered years).

**BIO 485. RESEARCH METHODS IN BIOLOGY I** (2)
PR: CI. A laboratory course for advanced students to become acquainted with contemporary biological research instrumentation and techniques.

**BIO 486. RESEARCH METHODS IN BIOLOGY II** (2)
PR: CI. See BIO 485.

**FOR SENIORS AND GRADUATE STUDENTS**

**BIO 512. INTRODUCTION TO CYTOGENETICS** (4)
PR: BIO 201-203. BIO 331. Introduction for advanced undergraduates and graduates to the functional principles of cytogenetics including details of meiosis such as synopsis, chiasma formation, and crossing over. Mechanisms and consequences of translocation, inversion and deletion will be discussed as well as polyploidy and mechanisms of sex determination.

**BIO 522. NEUROPHYSIOLOGY** (4)
PR: ZOO 421. A comparative analysis of the physiochemical basis, and evolution of nervous systems and sensory mechanisms. Lec-lab. Qtr. I.

**BIO 535. EVOLUTIONARY GENETICS** (4)
PR: BIO 331 or CI. Examination of factors such as mutation, migration, natural selection, and genetic drift which modify the genetic structure of populations.

**BIO 583. SELECTED TOPICS IN MICROBIOLOGY** (1-4)
PR: CI. Each topic is a course in directed study under supervision of a faculty member.

**FOR GRADUATE STUDENTS ONLY**

**BIO 601. HISTORY OF BIOLOGY** (3)
PR: CI. The historical development of biology with emphasis on the origin of important theories and principles.

**BIO 612. CHROMOSOME STRUCTURE AND CHEMISTRY** (4)
PR: BOT 510; BIO 512. Introduction to the molecular organization of the Eukaryotic chromosome.

**BIO 636. POPULATION BIOLOGY** (4)
PR: BIO 535 and BIO 616 or CI. Introduction to the theory of population dynamics with emphasis on the genetic and ecological components of population growth, natural selection, and competition between species. Lec.

**BIO 650. MARINE ALGAL ECOLOGY** (3)
(Also listed as OGY 650, q.v.)

**BIO 651. MARINE PLANKTON SYSTEMATICS** (4)
(Also listed as OGY 651, q.v.)

**BIO 653. MARINE PLANKTON ECOLOGY** (4)
(Also listed as OGY 653, q.v.)

**BIO 665. ADVANCED ORGANIC EVOLUTION** (3)
PR: BIO 331; BIO 465 or equivalent; and CI. Advances in organic evolution with emphasis on speciation theory, phylogeny, behavior, and human evolution.

**BIO 689. DIRECTED TEACHING** (3-9)
Not applicable toward thesis degree requirements. Supervised teaching for graduate teaching assistants in elementary and/or laboratory courses. A formalized, structured activity wherein a faculty member, by discussion and assignments, considers the principles, rationale, and modus operandi of elementary college courses. Designed to train teaching assistants and to provide help and training to those graduate students who plan to follow a college teaching profession. (S/U grade only.)

**BIO 781. GRADUATE RESEARCH** (1-15)
PR: CI. Directed research on selected topics. For Ph.D. students only. May be repeated (S/U only)

**BIO 799. P.I.D. DISSERTATION** (1-12)
PR: CI. May be repeated to a maximum of 12 credits. (S/U only)

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**BOTANY (BOT)**

(See also the sections entitled Natural Sciences and Zoology)

**UPPER LEVEL COURSES**

**BOT 302. EVOLUTIONARY SURVEY OF THE PLANT KINGDOM** (5)
PR: BIO 201-203. The major plant divisions, including the algae, fungi, mosses, liverworts, ferns and fern allies, and seed plants considered from an evolutionary perspective. Lec-lab.

**BOT 311. SYSTEMATIC BOTANY** (5)
PR: BIO 201-203 or CI. Identification and classification of the more interesting vascular plants of Florida; angiosperm evolution; principles of taxonomy. Conducted largely in the field.

**BOT 313. HORTICULTURAL BOTANY** (3)
PR: Course in botany, biology, or CI. 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 314. FIELD BOTANY** (3)
PR: BIO 201-203 or CI. 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 371. PLANTS AND MAN** (4)
PR: Junior or Senior Standing or CI. The relation of plants to human history and contemporary life. Botanical and economic aspects of plants used as sources of foods, drugs, and other products of importance in everyday life. Origins of cultivated plants. For non-majors.
FOR SENIORS AND GRADUATE STUDENTS

BOT 510. CYTOLOGY (4)
PR: BIO 201-203. Survey of the structure and function of cytoplasmic and nuclear components of plant and animal cells. Lec-lab.

BOT 511. TAXONOMY OF FLOWERING PLANTS (4)
PR: BOT 311 or CI. 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 515. SUBCELLULAR CYTOLOGY (4)
PR: BIO 201-203. A review of biophysical techniques used in biology to include an introduction of X-ray diffraction, bright field, phase, ultraviolet, interference, and electron microscopy. The course will consist of three hours of lecture and one three-hour lab for demonstration of techniques. Lec-lab.

BOT 517. PHYSIOLOGY OF THE FUNGI (5)
PR: BOT 417, BOT 510 or CI. The metabolism, morphogenesis, and genetics of the fungi. Lec-lab.

BOT 518. MEDICAL MYCOLOGY (5)
PR: BIO 351 or CI. 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. Lec-lab. Qtr. I

BOT 521. PHYSIOLOGY OF PLANT GROWTH AND DEVELOPMENT (3)
PR: BOT 421, BIO 201-203 and CI. A study of plant development with emphasis of the role of light and growth hormones on the process of flowering, fruit set, ripening, and senescence.

BOT 532. MOLECULAR GENETICS (4)
PR: BIO 331. Detailed examination of DNA, RNA, and protein synthesis; the effects of mutations on proteins; cellular control; selected aspects of viral, bacterial, and fungal genetics. Lec-lab. Qtr. II

BOT 543. PHYSIOLOGY (5)
PR: BIO 201-203 and CI. 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 546. PLANT ECOLOGY (4)
PR: BIO 201-203, BIO 445 or CI. Distribution and nature of vegetation in relation to climatic, physiographic, edaphic and biotic factors; field investigations of subtropical Florida plant communities. Lec-lab.

BOT 547. MARINE BOTANY (5)
PR: BIO 201-203, BIO 445 or CI. 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 552. ADVANCED BACTERIOLOGY (5)
PR: BIO 351. Ultrastructure, growth, metabolism, genetics, and ecology of the bacteria and related procaryotes. Lec-lab. Qtr. III

BOT 553. DETERMINATIVE BACTERIOLOGY (5)
PR: BIO 351 or equivalent; CHM 331-336 or equivalent. Survey of bacterial classification; detailed examinations of bacteria important to man in agriculture, in industry, and as pathogens. Lec-lab. Qtr. II

BOT 557. VIROLOGY (5)
PR: BIO 351 or equivalent and CI. 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. Qtr. I.

BOT 583. SELECTED TOPICS IN BOTANY (1-4)
PR: CC. Each topic is a course in directed study under supervision of a faculty member.

FOR GRADUATE STUDENTS ONLY

BOT 610. CYTOCHEMISTRY (4)
PR: BIO 201-203, BIO 315 and CI. Theory and practice of microscopic and quantitative cyto-histochemistry. Intracellular localization methods for total proteins, nucleic acids, insoluble polysaccharides and enzymes. Discussion and demonstrations of optical quantitative methods based on polarizing and interference microscopy, and microspectrophotometry. Lec-lab.

BOT 611. BIOSYSTEMATICS (4)
PR: BOT 417 or equivalent. Application of cytology, ecology, genetics, biochemistry, and morphological analyses to the study of evolution and classification of species of higher plants.

BOT 612. BIOLOGY OF TROPICAL PLANTS (3)
PR: BIO 412. Special topics in the systematics, morphology, physiology, genetics, and ecology of tropical plants with consideration of habitat diversity that leads to rich florae. Lec.

BOT 613. LABORATORY IN TROPICAL PLANTS (2)
PR: Must be taken concurrently with BOT 612. Extended field trip to some area of the New World Tropics to examine major types of vegetation and gain familiarity with field techniques; research project development. lab.*

BOT 615. ULTRASTRUCTURE TECHNIQUES IN ELECTRON MICROSCOPY (6)
PR: BIO 201-203, BOT 515 or CI. Discussion of theory and techniques in electron microscopy. Emphasis on preparation of biological specimens, electron microscopic optics and use of the electron microscope. Lec-lab.

BOT 621. PLANT METABOLISM LECTURE (3)
PR: BOT 421, CHM 336 or CI. A study of plant metabolism with emphasis on the biosynthetic pathways and their regulation; field investigations. Lec-lab.

BOT 622. PLANT METABOLISM LABORATORY (4)
PR: BOT 421, CHM 336 or CI. An intensive exposure to the methods used in experimenting with plant material.

BOT 652. BACTERIAL PHYSIOLOGY (5)
PR: BIO 351 or equivalent, CHM 331-336, or CI. Bacterial structure, growth, death, metabolism, and genetic systems. Laboratory emphasis on quantitative and chemical methods for study of bacteria. Lec-lab.

*Students will be required to pay travel expenses for field trips.
BOT 654. BACTERIAL GENETICS (3)  
PR: BIO 331, BIO 351, BIO 652 or CI. A survey of the recombinational systems found among the bacteria and bacterial viruses with emphasis on the molecular mechanisms of gene transfer, replication and expression and on the significance of these systems for our understanding of cellular functions. Lec.

BOT 655. IMMUNOLOGY (5)  
PR: BIO 351 or equivalent, CHM 331-336 or equivalent. Discussion of the basic immune reaction, nature of antigenicity; basic immunological techniques and their use in biological research and the medical sciences. Lec.

CHEMISTRY (CHM)  

(See also the sections entitled Physical Sciences and Natural Sciences)  


LOWER LEVEL COURSES  

CHM 101. FOUNDATIONS OF UNIVERSITY CHEMISTRY (5)  
Designed as a terminal course to survey modern chemistry, particularly for the student who has had no previous chemistry courses; and as preparation for CHM 211-213. Lec. Qtr. I, III, IV.

CHM 211. GENERAL CHEMISTRY I (4)  
While there is no prerequisite, CHM 211 students are expected to have performed well in high school chemistry or to have satisfactorily completed CHM 101. Fundamentals of chemistry; mass and energy relationships in chemical reactions, equilibrium, chemical kinetics, atomic and molecular structure, descriptive chemistry of selected elements. Lec-lab and discussion. Qtr. I, II, III, IV.

CHM 212. GENERAL CHEMISTRY II (4)  
PR: CHM 211 or equivalent. Continuation of General Chemistry. Lec-lab and discussion. Qtr. I, II, III, IV.

CHM 213. GENERAL CHEMISTRY III (4)  
PR: CHM 212 or equivalent. Continuation of General Chemistry. Lec-lab and discussion. Qtr. I, II, III, IV.

CHM 214. BASIC LABORATORY TECHNIQUES (4)  
PR: CHM 212 or equivalent. Fundamental techniques of chemical research, including basic manipulations and equipment. One-quarter course for non-chemistry majors. Lec-lab.

CHM 271. CURRENT ISSUES IN CHEMISTRY (4)  
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 291. JUNIOR SEMINAR (1)  
PR: CHM 213. Interrelations of previous courses, the chemical literature, and examination of the nature of industrial, government, and academic chemistry. Lecture and discussion. (S/U only.) Qtr. I, II, III, IV.

UPPER LEVEL COURSES  

CHM 303. ELEMENTARY ORGANIC CHEMISTRY (4)  
PR: CHM 213 or equivalent. Fundamental organic chemistry principles. One-quarter course for non-chemistry majors. Lec-lab.

CHM 311. INTERMEDIATE INORGANIC CHEMISTRY (5)  
PR: CHM 213. Fundamental principles of inorganic chemistry. Lec-lab. Qtr. II, IV.
CHM 446. METHODS OF CHEMICAL INVESTIGATION II.
ANALYTICAL-PHYSICAL (4)

CHM 447. METHODS OF CHEMICAL INVESTIGATION III.
CHEMICAL SYSTEMS (3)
PR: CHM 446. Continuation of CHM 446. Emphasis on studies of chemical systems using a variety of techniques. Lec-lab. Qtr. III, IV.

CHM 471. HISTORICAL PERSPECTIVES IN CHEMISTRY (4)
PR: CHM 213; or senior standing, and CI. A study in depth of the historical and philosophical aspects of outstanding chemical discoveries and theories. Lec-disco. Qtr. II.

CHM 481. UNDERGRADUATE RESEARCH (1-6)
PR: CI. (S/U only.) Qtr. I-IV.

CHM 483. SELECTED TOPICS IN CHEMISTRY (1-6)
PR: CI. The course content will depend on the interest of faculty members and student demand.

CHM 485. CLINICAL CHEMISTRY PRACTICE (3-8)
PR: CI. Laboratory practice in clinical chemistry laboratories in the Tampa Bay area. (S/U only.) Qtr. I-IV.

CHM 511. ADVANCED INORGANIC CHEMISTRY (4)
PR: CHM 441 or CI. An advanced theoretical treatment of inorganic compounds. Lec. Qtr. II.

CHM 521. INSTRUMENTAL ANALYSIS (4)
PR: CHM 443 or CI. Theory and practice of instrumental methods. Clinical Chemistry applications may be elected in the laboratory. Lec-lab. Qtr. II.

CHM 523. RADIOCHEMISTRY (4)
PR: CHM 321. Theory and applications of natural and induced radioactivity. Emphasis on the production, properties, measurement, and uses of radioactive tracers. Lec-lab. Qtr. III.

CHM 525. CLINICAL CHEMISTRY METHODS (4)
PR: CHM 321, CHM 351, and CI. Theory and practice of the analysis of various body fluids with emphasis on their medical significance. Lec-lab. Qtr. I.

CHM 532. INTERMEDIATE ORGANIC CHEMISTRY (4)
PR: CHM 335, 336 or equivalent. A study of stereochemistry, spectroscopy. Theories of bonding, acid-base chemistry, and their application to the understanding of organic reactions. Lec.

CHM 541. CHEMICAL THERMODYNAMICS (4)
PR: CHM 443 or CI. The applications of thermodynamic theory to the study of chemical systems with emphasis on the energetics of reactions and chemical equilibria. Lec.

CHEM 542. APPLICATIONS IN PHYSICAL CHEMISTRY (4)
PR: CHM 443. Applications of chemical theory to chemical systems with emphasis on chemical kinetics and molecular spectroscopy. Lec. Qtr. I.

CHM 551. BIOCHEMISTRY I (4)
PR: CHM 335-336. The chemistry and intermediary metabolism of biologically important substances, including carbohydrates, proteins, enzymes, vitamins, and metabolic intermediates. Recommended for chemistry and biology majors. Lec. Qtr. I.

CHM 552. BIOCHEMISTRY II (4)
PR: CHM 551. Continuation of Biochemistry I. Lec. Qtr. II.

CHM 553. BIOCHEMISTRY III (4)
PR: CHM 552. Continuation of Biochemistry. Lec. Qtr. III.

CHM 554. TECHNIQUES IN BIOCHEMISTRY (2)
PR: CHM 551. Biochemistry laboratory with emphasis on modern techniques for use in biochemical research. Qtr. III.

CHM 583. SELECTED TOPICS IN CHEMISTRY (1-6)
PR: CI. The following courses are representative of those that are taught under this title: Natural Products, Stereochmistry, Reactive intermediates, Photochemistry, Instrumental Electronics, Advanced Lab Techniques, Heterocyclic Chemistry, etc.

FOR GRADUATE STUDENTS ONLY

CHM 611. STRUCTURAL INORGANIC CHEMISTRY (4)
PR: CHM 511 or CI. Modern theories of bonding and structure of inorganic compounds, including coordination theory, stereochemistry, solution equilibria, kinetics, mechanisms of reactions, and use of physical and chemical methods. Lec. Qtr. III.

CHM 613. CHEMISTRY OF THE LESS FAMILIAR ELEMENTS (4)
PR: CI. An integrated treatment of the conceptual and factual aspects of the traditionally less familiar elements, including noble-gas elements, unfamiliar non-metals, alkali and alkaline-earth metals, and the transition elements. Lec. Qtr. II.

CHM 621. ADVANCED ANALYTICAL CHEMISTRY (4)
PR: CI. A study of complete analytical process, including sample handling, separations, the analysis step, and statistical interpretation of data. Emphasis placed on separations and statistics. Lecture. Qtr. II.

CHM 623. ELECTROCHEMISTRY (4)

CHM 625. ADVANCED ANALYTICAL TOPICS (4)
PR: CI. Selected topics in analytical chemistry. Offerings include radiochemistry (emphasizing radiotracers in research and analysis), chemical spectroscopy, (including both emission and absorption), and quantitative organic analysis. (Lecture; some topics may have lab.)

CHM 631. ADVANCED ORGANIC CHEMISTRY I. NATURAL PRODUCTS (4)
PR: CHM 532 or CI. A study of any of several of the following topics: terpenes, steroids, vitamins, alkaloids, porphyrins, purine, and antibiotics. Qtr. II.

CHM 632. ADVANCED ORGANIC CHEMISTRY II.
PHYSICAL-ORGANIC (4)
PR: CHM 532. A study of organic reaction mechanisms emphasizing the interpretation of experimental data. Lec. Qtr. III.

CHM 633. ADVANCED ORGANIC CHEMISTRY III. SYNTHESIS (4)
PR: CHM 532. Detailed consideration of modern synthetic methods. Lec. Qtr. III.

CHM 634. ADVANCED ORGANIC CHEMISTRY IV. (4)
PR: CHM 532. The emphasis will vary from year to year.

CHM 641. STATISTICAL THERMODYNAMICS (4)
PR: CI. Application of statistical mechanics to thermodynamics, the relation of molecular structure to thermodynamic properties. Lec. Qtr. IV.

CHM 643. QUANTUM CHEMISTRY I (4)
PR: CI. Introduction to elementary quantum mechanics. Atomic structure and spectra. Lec. Qtr. III.

CHM 645. QUANTUM CHEMISTRY II (4)
PR: CHM 643. Applications of quantum mechanics to problems in chemistry; molecular structure and spectra. Lec. Qtr. I.

CHM 647. CHEMICAL KINETICS (4)
PR: CI. Theory and methods for the study of reaction rates and the elucidation of reaction mechanisms. Lec. Qtr. II.

CHM 651. ADVANCED BIOCHEMISTRY I. ENZYMES (4)
PR: CHM 553 or CI. A study of biochemical systems with emphasis on enzymes. Lec. Qtr. I.

CHM 652. ADVANCED BIOCHEMISTRY II. PROTEIN AND NUCLEIC ACIDS (4)
PR: CHM 553 or CI. A study of biochemical systems with emphasis on proteins and nucleic acids. Lec. Qtr. II.
CHM 653. ADVANCED BIOCHEMISTRY III. BIOORGANIC MECHANISMS (4)
PR: CHM 553 or CI. A study of biochemical systems with emphasis on mechanisms of biological reaction. Lec. Qtr. III.

CHM 654. ADVANCED BIOCHEMISTRY IV. BIOPHYSICAL CHEMISTRY (4)
PR: CHM 553 or CI. A study of biochemical systems with emphasis on physical methods of experimentation and interpretation. Lec.

CHM 661. MARINE CHEMISTRY (4)
PR: OGY 521 or CI. Chemical and physical properties of seawater, energy flow in a marine ecosystem, development of the concepts of biogeochemical cycles and master variables, thermodynamics of the carbon dioxide-seawater system, other related topics.

CHM 681. GRADUATE RESEARCH (1-15)
PR: CC. Directed study along lines of the student's research, including participation in regular seminars. May be repeated. (S/U only.)

CHM 683. SELECTED TOPICS IN CHEMISTRY (1-6)
PR: CI. The following titles are representative of those that are taught under this title: Symmetry and Group Theory, Photochemical Kinetics, Quantum Mechanical Calculations, Advanced Chemical Thermodynamics, Reaction Mechanisms, Advanced Instrumentation, Separations and Characterizations, Spectroscopy, etc.

CHM 688. RECENT ADVANCES IN CHEMISTRY WITH EMPHASIS ON THEIR IMPACT ON BEGINNING COURSES (3-6)
PR: Graduate Standing. S-U grading only. A course designed to consider and study the recent developments of a given field especially those developments that have an effect on altering the basic concepts and ideas of the field and imply a change in the presentation of introductory material in the field. (S/U only.) Qtr. I-IV.

CHM 689. DIRECTED TEACHING (3-9)
Not applicable toward thesis degree requirements. Supervised teaching for graduate teaching assistants in elementary and/or laboratory courses. A formalized, structured activity wherein a faculty member, by discussion and assignments, considers the principles, rationale, and modus operandi of elementary college courses. Designed to train teaching assistants and to provide help and training to those graduate students who plan to follow a college teaching profession. (S/U only.) Qtr. I-IV.

CHM 691. GRADUATE SEMINARS IN CHEMISTRY (2)
PR: CI. Qtr. I-IV. (S/U only.)

CHM 699. MASTER'S THESIS (1-15)
PR: CC. Directed research for Ph.D. students only. Qtr. I-IV. (S/U only.)

CHM 781. GRADUATE RESEARCH (1-15)
PR: CI. Qtr. I-IV. (S/U optional.)

CHM 783. SELECTED TOPICS (1-5)
The course content will depend on the interest of faculty members and student demand.

CHM 799. PH.D DISSERTATION (1-15)
PR: CI. Qtr. I-IV. (S/U optional.)

CLASSICS AND ANCIENT STUDIES (CLS)

Chairman: A. M. Gessman; Associate Professors: E. F. Henley, J. J. Iorio; Assistant Professor: F. J. Zbar.

LOWER LEVEL COURSES

CLS 101-102-103. ELEMENTARY LATIN (3,3,3)
Elements of grammar, practice in translation from and into Latin, reading of selections from simple Latin texts.

CLS 201. INTERMEDIATE LATIN I (3)
PR: CLS 103 or equiv.; CR: two-hour per week grammar workshop (no credit). Selections from Cicero's speeches and systematic exercises in intermediate grammar.

CLS 202. INTERMEDIATE LATIN II (3)
PR: CLS 201 or equiv. Selections from the letters of Cicero and Pliny the Younger. (Alternate years.)

CLS 203. INTERMEDIATE LATIN III (3)
PR: CLS 201 or equiv. Selections from Ovid read in Latin and interpreted. Study of the Metamorphoses in English translation and of Graeco-Roman mythology. (Alternate years.)

UPPER LEVEL COURSES

CLS 301. LATIN HISTORIANS (3)
PR: CLS 201 or equiv. Reading and interpretation of selected passages from the works of Sallust, Livy, Tacitus and Suetonius in the original and of portions of their works in English translation. (Alternate years.)

CLS 302. LATIN LYRICS (3)
PR: CLS 201 or equiv. Reading and interpretation of selected poems by Roman lyricists, especially Catull and Horace. Introduction to Latin metrics. (Alternate years.)

CLS 303. LATIN EPIC (3)
PR: CLS 201 or equiv. Reading and interpretation of selected passages from Vergil's Aeneid in the original and of the entire work in English translation. Comparison with the Greek epic. (Alternate years.)

CLS 321. ANCIENT CIVILIZATIONS (5)
Study of the character, ideas and cultural achievements of the peoples of the Ancient Near East and Mediterranean and their relevance for modern Western civilization, with special emphasis on the Hebrews, Greeks and Romans.

CLS 331-332-333. BASIC GREEK (3,3,3)
PR: Junior or senior standing or a minimum of two years of Latin or another highly infected language (e.g., German, Russian, Modern Greek) or CI. Accelerated course in the Ancient Greek (Attic) language and introduction to original Greek literature.

CLS 341-342-343. BASIC HEBREW (3,3,3)
Designed to give students a working knowledge of Classical (Biblical) Hebrew and to introduce them to the Biblical literature in the original language.

CLS 351. CLASSICAL MYTHOLOGY (4)
Study of the more important myths of the Greeks and Romans as laid down in classical literature and of the impact that Classical mythology made on modern Western and, in particular, English literature.

CLS 352. MID-EASTERN MYTHOLOGY (3)
Study of the more important myths and religious concepts of Egypt, the Fertile Crescent, Mesopotamia, Crete, Anatolia, and Persia, and of their impact on Hebrew and Graeco-Roman mythology as well as on later Western art, literature, and religion.

CLS 354. GREEK LITERATURE IN TRANSLATION I: POETRY AND PROSE (4)
An introduction to the masterworks of Greek poetry and prose including the epic, lyric poetry, and history.

CLS 355. GREEK LITERATURE IN TRANSLATION II: DRAMATIC LITERATURE (4)
An introduction to the masterworks of Greek drama in their cultural context. The course concentrates on the Attic comedy and tragedy of the fifth century B.C.

CLS 356. ROMAN LITERATURE IN TRANSLATION (4)
An introduction to the poetry and prose of the Republican Age, the Augustan Age, and the Silver Age.
CLS 359. CLASSICAL WORD ROOTS IN SCIENCE (2)
A course in the Greek and Latin word stock used in all sciences
(including medicine), technology, and law. Students' needs
determine specific content of the course.

CLS 371. FOUNDATIONS OF LANGUAGE (4)
Introduction to synchronic linguistics, basic concepts, general
feature of language. Dialects, kinship groups, types, writing systems.
Methods of structural analysis with emphasis
on the Trubetzkoy-Jakobson approach. (Alternate years.)

CLS 373. HISTORY OF THE ALPHABET (2)
Study, in reasonable detail, of the evolution of our 'Roman'
alphabet, as well as of other ancient and modern alphabets,
from the writing system of ancient Egypt.

CLS 383. SELECTED TOPICS (2-5)
Course contents depend on student demand and instructor's
interest and may range over the field of Latin language,
literature, or civilization.

CLS 401-402-403. ADVANCED GRAMMAR AND
COMPOSITION (3,3,3)
Pr: CLS 201 plus any two of CLS 202, 203, 301, 302, 303, or 4
years of high school Latin. Difficult parts of the morphological
and syntactic structure of Latin. Exercises in advanced
translation and composition. Theory of literature: genres,
stylistics, figures of speech, principles of oratory and versification.
(Alternate years.)

CLS 411, 412, 413. LATIN LITERATURE AND
BACKGROUND (3,3,3)
Pr: Same as for CLS 401. Fast survey of Greek literature,
discussion of Roman dependence on Greek literary topics,
concepts and forms. Survey of Latin literature from Ennius to
Augustine. Study and interpretation of samples texts by authors
not read earlier. (Alternate years.)

CLS 431-432-433. ADVANCED GREEK (3,3,3)
Pr: CLS 333 or equivalent. Study and analysis of selected
passages from Attic prose authors (431), Herodotus (Ionian
Greek, 432), and Homer (Epical Greek, 433). (Alternate years.)

CLS 441-442-443. ADVANCED HEBREW (3,3,3)
Pr: CLS 341 or equivalent. Study and analysis of selected
passages from pre-Exilic (441), Exilic (442), and post-Exilic
(443) Biblical and extra-Biblical Hebrew texts to the second
century B. C. E. (Alternate years.)

CLS 483. SELECTED TOPICS (2-5)
Course contents depend on student demand and instructor's
interest and may range over the whole field of Ancient
languages, literatures, and civilizations, in particular Latin,
Greek, and Hebrew. Enrollment can be repeated for different
topics.

CLS 485. DIRECTED READING (2-5)
Readings in special topics chosen by the student in cooperation
with the instructor. Reading of literature also possible in
English translation. Arrangement with department chairman
before registration necessary.

FOR UPPER LEVEL AND GRADUATE STUDENTS

CLS 517. LATINO-ROMANCE LINGUISTICS (4)
Pr: Background in Latin or a Romance language. Case study of
linguistic development of 4,000 years from Proto-Aryan
through Latin to modern Romance languages. (Alternate years.)

CLS 527. GREEK CIVILIZATION (4)
Pr: CLS 321 or a course in Greek history or Cl. Detailed study
of the Aegean and Hellenic civilizations from their beginnings
in Crete to the Roman period. Greek discoveries, explorations,
and colonization. (Alternate years.)

CLS 529. ROMAN CIVILIZATION (4)
Pr: CLS 321 or 527 or a course in Roman history; or Latin
major; or Cl. Prehistoric Italy and the Etruscan civilization.
History of the civilization of Rome and the Empire with
emphasis on the Greek, Carthaginian, and Oriental influences.
(Alternate years.)

CLS 571. LANGUAGE IN CHANGE (4)
Pr: Cl. Specialized individual work in particular areas of
student's interests.

CLS 583. SELECTED TOPICS (2-5)
For description see CLS 483.

CLS 585. DIRECTED READING (2-5)
For description see CLS 485.

COOPERATIVE EDUCATION (COE)

Coordinating Staff: G. F. Lentz, G. R. Card, A. Minor.

COE 171. COOPERATIVE EDUCATION, 1ST TRAINING
PERIOD (0)
Pr: 24 hours of academic credit, acceptance in Cooperative
Education Program.

COE 172. COOPERATIVE EDUCATION, 2ND TRAINING
PERIOD (0)
Pr: COE 171.

COE 271. COOPERATIVE EDUCATION, 3RD TRAINING
PERIOD (0)
Pr: COE 172.

COE 272. COOPERATIVE EDUCATION, 4TH TRAINING
PERIOD (0)
Pr: COE 271.

COE 371. COOPERATIVE EDUCATION, 5TH TRAINING
PERIOD (0)
Pr: COE 272.

COE 372. COOPERATIVE EDUCATION, 6TH TRAINING
PERIOD (0)
Pr: COE 371.

COE 471. COOPERATIVE EDUCATION, 7TH TRAINING
PERIOD (0)
Pr: COE 372.

COE 472. COOPERATIVE EDUCATION, 8TH TRAINING
PERIOD (0)
Pr: COE 471.

COE 571. COOPERATIVE EDUCATION, 9TH TRAINING
PERIOD (0)
Pr: COE 472.

COE 572. COOPERATIVE EDUCATION, 10TH TRAINING
PERIOD (0)
Pr: COE 571.

CRIMINAL JUSTICE (CJP)

Director: M. Silverman; Associate Professors: W. R. Blount,
M. C. Dertke, M. Vega; Assistant Professors: T. Reilly, I. J.
Silverman; Adjuncts: S. Oster, L. Territo.

LOWER LEVEL COURSES

CJP 201. SURVEY OF CRIMINAL JUSTICE SYSTEM (5)
Pr: PSY 201, SOC 201, or equivalent or Cl. An introduction
to the major institutions associated with criminal justice, their structure, personnel, objectives, resources, and operation. Careful consideration will be placed upon the practical daily relations between the police, the courts, correctional agencies, and the general public.

UPPER LEVEL COURSES

CJP 301. NATURE OF CRIME (4)
Pr: CJP 201. This course is designed to provide a basic understanding of the complex factors related to crime in America. Focus will be centered on reviewing the basic issues, scope, and costs stemming from criminal activities.

CJP 302. LEGAL FOUNDATIONS OF CRIMINAL JUSTICE (4)
Pr: CJP 201, POL 201 or CI. Content of this course examines the effects upon the criminal justice system of the freedoms of habeas corpus, bills of attainder and ex post facto. Thereupon, the course follows the accused through the paths of criminal justice from arrest, to pretrial procedures, to the court and ultimately through corrections.

CJP 315. CHARACTERISTICS OF THE OFFENDER (4)
Pr: Junior standing plus CJP 301 or CI. A four-course series focusing on those individuals being processed through the criminal justice system. Each course will examine the characteristics of a special offender group, its impact on the system, and the system's potential to change this class of offender behavior patterns. (May be taken with different subject matter up to 16 hours)

CJP 410. THEORY AND PRACTICE OF LAW ENFORCEMENT (4)
Pr: Junior standing plus CJP 302 or CI. Designed to provide an in-depth summary of current philosophies and techniques used in the field of law enforcement with special attention given to the roles of law enforcement officers. Attention will be given to the new experimental programs and techniques.

CJP 420. THEORY AND PRACTICE OF CORRECTIONS (4)
Pr: Junior standing plus CJP 301 or CI. The scope of this course relates to the analysis of the different treatment philosophies and techniques currently in use in the field. Attention will be given to experimental and demonstration programs as well as to generally accepted and established methods.

CJP 481. DIRECTED RESEARCH (1-5)
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.

CJP 485. DIRECTED READINGS (1-5)
Pr: CI. This course is specifically designed to enable advanced students the opportunity to do indepth independent work in the area of criminal justice. Each student will be under the close supervision of a faculty member of the program.

CJP 491. SEMINAR IN CRIMINAL JUSTICE (3)
Pr: Senior standing and CI. The seminar (four-course series—variable topics) will consider the various changes occurring in the field of criminal justice with added emphasis placed on the responsibilities of careers in the field. (May be taken with different subject matter up to 12 hours—three hours required)

CJP 499. PRACTICUM FOR CRIMINAL JUSTICE MAJORS

DANCE (DAN)

DAN 303. CHOREOGRAPHY II (3)
Pr: DAN 203 or CI. Preparation of studies in rhythm, dynamics, form and motivation, culminating in a solo.

DAN 304. JAZZ DANCE (2)
Pr: DAN 301 or DAN 302 or CI. A technique class with an emphasis on highly stylized, percussive movement on a strong rhythmic base. Required is the performance of a short dance sequence encompassing these skills.

DAN 311. REPERTORY (1)
The development and performance of solo and/or group dances. Open to all University students by audition. May be repeated.

DAN 313. WORLD HISTORY OF DANCE (3)
Study of the development of dance from its inception through the Middle Ages. Reading, lecture.

DAN 370. INTRODUCTION TO DANCE (3)
For non-dance majors, a study of the art of dance. Lecture and activities including Modern, Ballet, Jazz, Ethnic and Tap. DAN 370 fulfills the FNA requirements for majors in Theatre Arts, Visual Arts and Music Arts.

DAN 371. HATHA YOGA (2)
A course to experience and practice the basic asanas (bodily postures), pranayoma (breath control), and deep relaxation of body and mind. Also, by seeking full awareness of the body and mind, Hatha Yoga prepares the student for dance movement.

DAN 401. MODERN DANCE III (3)
Pr: DAN 301 or CI. Continuation of DAN 301 on an advanced level. Work in improvisation and individual invention creating an awareness of many possibilities of movement. Dancing in student choreography leading to performance. Rehearsal hours to be arranged. May be repeated.
DAN 402. BALLET III (3)
PR: DAN 302 or CI. Continuation of DAN 302. Introducing pointe work. Each class member will dance in student choreography. Rehearsal hours to be arranged. May be repeated.

DAN 403. CHOREOGRAPHY III (3)
PR: DAN 303 or CI. Work directed toward duets and group dances. The students will submit choreographic ideas for the instructor's approval, then proceed with rehearsals. The best dances will be performed and fully produced under supervision of student choreographers. Reading, lecture, laboratory.

DAN 413. HISTORY OF 20TH CENTURY BALLET (3)

DAN 453. DANCE SENIOR SEMINAR (3)
PR: Senior or CC. To aid majors to understand, appraise and perfect their own art and technique through critical and aesthetic judgements of their colleagues.

DAN 481. DIRECTED STUDY (1-6)
PR: CC. May be repeated. Independent studies in the various areas of Dance. Course of study and credits must be assigned prior to registration.

FOR SENIORS AND GRADUATE STUDENTS

DAN 501. MODERN DANCE IV (3)
PR: DAN 401 or CI. Continuation of DAN 401. Intensive work on the growth of personal performance style as a means to communication. Equal emphasis will be given to training the body in the development of technical excellence. Dancing in a student choreography leading to performance. Rehearsal hours to be arranged. May be repeated.

DAN 502. BALLET IV (3)
DAN 402 or CI. Continuation of DAN 402. Great emphasis to final shaping of the body into excellent execution and projection of Ballet technique. Dance in student choreography leading to performance. Rehearsal hours to be arranged. May be repeated.

DAN 503. PRODUCTION (3)
Admission by audition. Open to all university students and required of dance majors. The rehearsal and stage performance of new choreography. Actual production work in which members of the class assist the choreographer in costumes, taping and props. May be repeated.

DAN 513. HISTORY OF MODERN DANCE (3)
Study of the development of modern dance in the 20th Century in America; the different techniques, concepts in choreography and leading artists of our time. Reading, film, and lecture.

DEVELOPMENTAL COURSES

LOWER LEVEL COURSES

DEE 001. DEVELOPMENTAL ENGLISH (0)
Instruction and practice in the review of the fundamentals of English. Includes developmental work in English as applied in writing, with emphasis on grammar, punctuation mechanics of expression and sentence structure.

DMA 001. BASIC CONCEPTS OF ALGEBRA (0)
A programmed learning course in Algebra from a modern point of view for the convenience of persons without adequate knowledge of simple algebraic manipulations and for persons without adequate preparation for MTH 101.

DMA 002. ANALYTICAL TRIGONOMETRY (0)
A programmed learning course in the study of the trigonometric functions as functions of real numbers and their application to triangles.

ECONOMICS (ECN)


LOWER LEVEL COURSES

ECN 100. CONTEMPORARY ECONOMIC PROBLEMS (5)
Problem of scarcity, role of ethical values, economic processes, specific economic problems, alternative solutions, and evaluating economic performance.

ECN 201. ECONOMIC PRINCIPLES I
MICROECONOMICS (4)
The fundamental economic concept of scarcity, alternative courses of action and the problem of choice. How an economy decides what to produce, how to produce and how to reward participants in the economy. Attention is focused on factors affecting consumer wants and on the behavior of price in different types of markets.

ECN 202. ECONOMIC PRINCIPLES II
MACROECONOMICS (4)
An introduction to the modern theory of income determination with emphasis upon the application of monetary and fiscal policy oriented toward the accomplishment of the macroeconomic objectives of full employment, economic growth, and balance of payments stability.

ECN 231. BUSINESS AND ECONOMIC STATISTICS I (3)
PR: MTH 211. College Algebra or equivalent. Description of sample data; calculation of probabilities; frequency functions of random variables; the binomial and normal distributions; sampling theory and estimation; tests of hypotheses; elements of Bayesian decision theory.

UPPER LEVEL COURSES

ECN 301. INTERMEDIATE PRICE THEORY (5)
PR: ECN 201-202. Advanced analysis of supply and demand as related to competition and monopoly; application of economic theory to product pricing and resource pricing.

ECN 311. LABOR ECONOMICS (4)
PR: CI. History of the trade union movement; economic
analysis of trade union philosophies and practices; examination of basic influences affecting labor force, real wages and employment; collective bargaining and labor law.

ECN 313. COLLECTIVE BARGAINING (5)
PR: ECN 311. The administration of labor-management arguments, mediation and arbitration of industrial disputes and governmental role in collective bargaining.

ECN 322. INTERMEDIATE INCOME AND MONETARY ANALYSIS (5)
PR: ECN 201-202. An advanced exposition of the neo-Keynesian analysis explaining the determination of income, employment, prices, and the interest rate. Emphasis is placed upon the interaction of aggregate demand, as determined by consumption, investment, money, and the government budget, and aggregate supply.

ECN 331. BUSINESS AND ECONOMIC STATISTICS II (5)
PR: MTH 211, College Algebra or equivalent and ECN 231. Theory and use of statistical inference for decision and prediction. Point and interval estimation; criteria for choosing estimators and decision rules; hypotheses tests and prob values; analysis of variance; correlation and regression.

ECN 341. ECONOMICS OF TRANSPORTATION (4)
Functions of transportation agencies, rate structure of transportation companies, problems of state and federal regulations and coordination of transportation facilities.

ECN 343. ECONOMICS OF PUBLIC UTILITIES (4)

ECN 351. INTERNATIONAL ECONOMICS (4)

ECN 361. INTRODUCTION TO MATHEMATICAL ECONOMICS (4)
PR: MTH 212, ECN 201-202 and ECN 331 or CI. Economic processes expressed as equations and economic systems as mathematical models. Investigation of their static and dynamic properties by mathematical analysis and computer simulation.

ECN 371. AMERICAN ECONOMIC HISTORY (4)
The growth and evolution of American economic institutions from Colonial times to the present.

ECN 373. ECONOMICS OF THE URBAN ENVIRONMENT (5)

ECN 401. HISTORY OF ECONOMIC THOUGHT (5)
PR: ECN 201-202. The development of the economic schools (Scholasticism, Mercantilism, Physiocratie, Classicism, Utopian Socialism, Anarchism, Marxism, Historicism, Marginalism, Neo-Classicism, Institutionalism, and Keynesianism) in connection with their philosophical and political convictions in relation to their times.

ECN 405. COMPARATIVE ECONOMIC SYSTEMS (4)
Analysis of the major types of economies in industrially developed countries: competitive capitalism (e.g.; West Germany), regulated capitalism (e.g.; France), "command" communism (e.g., the Soviet Union) and "worker-controlled" communism (e.g., Yugoslavia). Each is subject to economic evaluation with particular reference to their ability to meet changing consumer demands and technological innovations.

ECN 411. LABOR RELATIONS AND PUBLIC POLICY (4)
PR: ECN 311. Problems resulting from legislative and judicial interpretation of the rights, duties and responsibilities of labor unions and employers; public policy in labor-management negotiations; survey of legislation designed to protect workers.

ECN 423. PUBLIC FINANCE (5)
PR: ECN 301, 323. An examination of the public sector and its contribution to economic welfare. Government expenditures and revenues are examined in relation to their impact on resource allocation, income distribution, stabilization, and economic growth.

ECN 425. MONETARY THEORY (5)
PR: ECN 301, 323. An examination of the impact of the financial sector upon real economic magnitudes. The course approaches its subject matter through the theory of portfolio and capital adjustments with emphasis upon the contributions of Pigou, Fisher, Keynes, Patinkin, Friedman, and Tobin.

ECN 431. SELECTED TOPICS IN QUANTITATIVE ECONOMICS (4)
PR: MTH 212, ECN 331 or CI. Analysis of relevant problems of social policy by application of economic criteria and econometric method.

ECN 437. BUSINESS-GOVERNMENT RELATIONSHIPS (4)
Analysis of the three public policy approaches: competitive, regulatory, and ownership; evaluation of each in terms of ability to bring about economically desirable price-cost relationships, reductions in cost, invention and innovation and an optimal allocation of resources.

ECN 451. INTERNATIONAL COMMERCIAL POLICIES (4)
PR: ECN 351. An advanced analysis of balance of payments equilibrating mechanisms and of international commercial policy.

ECN 461. THEORY OF ECONOMIC DEVELOPMENT (4)
PR: ECN 323 or CI. Problems, policies, and dynamics of economic growth in emerging nations. The benefits and relevance of the theory of economic development is examined within the context of the social and political milieu of today's underdeveloped areas.

ECN 471. THEORY OF ECONOMIC DYNAMICS (4)
PR: ECN 323. An examination of macroeconomic processes as they occur through time. The determination and characteristics of long run growth paths based upon both Keynesian and Neoclassical models are discussed. Business cycles are then treated as short run deviations from these growth paths. Empirical studies, forecasting, and policy issues are also considered.

ECN 489. SEMINAR IN SELECTED ECONOMIC TOPICS (3-5)
PR: Senior standing and CI. Topics to be selected by the instructor or instructors on pertinent economic issues.

FOR SENIORS AND GRADUATE STUDENTS

ECN 501. MICROECONOMICS (3)
An accelerated introduction to the price system as a mechanism for allocating scarce resources. Models are developed to explain the workings of both product and resource markets. This course is intended for students with no previous courses in economics and no credit towards degrees will be received in the graduate programs of the college of business.

ECN 502. MACROECONOMICS (3)
PR: 501. An accelerated introduction to the understanding of the post-Keynesian system through the development of a theoretical supply and demand model and the application of this model to the fiscal and monetary possibilities inherent within it. This course is intended for students with no previous study in economics and no credit towards degrees will be received in the graduate programs of the college of business.

ECN 503. STATISTICS FOR BUSINESS (3)
PR: ECN 231 and College Algebra. Statistical inference and decision theory applied to problems of business management.

ECN 507. ECONOMIC EDUCATION I (3)
Basic economic processes affecting price determination, income distribution, national income and employment, growth, price levels, and balance of payments. This course is essentially designed for inservice teaching personnel.

ECN 508. ECONOMIC EDUCATION II (3)
Basic economic processes affecting price determination,
income distribution, national income and employment, growth, price levels, and balance of payments. This course is essentially designed for in-service teaching personnel.

ECN 509. ECONOMICS EDUCATION III (3)
This course will be concerned with current economic problems. Emphasis will be placed on an analysis of these topical problems, which secondary and college teachers would find particularly important to include in their courses. This course is essentially designed for in-service teaching personnel.

ECN 519. INDUSTRIAL ORGANIZATION — STRUCTURE (4)
ECN 201 and 202, or equivalent. Extent, levels, trends and dimensions of economic concentration; competitive conduct of large enterprises; casual factors underlying changes in industrial structure: technology, managerial economies and diseconomies, invention and innovation, and mergers.

ECN 520. INDUSTRIAL ORGANIZATION II — CONDUCT AND BEHAVIOR (4)
PR: ECN 519. Non-price competition, predatory practices, government intervention: oligopolistic pricing: differences from competitive pricing, standards of, constraints upon, effects on income distribution, production and governmental policy.

ECN 531. ECONOMIC PROGRAMMING AND CONTROL (5)

ECN 561. ECONOMETRICS (5)
PR: ECN 301, 323, 331, or CI. Theory and use of multiple regression to explain, forecast and influence economic behavior. Applications to demand, cost and production functions. Model specification. Ordinary least squares and instrumental variables methods. Analysis of errors. BMD and TSP computer programs. Design and conduct of individual empirical research projects.

FOR GRADUATE STUDENTS ONLY

ECN 601. RESEARCH METHODOLOGY (3)

ECN 602. HISTORY OF ECONOMIC THOUGHT (5)
PR: ECN 605 and ECN 607. An intense analysis of the main currents of modern economic thought during the last one hundred years.

ECN 603. MANAGERIAL STATISTICS (3)

ECN 604. APPLIED FORECASTING (3)

ECN 605. MICRO-ECONOMICS (3)
PR: ECN 201-202 or ECN 501-502. An intensive study of microeconomics examining the behavior of consumers, and producers. Topics covered include the general concept of scarcity and conceptual models in the areas of demand, production, cost, and the firm and market organization. Advanced readings in theoretical and applied microeconomics will be emphasized.

ECN 607. AGGREGATE ECONOMICS (3)
PR: ECN 201-202 or ECN 501-502. An analysis of the macroeconomic interrelationships determining the level of income, employment, prices, and interest rates over time and the impact of governmental policy activities upon these variables. The course emphasizes forecasting the movement of these variables in the interest of improving the planning process as carried out by the individual business firm.

ECN 608. APPLIED ECONOMIC ANALYSIS (3)
PR: ECN 605, 607. Application of micro and macro economic analysis to problems of policy and procedure in business and government.

ECN 610. MANPOWER ECONOMICS SEMINAR (5)
PR: ECN 201-202, 501-502, or CI. This course is designed to provide the student with a background in labor force statistics, labor institutions, and problems of employment and unemployment. This background then allows for further study of the causes and remedies for unemployment and underemployment.

ECN 623. PUBLIC FINANCE (5)
PR: ECN 201-202, or 501-502 or equivalent. An examination of the role of the public sector and its contribution to economic welfare. Tax and expenditure policies are examined in relation to their effects on resource allocation, income distribution, stability and economic growth.

ECN 625. MONETARY THEORY (5)
PR: ECN 605, 607. An advanced discussion of the impact of the financial sector upon real economic magnitudes. The course emphasizes theoretical and empirical contributions found in the current literature as an extension of earlier work done in the field on monetary theory.

ECN 683. SELECTED TOPICS IN ECONOMICS (1-6)
PR: Graduate standing and CC. The course content will depend on student demand and instructor's interest.

ECN 699. THESIS (6-9)
PR: CC.

EDUCATION


Art Education (EDA)

UPPER LEVEL COURSES

EDA 377. THEORETICAL BASES IN ART EDUCATION (3)
PR: Admission to College of Education. A study of the philosophical, psychological and historical bases upon which contemporary art education practice is developed.
EDA 379. ART IN THE ELEMENTARY SCHOOL (3)
PR: Admission to College of Education & EDA 377. Art expressions appropriate for elementary school pupils at each grade level. EDA 498 to be taken concurrently.
EDA 441. TEACHING METHODS IN THE SECONDARY SCHOOL ART (4)
PR: Admission to College of Education & EDA 377. Techniques and materials of instruction in art, on the secondary level. EDA 498 to be taken concurrently.
EDA 498. FIELD WORK IN ART EDUCATION (2-6)
PR: Admission to College of Education. Supervised participation in activities related to art education in community centers, non-school programs, planned workshops and research.

FOR SENIORS AND GRADUATE STUDENTS

EDA 521. ART MEDIA FOR CHILDREN (5)
PR: EDE 421 or EDA 377. An in-depth study of arts and craft media for children. Emphasis will be placed on innovative use of new materials.
EDA 531. EXPERIMENTAL FILMMAKING FOR CHILDREN (5)
PR: EDA 377 or EDE 421 or EDE 431 (suggested: COM 550). A study of basic experimental film techniques and laboratory experiences with children in the public schools, community centers and non-school arts programs.

FOR GRADUATE STUDENTS ONLY

EDA 660. HISTORICAL AND PHILOSOPHICAL FOUNDATIONS OF ART EDUCATION (4)
Past and contemporary philosophies and practices in art education.
EDA 661. ADMINISTRATION AND SUPERVISION OF ART EDUCATION (4)
Principles of administration and supervision of art programs in the school.
EDA 682. RESEARCH SEMINAR IN ART PROGRAM (4)
PR: EDA 660 or CI. Literature and research in art education. Various approaches to problem solving and evaluation with emphasis on individual research.

EDA 698. FIELD WORK IN ART EDUCATION (2-6)
For students with degree-seeking status. Supervised participation in activities related to art education in community centers, non-school arts programs, planned workshop and research.

Curriculum (EDC)

LOWER LEVEL COURSES

EDC 101. INTRODUCTION TO TEACHING (4)
PR: Freshman only or CI. The people with whom teachers work, the types of tasks they perform and the challenges they can anticipate. Observation of teaching at several grade levels. (S/U only.)

UPPER LEVEL COURSES

EDC 401. CURRICULUM AND INSTRUCTION (5)
PR: EDF 305 and 307, and admission to a teacher education program. Structure and purposes of curriculum organization with special emphasis on the quality of curriculum. Students enrolled in EDC 401 are required to spend six hours a week in public schools as pre-interns in addition to regular class hours.
EDC 480 DIRECTED STUDY (1-4)
PR: Senior standing. To extend competency in teaching field. Offered only as a scheduled class.
EDC 481. INDIVIDUAL RESEARCH (1-4)
PR: Senior standing and consent of program coordinator.
EDC 485. DIRECTED READINGS (1-4)
PR: Senior standing and consent of program coordinator. May be repeated for a total of 4 quarter hours.
EDC 498. SENIOR SEMINAR IN EDUCATION (3)
PR: Senior standing. Synthesis of teacher candidate's courses in his complete college program. Required concurrently with student teaching.
EDC 499. SUPERVISED TEACHING (1-12)
One full quarter of student teaching in a public or private school. Student teacher takes Senior Seminar in Education concurrently. In special programs where the intern experience is distributed over two or more quarters, students will be registered for credit which accumulates to 12 quarter hours. (S/U only.)

FOR SENIORS AND GRADUATE STUDENTS

EDC 501. CURRICULUM AND INSTRUCTION: ELEMENTARY OR SECONDARY (5)
Curriculum scope, sequence, and interrelationships, with a critical evaluation of current trends.
EDC 510. HEALTH PROBLEMS IN CHILDREN (4)
Health problems prevalent in the culturally disadvantaged child and the teacher's role in referral or educational adaptation in classroom activities.
EDC 552. CREATIVE PROBLEM SOLVING FOR THE CHILD (4)
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.
EDC 585. EDUCATION WORKSHOP (1-5)
Professional in-service workshop in various areas of education. May be repeated when subjects differ. Not normally used in degree programs. (S/U only.)

FOR GRADUATE STUDENTS ONLY

EDC 601. THEORETICAL ISSUES IN CURRICULUM AND INSTRUCTION (4)
PR: 8 quarter hours at the graduate level in the Foundations areas. Open only to degree-seeking graduate students. Advanced study of basic concepts and their practical application. Persistent issues and problems and development of rationale for their examination.
EDC 661. PRINCIPLES OF EDUCATIONAL SUPERVISION
(5)
PR: Courses in general curriculum. Instructional leadership with emphasis on organization for curriculum improvement and in-service growth for professional school personnel.

EDC 671. PRINCIPLES OF EDUCATIONAL ADMINISTRATION
(5)
Educational administration as a profession. Consideration is given to organization control, and support of the educational system.

EDC 673. SCHOOL LAW (4)
Basic essentials of school law, a review of court decisions affecting American education, with emphasis upon the study of Florida State Statutes as they pertain to the question of Florida public schools.

EDC 675. SCHOOL FINANCE (4)
PR: Principles of Educational Administration or CI. A study of the support of public education programs through local, state, and federal sources; principles guiding the distribution of funds for equal educational opportunity; methods of budget preparation and administration; and projecting future funding requirements.

EDC 681. DIRECTED STUDY: (SUBJECT) (1-4)
Extensions of competency in teaching field.

EDC 685. SCHOOL CURRICULUM IMPROVEMENT (4)
Workshop for the improvement of the curriculum of an elementary or secondary school. Open only to teachers in service. Complete faculty participation required.

EDC 689. SUBJECT SPECIALIZATION PLANNING: SECONDARY (4)
Individually planned course in a secondary school subject area for in-service teachers.

EDC 691. INTERNSHIP (4-9)
Open to graduate degree candidates only. PR: CI. Supervised teaching at the secondary or junior college level as appropriate. (S/U only.)

EDC 699. THESIS (1-9)

EDC 781. GRADUATE RESEARCH (1-5)
PR: CC. Directed study related to educational research, including participation in regular seminars. May be repeated for credit to a maximum of 15 hours.

EDC 783. SELECTED TOPICS (1-5)
PR: cc. selected topics in advanced Education. May be repeated for credit to a maximum of 15 hours.

EDC 791. GRADUATE SEMINAR (1-5)
PR: CC. Seminar in advanced Education. May be repeated for credit to a maximum of 15 hours.

EDC 799. DISSERTATION (1-5)
PR: CC. May be repeated for credit to a maximum of 15 hours.

Elementary Education (EDE)

LOWER LEVEL COURSES

EDE 201. INTRODUCTION TO EARLY CHILDHOOD EDUCATION (4)
An overview of early childhood education with emphasis on its historical development, current theories, and practices.

UPPER LEVEL COURSES

EDE 409 through EDE 440 open only to upper-level majors in Early Childhood, Elementary, or Special Education.

EDE 409. READING FOR THE CHILD (5)
PR: Admission to College of Education and EDF 305. Readiness, word recognition (phonics, structural, and contextual analysis) word meanings, basic study skills, comprehension abilities and reading interests; in-school work required.

EDE 411. LANGUAGE ARTS FOR THE CHILD (4)
PR: Admission to College of Education. Speaking, writing, reading and listening experiences of children and ways these skills are developed for individual creative expression.

EDE 413. LITERATURE FOR THE CHILD (4)
PR: Admission to College of Education. History and development of children's literature. Study of bibliographic sources, criteria and techniques for selection and use.

EDE 415. ARITHMETIC FOR THE CHILD (5)
PR: Admission to College of Education and MTH 331, 332, 333, or equivalent. Methods of teaching elementary school mathematics.

EDE 417. SCIENCE FOR THE CHILD (5)
PR: Admission to College of Education and completion of General Distribution Requirement biological or physical science in sequence. Techniques and materials for teaching science in the elementary school.

EDE 419. SOCIAL STUDIES FOR THE CHILD (5)
PR: Admission to College of Education and completion of General Distribution Requirement American Idea sequence. Significant concepts in the subjects concerned with human relationships. Emphasis upon teaching pupils to solve rather than be engulfed by social problems.

EDE 421. ART FOR THE CHILD (4)
PR: Admission to College of Education. Art and the intellectual, creative, emotional, and esthetic growth of children.

EDE 423. MUSIC FOR THE CHILD: SKILLS (2)
PR: Admission to College of Education. Voice production, music reading, creative composition and some instrumental experience. School song materials used to support this work.

EDE 424. MUSIC FOR THE CHILD: METHODS (3)
PR: Admission to College of Education & EDE 423. Music Literature and teaching aids for children including singing, rhythmic, creative, instrumental and listening experiences and their presentation.

EDE 425. HEALTH, PHYSICAL EDUCATION FOR THE CHILD (4)
PR: Admission to College of Education. Motivating factors of play; knowledge and skill in basic rhythmic activities; games and stunts; health instruction for the child.

EDE 426. CREATIVE ARTS IN EARLY CHILDHOOD EDUCATION (4)
PR: Admission to College of Education. The development of the child’s creative expression through art, music, dance, play, and drama; included are the materials, content, and teaching techniques.

EDE 431. ART FOR EARLY CHILDHOOD (3)
PR: Admission to College of Education. Art, presenting the principles, practices and materials to be used in relation to the characteristics of the young child ages 3-8.

EDE 433. MUSIC FOR EARLY CHILDHOOD (3)
PR: Admission to College of Education. Singing, rhythmic, creative, instrumental and listening experience relevant to early childhood.

EDE 440. TEACHING METHODS IN THE ELEMENTARY SCHOOL (4)
PR: Admission to the College of Education. Suggested co-requisite: EDC 401. Process of teaching elementary school subjects. To be taken quarter prior to internship. Six hours per week as pre-intern in public schools required. (S/U only.)

FOR SENIORS AND GRADUATE STUDENTS

EDE 515. DIAGNOSIS AND TREATMENT OF LEARNING DISABILITIES IN SCHOOL MATHEMATICS (4)
PR: EDE 415 or equivalent. Study of the symptoms, etiologies and consequences of children's learning disabilities in mathematics; study and guided application of theoretical models used in diagnosis and treatment—group and individual.

EDE 516. PRACTICUM IN DIAGNOSIS AND TREATMENT OF CHILDREN'S LEARNING DISABILITIES IN MATHEMATICS (1-8)
PR: EDE 515. Supervised conduct of a case study with a child
experiencing learning difficulties in mathematics. Procedures used and reporting practice employed developed in EDE 515 reviewed and extended.

**EDE 519. SOCIAL GROWTH IN CHILDHOOD (4)**
PR: Admission to College of Education. A study of the principal factors which influence the social development of young children with particular emphasis upon those cultural influences which affect both child development and the educational programs for the young child.

**EDE 527. DEVELOPMENTAL PROCESSES IN EARLY CHILDHOOD (4)**
PR: Admission to College of Education. The normal processes of development among children ages 3-8. The relation between these characteristics and the curriculum: child study through observation required.

**EDE 529. PROGRAMS IN EARLY CHILDHOOD EDUCATION (5)**
PR: Admission to College of Education. A study of school programs for nursery, kindergarten, and primary education. Analysis and evaluation of these programs in the light of the most effective current classroom practices. Observation and participation included.

**EDE 531. LANGUAGE AND LEARNING IN EARLY CHILDHOOD (4)**
PR: Admission to College of Education. The study of the acquisition of language in young children and the development of basic communications skills in the Language Arts Curriculum, infancy through age 8 years.

**EDE 539. WORKSHOP IN EARLY CHILDHOOD EDUCATION (4)**
PR: Admission to College of Education. Individual problems and innovations related to methods and materials of instruction in the early childhood grades.

**FOR GRADUATE STUDENTS ONLY**

**EDE 603. SEMINAR IN CURRICULUM RESEARCH (1-5)**
PR: EDE 607. Critical study of current research and curriculum literature, design and analysis of individual research topics leading to satisfaction of research requirements.

**EDE 609. TRENDS IN READING IN THE ELEMENTARY SCHOOL (4)**
PR: EDE 409, EDR 509 or equivalent. Extensive study of recent trends in materials, approaches, and procedures in teaching reading in the elementary school.

**EDE 611. TRENDS IN LANGUAGE ARTS INSTRUCTION (4)**
PR: EDE 411 and 413. Advanced materials and processes of instruction in elementary school language arts programs.

**EDE 613. CREATIVE ARTS INSTRUCTION (4)**
Creative processes in the teaching of visual arts, music, dance, and drama to elementary school pupils.

**EDE 615. TRENDS IN MATHEMATICS INSTRUCTION (4)**
PR: EDE 415 or equivalent. Philosophy, content and process of qualitative instruction in modern mathematics in elementary school programs.

**EDE 617. TRENDS IN SCIENCE INSTRUCTION (4)**
PR: EDE 417. Topics in the biological and physical sciences appropriate for teaching in excellent elementary school programs. Analysis of modern curriculum materials used in presenting science as a process of inquiry.

**EDE 619. TRENDS IN SOCIAL STUDIES INSTRUCTION (4)**
PR: EDE 419. Crucial concepts drawn from the social sciences. Analysis of the problems approach. Students will select an area of independent study on an advanced level.

**EDE 621. ART FOR THE ELEMENTARY SCHOOL TEACHER (4)**
Exploration of various materials and techniques in relationship to current theories about art and the intellectual, creative, emotional and esthetic growth of children.

**EDE 629. ADVANCED PROGRAMS IN EARLY CHILDHOOD EDUCATION (4)**
A study of innovative curriculum designs in Early Childhood Education, with emphasis given to related research. Opportunity for practicum experiences included.

**EDE 631. CHILDREN’S LITERATURE IN THE ELEMENTARY CLASSROOM (4)**
PR: EDE 413 C.I. A study of significant concepts, emerging trends and classroom techniques for implementation and utilization of children’s literature in all areas of the curriculum.

**EDE 639. HOME-SCHOOL-COMMUNITY INTERACTION IN EARLY CHILDHOOD EDUCATION (4)**
An intensive study of the roles of parents, teacher aides, and community agencies involved in the education of the young child. Field work is included with parents and children in the home, day care centers and clinics.

**EDE 641. PROBLEMS IN SUPERVISION (4)**
PR: EDF 607 or equivalent and EDC 661. Problems in supervising for curriculum improvement within the elementary school.

**EDE 651. THEORIES AND PATTERNS OF ADVANCED LANGUAGE ARTS INSTRUCTION (4)**
PR: EDE 611 or equivalent. This course is organized to present new research findings and theories relating to language patterns and contemporary programs designed for teaching the language arts.

**EDE 652. APPLICATIONS OF THEORIES TO THE DEVELOPMENT OF LANGUAGE ARTS PROGRAMS (4)**
PR: EDE 611 or equivalent, EDE 651. This course is designed to apply research findings and theories for developing and organizing instructional improvement of the language arts.

**EDE 687. SUBJECT SPECIALIZATION PLANNING: ELEMENTARY (4)**
Individually planned course in an elementary school subject area for in-service teachers.

**English Education (EDT)**

**UPPER LEVEL COURSES**

**EDT 447. TEACHING METHODS IN THE SECONDARY SCHOOL—ENGLISH (4)**
PR: EDC 401 or concurrent registration in EDC 401. Techniques and materials of instruction in English Education.

**FOR SENIORS AND GRADUATE STUDENTS**

**EDT 531. CURRENT TEACHING OF THE ENGLISH LANGUAGE (4)**
Application of recent techniques of language study, including structural and transformational grammar, to classroom teaching of English, especially in relation to current textbooks. (For graduate credit: PR: ENG 517 or ENG 535 and certification in English.)

**FOR GRADUATE STUDENTS ONLY**

**EDT 631. CURRENT TRENDS IN SECONDARY ENGLISH EDUCATION (4)**
Curricular patterns and instructional practices in secondary English.

**Speech Communication Education**

**EDT 463. TEACHING METHODS IN THE SECONDARY SCHOOL—JOURNALISM (5)**
PR: EDC 401 or concurrent registration in EDC 401. Techniques and materials of instruction in journalism.

**FOR SENIORS AND GRADUATE STUDENTS**

**EDT 523. DIRECTING SPEECH ACTIVITIES IN THE SECONDARY SCHOOL (4)**
PR: 15 hours of speech or CI. Coaching and directing co-curricular activities in discussion, debate, oratory, oral
interpretation, and extemporaneous speaking. Planning and supervision of forensic tournaments and speech contests.

FOR GRADUATE STUDENTS ONLY

EDF 621. CURRENT TRENDS IN TEACHING SPEECH COMMUNICATION (5)
PR: CI. Curricular patterns; instructional materials, facilities and practices used in teaching speech communications.

EDT 622. SEMINAR IN THE HISTORY OF SPEECH COMMUNICATION IN EDUCATION (5)
PR: CI. Studies in selected sources, critical writings, and research which have contributed to the development of speech communication as an academic discipline.

Foreign Language Education (EDX)

UPPER LEVEL COURSES

EDX 449. TEACHING METHODS IN THE SECONDARY SCHOOL—FOREIGN LANGUAGE (4)
PR: EDC 401 or concurrent registration in EDC 401. Techniques and materials of instruction in foreign languages. To be taken in the quarter prior to internship.

EDX 465. TEACHING METHODS IN THE SECONDARY SCHOOL—LATIN (4)
PR: EDC 401 or concurrent registration in EDC 401. Techniques and materials of instruction in Latin.

FOR GRADUATE STUDENTS ONLY

EDX 649. CURRENT TRENDS IN SECONDARY FOREIGN LANGUAGE EDUCATION (4)
PR: Consultation with instructor, plus foreign language fluency. Curricular patterns and instructional practices in the teaching of secondary foreign languages.

Foundations (EDF)

UPPER LEVEL COURSES

EDF 303. INTRODUCTION TO MEASUREMENT AND EVALUATION (4)
PR: Upper level standing. Elementary concepts basic to a general understanding of measurement and evaluation procedures.

EDF 305. HUMAN DEVELOPMENT AND LEARNING (4)
PR: SS1 201, 203 or General Psychology; and admission to College of Education or CC. Application of respondent and operant learning principles to classroom learning, teaching models for different instructional goals, analysis of teacher behavior, micro-teaching. Credit cannot be earned for both EDF 305 and EDF 377.

EDF 307. SOCIAL FOUNDATIONS OF EDUCATION (4)
PR: Admission to College of Education. Social, economic and political context within which schools function and the values which provide direction for our schools; the culture as a motivating influence in instruction. Should not be taken concurrently with EDF 305.

EDF 309. PHILOSOPHY OF EDUCATION (4)
PR: Upper level standing. A critical analysis of selected philosophies of education in terms of their beliefs about the nature of man and society and their related assumptions about the nature of reality, knowledge, and value.

EDF 311. COMPARATIVE EDUCATION (4)
PR: Upper level standing. A comparison of contemporary educational systems of selected countries with that of the United States.

EDF 377. EDUCATIONAL PSYCHOLOGY (4)
PR: Upper Level standing. The application of behavioral principles to human behavior in educational institutions, home and community settings. Credit cannot be earned for both EDF 305 and EDF 377. (For non-education majors only.)

FOR SENIORS AND GRADUATE STUDENTS

EDF 502. ADOLESCENCE (4)
A study of the educational, intellectual, personality, physical, social and vocational factors in adolescence.

EDF 575. AMERICAN DEMOCRACY AND PUBLIC EDUCATION (4)
Interdependence of the public school and democracy in the United States and the responsibility of the school in fostering and strengthening basic democratic principles.

EDF 585. PROGRAMMED INSTRUCTION AND TEACHING MACHINES (4)
Principles for programming in the several academic subjects.

FOR GRADUATE STUDENTS ONLY

EDF 605. FOUNDATIONS OF MEASUREMENT (4)
Fundamental descriptive statistics, basic measurement concepts, role of measurement in education, construction of teacher-made tests and interpretation of standardized tests.

EDF 607. FOUNDATIONS OF EDUCATIONAL RESEARCH (4)
PR: EDF 605. Major types of educational research, with emphasis upon understanding the experimental method.

EDF 611. PSYCHOLOGICAL FOUNDATIONS OF EDUCATION (4)
Selected topics in psychology of human development and learning.

EDF 612. CHILD DEVELOPMENT (4)
PR: EDF 611 or CI. Educational, emotional, hereditary, intellectual, social and physical factors influencing child growth and development.

EDF 613. PRINCIPLES OF LEARNING (5)
A consideration of several theories of learning and related research studies in regard to classroom application.

EDF 615. BIOLOGICAL BASES FOR LEARNING AND BEHAVIOR (5)
PR: One course in Educational Psychology. A study of human biological development and its influence upon learning and behavior.

EDF 617. MEASUREMENT OF INDIVIDUAL INTELLIGENCE (5)
PR: EDF 305 or 611 or equivalent and a course in educational measurement or statistics. Administration and interpretation of individual measures of intelligence. Students may not receive credit for both EDF 617 and PSY 617, Individual Intelligence Testing.

EDF 621. SOCIO-ECONOMIC FOUNDATIONS OF AMERICAN EDUCATION (4)
Significant socio-economic factors as they relate to major problems facing American education.

EDF 623. HISTORICAL FOUNDATIONS OF AMERICAN EDUCATION (4)
Historical and comparative problems in American education which are relevant to contemporary issues.

EDF 625. PHILOSOPHICAL FOUNDATIONS OF AMERICAN EDUCATION (4)
Major philosophies of education which are relevant to an understanding of contemporary educational issues.

EDF 627. PROSEMINAR IN COMPARATIVE EDUCATION (4)
Contemporary policies and practices in education in selected countries of the world. Methodology in Comparative Education. Consideration will be given to needs and interests of individual students.

EDF 631. THEORIES OF PERSONALITY FOR SCHOOL PERSONNEL (4)
A comparative and integrated study of personality development according to major psychological theories. Application of the theoretical constructs to education and guidance.

EDF 635. BEHAVIOR THEORY AND CLASSROOM LEARNING (4)
PR: EDF 613 or CI. Theoretical and practical application of behavior modification. Will cover: Introduction into experimental methods, e.g., independent, dependent variables; and
internal validity; principles of positive reinforcement; shaping and successive approximations; application of reinforcement (parameters); operant behavior under extinction; operant methods in behavior and development; readings in behavior modification—critical analysis; field work.

EDF 671. SELECTED TOPICS (2-4)
PR: CI. Exploration and demonstration of knowledge in an area of special interest to the student and/or in an area for which the student needs to demonstrate a higher level of competence. Defined to fit the needs of each student.

EDF 675. FIELD EXPERIENCE. (1-5)
PR: CI. Demonstrate skills in the practice of the student's specialty. Specific objectives will be defined according to the needs of the individual student.

Guidance (EDG)

UPPER LEVEL COURSES

EDG 401. INTRODUCTION TO GUIDANCE (5)
PR: Upper level standing. An introduction to the role and function of guidance, school psychology, social work and other pupil personnel services from kindergarten through junior college.

FOR GRADUATE STUDENTS ONLY

EDG 601. PRINCIPLES OF GUIDANCE (4)
Guidance as a profession; philosophic framework of the guidance program, its scope and place in the total educational context.

EDG 603. THE INFORMATIONAL SERVICE IN GUIDANCE (4)
PR: EDG 601. Occupational structure in the United States; sources and uses of educational, occupational, social and personal information; collecting, classifying and communicating such information.

EDG 609. THE APPRAISAL PROCEDURES IN GUIDANCE (5)
PR: EDF 605, EDG 601. A study of test and non-test techniques of appraisal with emphasis on the use of standardized test data in guidance programs and the use of the individual case study approach.

EDG 613. ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES IN ELEMENTARY SCHOOLS (3)
PR: EDG 601. Organization of a guidance program in the elementary school, its relation to instruction and administration. Guidance roles and relationships of members of the school staff.

EDG 615. ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES IN SECONDARY SCHOOLS (3)
PR: EDG 601. Organization of a guidance program and its place in the total educational program; responsibilities of various staff members and their relationships to each other.

EDG 617. GROUP PROCEDURES IN GUIDANCE IN ELEMENTARY SCHOOLS (3)
PR: EDG 601 and EDG 621. Counterpart of EDG 619 for prospective secondary school counselors. Use of groups in the counseling and guidance of children and in working with parents and teachers.

EDG 619. GROUP PROCEDURES IN GUIDANCE IN SECONDARY SCHOOLS (3)
PR: EDG 601 and EDG 623. Group interaction and values of group activity for guidance purposes. Methods and techniques for working with groups.

EDG 621. THE COUNSELING SERVICE IN GUIDANCE IN ELEMENTARY SCHOOLS (5)

EDG 623. THE COUNSELING SERVICE IN GUIDANCE IN SECONDARY SCHOOLS (5)
PR: EDG 601. Nature of the counseling process with emphasis on some theoretical approaches and practical techniques.

EDG 625. PRACTICUM IN ELEMENTARY GUIDANCE COUNSELING AND CONSULTING (6)
This course is the counterpart of EDG 627 for prospective secondary school counselors; enrollment by permission of program chairman only. Counseling with children in groups as well as individually; consultations with parents, teachers, administrators, and fellow professionals regarding the children being counseled. (S/U only)

EDG 627. PRACTICUM IN SECONDARY SCHOOL GUIDANCE COUNSELING (6)
Final course in guidance program; enrollment by permission of program chairman only. Supervised practice in working with individuals in counseling relationship. (S/U only)

EDG 629. COMPARATIVE GUIDANCE (4)
PR: EDG 601 (or equivalent) or CI. Guidance theory and practice in foreign countries; for example, guidance theory and practice in the Soviet block countries, Marxist ethics, socialist character formation, the role of ideology, collectivist life style, leadership requirements, hierarchy of individual and societal goals. Orthodox theory versus reformist currents. Evaluation of Marxist guidance through critical analysis of primary source materials.

EDG 633. SEMINAR IN GUIDANCE (1)
PR or CR: EDG 601. Significant issues in the field of guidance; topics for discussion will vary according to needs and interests of students. (S/U only)

EDG 681. INDIVIDUAL STUDY (1-5)
PR: CI. Independent study, research and experiences relating to guidance and pupil personnel services under the supervision of a member of the Guidance Program faculty. (May be repeated for maximum total of 5 hours).

Humanities Education (EDY)

FOR GRADUATE STUDENTS ONLY

EDY 633. CURRENT TRENDS IN THE TEACHING OF HUMANITIES (4)
Curricular patterns, materials, and instructional practices in the teaching of humanities.

Junior College (EDH)

FOR GRADUATE STUDENTS ONLY

EDH 651. 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 653. SEMINAR IN COLLEGE TEACHING (5)
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.

Library — Audiovisual Education (EDL)

UPPER LEVEL COURSES

EDL 411. SCHOOL LIBRARY ADMINISTRATION AND SERVICE (5)
PR: Admission to College of Education. Development, philosophy, objectives, standards and current trends in school libraries. Introduction to library operations, programs and services in the school and the community.

EDL 412. ORGANIZATION OF THE SCHOOL LIBRARY AS A MATERIALS CENTER (5)
PR: Admission to College of Education. Media quarters (materials center), facilities and equipment. The application
of the principles of library organization and service to the
administration and service of all media in the school.

EDL 419. AUDIOVISUAL MATERIALS OF INSTRUCTION (4)
PR: Admission to College of Education. Selection, utilization
and care of audio-visual materials and equipment.

EDL 480. PRE-INTERNSHIP IN A SCHOOL LIBRARY (4)
Practice in school libraries.

FOR SENIORS AND GRADUATE STUDENTS

EDL 508. TV UTILIZATION IN AND FOR THE SCHOOL (4)
Utilization of open and closed circuit broadcasting in the
instructional process.

EDL 513. GENERAL REFERENCE SOURCES (4)
Basic reference tools: dictionaries, encyclopedias, hand­books, indexes, serials, bibliographies, biographical sources,
atlas and gazetteers; emphasis on school library reference
materials.

EDL 514. SELECTION AND ACQUISITION OF
ELEMENTARY SCHOOL LIBRARY MATERIALS (4)
Selection and ordering of books and audiovisual materials for
children, grades K-6.

EDL 515. TECHNICAL SERVICES IN LIBRARIES (5)
Principles and practice in the classification, cataloging and
processing of books for the school library.

EDL 519. BOOKS AND RELATED MATERIALS FOR YOUNG
PEOPLE (5)
Examination and evaluation of books and related materials
for young people in terms of basic principles of selection and
utilization. Identification and use of bibliographic sources,
 aids and tools essential in the selection process.

EDL 520. MEDIA AND EDUCATIONAL FACILITIES (3)
Designing teaching stations and media centers for effective
media utilization. Practice in helping classroom teachers
 modify existing classrooms in the use of newer media.

EDL 523. PREPARATION AND PRODUCTION OF
INSTRUCTIONAL MATERIALS (4)
Basic techniques for the preparation of a variety of audiovisual instructional materials.

EDL 524. STORYTELLING FOR ELEMENTARY SCHOOL
CHILDREN (4)
Review of the literature of storytelling; criteria in selection of
storytelling materials; practice in using the arts and skills of
oral communication in transmitting the literary heritage to
young children.

EDL 525. INSTRUCTIONAL GRAPHICS (4)
PR: EDL 523 or CI. Theoretical aspects, planning and
production of instructional graphic material. The theory of
graphic communications. Interpreting needs for instructional
materials appropriate for given behavioral objectives.

EDL 526. PREPARING SINGLE CONCEPT FILMS (4)
Techniques and procedures in the preparation of single
concept of educational films. Ascertaining concepts, script
writing, graphics, lighting, filming, editing.

FOR GRADUATE STUDENTS ONLY

EDL 600. FOUNDATIONS OF LIBRARIANSHIP (5)
PR: EDL 411 or its equivalent. Overview of and 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.

EDL 601. BIBLIOGRAPHY AND BOOK SELECTION (5)
PR: EDL 517, 518. Bibliographical sources, evaluative
criteria for books and principles of book selection for
libraries.

EDL 602. HISTORY OF LIBRARIES (4)
Development of libraries as found from the earliest records
to the great libraries of modern times and the library as a
social institution.

EDL 604. CONTEMPORARY PUBLISHING AND PRINTING
(4)
PR: EDL 601. 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 relationships between libraries and publishing.

EDL 605. HISTORY OF CHILDREN'S LITERATURE (5)
Historical bibliographical survey of imaginative and informa­tional literature for children.

EDL 607. THE CURRICULUM AND INSTRUCTIONAL
TECHNOLOGY (5)
Effect and utilization of instructional materials as they relate
to specific areas of the curriculum in elementary and high
school programs.

EDL 609. SUPERVISED FIELD WORK IN SCHOOL
LIBRARIES (4)
PR: Consent of major adviser.

EDL 610. BOOKS AND RELATED MATERIALS OF LATIN
AMERICAN COUNTRIES SUITABLE FOR CHILDREN
AND YOUNG PEOPLE (4)
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.

EDL 611. ADVANCED SUBJECT REFERENCE AND
BIBLIOGRAPHY (4)
PR: EDL 513. Literature of the humanities, social sciences,
science, and technology.

EDL 612. THE ORGANIZATION AND ADMINISTRATION
OF THE SCHOOL MEDIA CENTER (5)
PR: EDL 600 or its equivalent. Media quarters, facilities and
equipment. Basic principles of organization and administra­tion of media programs in elementary and secondary schools.

EDL 615. CLASSIFICATION AND CATALOGING OF NON­BOOK MATERIALS (3)
Principles and practice in the cataloging of non-book materials for the media center.

EDL 616. ADVANCED CATALOGING AND
CLASSIFICATION (TECHNICAL PROCESSES) (4)
PR: EDL 515 or consent of the instructor. An examination of
changing policies and procedures in the administration of
acquisitions, cataloging, binding, photographic reproduction
and related area. Analysis of research in the field.

EDL 619. DOCUMENTS AND SERIALS (4)
The nature of documents and serials, their reference and
research value; techniques of acquisition, cataloging, organ­ization, conservation and reference use.

EDL 621. AUDIOVISUAL ADMINISTRATION (5)
PR: EDL 523 and 607. Audiovisual administrative practices
in school systems and junior colleges.

EDL 622. PROBLEMS IN AUDIOVISUAL UTILIZATION (4)
Examination of non-print media and its utilization in libraries.
Characteristics of media equipment and paradigms of use.

EDL 623. ADVANCED PREPARATION AND PRODUCTION
OF INSTRUCTIONAL MATERIALS (4)
By permission of instructor. Designed for the media
specialist. Advanced techniques for the preparation of
audiovisual materials of instruction.

EDL 625. READING GUIDANCE PROGRAMS IN LIBRARIES
AND CLASSROOMS (4)
The factors and forces that influence reading interests and
habits of youth; programs for teaching the investigative and
library skills; the materials and methods for the guidance of
reading, grades 1-12.

EDL 629. RADIO AND TELEVISION TECHNIQUES FOR
EDUCATORS (4)
Utilization and broadcasting techniques for educators. Stress
will be placed on local school production, micro-teaching,
and studio broadcasting.

EDL 630. BIBLIOGRAPHY OF THE HUMANITIES (4)
PR: EDL 513 and EDL 611 or consent of the instructor.
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. Emphasis upon the importance of creative literature in all libraries, illustrated by specific readings.

EDL 631. BIBLIOGRAPHY OF THE SOCIAL SCIENCES (4)
PR: EDL 513 and EDL 611 or consent of the instructor. Characteristics of the social science disciplines and structure, concepts, methods of investigation. Understanding of social science reference tools as means of bibliographic control and as vehicles of research.

EDL 632. BIBLIOGRAPHY OF THE SCIENCES AND TECHNOLOGIES (4)
PR: EDL 513 and EDL 611 or consent of the instructor. Study of representative reference sources in pure and applied sciences with equal attention given to typical problems encountered in scientific and technological reference service.

EDM 640. ADMINISTRATION AND PERSONNEL SERVICES IN THE PUBLIC LIBRARY (5)
Identification of problems and critical examination of methods in administrative areas of technical and public services, fiscal, and legal responsibilities, staff organization and supervision in public libraries.

EDM 650. ADMINISTRATION AND PERSONNEL SERVICES IN THE ACADEMIC LIBRARY (5)
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.

EDM 660. ADMINISTRATION AND PERSONNEL SERVICES IN SPECIAL LIBRARIES (5)
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.

EDM 681. INDIVIDUAL RESEARCH AND INDEPENDENT STUDY (1-5)
PR: 20 hours earned in program and consent of adviser.

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**Music Education (EDM)**

**UPPER LEVEL COURSES**

†EDM 431. INSTRUMENTAL MUSIC IN THE ELEMENTARY SCHOOL (5)
†EDM 432. INSTRUMENTAL MUSIC IN THE JUNIOR HIGH SCHOOL (5)
†EDM 433. INSTRUMENTAL MUSIC IN THE SENIOR HIGH SCHOOL (5)
†EDM 435. VOCAL MUSIC IN THE ELEMENTARY SCHOOL (5)
†EDM 437. VOCAL MUSIC IN THE JUNIOR HIGH SCHOOL (5)
†EDM 439. VOCAL MUSIC IN THE SENIOR HIGH SCHOOL (5)

**FOR GRADUATE STUDENTS ONLY**

EDM 601. TECHNIQUES OF RESEARCH IN MUSIC EDUCATION (4)
Professional bibliography and individual research projects.

EDM 603. MUSIC SUPERVISION AND ADMINISTRATION (3)
The music curriculum in relation to the total school program; staff and budgetary needs.

EDM 614. VOCAL MATERIALS AND CONDUCTING (4)
A study of materials appropriate for use in vocal groups. Emphasis is given to vocal materials appropriate for use in secondary schools.

† Each class meets as a performing group. Score reading, conducting, organizational procedures, historical relationships, and methods at the appropriate grade levels. Teaching techniques concerning the presentation of elements of theory, general music, and literature.

EDM 617. INSTRUMENTAL MATERIALS AND CONDUCTING (4)
A study of materials appropriate for use in instrumental groups. Emphasis is given to instrumental materials appropriate for use in secondary schools.

EDM 633. CURRENT TRENDS IN SCHOOL INSTRUMENTAL MUSIC (3)
New materials, equipment, techniques of teaching and recent historical trends in instrumental music.

EDM 635. CURRENT TRENDS IN SCHOOL VOCAL MUSIC (3)
New materials, equipment, techniques of teaching and recent historical trends in vocal music.

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**Natural Science—Mathematics Education (EDN)**

**UPPER LEVEL COURSES**

EDN 425. NEW TRENDS IN TEACHING THE PHYSICAL SCIENCES (4)
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.

EDN 427. NEW TRENDS IN TEACHING BIOLOGY (4)
Recent developments in curriculum materials and in strategies for teaching biological sciences, grades 7-12. Recommended for pre-service teachers of secondary school biology.

EDN 451. TEACHING METHODS IN THE SECONDARY SCHOOL-MATHEMATICS (4)
PR: EDC 401 or concurrent registration in EDC 401 and admission to teacher education program in mathematics. Techniques and materials of instruction in mathematics.

EDN 459. TEACHING METHODS IN THE SECONDARY SCHOOL—SCIENCES (4)
PR: EDC 401 or concurrent registration in EDC 401. Techniques and materials of instruction in secondary school sciences.

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**FOR SENIORS AND GRADUATE STUDENTS**

EDN 515. THE UTILIZATION OF LABORATORY TECHNIQUES IN THE TEACHING OF MATHEMATICS (4)
PR: 18 quarter hours of mathematics or Cl. In this course students will make an examination of a variety of sample laboratory lessons along with methods for creating and evaluating such lessons.

EDN 583. SELECTED TOPICS IN SCIENCE EDUCATION (1-5)
May be repeated when topics are not duplicated.

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**FOR GRADUATE STUDENTS ONLY**

EDN 616. TEACHING OF PRE-SECONDARY SCHOOL MATHEMATICS I (5)
PR: 18 quarter hours of mathematics or Cl. Development of strategies and materials for teaching mathematical concepts and skills appropriate to presecondary school years.

EDN 617. TEACHING OF PRE-SECONDARY SCHOOL MATHEMATICS II (5)
PR: EDN 616. Continuation of EDN 616.

EDN 618. TEACHING OF PRE-SECONDARY SCHOOL MATHEMATICS III (5)
PR: EDN 617. Continuation of EDN 616-617.

EDN 621. TEACHING OF HIGH SCHOOL ALGEBRA (4)
PR: B.A. in mathematics or certification in secondary mathematics. Philosophy, content, new trends, and methods of teaching beginning, intermediate, and advanced high school algebra.

EDN 622. TEACHING OF HIGH SCHOOL GEOMETRY (4)
PR: B.A. in mathematics or certification in secondary mathematics. Philosophy, content, new trends, and methods of teaching high school geometry.
EDN 637. CURRENT TRENDS IN SECONDARY MATHEMATICS EDUCATION (4)
Curricular patterns and instructional practices in secondary mathematics.

EDN 639. CURRENT TRENDS IN SECONDARY SCIENCE EDUCATION (4)
PR: EDN 425 or 427. Curricular patterns and instructional practices in secondary science.

EDN 641. CASE STUDIES IN SCIENCE (4)
Case studies from the Natural Sciences with implications for science teaching.

EDN 651. TEACHING SECONDARY SCHOOL BIOLOGY (4)
PR: CI. Effective use and production of instructional materials in the biological sciences. Interrelation of philosophy, materials and classroom practices.

EDN 653. TEACHING SECONDARY SCHOOL PHYSICAL & EARTH SCIENCES (4)
PR: CI. Effective use and production of instructional materials in the physical and earth sciences. Interrelation of philosophy, materials, and classroom practices.

Physical Education for Teachers (EDP)

LOWER LEVEL COURSES

EDP 255. First Aid (3)
Meets American Red Cross certification requirements in standard and advanced first aid.

UPPER LEVEL COURSES

EDP 311. SEMINAR AND FIELD EXPERIENCE IN PHYSICAL EDUCATION (5)
Approximately two hours per day are spent teaching in an elementary school which provides a variety of experiences designed to lead students to an understanding of children and how they learn in the elementary school.

EDP 312. HUMAN KINETICS I (6)
The development and integration of the neuromuscular and the associated sensory systems as they affect motor and perceptual-motor performance. The physiology of muscular contraction, the accompanying immediate changes in the cardiorespiratory systems, and the permanent physiological changes resulting from exercise.

EDP 314. 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.

EDP 321. SEMINAR AND FIELD EXPERIENCE IN PHYSICAL EDUCATION (5)
Elementary school physical education teaching experiences are provided for students. Seminars emphasize planning and teaching methodology. Health and recreation as they relate to elementary school children are studied.

EDP 322. HUMAN KINETICS II (6)
The structure and function of the nervous, skeletal, and muscular systems of the human body as they contribute to efficient movement; deviations in either structure or function in these systems and the role of exercise in rehabilitation.

EDP 331. SEMINAR AND INTERNSHIP IN PHYSICAL EDUCATION (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. (S/U only)

EDP 332. HUMAN KINETICS III (6)
The mechanical laws of physics as they relate to movement within and of the human body and the projection of objects in throwing, hitting, and kicking. Efficiency of human movement through sound body mechanics.

EDP 365. AQUATICS (3)
Includes analysis and methodology of teaching swimming skills, conducting class activities, and the organization and conducting of aquatic programs in the school and the community.

EDP 411. SEMINAR AND FIELD EXPERIENCE IN PHYSICAL EDUCATION (5)
Students spend approximately two hours a day at either the junior or senior high school level working in team teaching situations. Emphasis is placed on understanding the secondary level student and how teaching behavior can affect the learner.

EDP 412, 422, 432. APPLIED HUMAN KINETICS (4 each)
A three course sequence which stresses the biomechanical analysis, motoric learning, the teaching techniques of dance, and the skills and strategies common to a number of individual and team sports.

EDP 421. SEMINAR AND INTERNSHIP IN PHYSICAL EDUCATION (5)
Student reverse teaching levels from EDP 411 so that they will have experience at both junior and senior high school levels. Team teaching prevails, however, a transition is made to teaching larger numbers of students. Seminars emphasize individualized techniques. (S/U only.)

EDP 431. SEMINAR AND INTERNSHIP IN PHYSICAL EDUCATION (5)
Students have an option of teaching at the elementary, junior or senior high school level as well as teaching mentally retarded students. Students will teach for a full day for a period of from one to three weeks. (S/U only.)

EDP 459. ATHLETIC TRAINING (3)
PR: CI. Principles and techniques of conditioning athletes for competition; prevention and care of injuries in physical education and athletic activities.

EDP 460. HEALTH EDUCATION PROJECT (5)
PR: CI. A practicum in health education through field experiences with official and voluntary health agencies.

EDP 468. COACHING OF SWIMMING (3)
Methods of organizing and coaching a competitive swimming team.

EDP 469. COACHING OF FOOTBALL (5)
Theory and practice of the fundamental techniques, organizational problems and strategy involved in coaching football.

EDP 478. COACHING OF WRESTLING (4)
Theory and practice of the fundamental techniques, organizational problems and strategy involved in coaching wrestling.

EDP 479. COACHING OF SOCCER (3)
Theory and practice of the fundamental techniques, organizational problems and strategy involved in coaching soccer.

EDP 486. COMMUNITY RECREATION (4)
Introduction to recreational outlets in the community and the administrative problems confronting recreational playground leaders and directors of community recreational programs.

EDP 488. COACHING OF TRACK AND FIELD (4)
Theory and practice of the fundamental techniques, organizational problems and strategy involved in coaching track.

EDP 489. COACHING OF BASKETBALL (3)
Theory and practice of the fundamental techniques, organizational problems and strategy involved in coaching basketball.

EDP 499. COACHING OF BASEBALL (3)
Theory and practice of the fundamental techniques, organizational problems and strategy involved in coaching baseball.

FOR SENIORS AND GRADUATE STUDENTS

EDP 556. SPECIAL PROBLEMS IN PHYSICAL EDUCATION (3-6)
† Enrollment in these courses requires admission to the Physical Education Program.
EDP 558. SCIENTIFIC BASIS OF COACHING (5)
The application of principles from exercise physiology, kinesiology, and psychology to competitive athletics.

FOR GRADUATE STUDENTS ONLY

EDP 600. PROFESSIONAL ASSESSMENT (4)
Selected readings of current trends in physical education: discussion of philosophies of teaching; and individual appraisal of knowledge, values, attitudes, and professional competencies.

EDP 610. BIO-KINETICS OF HUMAN MOVEMENT (4)
Integration of basic kinesiological foundations applied to teaching physical education. Specific topics include: physical growth and neuro-muscular development, role of neuromuscular mechanisms in motor performance, physical principles of human movement and the effects of exercise on the muscular and cardio-respiratory systems.

EDP 611. SPECIALIZED STUDY IN BIO-KINETICS OF HUMAN MOVEMENT: (SUBJECT) (1-4)
Will provide in-depth study in specific areas related to neurological, physiological, and mechanical principles of human movement.

EDP 620. SOCIO-PSYCHOLOGICAL ASPECTS OF HUMAN MOVEMENT (4)
Involves the psychological and sociological implications of movement to historical and contemporary man. Emphasis on psycho-motor learning, movement behavior, physical self-concept, role of movement in society and values and attitudes held toward movement.

EDP 621. 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.

EDP 630. CURRICULUM AND INSTRUCTIONAL PROCESS IN PHYSICAL EDUCATION (4)
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 a requirement of this course.

EDP 631. SPECIALIZED STUDY IN CURRICULUM AND INSTRUCTIONAL PROCESS IN PHYSICAL EDUCATION: (SUBJECT) (1-5)
Will provide in-depth study in specific areas related to the teaching-learning process of physical education.

EDP 640-641. PHYSICAL EDUCATION FOR THE HANDICAPPED I & II (5,5)
This sequential course is concerned with the motor performance and physical fitness of neurologically handicapped individuals and the unique problems of motor skill learning found in children and youth with visual, auditory, speech, or orthopedic handicaps. Study includes field experiences which apply knowledge related to psycho-educational characteristics; planning, conducting, and evaluating individualized programs of special physical education; and review of relevant literature.

EDP 650. RESEARCH IN PHYSICAL EDUCATION (4)
Emphasis will be directed toward planning, conducting, and interpreting research in physical education. The function of research in improving programs as well as the technical aspects of research designs appropriate to physical education are included for study.

EDP 651. RESEARCH PROJECT IN PHYSICAL EDUCATION (1-6)
In-depth research study of selected topics concerning human movement. Topics will vary according to needs and interests of students. May be repeated for credit.

EDP 699. RESEARCH THESIS (1-9)

Measurement — Research — Evaluation (EDQ)

FOR GRADUATE STUDENTS ONLY

EDQ 601. ADVANCED MEASUREMENT—COGNITIVE AREA (4)
Measurement, assessment theory and procedures appropriate to the “Cognitive Domain,” i.e., intellectual abilities, aptitudes, achievements, skills.

EDQ 603. ADVANCED MEASUREMENT—AFFECTIVE AREA (4)
Measurement, assessment theory and procedures appropriate to the affective domain, i.e., feelings, attitudes, interests, personal characteristics.

EDQ 605. STATISTICAL ANALYSIS FOR EDUCATIONAL RESEARCH I (4)
Application of statistical techniques to the study of educational problems: Tests of significance and confidence intervals, analysis of variance (one-way and factorial), correlation and linear regression.

EDQ 607. STATISTICAL ANALYSIS FOR EDUCATIONAL RESEARCH II (4)
Application of statistical techniques to the study of educational problems: Multiple correlation and regression, Introductory Factor Analysis and selected non-parametric techniques.

EDQ 608. STATISTICAL ANALYSIS FOR EDUCATIONAL RESEARCH III (4)
Application of statistical techniques to the study of educational problems: Trend analysis, analysis of variance models and expectation of mean squares; Analysis of covariance: Method of least squares; Bayesian statistics (introduction).

EDQ 609. DESIGN OF EXPERIMENT-PRODUCT RESEARCH IN EDUCATION (4)
Basic Experimental research design theory and models appropriate for education.

EDQ 611. DESIGN OF DESCRIPTIVE-PROCESS RESEARCH (4)
Theory and procedures for conducting descriptive research in education.

EDQ 613. APPLICATION OF COMPUTER LANGUAGE AND PROCEDURES IN EDUCATION (2)
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.

EDQ 620. RESEARCH-BASED PLANNING EVALUATION AND DEVELOPMENT IN EDUCATION (4)
Introduction to systematic planning and development procedures including needs assessment, proposal development, evaluation design and process engineering. Emphasis placed on analysis of evaluation models and theory.

EDQ 621. A BASIS FOR PLANNING AND DEVELOPMENT IN EDUCATION (4)

EDQ 701. CRITICAL ISSUES IN EDUCATIONAL MEASUREMENT AND EVALUATION (4)
A consideration of major issues relevant to the theory and application of measurement and evaluation. Topics include: culture-faire testing, accountability, normative vs. criterion measures and socio-political issues.

Reading Education (EDR)

FOR SENIORS AND GRADUATE STUDENTS

EDR 508. READING IN MIDDLE SCHOOLS (4)
This course is for new teachers planning to, or currently
teaching in a middle school. Students will study reading as it relates to their particular subject matter area.

EDR 509. CURRENT TRENDS IN READING IN THE SECONDARY SCHOOL (4)
Survey of secondary, college, and adult reading practices, problems, and research. Work with students at commensurate level required.

EDR 530. CORRECTIVE READING FOR CLASSROOM TEACHERS (4)
PR: EDE 409 or EDR 509 or equivalent. Procedures and materials for individual and group corrective reading in the classroom.

FOR GRADUATE STUDENTS ONLY

EDR 631. DIAGNOSIS OF READING DISABILITIES (4)
PR: EDE 609, EDF 605 and EDR 509. Causes of reading disability; techniques and materials in diagnosis of reading problems, including telebinocular and audiometer screening. Diagnoses of reading disabilities are required.

EDR 632. TECHNIQUES OF CORRECTIVE AND REMEDIAL READING (4)
PR: EDE 609, EDF 605, EDR 509, and EDR 631. Materials and methods in remediation of moderate to severe reading disability cases. Supervised individual tutoring and in-depth evaluation and use of materials.

EDR 633. PRACTICUM IN READING (3-6)
PR: EDE 609, EDF 605, EDR 509, EDR 631, EDR 632 and C1. Remediation of severe reading disability cases, tutoring of individuals and small groups, interview techniques, preparation of case reports.

EDR 634. CURRICULUM AND SUPERVISION PROBLEMS IN READING (4)
PR: EDE 609, EDF 605, EDR 509, EDR 631, and EDR 632. Planning and administering programs and preparation as consultants in reading. Intensive work on individual project required.

EDR 635. SURVEY OF READING RESEARCH (4)
PR: EDF 605 and EDF 607, most of EDR courses and C1. Course deals with research in reading—a review of research is conducted by student and presented in written form.

Social Science Education (EDW)

UPPER LEVEL COURSES

EDW 461. TEACHING METHODS IN SECONDARY SCHOOL—SOCIAL STUDIES (4)
PR: EDC 401 or concurrent registration in EDC 401. Techniques and materials of instruction in social studies.

FOR GRADUATE STUDENTS ONLY

EDW 643. CURRENT TRENDS IN SECONDARY SOCIAL STUDIES (4)
PR: EDW 461 or equivalent or C1. Curricular patterns and instructional practices in secondary social studies.

Special Education (EDS)

UPPER LEVEL COURSES

EDS 311. EXCEPTIONAL CHILDREN IN THE SCHOOLS (4)

EDS 312. COMMUNICATION DISORDERS IN THE CLASSROOM (4)
Aiding the child with a speech, hearing, or language disorder in a classroom setting.

EDS 322. INTRODUCTION TO MENTAL RETARDATION (4)
PR: EDF 305. EDS 311 or C1. Classification, diagnosis, characteristics, and treatment of the mentally retarded.

EDS 329. UNDERGRADUATE SUPERVISED PRACTICUM IN MENTAL RETARDATION (6)
Supervised Practicum experiences in the educational, social, and vocational planning of mentally retarded individuals.

EDS 359. FIELD WORK WITH GIFTED CHILDREN (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.

EDS 423 & II. EDUCATIONAL PROCEDURES FOR THE EDUCABLE MENTALLY RETARDED (4,4)
PR: EDC 401, EDE 409, EDE 415, EDS 322, or C1. Special class organization, curriculum adjustments, methods and techniques of teaching the educable retarded.

EDS 424. EDUCATIONAL PROCEDURES FOR THE TRAINABLE MENTALLY RETARDED (4)
PR: EDS 322 or C1. Special class organization, curriculum adjustments, methods and techniques of teaching the trainable retarded.

EDS 479. SCHOOL PRACTICUM IN SPEECH PATHOLOGY (1-14)
Supervised practicum in Speech Pathology & Audiology in the school setting.

FOR SENIORS AND GRADUATE STUDENTS

EDS 511. THE SLOW LEARNER IN THE SCHOOL (4)
Characteristics, needs and educational planning for the slow learning child. Appropriate for special class teachers and regular class teachers.

EDS 529. GRADUATE SUPERVISED PRACTICUM IN MENTAL RETARDATION (1-14)
Supervised graduate practicum encompassing teaching and supervising experiences in public school classes for the mentally retarded.

EDS 531. BEHAVIOR DISORDERS IN THE SCHOOLS (4)
PR: EDF 305 or EDF 377 or PSY 201 or C1. Survey of emotional and social disorders in children and the implications for educational programs. Students may not receive credit for both EDS 531 and PSY 613, Behavioral Disorders of Children.

EDS 541. THE CULTURALLY DISADVANTAGED AND THE SCHOOLS (4)
Characteristics and needs of the culturally disadvantaged and their implications for educational programming.

EDS 559. NATURE AND NEEDS OF THE GIFTED (4)
Characteristics and educational needs of gifted children and youth.

EDS 551. EDUCATIONAL PROCEDURES FOR THE GIFTED (4)
PR: EDS 550 or C1. Curriculum adjustments, methods and techniques, classroom organization necessary for teaching the gifted.

EDS 559. SUPERVISED PRACTICUM FOR THE GIFTED (1-14)
Planned supervised participation in activities related to specific areas of the gifted.

EDS 561. EDUCATIONAL PROBLEMS OF THE PHYSICALLY HANDICAPPED (4)
PR: EDS 311 or C1. Introduction to the educational, psychological and social problems of the physically disabled child in the public schools.

EDS 579. SCHOOL PRACTICUM IN SPEECH PATHOLOGY (1-14)
Supervised practicum in Speech Pathology & Audiology in the school setting.

FOR GRADUATE STUDENTS ONLY

EDS 610. SEMINAR IN SPECIAL EDUCATION (4)
A critical survey of the literature related to the psychological, sociological, and education problems of exceptional children.
EDS 611. PSYCHO-EDUCATIONAL APPRAISAL OF EXCEPTIONAL CHILDREN (4)
PR: EDF 303, 605, or CI. Educational planning for exceptional children based on diagnostic information.

EDS 612. SUPERVISION OF EXCEPTIONAL CHILD PROGRAMS (4)
PR: CI. Principles of supervision and their application to exceptional child education.

EDS 613. ADMINISTRATION OF EXCEPTIONAL CHILD PROGRAMS (4)
PR: CI. Procedure which local, state, and national administrators may use to implement services for exceptional children.

EDS 620. BIOLOGICAL AND PSYCHOLOGICAL ASPECTS OF MENTAL RETARDATION (4)
PR: EDF 607, and EDS 322, or CI. Evaluation of relevant literature.

EDS 621. SOCIOLOGICAL AND EDUCATIONAL ASPECTS OF MENTAL RETARDATION (4)
Evaluation of relevant literature.

EDS 622. ADVANCED EDUCATIONAL PROCEDURES FOR THE MENTALLY RETARDED (4-8)
PR: EDS 423, experience in teaching the retarded; identification of a problem prior to registration, or CI. Specific curriculum and methodological problems in teaching the retarded.

EDS 632. EDUCATIONAL PROGRAMMING FOR EMOTIONALLY DISTURBED CHILDREN (I) (4)
PR: EDS 531 and CI. Personality dynamics and research findings as related to the interpretation of disturbed behavior; techniques for the management of individual, small group, and classroom behavior.

EDS 633. EDUCATIONAL PROGRAMMING FOR EMOTIONALLY DISTURBED CHILDREN (II) (4)
PR: EDS 531, 632, or CI. Personality dynamics and learning theory as related to the facilitation of learning and communication; techniques for teaching both individuals and groups with emphasis on improved interpersonal relations, academic learning, and communication skills.

EDS 639. FIELD WORK IN EMOTIONALLY DISTURBED (1-14)
PR: EDS 531 (may be taken concurrently) and CI. Supervised graduate practicum experiences with emotionally disturbed children.

EDS 649. FIELD WORK WITH POTENTIALLY HANDICAPPED (CULTURALLY DISADVANTAGED) (1-9)
Teaching and participation in activities related to teaching disadvantaged young children (N-3).

EDS 653. SEMINAR IN EDUCATION OF THE GIFTED: RECENT RESEARCH (4)
A critical survey of the literature related to the psychological and educational problems of gifted children.

EDS 654. SEMINAR IN EDUCATION OF THE GIFTED: PROGRAMS (4)
A survey of existing programs for the gifted and evaluation of relevant literature. Individual students will plan and present a model program for the gifted.

EDS 660. THE VISUALLY HANDICAPPED IN THE CLASSROOM (4)
PR: EDS 311 or CI. A survey of modern techniques to assist teachers in a broader understanding of the recognition of visual problems. Hygiene, structure and educational implications.

EDS 662. TEACHING THE CEREBRAL PALSYED CHILD (4)
PR: EDS 311 or CI. Introduction to the educational, psychological and social problems of the physically disabled child in the public schools.

EDS 676. SPEECH & LANGUAGE DISORDERS (4)
Group management procedures for amelioration of speech and language problems. The nature of disorders of communication and management of verbal behavior.

Vocational and Adult Education (EDV)

LOWER LEVEL COURSES

EDV 207. THE TEACHER IN A WORLD OF WORK (4)
A study of educational efforts in preparing people for work, the relationship of a job to man's life style, and the concept of education as a lifelong process.

EDV 353. ADMINISTRATIVE OFFICE MANAGEMENT (5)
Functions of the business office to include systems and procedures, communications, records management, office employee behavior, controlling the work of the office, and principles office organization. Also includes the methodology necessary for teaching these areas in either separate courses or integrated block programs.

EDV 431. SUPERVISED FIELD EXPERIENCE: (Specialization) (4-8)
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.

EDV 443. SPECIAL TEACHING METHODS: (Specialization) (5)
Methods, techniques, and materials for skill development.

EDV 445. METHODS OF TEACHING: (Specialization) (4)
Methods, techniques, and materials for instruction.

EDV 461. OFFICE OCCUPATIONS PROCEDURES (5)
PR: EDF 143, 351, 361, and Senior standing. This course is designed to integrate learnings from preceding business and office education courses. Applications involve actual and simulated office situations, problems, and evaluation. Emphasis is placed on the qualifications needed for efficient business office operations.

EDV 480. FACILITY DESIGN AND MANAGEMENT (4)
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.

FOR SENIOR LEVEL AND GRADUATE STUDENTS

EDV 503. CURRICULUM CONSTRUCTION: (Specialization) (4)
Planning and organizing an instructional program for the purpose of developing an occupational competency.

EDV 504. PREPARATION AND DEVELOPMENT FOR TEACHING (4)
The development of selected instructional materials, use of new educational media, performance evaluation instruments, and counseling techniques.

EDV 505. THE ADULT LEARNER (4)
PR: EDF 305 or equivalent. Physiological and psychological changes in individuals throughout the adult life span and the implications which these changes have in learning capabilities of adults. A review of recent research on adult learning is also emphasized.

EDV 506. PROGRAM MANAGEMENT: (Specialization) (4)
Organization, co-ordination, and budgeting of adult, co-operative, and special programs.

EDV 507. PRINCIPLES OF ADULT AND VOCATIONAL EDUCATION (4)
An overview of current policies and principles to include their historical, sociological and philosophical bases out of which principles of adult and vocational education have been accepted and implemented.

EDV 511. SCHOOL-COMMUNITY DEVELOPMENT (4)
An approach to identifying and analyzing, developing and maintaining working relationships between appropriate
school and community institutions, their channels of communication for the purpose of cooperative program involvement.

FOR GRADUATE STUDENTS ONLY

EDV 605. ADULT BASIC EDUCATION (4)
An overview of adult basic education with emphasis on current issues and problems of curriculum and instruction in program development for culturally different adults.

EDV 621. INDIVIDUALIZED INSTRUCTION (4)
Attention is given to individualized instruction to include the special needs student, the slow learner, and the more capable student.

EDV 631. CURRENT TRENDS (4)
Historical information, issues, current trends, new dimensions and problems in the area of specialization.

EDV 641. STAFF DEVELOPMENT (4)
Implementation of new procedures addressed to discreet developmental needs of the staff as identified by an educational agency.

EDV 651. PRACTICUM: (Specialization) (4-8)
A problem-centered field study in the local community, school, government, office, social agency, business or industry.

EDV 661. SUPERVISION OF LOCAL PROGRAMS: ADULT OR VOCATIONAL (4)
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.

EDV 671. ADMINISTRATION OF LOCAL PROGRAMS: ADULT OR VOCATIONAL (4)
A study of the organization, selection of personnel, assignment of duties and responsibilities, and establishment of policies and procedures to accomplish the objectives of the local program within the federal, state, and local requirements.

EDV 687. SEMINAR: (4)
PR: EDV 605 & 607. Applied research techniques and investigation of important current issues or theses in the area of specialization.

†Areas of specialization in these courses are: Adult Education, Business Education, Distributive Education, and Industrial-Technical Education.

ENGINEERING


Basic and Interdisciplinary Engineering
Course Work (EGB)

LOWER LEVEL COURSES

EGB 101. GRAPHIC ANALYSIS I (4)
The theory and application of projective systems and related topics. Basic problems in descriptive geometry. Lec-lab.

EGB 102. GRAPHIC ANALYSIS II (3)

EGB 103. GRAPHIC ANALYSIS III (3)
CR: EGB 101. 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.

EGB 104. GRAPHIC ANALYSIS IV (3)
Continuation of EGB 103.

EGB 201. ENGINEERING PROBLEMS I (2)

EGB 203. ENGINEERING MEASUREMENTS (3)
PR: EGB 101. An introduction to the concepts of a systems approach and various techniques of measurement in engineering systems, both discrete and continuous. Lec-lab.

EGB 208. INTRODUCTION TO ENGINEERING I (3)
PR: None. To present an overview of Engineering, its role and its concepts. Experimental program; see adviser.

EGB 209. INTRODUCTION TO ENGINEERING II (3)
PR: EGB 208. Continuation of EGB 208. (Experimental program.)

EGB 231. PROGRAMMING I—INTRODUCTION (1)
Basic computer operation, programming a computer using machine language, assembly languages and FORTRAN.

EGB 232. PROGRAMMING II—FORTRAN (2)
PR: EGB 231. Continuation of EGB 231.

EGB 301. ENGINEERING PROBLEMS II (2)
CR: MTH 303. Continuation of EGB 201.

EGB 302. ENGINEERING PROBLEMS III (2)
CR: MTH 304. Continuation of EGB 301.

EGB 303. ENGINEERING PROBLEMS IV (2)
CR: MTH 305. Continuation of EGB 302.

EGB 311. INTRODUCTION TO ELECTRICAL SYSTEMS I (3)

EGB 312. INTRODUCTION TO ELECTRICAL SYSTEMS II (3)
PR: EGB 311. Continuation of EGB 311.

EGB 313. INTRODUCTION TO ELECTRICAL SYSTEMS III (3)
PR: EGB 311. Continuation of EGB 311 or EGB 312.

EGB 321. THERMODYNAMICS I (3)

EGB 322. THERMODYNAMICS II (3)
EGB 325. DYNAMIC RESPONSE OF ENGINEERING SYSTEMS (4)
PR: PHY 303, 305. Linear dynamic analysis of electrical, mechanical, pneumatic, hydraulic and thermal systems. Introduction to analog computers; LaPlace transformation. Block diagram representation, transient and frequency response. Lec-lab.

EGB 337. ENGINEERING VALUATION I (3)
PR: EGB 231, MTH 303. A study in analyzing the economic limitations imposed on engineering activities using basic models which consider the time value of money.

EGB 340. SOLID MECHANICS I (5)

EGB 341. SOLID MECHANICS II (4)

EGB 342. ENGINEERING MATERIALS I (6)

EGB 343. FLUIDS I (6)
PR: EGB 341. Fundamental and experimental concepts in ideal and viscous fluid theory; momentum and energy considerations; compressible flow; boundary layer, Navier-Stokes equation. Lec-lab.

EGB 401. ENGINEERING ANALYSIS I (4)

EGB 481. PROFESSIONAL ENGINEERING SEMINAR I (1-5)
PR: CI. A lecture-discussion seminar on modern trends in the engineering profession.

EGB 483. PROFESSIONAL ENGINEERING SEMINAR II (1-5)
PR: CI. Guest lecturers from on and off campus for discussion of current engineering topics to graduating engineering students.

FOR SENIORS AND GRADUATE STUDENTS
EGB 501, 502, 503, 504, 505. ENGINEERING ANALYSIS II, III, IV, V, VI (3 each)
PR: CC or MTH 401. Ordinary differential equations with emphasis on numerical methods and series solutions; boundary value problems; orthogonal functions; vector analysis; partial differential equations; the LaPlace transform; functions of a complex variable.

EGB 523. DIGITAL SIGNAL PROCESSING TECHNIQUES (3)

FOR GRADUATE STUDENTS ONLY
EGB 601. ENGINEERING ANALYSIS VII (3)
PR: CC. Applications of applied mathematics to the study of linearized dynamic systems and networks; state space; stability theory; extensions to discrete and non-linear systems.

EGB 610. SCIENTIST IN THE SEA I (4; Lec Lab)
PR: CI and diver certification (NAVI or equiv.) Hyperbaric Operations; the basic principles, physiology and psychology involved in submarine hyperbaric operations, inside and outside habitats. Communication and life support is also treated extensively. (Also listed as OGY 610.)

EGB 611. SCIENTIST IN THE SEA II (4; Lec Lab)
PR: CI and diver certification (NAVI or equiv). Marine Sciences: an extensive discussion of research equipment and techniques for underwater operations in the Marine Sciences presented by practicing research workers in the field. (Also listed as OGY 611.)

EGB 612. SCIENTIST IN THE SEA III (4; Lec Lab)
PR: CI and diver certification (NAVI or equiv). Underwater Engineering; the ocean as a constraint for structures and devices. Factors involved in the planning and design of underwater operations and experimental devices. (Also listed as OGY 612.)

EGB 631. PATTERN RECOGNITION THEORY (3)

EGB 632. COMPUTER APPROACHES TO PATTERN RECOGNITION (3)

EGB 699. RESEARCH OR DESIGN (1-9)
PR: CC. Supervised independent research or design. May be repeated. (S/U only.)

EGB 798. RESEARCH AND DISSERTATION (1-12)
PR: Admission as candidate for Ph.D. program. Supervised independent research. May be repeated for credit. (S/U only.)
FOR SENIORS AND GRADUATE STUDENTS

EGE 444. LOGIC DESIGN (3)
PR: EGB 312. Binary number system; truth functions; Boolean algebra; canonical forms; minimization of combinational logic circuits; logic circuits in computers.

EGE 445. LOGIC LABORATORY (1)
CR: EGE 444.

EGE 450. MICROELECTRONICS ENGINEERING (3)

EGE 451. MICROELECTRONICS LABORATORY (1)
CR: EGE 450.

EGE 460, 462, 464. ELECTROMECHANICS I, II, III (3,3,3)

EGE 474, 476, 478. SYSTEMS ANALYSIS I, II, III (5,5,5)
PR: or CR: GLY 412. Principles involved in the origin, take advanced course work in the electrical area.

EGE 475, 477, 479. SYSTEMS LABORATORIES 1, 2, 3 (1,1,1)
CR: EGE 474, 476, 478 respectively.

EGE 480, 481, 482. SPECIAL ELECTRICAL TOPICS I, II, III (1-4 each)
PR: CC.

EGE 499. DESIGN PROJECT (3)
PR: Senior standing. An individual or team project involving the design of an electrical component or system. Required of all electrical seniors.

FOR GRADUATE STUDENTS ONLY

EGE 520. PULSE CIRCUIT PRINCIPLES (3)
PR: EGE 411, 421. An introduction to the analysis and design of pulse and timing circuits with applications.

EGE 530. UHF PRINCIPLES (3)
PR: EGE 411, 421, 430. A study of tubes, devices and circuits peculiar to systems which operate at ultra high and super high frequencies.

EGE 531. UHF LABORATORY (1)
CR: EGE 530.

EGE 540. NONLINEAR CONTROL SYSTEMS (3)

EGE 541. CONTROL LABORATORY (1)
CR: EGE 540.

EGE 542. SEQUENTIAL CIRCUITS (3)
PR: EGE 444. The design of switching circuits with inputs that are functions of time is carried from a word description through a minimum state realization using flip-flops, logic gates and delay elements.

EGE 544. DIGITAL COMPUTERS (3)
PR: EGE 444. Digital arithmetic; computer subsystems, arithmetic units; control units; memory units; general purpose computers.

EGE 545. DIGITAL LABORATORY (1)
CR: EGE 544.

EGE 547. DISCRETE STRUCTURES FOR DIGITAL SYSTEMS (3)
PR: EGE 444. Set algebra, basic algebraic structures in computers, Boolean algebra, propositional logic, and graphs. Applications to computers.

EGE 548. ELECTRICAL MEASUREMENTS (2)
PR: EGE 411. Techniques and principles of electronic measurement.

EGE 549. MEASUREMENTS LABORATORY (1)
CR: EGE 548.

EGE 560. POWER SYSTEMS ANALYSIS (3)
PR: CC. Analysis techniques for AC power systems.

EGE 562. COMPUTER ANALYSIS OF POWER SYSTEMS (3)
PR: CC. Review of Fortran programming, matrix 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.

EGE 580, 581, 582. SPECIAL ELECTRICAL TOPICS I, II, III (1-3 each)
PR: CC.

EGE 585. ENGINEERING SEMINAR (1)
PR: CC.

EGE 599. RESEARCH OR DESIGN (1-9)
PR: CC. (S/U only.)
EGE 641. RANDOM PROCESSES IN CONTROL SYSTEMS (3)
PR: EGE 440 or CC. Analysis and design of control systems subject to random inputs and disturbances.

EGE 642. MODERN CONTROL THEORY (3)
PR: EGE 440, 540, 640, 641 or CC. A study of modern control techniques including optimum and adaptive control.

EGE 644. AUTOMATA THEORY I (3)

EGE 645. AUTOMATA THEORY II (3)
PR: EGE 644. Vector spaces over finite fields, linear sequential circuits, pseudo-random sequences, Turing machines, recursive function, computability.

EGE 646. AUTOMATA THEORY III (3)
PR: EGE 645. Artificial languages, phase-structure grammars, operations on languages, decision problems, discrete value random processes, Markov processes, probabilistic sequential machines, non-deterministic sequential machines.

EGE 647. SIMULATION TECHNIQUES FOR ELECTRICALS (3)
PR: CC. Theory of simulation of systems characterized by lumped and distributed parameters.

EGE 648. ELECTRICAL MEASUREMENTS (2)
PR: CC. Advanced techniques and principles of electronic measurement.

EGE 649. MEASUREMENTS LABORATORY (1)
CR: EGE 648.

EGE 650, 651, 652. SOLID STATE ELECTRONICS I, II, III (3, 3, 3)
PR: CC. Theory of operation and application of circuits and devices.

EGE 653, 654. PRINCIPLES OF SEMICONDUCTOR DEVICE MODELING I, II (3, 3)
PR: EGE 411, 430. 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.

EGE 655. COMPUTER DESIGN LANGUAGES (3)
PR: CC or EGE 544. Simulation languages for digital computer systems: APL, CDL and others. Simulation of elements, operations, sequences and of a complete digital computer.

EGE 656. DIGITAL ARITHMETIC METHODS (3)
PR: CC or EGE 544. Study of the number systems and the algorithms used for digital arithmetic computation with emphasis in their implementation, speed and reliability considerations.

EGE 657. COMPUTER ARCHITECTURE (3)
PR: CC or EGE 655 or EGE 656. The macro-structure of computers is considered in this course, ranging from the orthodox von Neumann designs to multiprocessors, stack processors, pipe-line systems and associative computers.

EGE 660, 661, 662. ELECTRIC POWER SYSTEMS I, II, III (3, 3, 3)
PR: CC. Steady-state and transient analysis of interconnected power systems; power circuit protection; transient characteristics of apparatus.

EGE 670. PULSE COMMUNICATIONS SYSTEMS (3)
PR: CC. Sampling theory, pulse waveform generation and modulation, PAM, PWM, PPM, related multiplex systems, telemetry applications.

EGE 671. DATA TRANSMISSION I (3)
PR: EGE 670. Quantization theory, binary coding systems, ideal binary transmission, on-off keying, FSK, PSK, PCM, applications.

EGE 672. DATA TRANSMISSION II (3)
PR: EGE 671. M-ary systems-MASK, MFSK, MPSK, orthogonal systems, multilevel and multistate coding, simplex codes, orthogonal and biorthogonal codes, polysignal systems, synchronization methods.

EGE 680. SPECIAL ELECTRICAL PROBLEMS I (1-3 each)
PR: CC.

EGE 681. SELECTED ELECTRICAL TOPICS (1-3)
PR: CC.

EGE 698. ADVANCED ENGINEERING SEMINAR (1-3)
PR: CC.

EGE 699. RESEARCH OR DESIGN (1-18)
PR: CC. (S/U only.)

EGE 799. DOCTORAL DISSERTATION (1-15)
PR: CC. (S/U only.)

Energy Conversion and Mechanical Design (EGR)

EGR 311. THERMODYNAMICS III (3)
PR: EGB 322. The study of energy conversion processes and cycles as modified for optimization of capacity and efficiency. Applications include pumps, compressors, turbines, internal combustion engines, power and refrigeration cycles.

EGR 315. HEAT TRANSFER I (4)
PR: EGB 322. The basic laws of conduction, convection and radiation; analysis of the effect on heat transfer of thermal conductivity, emissivity, fluid transport properties and Reynolds's number. Lab-gen.

EGR 326. DYNAMICS OF MECHANICAL SYSTEMS (3)
PR: PHY 301, MTH 303. Plane and angular motion; velocity and acceleration curves, velocities and accelerations in mechanisms, state and dynamic force analysis. Rolling and sliding contact pairs, cams, gear tooth action. Lab-gen.

EGR 348. PHYSICAL MEASUREMENTS I (3)

EGR 350. ENERGY CONVERSION LABORATORY I (2)
CR: EGB 322. Introduction to engineering laboratory measurements with emphasis on the writing of technical reports. Experiments in the measurement of concentrations, temperature, pressure, flow of fluids; determination of density, viscosity, diffusivities, analysis of combustion products. Lab-gen.

EGR 411. THERMODYNAMICS IV (3)
PR: EGR 311 or CI. Introduction to mathematical thermodynamics, the Maxwell relations, real gas behavior, ideal mixtures and solutions, introduction to phase and chemical equilibrium.

EGR 413. FLUID MACHINERY I (4)
PR: EGB 343. Performance characteristics of pumps and fans; energy conversion in fluid machines; design of piping and duct systems; proper selection of pumps and fans for given fluid systems; analysis of system efficiency parameters; correlation of design predictions with experimental data.

EGR 416. ELECTRONIC EQUIPMENT COOLING (3)

EGR 417. FUELS AND COMBUSTION (3)
PR: EGB 322. A study of the combustion characteristics of gaseous, solid and liquid fuels and equipment needed to safely and economically control combustion processes. Lab-gen.

EGR 419. POWER PLANT ANALYSIS AND DESIGN (3)
PR: EGR 311, EGR 315. Parameters affecting utility power production; daily load curves; estimation of future loads; economics of power generation; system efficiency as affected by the thermodynamic cycle, multunit scheduling, and load variation; heat transfer regions in the steam generator; water treatment methods.
EGR 421. INTRODUCTION TO NUCLEAR ENGINEERING I (3)
PR: PHY 323. Neutron density and thermalization parameters; criticality calculations; transient flux parameters; reactor operation; control instrumentation.

EGR 424. REFRIGERATION AND AIR CONDITIONING (3)
PR: EGR 311, EGR 315. Application of thermodynamics, heat transfer and fluid flow to the design of systems for controlling our environment; heating and cooling load calculations; psychrometrics of air conditioning processes.

EGR 428. MACHINE ANALYSIS AND DESIGN (3)

EGR 429. MECHANICAL DESIGN I (3)
PR: EGR 326, EGR 428. Application of the principles of engineering mechanics, materials and manufacturing to the design and analysis of mechanical elements. Lec-lab.

EGR 441. ANALOG COMPUTERS I (3)
PR: EGB 325, EGR 348 or CI. The study of linear and nonlinear engineering systems using analog computers. Magnitude and time scaling. Lec-lab.

EGR 445. DYNAMIC RESPONSE OF ENGINEERING SYSTEMS II (3)

EGR 450. ENERGY CONVERSION LABORATORY II (2)
PR: EGR 350. Continuation of EGR 350 with emphasis on measurement techniques, energy balances of operating systems and technical report writing. Lec-lab.

EGR 453. MECHANICAL CONTROL (3)
PR: EGB 311, 325. Analysis of devices for measurement and control. Transmitters, error detectors, controllers and final control elements. Block diagram representation.

EGR 454. CONTROLS LABORATORY I (1)

EGR 471. SEPARATION PROCESSES I (3)
PR: MTH 303, CR: EGB 321. Introduction to the use of mass and energy balances and to chemical engineering thermodynamics through the description and analysis of separation processes (e.g., crystallization, distillation, osmosis, etc.).

EGR 472. TRANSPORT PHENOMENA (4)
PR: EGR 321. An introduction to momentum transfer, energy transfer, and mass transfer as applied to industrial chemical process problems.

EGR 473. MASS TRANSFER (3)
PR: EGR 472. Study of molecular and turbulent diffusion in fluids, diffusion in solids, mass transfer coefficients and interphase mass transfer.

EGR 474. SEPARATION PROCESSES II (3)
PR: EGR 471 or CI. Emphasis on selection and design of separation processes. Familiarization with graphical techniques, group methods and other computational approaches used in design. Use of empirical correlations for size of equipment, efficiency of the process and quality of the separation.

EGR 475. INDUSTRIAL CHEMISTRY (3)
PR: CHM 332, EGR 474. A critical study of selected chemical process industries in order to give the student a better understanding of the direct application of basic chemical process principles.

EGR 476. REACTING SYSTEMS I (3)
PR: EGR 411. Study of the effect of pressure, temperature and composition upon equilibrium in chemical reactors. Description of batch, plug flow, and continuous stirred tank homogeneous reactors.

EGR 481. SPECIAL TOPICS ENERGY CONVERSION I (1-4)
PR: CC.

EGR 482. SPECIAL TOPICS ENERGY CONVERSION II (1-4)
PR: CC.

FOR SENIORS AND GRADUATE STUDENTS

EGR 501. INDUSTRIAL AIR POLLUTION CONTROL (4)
PR: EGB 321, EGB 322. A basic course in the elements of large source air pollution control as presented from the engineering viewpoint. Major units to be studied: Sources, Atmospheric Meteorology, Diffusion, Local Influences, Control Measures, Emergencies, Protection. Lec-lab.

EGR 513. FLUID MACHINERY II (3)
PR: EGR 413. Performance characteristics of compressors and exhausters, vacuum pumps, and gas turbines; internal energy exchange and fluid flow paths; piping and ducting considerations; economic selection of proper equipment to match fluid and power system requirements; evaluation of off-design conditions.

EGR 515. HEAT TRANSFER II (4)

EGR 522. ACOUSTICS AND NOISE CONTROL (3)
PR: CC. Fundamentals of sound propagation; sound power and intensity; psychoacoustics, industrial noise sources, methods of noise attenuation; community noise ordinances; instrumentation for noise measurement. Lec-lab.

EGR 523. MECHANICAL UTILITIES SYSTEMS (3)
PR: EGR 413, EGR 424. Analysis and design of a building's mechanical systems for fire and lightning protection, air conditioning, water supply, waste, and storm drains.

EGR 526. ANALYSIS METHODS FOR MECHANICAL DESIGN (3)

EGR 527. ADVANCED DYNAMICS OF MACHINERY (3)
PR: EGR 326. A continuation of the undergraduate course and devoted to a more detailed study of velocities, accelerations and forces in machine parts having reciprocating, rotating and combined motions. A complete force analysis will be made of an internal combustion engine.

EGR 528. MECHANICAL DESIGN II (3)

EGR 529. PROJECT DESIGN (3)
PR: EGR 429. Correlation of previously acquired mechanical design experiences with a creative design project. (lec-lab).

EGR 533. MECHANICAL VIBRATION AND BALANCING (3)
PR: EGR 341, 401. Transient and steady state vibration analysis of mechanical systems with lumped parameters. Dynamic balancing, vibration isolation and simulation of systems.

EGR 535. LUBRICATION I (3)
PR: EGB 343, 401. The theoretical basis of lubrication and hydrodynamic bearing theory. The study of lubrication requirements of different types of machines.

EGR 541. ANALOG COMPUTERS II (3)
PR: EGR 441. A continuation of EGR 441. Logical mode control, constrained mechanical systems, parameter identification techniques. Lec-lab.

EGR 553. PROCESS CONTROL SYSTEMS (3)
PR: EGR 453 or CI. Analysis and design of process control systems. Consideration of typical control sensors and controllers as well as advanced process control techniques such as feedforward and ratio control.

EGR 554. HYDRAULIC CONTROL (3)
PR: EGR 453 or CI. Hydraulic control system components and their effects on closed loop system performance. Lec-lab.

EGR 560. POWER UTILIZATION SYSTEMS (3)
PR: EGB 312. Standard electrical voltages, NEMA standards, motor parameters, motor control, control system
elements, interlocks, conductors, raceways, National Electrical Code, Protective devices.

**EGR 576. REACTING SYSTEMS II (3)**
 PR: EGR 476. Design and control of homogeneous chemical reactors, effect of mixing, temperature and flow characteristics. Laboratory (3 contact hours). The student in this laboratory will be responsible for the safe and efficient manufacture of a “chemical” on pilot plant equipment. Lec-lab.

**EGR 577. DESIGN AND CASE PROBLEMS (3)**
 PR: EGR 474. This part of the course exposes the chemical engineering student to the design of a chemical plant, a major part of a process. This year the class will offer a variety of problems and typical design problems supplied by local industries will be used. CASE PROBLEMS: This part of the course stresses engineering “art.” The word “case” connotes a specific engineering problem situation actually experienced by someone in the past or present. The student must generate his own individual approach to problem solving, benefiting from those of others in the class.

**EGR 581. SPECIAL TOPICS ENERGY CONVERSION III (1-4)**
 PR: CC.

**EGR 582. SPECIAL TOPICS ENERGY CONVERSION IV (1-4)**
 PR: CC.

**FOR GRADUATE STUDENTS ONLY**

**EGR 611. THERMODYNAMICS OF FLUID FLOW (3)**
 PR: CC. Interrelationship of the equations of fluid motion and of thermodynamics for ideal gases; subsonic and supersonic gas flows; flows with friction and with heat transfer; supersonic nozzle design; parameters of fluid thrust.

**EGR 612. ADVANCED THERMODYNAMICS (3)**
 PR: CC. Advanced treatment of the general equations of thermodynamics, principal equations of chemical reaction; the chemical potential and equilibrium; analysis of metastable states. Irreversibility and steady flow.

**EGR 613. PROCESS HEAT TRANSFER I (3)**

**EGR 614. PROCESS HEAT TRANSFER II (3)**
 PR: EGR 315, EGR 613. Extended surface, longitudinal and radial fins, crossflow, finned passages, longitudinal high fin exchangers, radial low fin exchangers, transverse high fin exchangers and compact heat exchangers.

**EGR 615. HEAT TRANSFER III (3)**
 PR: CC. Advanced treatment of basic heat transfer phenomena. Radiation through absorbing and non-absorbing media; radiation from gases and plasmas; “gray” body calculations. Analysis of convective heat transfer by boundary layer theory and equations of fluid motion.

**EGR 617. ENERGY TRANSFORMATION AND STORAGE (3)**
 PR: CC. Analysis of direct energy conversion systems; photoelectric cells, thermocouples, fuel cells, thermionic converters, magnetohydrodynamic devices, solar energy cells, rectifiers, inverter, energy storage devices.

**EGR 622. ACOUSTICS AND NOISE CONTROL I (3)**
 PR: EGR 522. Continuation of EGR 522. Acoustics and Noise Control I.

**EGR 623. NOISE CONTROL DESIGN (1-3)**
 PR: EGR 522, EGR 622. Practical solutions to real noise problems occurring in local industries; students will be required to analyze a problem, design a “solution,” and prepare and present a report to plant engineering personnel giving their analysis and recommendations; variable credit depending on complexity of problem.

**EGR 624. AIR CONDITIONING SYSTEMS (3)**
 PR: EGR 413, EGR 424. Analysis and design of air conditioning systems; criteria for selection of central systems, unit air conditioners, or self-contained units; performance characteristics of single zone systems, with and without reheat, multizone systems, double duct and variable volume systems.

**EGR 629. ADVANCED MECHANICAL DESIGN (3)**
 PR: CC. A technical application course involving the problem of developing machines to perform specified functions. The machine to be designed will be designated by the instructor. The analysis will include evaluating all parts for stress, vibration, wear and proper consideration of manufacturing processes involved. (lec-lab).

**EGR 630. APPLIED ENGINEERING ASPECTS OF FATIGUE (3)**

**EGR 633. VIBRATION ANALYSIS (3)**
 PR: EGR 533. Application of generalized coordinates, Lagrange’s equation, matrix iteration, and other specialized methods to discrete multimass systems.

**EGR 635. LUBRICATION II (3)**
 PR: EGR 535. A continuation of EGR 535 with emphasis on hydrodynamic squeeze film theory and gas lubricated bearings.

**EGR 640. DIGITAL TECHNIQUES IN ENERGY TRANSFER SYSTEMS (3)**
 PR: EGB 333, EGR 441 or CI. Application of both general purpose and specialized programs to the solution of problems in the design of control systems, kinematic mechanisms and energy transfer systems. Some languages and programs to be used are FORTRAN, the Continuous System Modeling Program and the Mechanism Design Program.

**EGR 642. DIMENSIONAL ANALYSIS AND MODEL THEORY I (3)**
 PR: CC. Theory of dimensional analysis, similitude, and design of models.

**EGR 648. DIRECT DIGITAL CONTROL (3)**
 PR: EGB 503, EGR 553, 656 or CI. Application of digital computers to control of engineering processes. Includes study of digital filtering, Z-transforms, supervisory control, A/D and D/A conversion.

**EGR 651. PHYSICAL MEASUREMENTS II (3)**
 PR: EGR 348, 441, 450 or CI. The techniques and theory for measuring, temperature, pressure, displacement, speed, acceleration, force, power, and psychrometric properties with particular attention to dynamic measurement. Lec-lab.

**EGR 656. NUMERICAL MEASUREMENT AND CONTROL (3)**
 PR: CC. Incremental and absolute control systems. Number systems used in numerical control. Digital to analog and analog to digital conversion. Applications.

**EGR 657. FLUID AMPLIFIERS AND CIRCUITS (3)**
 PR: CC. Analysis and design of fluid devices for use as amplifiers, logic devices and memory elements in instrumentation and control systems.

**EGR 659. ADVANCED MECHANICAL CONTROL (3)**
 PR: EGR 445, EGB 502, EGE 540 or CI. Application of state space techniques to analysis and design of energy transfer control systems. Includes study of optimal control and adaptive control.

**EGR 672. ADVANCED TRANSPORT PHENOMENA (4)**
 PR: EGR 472 or CI. Transport processes (mass, momentum and energy) are the underlying phenomena in energy conversion systems. This course expands and unifies the fundamental concepts introduced in undergraduate fluids and heat and mass transfer courses.

**EGR 676. REACTING SYSTEMS III (4)**
 PR: EGR 576 or CI. Dynamics of heterogeneous reaction. Economic factors in the design of chemical reactors. Simulation of complex reacting systems.

**EGR 681. SPECIAL PROBLEMS I (1-4)**
 PR: CC.

**EGR 682. SPECIAL PROBLEMS II (1-4)**
 PR: CC.
Industrial Systems (EGS)

**UPPER LEVEL COURSES**

EGS 401. INDUSTRIAL SYSTEMS (3)
Introduction to organizational planning and control functions in industrial systems.

EGS 402. INDUSTRIAL PROCESSES (3)
PR: EGB 337. Introduction to basic industrial processes emphasizing interdependency and similarities among industries. Students research specific industries and visit local industrial plants. Lec-lab.

EGS 403. PRODUCTION DESIGN I, II (3 each)
PR: EGS 402, 461. Methods study, predetermined time systems, wage administration, work measurement techniques including stop-watch time study, work sampling, standard data and production studies. Lec-lab.

EGS 405. PRODUCTION CONTROL SYSTEMS I (3)
PR: EGS 404. Principles and techniques of industrial planning and control systems design. Cost analysis, forecasting and controlling production activities.

EGS 406. PRODUCTION CONTROL SYSTEMS II (3)
PR: EGS 405, 441. Advanced topics in industrial planning and control systems design including the use of CPM, PERT and LOB.

EGS 407. ENGINEERING VALUATION II (3)
PR: EGR 337 or equivalent. Analysis of economic limitations on engineering projects. Income tax considerations, replacement models, MAPI and obsolescence.

EGS 409. PLANT FACILITIES DESIGN I (4)
PR: EGS 405. Design and modification of plant facilities, including design of a complete manufacturing operation. Problems in plant locations, layout, material handling, and equipment selection.

EGS 421. HYBRID COMPUTERS (3)

EGS 422. SYSTEMS APPROACH TO BIOMEDICAL ENGINEERING (3)
PR: EGS 421 or CC. Characterization of physiological systems, principles of modeling, system properties. Transfer function description, physiological feedback, effects of nonlinearities.

EGS 423. COMPUTER SYSTEMS I (3)

EGS 424. COMPUTER SYSTEMS II (3)
PR: EGS 423. Introduction to computer hardware. Peripheral subsystems. Transfer of information and control within a complete operating system. Executive systems and control monitors.

EGS 425. COMPUTER SYSTEMS III (3)
PR: EGS 424. A continuation of EGS 424 stressing detailed applications of machine and assembly language to computer operating systems.

EGS 427. FORTRAN APPLICATIONS I (3)

EGS 429. COMPUTER PROJECTS (3)
PR: CC. Special projects involving the use of and operation of digital/analog computers.

EGS 441. OPERATIONS RESEARCH I, II (3, 3)
PR: EGS 461. An introduction to the basic operations research techniques—linear programming, dynamic programming, simulation and queueing.

EGS 461, 462. ENGINEERING STATISTICS I, II (3, 3)
PR: MTH 303. An introduction to the basic concepts of statistical analysis. Probability, distribution functions, estimating and testing procedures, regression and correlation analysis.

**FOR SENIORS AND GRADUATE STUDENTS**

EGS 503. HUMAN FACTORS (3)
PR: CC. Problems in the design, analysis and evaluation of man-machine systems from the viewpoint of physical, mental and psychological characteristics and limitations encountered.

EGS 505. INVENTORY CONTROL (3)
PR: EGS 406 or equivalent. Properties of inventory systems and the fundamentals of deterministic and probabilistic inventory models.

EGS 507. ENGINEERING VALUATION STUDIES (3)
PR: CC. The analysis of economic considerations affecting engineering decision making. Not open to students who have had EGS 407.

EGS 510. COMPUTER OPERATION (4)
PR: Graduate engineering or science status. EGB 232 or equivalent, and CC. A comprehensive study of computer operating systems for mature students who have limited prior computer experience. Course covers material necessary to prepare the student for entry into the EGS 620, 621, 622 sequence.

EGS 521, 522. COMPUTER SIMULATION I, II (3, 3)
PR: CC. Use of digital, analog and hybrid computers in simulating physical and industrial systems.

EGS 533. FORTRAN APPLICATIONS II (3)
PR: EGS 427 or equivalent. Advanced numerical methods using FORTRAN, applied to higher level problems in the individual student's field of engineering, mathematics or applied science.

EGS 540. OPERATIONS RESEARCH (3)
PR: CC. Linear programming, game theoretic models, economic optimization. Not open to students who have had EGS 442.

EGS 541, 542. NUMERICAL METHODS OF SYSTEMS ENGINEERING I, II (3, 3)
PR: MTH 401. The study and application of matrix algebra, differential equations, calculus of finite differences, operation and transform methods, and stochastic processes.

EGS 560. INDUSTRIAL STATISTICS (3)
PR: CC. Industrial applications of probability, testing of hypotheses, regression techniques and analysis of variance. Not open to students who have had EGS 462.

EGS 561, 562. DESIGN OF EXPERIMENTS I, II (3, 3)
PR: EGS 462 or equivalent. Development of the basic experimental designs. Randomized block, Latin squares and factorial designs.

EGS 563. ENGINEERING STATISTICS III (3)
PR: EGS 462 or equivalent. Application of non-parametric statistics, sequential analysis, orthogonal polynomials and other optimization techniques to industrial problems.

EGS 565. STATISTICAL QUALITY CONTROL (3)
PR: EGS 461 or equivalent. Application of statistical techniques to the control of industrial processes. Control charts and acceptance procedures. Sequential sampling.

EGS 566. RELIABILITY ENGINEERING (3)

EGS 580, 581, 582. SPECIAL INDUSTRIAL PROJECTS I, II, III (1-3 each)
PR: CC.

**FOR GRADUATE STUDENTS ONLY**

EGS 603. MAN/MACHINE SYSTEMS (3)
PR: EGS 503. Principles of work measurement, process
analysis, value analysis, and human factors and their application to industrial situations.

**EGS 605. PRODUCTION CONTROL SYSTEMS III (3)**
PR: EGS 406 or equivalent. Forecasting procedures, development of production plans, scheduling techniques and inventory models. Application of EDP to production control systems.

**EGS 607. ADVANCED ENGINEERING VALUATION (3)**
PR: EGS 407 or equivalent. Statistical models for analyzing engineering alternatives from an economic viewpoint. The use of advanced engineering economy concepts in solving industrial problems.

**EGS 609. PLANT FACILITIES DESIGN II (3)**
PR: EGS 409 or CC. Advanced techniques for evaluation of alternative plans for plant arrangement, including equipment location and material handling systems.

**EGS 620. COMPUTER THEORY I (3)**

**EGS 621. COMPUTER THEORY II (3)**
PR: EGS 620. Advanced concepts in programming languages. The interrelation between machine, assembly and procedure-oriented languages. Introduction to the design of monitors, assemblers, compilers.

**EGS 622. COMPUTER THEORY III (3)**
PR: EGS 621. Continuation and extension of EGS 621 emphasizing detailed design principles used in the construction of monitors, assemblers and compilers.

**EGS 628. CASE STUDIES IN INDUSTRIAL COMPUTER SYSTEMS (3)**
PR: CI. (Graduate standing or industrial experience) 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. Directing the computer function and systems development.

**EGS 641. LINEAR PROGRAMMING (3)**
PR: ECS 442 or equivalent. The simplex method, degeneracy, duality theory; applications of linear programming to industrial problems.

**EGS 642. NONLINEAR AND DYNAMIC PROGRAMMING (3)**

**EGS 644. QUEUEING THEORY (3)**
PR: EGS 442, 462. Deterministic and probabilistic queuing models. Poisson queues and special non-Poisson queues with exponential and non-exponential services. Single and multiple channel queues.

**EGS 646. MULTIVARIABLE OPTIMIZATION (3)**

**EGS 647, 648. STOCHASTIC PROCESSES I, II (3,3)**
PR: EGS 562. Theory and application of stochastic processes as models for empirical phenomena, with emphasis on the following processes: Poisson, stationary, normal, counting, renewal, Markov, birth and death. Spectral representations, time series, smoothing and filtering.

**EGS 661, 662. THEORY OF INDUSTRIAL STATISTICS I, II (3,3)**
PR: EGS 462 or equivalent. Theoretical distributions, continuous and discrete expectation and estimation, properties sampling and sampling distributions.

**EGS 663, 664. STATISTICAL DESIGN MODELS I, II (3 each)**
PR: EGS 662 or equivalent. Design of experiment mathematical models, application of advanced analysis of variable techniques as applied to industrial problems.

**EGS 665. STATISTICAL ASSURANCE PLANS (3)**
PR: EGS 565 or equivalent. Advanced techniques in sequential quality control systems and acceptance sampling plans.

**EGS 666. THEORY OF RELIABILITY (3)**
PR: EGS 462 or equivalent. Topics in statistical methodology which have applications in the field of reliability. Discrete and continuous distribution models, reliability estimation, reliability structure and growth models, and statistical design for reliability.

**EGS 668. SPECIAL TOPICS IN STATISTICS (3)**
PR: CC. Special topics in statistics related to research in engineering.

**EGS 680, 681, 682. SPECIAL INDUSTRIAL TOPICS I, II, III (1-3 each)**
PR: CC.

**EGS 687, 688. INDUSTRIAL SYSTEMS DESIGN I, II (3,3)**
PR: EGS 521. Design of integrated systems using statistical and operations research models. Simulation of integrated systems using digital, analog and hybrid computers.

**EGS 698. ADVANCED ENGINEERING SEMINAR (1-3)**
PR: CC.

**EGS 699. RESEARCH OR DESIGN (1-12)**
(S/U only.)

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**Structures, Materials, Fluids (EGX)**

**UPPER LEVEL COURSES**

**EGX 401. STRUCTURES I (4)**
PR: EGB 232, EGX 404. Elastic-plastic behavior of structural members. Introduction to energy concepts in structural analysis; introduction to the theory of elasticity. (Lec-lab.)

**EGX 402. ENGINEERING MATERIALS II (4)**
PR: EGB 342, EGB 321. Thermodynamics of solid materials. Entropy and free energy concepts applied to equilibrium and rate processes in metallic, ceramic and polymer systems. Metallography. (Lec-lab.)

**EGX 404. STRESS ANALYSIS (4)**
PR: EGB 340. Analytical and experimental analysis of the mechanical behavior of deformable solids. Elastic and inelastic methods, plastic limit analysis, flexure and torsion of beams, photoelasticity, electric strain gages, introduction to finite element computer methods. (Lec-lab.)

**EGX 406. ENGINEERING ANALYSIS SMF (4)**
PR: EGB 231, EGB 401. Computational methods for engineering problems found in Structures, Materials and Fluids. Lec-lab.

**EGX 409. SENIOR RESEARCH/DESIGN PROJECT I (1)**
PR: Completion of 150 hours. Presentation of current and future problem-oriented research/design topics for engineers. Organization of student-faculty investigative teams for senior projects in EGX 509 or EGX 599.

**EGX 410. STRUCTURES II (4)**
PR: EGX 401. Introduction to the behavior of composite structural members: laminates, sandwich panels, reinforced concrete, timber and metallic structures. Lec-lab.

**EGX 411. CONCEPTS OF STRUCTURAL DESIGN (4)**
PR: EGX 401. Applications of solid mechanics, materials science and structural analysis to the design of building, bridge, aircraft and ship structures. Critical review of current codes and specifications. Lec-lab.

**EGX 420. CONCEPTS OF MATERIALS ENGINEERING (3)**

**EGX 421. PROCESSES IN MATERIALS ENGINEERING (3)**
PR: EGX 402 or CI. Introduction to the basic metal extraction and refining operations, discussion of the various techniques of welding and joining materials, and discussion of the primary methods of shaping, forming materials. Lec.

**EGX 481. TRANSPORTATION I (4)**
PR: EGB 401, CI. Introduction to Transportation of Engineering. Lec.

**EGX 485. SOIL MECHANICS I (4)**
PR: EGB 343. Fundamental and experimental concepts in soil
mechanics with emphasis on soil properties, soil moisture, soil structure and shearing strength. Lec.

FOR SENIORS AND GRADUATE STUDENTS

EGX 503. FLUID MECHANICS II (4)

EGX 504. EXPERIMENTAL SMF I (4)
PR: EGB 343. An introduction to the experimental methods used in the study of structures, materials, fluids. Lec-lab.

EGX 505. SOLID MECHANICS III (4)
PR: EGB 341. Dynamics of discrete and distributed mass, spatial kinematics, kinetics, intertia tensor, Euler equations, vibrations. Lec.

EGX 509. SENIOR RESEARCH/DESIGN PROJECT II (3)
PR: EGX 409. Problem-solving experience and training for seniors in research/design projects. Oral and written final reports are required.

EGX 511. STRUCTURES III (5)

EGX 513. PRESTRESSED STRUCTURES (5)

EGX 514. STRUCTURAL CONNECTIONS (3)
PR: EGX 411. Use of theoretical and experimental data in the analysis and design of structural connections in metal, wood, concrete and plastic. Lec-lab.

EGX 515. STRUCTURES IV (5)
PR: EGX 511. Analysis of suspension structures, towers and tall buildings by both approximate and exact methods. Lec-lab.

EGX 516. STRUCTURAL DESIGN IN METALS (4)
PR: EGX 411, 511. Design of ductile metallic structural elements and systems. Lec-lab.

EGX 517. REINFORCED CONCRETE STRUCTURES (4)

EGX 520. ENGINEERING MATERIALS III (4)

EGX 521. ENGINEERING POLYMERS (3)
PR: CI. Structure and bulk properties of polymers. High elasticity, topics in viscoelasticity, the glass transition, irreversible deformation. Technology of plastics, fibers and elastomers. Lec.

EGX 522. CORROSION (3)

EGX 523. DIFFUSION (3)
PR: EGX 402. Theoretical and practical analysis of diffusion in solids including the physical meaning and implications of the concepts which influence and apply to diffusion in crystalline solids. Lec.

EGX 524. FRACTURE MECHANICS (3)
PR: CI. Introduction to mechanics of fracture. Design and testing for fracture toughness; microscopic plastic deformation, crack propagation, fatigue, ductile-brittle transition. Lec-lab.

EGX 525. STRENGTHENING PROCESSES IN MATERIALS (3)
PR: EGX 402. Introduction to the separate and combined effects of the primary strengthening mechanisms in materials. Applications to the real material systems such as steels, titanium, beryllium, nickel and refractory metal alloys; and composites. Lec.

EGX 530. FLUID MECHANICS III (4)
PR: EGB 343. Mathematical hydrodynamics, inviscid flow. Lec-lab.

EGX 535. WATER RESOURCES ENGINEERING I (4)
PR: EGB 343. A study of the engineering principles involved in the sustaining and managing of the quality and quantity of water available for human activities with particular emphasis on hydrology and hydraulics. Lec.

EGX 536. WATER RESOURCES ENGINEERING II (4)
PR: EGB 343. A study of the engineering principles involved in the sustaining and managing of the quality and quantity of water available for human activities with particular emphasis on water uses, engineering economy, and regional water resource development. Lec.

EGX 538. AERODYNAMICS (3)

EGX 540. EXPERIMENTAL SMF II (4)
PR: CC. Review of elasticity, boundary value problems, finite element solutions; static and dynamic applications, circuitry; grid, brittle coating methods. Lec-lab.

EGX 550. SOLID MECHANICS IV (3)
PR: EGB 341. Dynamics of elastic systems, vibration of rods, plates, shells, structures; Energy and approximate solution techniques, transform techniques. Lec.

EGX 551. VIBRATIONS (3)
PR: EGX 505. Wave motion in solids and fluids, thermal and mechanical shock wave transmission and attenuation; blast loading. Phase-plane analysis. Lec.

EGX 570. INTRODUCTION TO CONTINUUM (3)
PR: CI. Development of techniques of applied mathematics to SMF problems; partial differential equations, complex variable, vector and tensor analysis. Lec.

EGX 571. CONTINUUM I (3)
PR: CI. Development of fundamental problems in solids and fluids from a unified viewpoint; application to ideal media; elastic, plastic, visco-elastic, and fluids. Lec.

EGX 572. CONTINUUM II (3)
PR: EGX 571. Mathematical theory of elasticity. Two dimensional problems in plane stress and plane strain using cartesian and curvilinear coordinates; three dimensional applications to torsion, bending and semi-infinite solids. Lec.

EGX 573. MECHANICS OF COMPOSITE MATERIALS (3)

EGX 575, 576. FINITE ELEMENT METHODS I, II (3, 3)

EGX 580. SPECIAL TOPICS IN SMF (1-4)
PR: CC.

EGX 581. TRANSPORTATION II (4)
PR: EGX 481. Transportation system planning. Lec.

EGX 585. SOIL MECHANICS II (4)
PR: EGX 485. A study of the application of the principles of soil mechanics to problems in soils engineering. Lec.

EGX 598. RESEARCH IN SMF (1-4)
PR: CC. (S/U only.)

EGX 599. RESEARCH IN SMF (1-4)
PR: CC. (S/U only.)

FOR GRADUATE STUDENTS ONLY

EGX 610. STRESSED SURFACE STRUCTURES (5)
PR: EGX 401. Elastic and plastic behavior of plate and shell structures, smooth and ribbed surfaces. Lec-lab.

EGX 611. STRUCTURAL STABILITY I (5)
PR: EGX 511. Elastic and inelastic stability of trusses and frames, local buckling of structural members and plates. Lec.

EGX 612. Structural dynamics I (4)
PR: EGX 511. Behavior of structural components and
systems when subjected to periodic dynamic loads. Introduction to random dynamic loads. Lec.

**EGX 613. STRUCTURAL OPTIMIZATION (5)**  
PR: EGX 411, 511. Use of optimization techniques in the design of structures including use of the digital computer as a design aid. Lec-lab.

**EGX 616. ADVANCED STRUCTURAL DESIGN (5)**  
PR: EGX 511, 514. A study of design of more complicated structural systems such as curved bridges, orthotropic bridges, tall buildings, towers, suspension structures. Lec.

**EGX 620. ENGINEERING MATERIALS IV (4)**  

**EGX 621. ENGINEERING MATERIALS V (4)**  

**EGX 622. MICROMECHANICS (3)**  

**EGX 623. ADVANCED X-RAY METHODS (4)**  
PR: CI. X-Ray diffraction analytical and experimental studies of defects, texture, residual stress, crystal and polycrystalline aggregates. Lec-lab.

**EGX 630. FLUID MECHANICS IV (4)**  
PR: CI. Flow of Newtonian and Non-Newtonian viscous fluids. Lec-lab.

**EGX 631. GAS DYNAMICS (3)**  

**EGX 635. FREE SURFACE FLOW (4)**  
PR: EGX 503 or CI. Fundamental and applied aspects of free surface flow, including river hydraulics, canal flow and open channel design. Lec.

**EGX 640. EXPERIMENTAL SMF III (4)**  
PR: EGX 504. More and photoelastic experimental techniques. Lec-lab.

**EGX 641. EXPERIMENTAL SMF IV (4)**  

**EGX 642. EXPERIMENTAL SMF V (4)**  
PR: EGX 504. Three dimensional stress analysis methods. Lec-lab.

**EGX 643. EXPERIMENTAL SMF VI (4)**  
PR: EGX 504. Theory and application of holography and optical imagery. Lec-lab.

**EGX 650. SOLID MECHANICS V (3)**  

**EGX 651. NONLINEAR DYNAMICS (3)**  

**EGX 660, 661, 662. HYDROSPACE ENGINEERING I, II, III (3 each)**  
PR: CI. Advanced analysis of structural, material and fluid systems for marine environment, including underwater acoustics. Lec.

**EGX 670. CONTINUUM MECHANICS III (3)**  
PR: CI. Theory of plasticity. Initial and subsequent yield surfaces, incremental and deformation theories, flow theories; problems in ideal plasticity, strain hardening and slip line fields. Lec.

**EGX 671. CONTINUUM MECHANICS IV (3)**  

**EGX 672. NUMERICAL METHODS IN ENGINEERING ANALYSIS (3)**  
PR: CI. Application of computational and mathematical techniques and principles to advanced engineering problems concerning structures, materials, and fluids. Lec.

**EGX 673. ADVANCED ELASTIC ANALYSIS (3)**  
PR: CI. Contemporary elasticity theory and applications. Lec.

**EGX 674. APPLIED TENSOR ANALYSIS (3)**  
PR: CI. Tensor analysis applied to structures, materials, fluids. Lec.

**EGX 675. WATER RESOURCES SYSTEMS I (3)**  
PR: EGX 536. The planning, design, and operation of water resource systems by the use of systems analysis and operations research techniques. Lec.

**EGX 676. WATER RESOURCES SYSTEMS II (3)**  
PR: EGX 675. The planning, design and operation of water resource systems by the use of systems analysis and operations research techniques. Lec.

**EGX 680. SPECIAL TOPICS IN SMF (1-4)**  
PR: CC.

**EGX 698. ADVANCED ENGINEERING SEMINAR (1-3)**  
PR: CC.

**EGX 699. RESEARCH IN SMF (1-9)**  
PR: CC. (S/U only.)

**EGX 798. RESEARCH AND DISSERTATION (1-9)**  
PR: CC. Supervised independent research. (S/U only.)

**EGX 799. RESEARCH AND DISSERTATION (1-12)**  
PR: CC. Supervised independent research. (S/U only.)

**Computer Courses (ESC)**

**UPPER LEVEL COURSES**

**ESC 301. INTRODUCTION TO COMPUTERS I (3)**  
Basic principles of computer operation, program structure, machine and assembly language.

**ESC 302. COMPUTER PROGRAMMING-FORTRAN (3)**  
PR: ESC 301. Programming of scientifically oriented problems using FORTRAN. Introduction to the use of the systems library.

**ESC 303. COMPUTER PROGRAMMING-COBOL I (3)**  

**ESC 304. COMPUTER PROGRAMMING—COBOL II (3)**  
PR: ESC 303. Advanced applications of COBOL. Development of matrix structures, subscripting and data manipulating techniques as used in comprehensive data processing problems.

**ESC 310. INTRODUCTION TO COMPUTERS II (3)**  
PR: ESC 301. Component parts of a computer system. Internal representation and manipulation of data and program instructions. Algorithms and flowcharting. Programming languages and systems. (No credit for engineering majors.)

**ESC 311. INTRODUCTION TO COMPUTERS III (3)**  
PR: ESC 310. Continuation of the material in ESC 310. (No credit for engineering majors.)

**ESC 312. INTRODUCTION TO COMPUTERS IV (3)**  
PR: ESC 311. Continuation of the material in ESC 311. (No credit for engineering majors.)

**FOR SENIORS AND GRADUATE STUDENTS**

**ESC 501. COMPUTER SYSTEMS (3)**  
PR: ESC 302 or equivalent. Study of computer systems components, I/O devices, memory devices, theory of computer operation. (Not available to students who have taken ESC 310, 311 and 312.)
ENGLISH (ENG)

ENG 101, 102, 103. FRESHMAN ENGLISH (3, 3, 3)
Instruction and practice in the skills of writing and reading. Courses must be taken in numerical sequence. Credit for any part of the Freshman English sequence may be earned by examination. (Formerly CBS 101, 102.)

ENG 200. SPEED READING DEVELOPMENT (3)
An advanced reading course designed to develop speed reading techniques for leisure-type reading materials. Emphasis is placed on the development of a range of effective reading rates. (Formerly ENG 131.)

ENG 211. CURRENT NOVELS (3)
A study of literary trends and cultural influences since WWII, with emphasis upon major American and British novels. Recommended for nonmajors; will not be counted toward the major. (Formerly ENG 301.)

ENG 212. CURRENT DRAMA (3)
A study of major dramatists from the Theatre of the Absurd to the present, including works by such playwrights as Beckett, Ionesco, Genet. Albee among others. Recommended for nonmajors; will not be counted toward the major. (Formerly ENG 302)
ENG 213. CURRENT SHORT FICTION (3)
A study of current short stories and novels in terms of themes of current interest and in terms of experimental fictional techniques. Recommended for nonmajors; will not be counted toward the major. (Formerly ENG 303.)

ENG 214. INTRODUCTION TO LITERATURE: GENERAL (4)
A non-historical introduction to the principles, qualities, and genres of literature, concerned with understanding the nature of literature as a universal cultural phenomenon. Recommended for nonmajors; will not be counted toward the major. (Formerly ENG 314.)

ENG 215. INTRODUCTION TO LITERATURE: FICTION (3)
An examination of the short story and the novel as literary forms; it is not tied to any historical period. Recommended for nonmajors; will not be counted toward the major. (Formerly ENG 315.)

ENG 216. INTRODUCTION TO LITERATURE: POETRY (3)
An examination of the poem as form; it is not tied to any historical period. Recommended for nonmajors; will not be counted toward the major. ( Formerly ENG 316.)

ENG 217. INTRODUCTION TO LITERATURE: DRAMA (3)
An introduction to drama as literature to be read rather than performed, with emphasis upon major forms such as tragedy, comedy, tragicomedy, melodrama, and farce. Recommended for nonmajors; will not be counted toward the major. (Formerly ENG 317.)

UPPER LEVEL COURSES

ENG 300. HIGHLIGHTS OF BRITISH LITERATURE TO 1750 (4)
PR: ENG 103 (CBS 102). An introductory course consisting of selected highlights of English literature from the Middle Ages to 1750. (Formerly ENG 311.)

ENG 301. HIGHLIGHTS OF BRITISH LITERATURE 1750 TO 1945 (4)
PR: ENG 103 (CBS 102). An introductory course consisting of selected highlights of English literature from 1750 to 1945. (Formerly ENG 311.)

ENG 302. HIGHLIGHTS OF AMERICAN LITERATURE TO 1945 (4)
PR: ENG 103 (CBS 102). An introductory course consisting of selected highlights of American literature from the beginnings to 1945. (Formerly ENG 312.)

ENG 310. SHAKESPEARE I (4)
PR: ENG 103 (CBS 102). Reading of eight to ten representative plays, with special attention to developing the students' ability to read and interpret the text. (Formerly ENG 411.)

ENG 311. EARLY ENGLISH LITERATURE (4)
PR: ENG 103 (CBS 102). A survey of representative works of poetry, prose, and drama of the Old English, Middle English, and early Renaissance to 1557, including Beowulf, Chaucer, Malory, More, Hooker, Skelton, Wyatt, among others. (Formerly ENG 201.)

ENG 312. LITERATURE OF THE ENGLISH RENAISSANCE (4)
PR: ENG 103 (CBS 102). A survey of representative works of poetry, prose, and drama of the English Renaissance, from approximately 1429 to 1669, including Sidney and Spenser to Donne and Marvell, with special attention to the emergence of the New Poetry. (Formerly ENG 201.)

ENG 313. THE RISE AND DECLINE OF NEOCLASSICAL LITERATURE (4)
PR: ENG 103 (CBS 102). A survey of Neoclassical English literature beginning with Marvell and the late work of Milton, and ending with the late Neoclassicism of Johnson, Boswell, and Goldsmith. (Formerly ENG 202.)

ENG 314. LATE ENLIGHTENMENT AND ROMANTIC LITERATURE (4)
PR: ENG 103 (CBS 102). A survey of representative figures of the Age of Sentiment, followed by a study of the six major Romantic poets with possible secondary consideration of Romantic novelists, essayists, and lesser poets. (Formerly ENG 202, 203.)

ENG 315. VICTORIAN AND EDWARDIAN LITERATURE (4)
PR: ENG 103 (CBS 102). A survey of representative figures of the Victorian and Edwardian periods, ending in 1914, including poetry, prose, and drama of such authors as Carlyle, Tennyson, Browning, Swinburne, Rossetti, Dickens, Wilde. (Formerly ENG 203.)

ENG 316. MODERN BRITISH LITERATURE FROM 1914 TO 1945 (4)
PR: ENG 103 (CBS 102). Survey of poetry, drama, and fiction of such writers as Eliot, Yeats, Thomas, Conrad, Shaw, Joyce, Lawrence, Huxley, Woolf, Forster, Waugh, Owen, Auden, O'Casey, among others. (Formerly ENG 307.)

ENG 317. CONTEMPORARY BRITISH AND AMERICAN LITERATURE FROM 1945 TO THE PRESENT (4)

ENG 330. ROMANTIC AMERICAN LITERATURE TO 1860 (4)
PR: ENG 103 (CBS 102). A study of the thought and art in poetry and prose of representative writers of the American Romantic period, with emphasis upon Emerson, Thoreau, Poe, Hawthorne, and Melville. (Formerly ENG 305.)

ENG 331. AMERICAN LITERATURE FROM 1860 TO 1912 (4)
PR: ENG 103 (CBS 102). A study of representative works of selected American Realists and early Naturalists, among them Whitman, Dickinson, Twain, James, Howells, Crane, Dreiser, Wharton, Robinson, Frost. (Formerly ENG 306.)

ENG 332. MODERN AMERICAN LITERATURE FROM 1912 TO 1945 (4)
PR: ENG 103 (CBS 102). A study of poetry, drama, and fiction by such writers as Pound, Fitzgerald, Hemingway, Faulkner, Cummings, Williams, Anderson, Lewis, Steinbeck, Wright, Ellison, Wolfe, West, Stevens, and others, (Formerly ENG 307.)

ENG 340. LITERATURE OF THE WESTERN WORLD: ANCIENT (4)
PR: ENG 103 (CBS 102). A study in translation of writers of the ancient world revealing characteristics of Judeo-Christian and Greco-Roman cultures; includes such works as Bible, Sophocles, Aristophanes, Homer, Virgil, Plato, Sappho, Petronius, St. Augustine, among others. (Formerly ENG 335.)

ENG 341. LITERATURE OF THE WESTERN WORLD: MEDIEVAL, RENAISSANCE, AND NEOCLASSICAL (4)
PR: ENG 103 (CBS 102). A study in translation of western writers of the Medieval, Renaissance, and Neoclassical periods and cultural, intellectual, and historical contexts, including such writers as Dante, Boccaccio, Machiavelli, Rabelais, Montaigne, Molière among others. (Formerly ENG 335, 336.)

ENG 342. LITERATURE OF THE WESTERN WORLD: MODERN (4)
PR: ENG 103 (CBS 102). A study in translation of major writers of the Western World from Rousseau to the present, with emphasis on their significance for an understanding of our time and our literature. (Formerly ENG 336.)

ENG 343 MODERN EUROPEAN NOVEL (4)
PR: ENG 103 (CBS 102). A study of the Modern European novel in translation as it developed from the 19th century to the present, including such writers as Dostoyevsky, Flaubert, Kafka, Hesse, Camus, and Solzhenitsyn. (Formerly ENG 437.)

ENG 350. ADVANCED EXPOSITORY WRITING (4)
PR: ENG 103 (CBS 102). Techniques and strategies of exposition; methods and styles of writing the article, the report, the formal and informal essay, and the persuasive argument. (Formerly ENG 325.)
ENG 351. NARRATION AND DESCRIPTION (4)
PR: ENG 103 (CBS 102). Writing short papers in narration and description, and the personal essay; analyzing selected essays to heighten sensitivity to language. (Formerly ENG 321.)

ENG 360. INTRODUCTION TO LITERATURE IN CONTEXT (4)
PR: ENG 103 (CBS 102). Study of major ideas in various sectors of contemporary culture brought in conjunction with literature; examination of interfaces between literature and other disciplines.

ENG 370. BLACK FICTION (4)
PR: ENG 103 (CBS 102). A study of significant Black American fiction writers from the 19th century to the present, including such writers as W. E. B. DuBois, Jean Toomer, Richard Wright, and Ralph Ellison. (Formerly ENG 415.)

ENG 371. BLACK POETRY AND DRAMA (4)
PR: ENG 103 (CBS 102). A study of Black American poetry and drama from the 18th century to the present, including such writers as Phyllis Wheatley, Langston Hughes, Etheridge Knight, Nikke Giovanni, LeRoi Jones, Ed Bullins. (Formerly ENG 416.)

ENG 372. AMERICAN INDIAN LITERATURE (4)
PR: ENG 103 (CBS 102). A survey of native American Literature from pre-Columbian religious and folk literature to the current voices in the pan-Indian movement.

ENG 373. FOLKLORE AND POPULAR LITERATURE (4)
PR: ENG 103 (CBS 102). A study of fairytales, folk tales, and ballads, from Sir Patric Spens to Bob Dylan and contemporary minstrel poets. (Formerly ENG 337.)

ENG 374. FANTASY AND SCIENCE FICTION (4)
PR: ENG 103 (CBS 102). A survey of fantasy and science fiction in England and America from Mary Shelley to the present; includes such writers as Poe, Melville, Ray Bradbury, Arthur C. Clarke, among others.

ENG 375. LITERATURE AND THE OCCULT (4)
PR: ENG 103 (CBS 102). An introduction to the occult tradition as a major ingredient in English, Continental, and American literature; analysis of the origins, classifications, and areas of the various magic arts from classical times through the present. (Formerly ENG 338.)

ENG 376. THE BIBLE AS LITERATURE (4)
PR: ENG 103 (CBS 102). Major emphasis on literary types, literary personalities of the Old and New Testaments, and Biblical archetypes of British and American literary classics. (Formerly ENG 319.)

ENG 377. RELIGIOUS AND EXISTENTIAL THEMES (4)
PR: ENG 103 (CBS 102). Theological and philosophical ideas, allusions, and symbols in the writings of Dostoevski, Nietzsche, Mann, Joyce, Eliot, Camus, Sartre, and others. (Formerly ENG 511.)

ENG 378. IMAGE OF WOMAN IN LITERATURE FROM CLASSICAL TIMES TO THE RENAISSANCE (4)
PR: ENG 103 (CBS 102). A study through selected examples of ways in which major works and writers of early Western literature have portrayed and defined women. (Also offered as WSP 483.)

ENG 379. IMAGE OF WOMAN IN LITERATURE FROM THE ENLIGHTENMENT TO THE PRESENT (4)
PR: ENG 103 (CBS 102). A study through selected examples of ways in which major works and writers from the Enlightenment to the present have portrayed and defined women.

ENG 383. SELECTED TOPICS IN ENGLISH STUDIES (1-4)
PR: Sophomore standing. This course will examine in depth a recurring literary theme or the work of a small group of writers. Topics offered to date include science fiction, the literature of the American Indian, and special courses in writing.

ENG 400. OLD ENGLISH LITERATURE (4)
PR: ENG 300 or ENG 311. Old English prose and poetry in translation. (Formerly ENG 500.)

ENG 401. MIDDLE ENGLISH LITERATURE (4)
PR: ENG 300 or ENG 311. A study of representative works of the Middle English period with a consideration of the social and historical backgrounds. (Formerly ENG 502.)

ENG 402. CHAUCER (4)
PR: ENG 300 or ENG 311. An intensive study of The Canterbury Tales and major critical concerns. (Formerly ENG 501.)

ENG 406. SIXTEENTH CENTURY PROSE AND POETRY (4)
PR: ENG 300 or ENG 312. A study of representative prose, including fiction, and the lyric and narrative poetry of Sidney, Spenser, Marlowe, and Shakespeare, together with selected poems of Donne. (Formerly ENG 506, 508.)

ENG 407. SEVENTEENTH CENTURY PROSE AND POETRY (4)
PR: ENG 300 or ENG 312. Study of the prose of Bacon, Donne, Browne, and others; close analysis of selections from the Metaphysical and Cavalier poets, emphasizing Donne, Herbert, Herrick, and Marvell. (Formerly ENG 505, 508.)

ENG 408. ENGLISH DRAMA FROM THE BEGINNINGS TO 1642 (4)
PR: ENG 300 or ENG 312. The emergence of drama in England from its liturgical origins through the mystery and morality plays to its significant achievement in the Renaissance. Excludes Shakespeare; emphasis upon Marlowe, Jonson, Webster, and Middleton. (Formerly ENG 503, 504.)

ENG 409. MILTON (4)
PR: ENG 300 or ENG 312. Study of the poetry and major prose of John Milton, with special emphasis on Paradise Lost. (Formerly ENG 507.)

ENG 410. SHAKESPEARE II (4)
PR: ENG 310. Intensive study of three to four plays of Shakespeare, with examples of scholarship and criticism, careful examination of texts, and consideration of historical backgrounds. (Formerly ENG 519, 520.)

ENG 413. RESTORATION AND EIGHTEENTH CENTURY SATIRE (4)
PR: ENG 300 or ENG 313. A study of selected Neoclassical satires, the techniques of their expression, and the historical conflicts out of which they arose. (Formerly ENG 521, 559.)

ENG 414. EIGHTEENTH CENTURY BRITISH NOVEL (4)
PR: ENG 301 or ENG 313. A study of the emergence of modern realistic prose fiction in the eighteenth century, with emphasis on Fielding, Richardson, Smollett, and Sterne. (Former ENG 429.)

ENG 418. ROMANTIC LITERATURE: FORM, GENRE, AND ARCHETYPE (4)
PR: ENG 301 or ENG 314. An intensive study of one or more formal types of British literature occurring between 1785 and 1832, such as Romantic Nature Poetry, Romantic Historical Novels and Poems, etc. Specific topics will vary. (Formerly ENG 513.)

ENG 419. ROMANTIC LITERATURE: MAJOR WRITERS (4)
PR: ENG 301 or ENG 314. A concentrated study of two or more representative Romantic writers from among Burns, Blake, Wordsworth, Coleridge, Scott, Austen, Byron, Shelley, Hazlitt, and Keats. (Formerly ENG 513.)

ENG 424. THE POETRY OF THE VICTORIANS (4)
PR: ENG 301 or ENG 315. An intensive study of the works of three or more representative Victorian poets. (Formerly ENG 523.)

ENG 425. NINETEENTH CENTURY BRITISH NOVEL (4)
PR: ENG 301 or ENG 315. A study of such major British novelists as Austen, Scott, Thackeray, Dickens, the Brontés, Eliot, Meredith, and Hardy. (Formerly ENG 430.)

ENG 426. REPRESENTATIVE THEMES IN VICTORIAN LITERATURE (4)
PR: ENG 301 or ENG 315. A study of representative works in Victorian prose, poetry, drama, and fiction, with particular attention to an important unifying theme, idea, or concern. (Formerly ENG 523.)
ENG 430. AMERICAN LITERATURE OF THE COLONIAL-FEDERAL PERIOD (4)
PR: ENG 300, ENG 302, or equivalent. The social, philosophic, political, and aesthetic foundations of American literature, from the period of early settlement through the writings of Cooper, Irving, and Bryant. (Formerly ENG 305.)

ENG 431. THE AMERICAN NOVEL FROM THE BEGINNINGS TO 1920 (4)
PR: ENG 302, ENG 330, or ENG 331. A study of major American novelists through representative novels. Authors studied may include Cooper, Hawthorne, Melville, James, Twain, Dreiser, and others. (Formerly ENG 425.)

ENG 432. AMERICAN DRAMA (4)
PR: One course in American Literature. A historical-analytical study of American drama from the 19th century to the present. Included are such playwrights as Boker, Boucicault, Herne, O'Neill, Howard, Rice, Hellman, Williams, Miller, Albee, and Hansberry. (Formerly ENG 426.)

ENG 435. MODERN AMERICAN FICTION FROM 1920 TO 1945 (4)

ENG 436. MODERN BRITISH FICTION FROM 1900 TO 1945 (4)
PR: ENG 301 or ENG 316. A critical study of British fiction from 1900 to 1945, with emphasis on such writers as Conrad, Lawrence, Joyce, Woolf, Forster, Huxley, Waugh, and others.

ENG 437. CONTEMPORARY AMERICAN FICTION FROM 1945 TO THE PRESENT (4)
PR: One course in American literature. A study of major trends and influences in American fiction since World War II, with attention to prevailing developments in theme and technique. Includes works by Mailer, Bellow, Updike, O'Connor, Malamud, and others. (Formerly ENG 528.)

ENG 438. CONTEMPORARY BRITISH FICTION FROM 1945 TO THE PRESENT (4)
PR: One course in British literature. A critical study of British fiction since World War II, with emphasis on such writers as Beckett, Lessing, Murdoch, Burgess, Amis, Powell, Snow, and others. (Formerly ENG 528.)

ENG 441. MODERN BRITISH AND AMERICAN POETRY FROM 1900 TO 1945 (4)
PR: One course in British or American literature. Study of selected Modern British and American Poets from Hopkins to Auden, with attention to poetic theory. (Formerly ENG 527.)

ENG 442. CONTEMPORARY BRITISH AND AMERICAN POETRY FROM 1945 TO THE PRESENT (4)
PR: One course in British or American literature. Study of selected poets from Dylan Thomas to the present, with attention to poetic theory. (Formerly ENG 527.)

ENG 445. MODERN DRAMA FROM 1880 TO 1945 (4)
PR: One course in British or American literature. A study of major dramatists from the rise of Realism up to the Theatre of the Absurd, including works by Ibsen, Strindberg, Shaw, Chekhov, Pirandello, Brecht, and others. (Formerly ENG 459.)

ENG 446. CONTEMPORARY DRAMA FROM 1945 TO THE PRESENT (4)
PR: One course in British or American literature. A study of major dramatists from the Theatre of the Absurd to the present, including such playwrights as Beckett, Ionesco, Genet, Albee, Pinter, Duerrenmatt, Miller, Williams, and others. (Formerly ENG 459.)

ENG 450. THEORY OF FICTION (4)
PR: 20 hours of literature. Intensive study of the genres and varieties of fiction to ascertain the theoretical and technical problems involved in the work of fiction. (Formerly ENG 585.)

ENG 451. WORKSHOP IN FICTION (4)
PR: ENG 350 or ENG 351. Study and writing of the short story and sections of the novel. Evaluation of student work in conferences, selected readings. May be taken twice for credit. When the course is offered twice in the same academic year, the second offering is open only to students who took the course in the previous quarter. (Formerly ENG 423.)

ENG 452. WORKSHOP IN POETRY (4)
PR: One advanced writing course. Studies and exercises in prosody and imagery with written assignments in both traditional and contemporary forms. May be taken twice for credit. (Formerly ENG 421.)

ENG 453. LITERARY CRITICISM (4)
PR: 20 hours of literature. Examination and discussion of the works of major literary critics from Aristotle to the present, with emphasis on their meaning, their implied world view, and their significance for our own time and literature. (Formerly ENG 531.)

ENG 475. STRUCTURE OF AMERICAN ENGLISH (4)
PR: ENG 103 (CBS 102). An introductory survey, comparison, and contrast of traditional, structural, and generative-transformational grammars and their techniques for the analysis and description of linguistic structure in general, and contemporary American English in particular. (Formerly ENG 517.)

ENG 476. HISTORY OF THE ENGLISH LANGUAGE (4)
PR: 20 hours of literature. The evolution of the language from Anglo-Saxon through Middle English to Modern English. Changes in pronunciation and syntax; discussion of the forces which influenced them. (Formerly ENG 515.)

ENG 477. LINGUISTICS AND LITERATURE (4)
PR: ENG 475 or LIN 301. The analysis and interpretation of British and American literature—poetry, prose, and drama—using relevant materials from the field of descriptive and comparative linguistics. (Formerly ENG 518.)

ENG 481. INDIVIDUAL RESEARCH (1-5)
PR: 12 hours of literature. Directed study in special projects. Special permission of chairman required.

ENG 483. SELECTED TOPICS IN ENGLISH STUDIES (1-4)
PR: Sophomore standing. The content of the course will be governed by student demand and instructor interest. It will examine in depth a recurring literary theme or the work of a small group of writers. Special courses in writing may also be offered under this title.

ENG 485. DIRECTED READING (4)
PR: Junior standing. Readings in special topics. (Formerly ENG 585.)

FOR GRADUATE STUDENTS ONLY

ENG 601. PROBLEMS IN COLLEGE ENGLISH INSTRUCTION: COMPOSITION (3)
PR: Graduate standing. An examination of the objectives of freshman English and an investigation of current techniques for achieving those objectives, emphasizing the problems of developing critical reading ability and the techniques of expository writing at the college level.

ENG 602. PROBLEMS IN COLLEGE ENGLISH INSTRUCTION: LITERATURE (3)
PR: Graduate standing. A course that will allow the prospective college English teacher to experiment with teaching techniques that will determine the most effective ways to teach literature and that will teach college English teachers the variety and importance of literary techniques and their relevance to subject matter.

ENG 610. STUDIES IN OLD ENGLISH (4)
PR: Graduate standing. A study of Old English language, prose style, poetry. May be retaken with different subject matter three times.
ENG 616. STUDIES IN MIDDLE ENGLISH (4)
PR: Graduate standing. Selected focused studies in language and in various authors and writings 1100-1500: Chaucer, the Pearl poet, Everyman, ballads, drama. May be retaken with different subject matter three times.

ENG 620. STUDIES IN SIXTEENTH-CENTURY BRITISH LITERATURE (4)
PR: Graduate standing. Selected focused studies in 16th-century British literature: Shakespeare, Sidney, Spenser, Marlowe, and others. May be retaken with different subject matter three times.

ENG 625. STUDIES IN SEVENTEENTH-CENTURY BRITISH LITERATURE (4)
PR: Graduate standing. Selected focused studies in Restoration-Eighteenth-Century British literature: Dryden, Defoe, Pope, Swift, Fielding, Sheridan, Johnson, Boswell, and others. May be retaken with different subject matter three times.

ENG 630. STUDIES IN RESTORATION AND EIGHTEENTH-CENTURY BRITISH LITERATURE (4)
PR: Graduate standing. Selected focused studies in Restoration-Eighteenth-Century British literature: Dryden, Defoe, Pope, Swift, Fielding, Sheridan, Johnson, Boswell, and others. May be retaken with different subject matter three times.

ENG 640. STUDIES OF THE ENGLISH ROMANTIC PERIOD (4)
PR: Graduate standing. A study of pre-Romantic and Romantic prose fiction, nonfiction, and poetry. May be retaken with different subject matter three times.

ENG 645. STUDIES IN VICTORIAN LITERATURE (4)
PR: Graduate standing. A study of Victorian poetry, Victorian fiction, Victorian non-fictional prose, and Victorian drama. May be retaken with different subject matter three times.

ENG 650. STUDIES IN AMERICAN LITERATURE TO 1860 (4)
PR: Graduate standing. Selected focused studies in American literature before 1860: the Puritans, Franklin, Cooper, Irving, Poe, Emerson, Hawthorne, Melville, and others. May be retaken with different subject matter three times.

ENG 660. STUDIES IN AMERICAN LITERATURE 1860-1920 (4)
PR: Graduate standing. Selected focused studies in American literature: Whitman, Twain, Howells, James, Crane, Dreiser, and others. May be retaken with different subject matter three times.

ENG 670. STUDIES IN MODERN BRITISH LITERATURE (4)
PR: Graduate standing. A study of Irish and English drama, the modern novel, poetry, criticism, and the short story. May be retaken with different subject matter three times.

ENG 672. STUDIES IN MODERN AMERICAN LITERATURE (4)
PR: Graduate standing. Modern American drama, poetry, fiction, and literary criticism; authors include Faulkner, Hemingway, Fitzgerald, O’Neill, Anderson, Wolfe, Cummings, Frost, and Eliot. May be retaken with different subject matter three times.

ENG 675. STUDIES IN CONTEMPORARY LITERATURE (4)
PR: Graduate standing. Drama, poetry, fiction, and literary criticism; authors to be studied include Ionesco, Thomas, Miller, T. Williams, Beckett, Camus, and Burgess. May be retaken with different subject matter three times.

ENG 681. GRADUATE RESEARCH (1-5)
PR: CI and Graduate standing. Directed study in special projects. Special permission of chairperson required.

ENG 683. SELECTED TOPICS IN ENGLISH STUDIES (1-8)
PR: Graduate standing. Current topics offered on a rotating basis include The Nature of Tragedy; The Nature of Comedy and Satire; The Nature of Romanticism and Classicism; and The Nature of Myth, Allegory, and Symbolism. Other topics will be added in accordance with student demand and instructor interest.

ENG 684. STUDIES IN CONTINENTAL LITERATURE (4)
PR: Graduate standing. General areas include the Renaissance, the Enlightenment, the Novel in Europe, the Romantic Movement on the Continent, and Classical Comedy. May be retaken with different subject matter three times.

ENG 685. DIRECTED READING (1-9)
PR: Graduate standing. Directed reading in authors or literary movements.

ENG 686. STUDIES IN STYLE (4) (Advanced Composition for Teachers)
PR: Graduate standing. Poetics, rhetoric, dramatic style, prose style, short fiction, the novel, and the essay. May be retaken with different subject matter three times.

ENG 687. STUDIES IN ENGLISH LANGUAGE AND LINGUISTICS (4)
PR: ENG 475 (formerly ENG 517) and ENG 476 (formerly ENG 515), or CI. An advanced study of the origin, historical development, and contemporary structure of British and American English in its social and cultural milieu, with emphasis upon modern techniques for linguistic analysis and description.

ENG 690. SCHOLARSHIP AND CRITICISM (4)
PR: Graduate standing. Selected focused study of research approaches to English. May be retaken with different subject matter once.

ENG 691. GRADUATE SEMINAR IN ENGLISH (4)
PR: Consent of graduate advisor.

ENG 693. BIBLIOGRAPHY FOR ENGLISH STUDIES (1)
PR: Graduate standing. Detailed study of bibliographies of cultural milieus, genres, periods, and authors.

ENG 703. PROBLEMS IN ADVANCED ENGLISH INSTRUCTION AND SCHOLARLY RESEARCH (3)
PR: Ph.D. Candidacy. This course is to provide closely supervised training in upper-level college English instruction and experience with professional research. Experience in the lecture, seminar discussion, examining, evaluation, conferences, directing undergraduate research, course development, use of secondary materials, publication procedure, and collation.

ENG 791. DOCTORAL SEMINAR (4)
PR: Admission to Ph.D. program. This seminar will provide intensive small-group discussion as well as shared and individual guided research in a student’s area of doctoral specialty over two consecutive academic quarters.

ENG 799. DISSERTATION (1-12)
PR: Consent of Department. The supervised writing of a doctoral dissertation. (S/U only.)

ENVIRONMENT (ENV)

ENG 301. DIALOGUE IN ENVIRONMENTAL SURVIVAL (4)
A multidisciplinary course dealing with environmental problems. (S/U only.)

FINANCE (FIN)

LOWE LEVEL COURSES
FIN 201. PERSONAL FINANCE (5)
Survey of the problems and techniques of family financial planning. Includes consumer credit, insurance, home ownership, and personal investing, with attention given to current economic and legal constraints. Not available for credit to upper level students who have been admitted to the College of Business Administration.

FIN 202. INTRODUCTION TO INVESTMENTS (4)
Designed for non-business administration students who have not taken accounting or corporation finance, it emphasizes the operations of the security markets in the U.S. and the risks and returns of alternative investment media. Not available for credit to upper level students who have been admitted to the College of Business Administration.

UPPER LEVEL COURSES
FIN 301. PRINCIPLES OF FINANCE (5)
PR: ACC 305, and ECN 201. Fundamental tools and techniques applicable to financial planning. Emphasizes the problems of acquisition, supervision, and allocation of resources, and the management of the liquidity and profitability of firms.

FIN 303. PRINCIPLES OF INSURANCE (5)
Analysis of insurable risks of both businesses and individuals. An examination of the characteristics of those areas of risk and uncertainty where the mechanisms of insurance are effective alternatives. The concept, contracts and institutions involved in insurance are examined in relationship to the socio-economic environment.

FIN 305. PRINCIPLES OF REAL ESTATE (5)
Economics of urban land utilization and the nature of property rights. Problems of urban development and the valuation of real property in terms of the structure and operations of the real estate market.

FIN 321. MONEY AND BANKING (4)
PR: ECN 202. Examines the structure and operations of our monetary system, commercial banking, central banking, money and capital markets, and provides an introduction to monetary theory and policy.

FIN 351. INTERNATIONAL FINANCE (5)
PR: ECN 202 or CI. Principles of acquisition, supervision, and allocation of funds by multi-national firms.

FIN 403. LIFE, HEALTH, & DISABILITY INSURANCE (5)
PR: FIN 303, ECN 331. The course will analyze the use of life, health and disability insurance contracts as a method of dealing with the risks of death, sickness and disability. It will also include an analysis of cost determination of the various types of coverage.

FIN 411. ADVANCED CORPORATION FINANCE (4)
PR: FIN 301. An examination of the financial policies of corporations, with special reference to dividend policy, financial structure, capital expenditures, acquisitions, mergers, and reorganization.

FIN 421. PRINCIPLES OF INVESTMENT (4)
PR: FIN 301 and ECN 202. Survey of the risks and returns of investment media in relation to the investment objectives of individual and institutional investors. Includes an examination of the capital markets, information flows, and analytical techniques in terms of their impact upon the valuation process.

FIN 431. FINANCIAL INSTITUTIONS (4)
PR: FIN 321. A study of the interrelationship of financial intermediaries and their role in the capital market in the saving allocation, investment and financial decision-making process.

FIN 451. FEDERAL RESERVE SYSTEM AND MONETARY POLICY (4)
PR: ECN 333 or FIN 331. An analysis of the Federal Reserve System, with special emphasis on the formulation and administration of monetary policy and on monetary theory.

FIN 461. FINANCIAL POLICIES AND STRATEGIES (3)
PR: FIN 411. Senior seminar for majors in finance. Quantitative and qualitative analysis of financial policies based on independent readings and empirical research.

FIN 471. PORTFOLIO MANAGEMENT (3)
PR: FIN 421. Study of advanced investment methods with special emphasis on quantitative, timing, and diversification techniques of individual and institutional investors.

FIN 489. SPECIAL STUDIES IN FINANCE (1-5)
PR: Cl. Independent study program under the guidance of departmental staff. Includes an examination of professional literature and empirical research.

FRENCH (FRE)—see Modern Languages
GENERAL BUSINESS ADMINISTRATION (GBA)

LOWER LEVEL COURSES

GBA 261. LAW AND THE INDIVIDUAL (5)
A study of the nature, functions, sources, formulation, and administration of law with special emphasis on the practical aspects of criminal, tort, estate, divorce, property, business, constitutional, and other areas of law. Not available for credit to students who have been admitted to the College of Business.

UPPER LEVEL COURSES

GBA 333. COMPUTERS IN BUSINESS I (3)
An introductory interdisciplinary examination of the impact of computers on all areas of business decision-making. Problems are reduced to schematic logic, programmed and tested against desired computer output. Computer hardware, software, history and terminology are introduced.

GBA 351. COMPUTERS IN BUSINESS II (5)
PR: GBA 333. An advanced interdisciplinary examination of the impact of computer systems on the business enterprise. Concepts of data collection, information theory and business systems analysis are developed.

GBA 361. BUSINESS LAW I (5)
The nature of legal institutions, essentials of a binding contract, remedies granted in event of breach of contract and rights acquired by assignment of contracts.

GBA 362. BUSINESS LAW II (5)
PR: GBA 361. Legal problems in marketing of goods, nature of property, sales of personal property, securing of credit granted, nature and use of negotiable instruments.

GBA 363. THE LAW OF BUSINESS ASSOCIATIONS (5)
PR: GBA 361. A study of the law of corporations, the law of partnerships, and the law of agency.

GBA 371. BUSINESS COMMUNICATIONS (4)
Analysis and application of the principles of persuasion in business communication; composition and evaluation of functional business letters; examination of effective organization strategy, text, tabular and graphic presentation in formal business report.

GBA 489. INDIVIDUAL RESEARCH (1-2)
Individual research in the students major area supervised by an appropriate faculty member.

GBA 499. SENIOR SEMINAR IN ADMINISTRATION (3)
PR: Senior Standing. The course is intended to provide a unifying, integrating, and coordinating opportunity to tie together concepts, principles, and skills learned separately in other, more specialized courses in Business Administration.

FOR SENIORS AND GRADUATE STUDENTS

GBA 501. CBA WORKSHOP (1-6)
Professional applications workshop in various areas of finance, marketing, economics, accounting, management. May be repeated when subjects differ.

FOR GRADUATE STUDENTS ONLY

GBA 601. LEGAL ENVIRONMENT OF BUSINESS (3)
A study of the governmental regulation of business emphasizing the constitutional limitations on the powers of the federal government, the administration of the federal antitrust laws, and administrative law.

GBA 603. QUANTITATIVE METHODS I (3)
PR: College Algebra or equivalent. Mathematical techniques for administrative problems, including linear programming, game theory, and optimization models and procedures using calculus and matrix algebra.

GBA 605. QUANTITATIVE METHODS II (3)
PR: College Algebra, ECN 331, or equivalents. Probability and sampling, Bayesian decision theory, and the design of experiments, as applied to administrative problems.

GBA 615. INTEGRATIVE SEMINAR (3)
PR: C.I. The integration of analysis and policy for the decision-making process in administration. This course should be taken at the end of a student's program.

GBA 683. SELECTED TOPICS IN BUSINESS AND GENERAL ADMINISTRATION (1-6)
The course content will depend on student demand and instructor's interest.

GBA 699. THESIS (6)

GENERAL EDUCATION (CBS)

CBS 401. SENIOR SEMINAR: FREEDOM AND RESPONSIBILITY (3)
Contemporary issues affecting social and personal values. Visiting lecturers, readings and discussions interrelating the behavioral, natural, and social sciences and the humanities. Designed to focus the university education upon contemporary problems.

GEOGRAPHY (GPY)


UPPER LEVEL COURSES

GPY 301. SYSTEMATIC GEOGRAPHY (5)
Principles and concepts of the discipline; maps, earth-sun relations, weather, and climate.

GPY 302. SYSTEMATIC GEOGRAPHY (5)
PR: GPY 301 or CI. Landforms and conservation of resources. Latter part of course deals with man's use of the natural environment.

GPY 303. HUMAN GEOGRAPHY (5)
PR: GPY 301-302 or CI. Systematic treatment of man's activities on earth: population, settlement, agriculture, industry, trade, transportation, and political aspects are among those considered.

GPY 315. ELEMENTS OF GEOGRAPHY (1)
An independent study program in the basic elements of physical and cultural geography. Sections 001-005 are equivalent to GPY 301; sections 006-010 are equivalent to GPY 302; sections 011-015 are equivalent to GPY 303. These courses may not be taken if a student has had their equivalent. Topics include maps and map reading, history of geography, earth form, weather, climate, soils, water, plants and animals, landforms and minerals, conservation, political, economic, language and religion, settlement and population, and urban. Course is designed primarily for nonmajors. A student may enroll for a maximum of five hours (5 sections) during any quarter. (S/U only.)

GPY 371. GENERAL GEOGRAPHY (5)
Varied topics in regional and topical geography. May be
repeated as topics vary, but the same topic may not be repeated for credit. Open to anyone in the University.

**GPY 403. PHYSICAL GEOGRAPHY (5)**
PR: GPY 301-302 or CI. Courses include meteorology, climatology, physiography, biogeography, soils, water bodies. May be repeated as courses vary, but the same course may not be repeated for credit.

**GPY 405. CULTURAL GEOGRAPHY (5)**
PR: GPY 301-302-303 or CI. Courses include economic, political, urban, population, settlement, conservation, and historical geography. May be repeated as courses vary, but the same course may not be repeated for credit.

**GPY 407. REGIONAL GEOGRAPHY (5)**
PR: GPY 301-302 or CI. Synthesis and analysis of the physical and cultural elements in a selected geographic region such as Africa, South America, Europe, Soviet Union, North America. May be repeated as regions vary, but the same region may not be repeated for credit.

**GPY 409. GEOGRAPHIC TECHNIQUES AND METHODOLOGY (5)**
PR: GPY 301-302-303 or CI. Courses include cartography, graphics, map design and analysis, air photo interpretation, field methods, quantitative analysis, seminar. May be repeated as courses vary, but same course may not be repeated for credit.

**FOR SENIORS AND GRADUATE STUDENTS**

**GPY 501. GEOGRAPHIC LITERATURE AND HISTORY (4)**
PR: Senior or graduate standing in geography, or CI. The origins and development of the discipline as revealed through an examination of the principal written sources. Special attention paid to leading personalities and modern periodicals.

**GPY 503. METHODOLOGY I: QUANTITATIVE (4)**
PR: Senior or graduate standing in geography, and a course in statistics, or CI. The application of quantitative techniques to geographic problems; factor, sensitivity, and spatial analysis.

**GPY 505. METHODOLOGY II: CARTOGRAPHIC (4)**
PR: Senior or graduate standing in geography, GPY 409 (Cartography), or CI. Application of various techniques for presenting graphic illustrations as research tools.

**FOR GRADUATE STUDENTS ONLY**

**GPY 601. METHODOLOGY IV: ACADEMIC (4)**
PR: Graduate standing in geography. Current trends in college geography, with the emphasis on the junior college program. Not available to thesis students.

**GPY 603. SEMINAR IN ADVANCED PHYSICAL GEOGRAPHY (4)**
PR: Graduate standing in geography. Analytic study of a problem selected from one or more aspects of the atmosphere, biosphere, hydrosphere, or lithosphere. May be repeated once for credit, but topic may not be repeated.

**GPY 605. SEMINAR IN ADVANCED CULTURAL GEOGRAPHY (4)**
PR: Graduate standing in geography. Analytic study of a problem selected from one or more aspects of the cultural landscape (urban, political, economic, population, settlement). May be repeated once for credit.

**GPY 607. SEMINAR IN ADVANCED REGIONAL GEOGRAPHY (4)**
PR: Graduate standing in geography. Analytic study of a selected region of the world. May be repeated once for credit, but region may not be repeated.

**GPY 609. SEMINAR IN ADVANCED TECHNIQUES & METHODOLOGY (4)**
PR: Graduate standing in geography. Analytic study of a selected geographic technique (such as remote sensing, graphics, photo interpretation, or computer applications) or an investigation into an aspect of methodology. May be repeated once for credit but topic may not be repeated.

**GPY 689. DIRECTED TEACHING (1-9)**
PR: Senior or graduate standing in geography. Data collection in a field situation, including observation, classification, interpretation, and presentation of the data.

**GPY 507. METHODOLOGY III: FIELD WORK (4)**
PR: Senior or graduate standing in geography. Data collection in a field situation, including observation, classification, interpretation, and presentation of the data.

**GPY 581. INDIVIDUAL RESEARCH (1-5)**
PR: 30 hours in geography and CI, or graduate standing in geography. Arrangement must be made with chairman prior to registration. May be repeated.

**GPY 585. DIRECTED READING (1-5)**
PR: 30 hours in geography and CI, or graduate standing in geography. Arrangement must be made with chairman prior to registration. May be repeated.

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**GEOLOGY (GLY)**

(See also the sections entitled Physical Sciences and Natural Sciences)

Chairman: W. J. Ragan; Professor: W. D. Keller; Assistant Professors: W. H. Huang, E. O'Donnell, D. P. Spangler, R. G. Stevenson Jr.; Lecturer: J. W. Boulware.

**LOWER LEVEL COURSES**

**GLY 201. INTRODUCTION TO GEOLOGY (6)**
Open to all students; no prerequisites. Study of earth materials and the processes responsible for changing the face of the earth. Examination of minerals and rock specimens, topographic and geologic maps and aerial photographs. Occasional field trip studies. Required lec-lab.

**UPPER LEVEL COURSES**

**GLY 301. INTRODUCTION TO HISTORICAL GEOLOGY (4)**
Open to all students; no prerequisites. Study of the record of past life and interpretation of the major physical events in the history of the earth. Occasional field trip studies. Lec-lab, field trips.

**GLY 302. INTRODUCTION TO PALEONTOLOGY I (4)**
PR: GLY 301 or CI. Paleontology and stratigraphic occurrence of most important invertebrate fossils of the geologic record. Lec-lab, field trips.

**GLY 303. INTRODUCTION TO PALEONTOLOGY II (4)**
The second half of GLY 302.

**GLY 311. MINERALOGY (4)**
PR: GLY 201 and CHM 211, 212, 213, or equivalent; or CI. Origin, occurrence, and chemistry of mineral groups. Identification of common minerals by physical and chemical properties. Lec-lab.

**GLY 351. INTRODUCTION TO HYDROGEOLOGY (5)**
PR: GLY 201. 301. Occurrence, circulation, and distribution of subsurface water, its chemical and physical properties, relations to the geologic environment, exploration and development. Lec-field-lab.

**GLY 361. STRUCTURAL GEOLOGY (5)**
PR: GLY 201 and one year of physics. Application of basic principles of geology, mathematics, and physics in solving relationships of strata and interpreting structural feature in the earth's crust. Lec-lab, field trips.

**GLY 371. GEOLOGY OF OUR NATION'S PARKS (4)**
Representative parks used to illustrate current concepts in Geology of general interest. Designed for the student not majoring in science. (May not be counted for credit toward a
GEOLOGY 401. FIELD AND SUBSURFACE METHODS (5)
PR: 34 hours of geological courses, CC. Fundamentals of geology in the field and in the laboratory; compass and plane table mapping, mapping of aerial photos, reconnaissance surveys, interpretation of geologic structures. Lec-lab, field trips.

GELY 412. OPTICAL MINERALOGY (4)
PR: GLY 311 (non-majors from other departments, CC). Theory and use of the polarizing microscope. Techniques for identification and analysis of minerals using the polarizing microscope, with emphasis on rock-forming minerals.

GELY 441. ECONOMIC MINERAL DEPOSITS (4)
PR: or CR: GLY 412. Principles involved in the origin, occurrence, recovery, and use of mineral resources. Lec-lab-field trips.

GELY 471. GEOLOGY OF SOILS (5)
PR: General Chemistry or equivalent. The origin, geologic development, formation, and nature of soils. Fundamentals of soil science, including the physical, chemical, and biological factors affecting soil fertility with special application to the soils and ecology of Florida. Lec-lab, field trips.

GELY 473. CONCEPTS IN EARTH SCIENCE (5)
Earth's environment in space, including a selected study of its materials, processes, climate, oceans, soils and history. Lec-disc, field trips. No credit for geology or natural science geology majors.

GELY 475. HYDROGEOLOGY AND HUMAN AFFAIRS (5)
PR: Open to all junior and senior level students. Geology analyses of the present critical and urgent problems of water resources, pollution control, water supply, flood control, and underground waste disposal as they relate to economic, legal, and other social aspects of modern society. Field trips. No credit for Geology majors.

GELY 481. UNDERGRADUATE RESEARCH (1-6)
PR: Senior or advanced junior standing and written permission of department prior to registration. Individual experimental investigations with faculty supervision. (S/U only.)

FOR SENIORS AND GRADUATE STUDENTS

GELY 503. SEDIMENTATION I (4)
PR: GLY 303 and GLY 412. Geologic factors governing chemical, physical and biological interactions and deposition of clastic sediments. Lec-lab, field trips.

GELY 504. SEDIMENTATION II (4)
PR: GLY 303 and GLY 515. Origin, mineralogy, and petrology of organic and chemical rocks with emphasis on the recognition of ancient depositional environments.

GELY 512. MARINE GEOLOGY (4)
PR: Senior or graduate standing in a natural science and CC. Geological interpretation of marine processes and products. Seminar and field studies. Lec-lab, field trips.

GELY 513. PTEROLOGY (5)

GELY 521. PRINCIPLES OF APPLIED GEOPHYSICS (4)
PR: Senior or advanced Junior standing, one year of Physics, or CC. Elementary treatment of gravimetric, magnetic, electric and seismic geophysical techniques as applied to site investigations and mineral deposits. Lec-lab, field trips.

GELY 531. PRINCIPLES OF STRATIGRAPHY (4)
PR: GLY 361 or CC. Environmental and paleogeographic reconstruction of sedimentary basins. Seminar. Lec-lab, field trips.

GELY 532. ADVANCED STRATIGRAPHY (5)
PR: GLY 531 or CC. Study of the stratigraphy and paleotectonic development of North America and Europe.

GELY 533. GEOMORPHOLOGY (4)
PR: Senior or advanced junior standing and CC. Origin, evolution, and distribution of land forms.

GELY 534. QUANTITATIVE GEOMORPHOLOGY (4)
PR: GLY 533 or CC. Quantitative methods and their application to geomorphic problems; review and concepts of recent theories and literature. Lec-lab.

GELY 541. GEOPHOTO INTERPRETATION (5)
PR: Senior standing, or CC. Geo-analysis of air photos and earth data, including some acquired by remote sensing techniques. Analysis of chemical and physical sample data. Lec-lab.

GELY 553. ADVANCED HYDROGEOLOGY (5)
PR: GLY 351, MTH 213 or 303, PHY 215-216, or CC. Aquifer evaluation and quantitative determination of the hydraulic characteristics of hydrogeologic systems. Lec-field-lab.

GELY 561. X-RAY ANALYSIS (2)
PR: GLY 412 or CC. (Non-majors from other area, CC.) The use of X-rays for the identification of crystalline materials.

GELY 571. GEOCHEMISTRY I: ORIGIN AND CHEMISTRY OF THE EARTH (4)
PR: CHM 211, 212, 213 or equivalent; GLY 513. Age, formation, heat balance, and evolution of the earth and the solar system. Application of basic chemical concepts and processes that govern the distribution of the elements in geologic environments.

GELY 572. GEOCHEMISTRY II: LOW TEMPERATURE SOLUTION GEOCHEMISTRY (5)
PR: CHM 213, GLY 513, or CC. Application of the fundamentals of solution chemistry and equilibrium of aqueous species in multi-component systems to the natural environments such as ores, weathering, diagnosis, rivers, lakes, ocean and other aqueous environments.

GELY 573. GEOCHEMISTRY II: ANALYTICAL GEOCHEMISTRY (5)
PR: CHM 213, GLY 513, or CC. Experimental techniques by chemical and modern methods to determine major and trace elements in minerals, rocks, meteorites, and natural water; statistical and mathematical modeling to the solution of geochemical problems also discussed.

GELY 575. GEOTECHNICS (4)
PR: Senior or advanced Junior standing or CC. Concept of soil and rock mechanics, and their relationship to geographical conditions influencing the location, design, construction and maintenance of engineering projects. Lec-field-lab.

GELY 583. SELECTED TOPICS IN GEOLOGY (1-6)
PR: Senior or advanced junior standing and CC. Each topic is a course in directed study under supervision of a faculty member. Courses include: Introductory Geological Oceanography, Advanced Stratigraphic Paleontology, Palynology, Sedimentary Processes, Sedimentary Techniques, Universal Stage, Seismology, Marine Geophysics, Exploration Geophysics, Ground Water Problems, Environmental Geology, Neutron Activation Analysis, Nonmetallic Deposits, Organized Geology Field Trip Studies, and Field Geology. Department permission prior to registration required.

GELY 591. GEOLOGY SEMINAR (1)
PR: Senior or advanced junior standing and CC. May be repeated once. (S/U only.)

FOR GRADUATE STUDENTS ONLY

GELY 603. RECENT NERITIC SEDIMENTATION (5)
PR: GLY 504 or CC. Environmental/terrigenic factors and resulting sediment types in shallow marine environments. Application to problems in stratigraphy and petroleum studies. Lec-lab, field trips.

GELY 604. RECENT FLUVIAL AND TRANSITIONAL SEDIMENTATION (4)
PR: GLY 504 or CC. Environmental factors and resulting sediment types accumulated in fluvial and transitional environments. Lec-lab.

GELY 605. OCEANIC SEDIMENTATION (5)
PR: GLY 504 or CC. Structural development, sedimentation
processes, and sediments of shoreline, continental slope, continental rise, and abyssal plain environments. Lec-lab.

**Gly 607. carbonate petrology (4)**
PR: GLY 503 or CC. Genesis of recent carbonate sediments and the interpretation of ancient carbonate rocks by the use of conceptual models. Field-lab-seminar.

**Gly 608. carbonate petrology (ii)**
The second half of GLY 607.

**Gly 611. advanced igneous petrogenesis (4)**
PR: CC. Detailed study of igneous rocks and their origin.

**Gly 612. advanced metamorphic petrogenesis (4)**
PR: CC. Detailed study and interpretation of metamorphism and the origin of metamorphic rock complexes, utilizing thin section microscopy, X-ray diffraction, and chemical analyses.

**Gly 621. marine micro-paleontology (6)**
PR: GLY 301, 303 or equivalents. Principal groups of microfossils in marine sediments and cores. Paleoecology, correlation, and application to petroleum and paleo marine problems. Lec-lab, field trips.

**Gly 631. Cenozoic stratigraphy (3)**
PR: GLY 531 or CI. Structural elements, paleogeography, stratigraphy, and economic resources of the Gulf of Mexico coastal plain. Lec-lab.

**Gly 652. development of ground-water resources (5)**
PR: GLY 553 or CC. Analysis of cause-effect relationships between ocean, streams, lakes and aquifers; planning and design of hydrogeology resources investigations, lec-lab, field trips.

**Gly 661. clay petrology (4)**
PR: GLY 513, 561, or CC. Composition, structures, origin, and diagenesis of clay minerals. Identification of clay minerals by x-ray diffraction techniques.

**Gly 673. history of geology (2)**
PR: CC. Historical development of geologic thought. Lec. Alternate years.

**Gly 675. geology of Florida (5)**
PR: 24 hours of earth science credits or CI. Designed for teachers of earth science. Mineralogy, structure, stratigraphy, paleontology, geomorphology, tectonics, and petrology of Florida and contiguous areas. Lec-field-lab. Alternate years.

**Gly 681. graduate research geology (1-15)**
PR: CC. (S/U only).

**Gly 683. selected topics in marine geology (1-6)**

**Gly 688. recent advance in geology with emphasis on their impact on college-level courses. (3-6)**
PR: Graduate standing. Recent developments in geology that effect presentation of introductory material. (Credit not applicable toward thesis degree requirements.) (S/U only.)

**Gly 689. directed teaching (3-9)**
Not applicable toward thesis degree requirements. Supervised teaching for graduate teaching assistants in elementary and/or laboratory courses. A formalized, structured activity wherein a faculty member, by discussion and assignments, considers the principles, rationale, and modus operandi of elementary college courses. Designed to train teaching assistants and to provide help and training to those graduate students who plan to follow a college teaching profession. (S/U only.)

**Gly 691. graduate seminar (2)**
PR: CC (S/U only.)

**Gly 699. thesis (1-9)**
PR: CC (S/U only.)

**German (Ger)—see Modern Languages**

**Gerontology (age)—see Aging Studies**

**Greek (Gre)—see Modern Languages**

**Hebrew (Heb)—see Modern Languages**

**History (HTY)**


**Lower Level Courses—Part I**

**HTY 100. idea of history (4)**
Required of all history majors. A multi-media approach to problems in World history that are relevant to contemporary life. Selected topics are drawn from the various fields represented in the department. May be waived in the case of transfer students.

**HTY 201, 202. ancient history (4,4)**
PR: CC. A survey study of the ancient civilization. 201 treats Near Eastern and Greek history to the beginning of the career of Alexander the Great; 202 treats the career of Alexander, the Hellenistic World, and Rome to the death of Constantine. Attention is drawn to the correlative work in CLS 321, Ancient Civilizations.

**HTY 211, 212. american history (4,4)**
PR: CC. A history of the United States with attention given to relevant developments in the Western Hemisphere, 211: European origins to 1865; 212: 1865 to present.

**HTY 221, 222. medieval history (4, 4)**
PR: CC. A thematic survey of the Middle Ages. 221 deals with the nascent, Christian civilization of Europe, circa 300-1050 A.D.; 222 treats the mature medieval civilization of Europe, circa 1050-1500.

**HTY 231, 232. modern european history (4, 4)**
PR: CC. A thematic survey of Europe in the modern age. 231 treats the period from the Renaissance to the French Revolution; 232, from the French Revolution to the present.
HTY 251, 252. LATIN AMERICAN HISTORY (4, 4)
PR: CI. A thematic study of the Spanish-Portuguese New World from the 15th through the 20th century. 251 examines the Iberian New World with special emphasis on the Spanish-Portuguese invasions and conquests, cultural clash, New World colonial societies, and the Wars for Independence. 252 studies the emergence of the Latin American states; emphasis is on Latin America within a Third World context: political-social change, under-development, imperialism, and revolution.

UPPER LEVEL COURSES

PART II

HTY 301, 302. A HISTORY OF THE AMERICAN COLONIAL PERIOD (4, 4)
PR: CI. A study of European interest and involvement in America from the Age of Reconnaissance to 1789 with emphasis on institutional development and the establishment of the American national system.

HTY 303. THE AGE OF JEFFERSON (4)
PR: CI. A study of the formation of the American national state, the development of political parties, continental expansion and reform movements. Covers the period from 1783 to 1828.

HTY 304. THE AGE OF JACKSON (4)
PR: CI. A study of the formation of the American national state, the development of political parties, continental expansion and reform movements. Focuses upon the years from 1828 to the Compromise of 1850. PR: CI. A chronological study of the South in its relation to the rest of the United States. 311 treats the origins and growth of southern institutions and thought; 312, the South and the nation.

HTY 311, 312. THE AMERICAN SOUTH (4, 4)
PR: HTY 100, 211, 212, or Cl. A chronological study of the South in its relation to the rest of the United States. 311 treats the origins and growth of southern institutions and thought; 312, the South and the nation.

HTY 315, 316. THE CIVIL WAR AND ITS AFTERMATH (4, 4)
PR: CI. A study of the causes of the Civil War and the factors, forces, and atmosphere which produced the reconstruction policy following the war.

HTY 317. HISTORY OF FLORIDA (4)
PR: CI. A history of Florida and the Caribbean. Florida as an area of discovery, colonization and imperial conflict; the emergence of Florida within its regional setting.

HTY 319, 320. THE EMERGENCE AND GROWTH OF MODERN AMERICA (4, 4)
PR: CI. A study of the transition of American society from the end of Reconstruction to the present. 319 treats the era from 1877 to World War I; 320 focuses on the period from World War I to the present.

HTY 321, 322. ANCIENT GREECE (4, 4)
PR: CI. A study of Greece in the ancient period. 321 offers instruction in the pre-Hellenic and Hellenic periods, to the death of Philip II of Macedon; 322 treats the career of Alexander the Great and the Hellenistic period. Attention is drawn to the correlative work in CLS 527, Greek Civilization.

HTY 324. MEDIEVAL SPAIN AND PORTUGAL (4)
PR: CI. A study of the peoples of the Iberian Peninsula in the Middle Ages.

HTY 325, 326. ANCIENT ROME (4, 4)
PR: CI. A study of Rome in the ancient period. 325 treats the development of Rome to the end of the Republic, 27 B.C.; 326 offers instruction in the development of the Roman Empire from 27 B.C. to the death of Constantine, A.D. 337. Attention is drawn to the correlative work in CLS 529, Roman Civilization.

HTY 327, 328. MEDIEVAL INSTITUTIONAL HISTORY (4, 4)
PR: CI. A study of the major institutions of feudal Europe. 327 treats the history of the Empire and Papacy; 328 deals with the history of the Western monarchies.

HTY 329. MEDIEVAL ENGLISH HISTORY (4)
PR: CI. A study of the major developments in England from the Anglo-Saxon period to the 15th Century.

HTY 333, 334. FRENCH HISTORY (4, 4)
PR: CI. A study of the major developments of French history in the modern period. 333 deals with the period from the Renaissance to the French Revolution; 334, from the Revolution to the present.

HTY 335, 336. GERMAN HISTORY (4, 4)
PR: CI. A study of the major developments of German history. 335 deals with the period from the Reformation to the French Revolution; 336 from the Revolution to the present.

HTY 337, 338. RUSSIAN HISTORY (4, 4)
PR: CI. A study of the primary social, economic, and cultural forces which have shaped the historical development of Russia. 337 treats the period to 1855; 338, 1855 to present.

HTY 340. HISTORY OF MODERN ITALY—1861 TO PRESENT (4)
PR: CI. A critical thematic approach with emphasis on a socio-psychological examination of bourgeois liberalism and nationalism, the crisis of liberalism, the rise of the Italian socialist movement, World War I, and the Fascist synthesis.

HTY 341, 342. BRITISH HISTORY (4, 4)
PR: CI. A study of the major developments of British history. 341 treats the period from the Reformation to 1715; 342, from 1715 to present.

HTY 345, 346. BRITISH EMPIRE AND COMMONWEALTH (4, 4)
PR: CI. A study of the old and new empire with emphasis upon the evolution of the Commonwealth.

HTY 347. HISTORY OF CANADA (4)
PR: CI. A thematic study of Canadian history from pre-Columbian cultures to the 20th Century, with special emphasis on colonial society, the emergence and development of the Mexican state and the Mexican Revolution.

HTY 355. HISTORY OF BRAZIL (4)
PR: CI. A study of the social, economic, military and political development of Portuguese Brazil in an otherwise Spanish American continent. Emphasis is on the nineteenth and twentieth centuries.

HTY 365, 366. BYZANTINE HISTORY (4, 4)
PR: CI. A thematic treatment of the history of the Byzantine Empire, including social, economic, religious, political, military, ecclesiastical developments, together with consideration of literature, learning, and the arts. HTY 365 deals with the period from 324 A.D. to 867; HTY 366 deals with the period of Imperial Byzantium, including its decline and fall: 867-1453 A.D.

HTY 371. CONTEMPORARY PROBLEMS IN HISTORICAL PERSPECTIVE (4)
PR: CI. Topics of contemporary significance are explored in terms of their historical development.

HTY 381. SPECIAL TOPICS (4)
PR: CI. 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 quarter.

PART III

HTY 401, 402. SOCIAL & INTELLECTUAL HISTORY OF THE ANCIENT WORLD (4, 4)
PR: CI. Selected topics in the social and intellectual history of the ancient world. 401 treats the period of ancient Greece; 402 treats the period of ancient Rome.

HTY 409, 410. A HISTORY OF AMERICAN FOREIGN RELATIONS (4, 4)
PR: CI. The development of American foreign relations from
the Revolution to the present. HTY 409 deals with earlier period to 1877; HTY 410, with the period from 1877 to present.

HTY 411, 412. AMERICAN SOCIAL AND INTELLECTUAL HISTORY (4, 4)
PR: CI. A study of the major religious and philosophical ideas of the American people in relation to the nation's social environment. 411 deals with the earlier period to 1865; 412, from 1865 to present.

HTY 421, 422. A HISTORY OF THE AMERICAN ECONOMIC PROCESS (4, 4)
PR: CI. The development of American economic thought and policies from the colonial period to the present, emphasizing the inter-relationship of economic development with the major political, ideological, and institutional currents of American history. A student may not receive credit for both HTY 421, 422, and ECN 371.

HTY 423. MEDIEVAL THOUGHT AND CULTURE (4)
PR: CI. A study of the culture and the major intellectual developments of the medieval world.

HTY 425, 426. A HISTORY OF THE RENAISSANCE AND REFORMATION PERIODS (4, 4)
PR: CI. HTY 425 deals with the European Renaissance; HTY 426 with the major developments of Reformation Europe.

HTY 427, 428. EUROPE IN THE BAROQUE AND ENLIGHTENMENT PERIODS (4, 4)
PR: CI. A study with emphasis on comparative developments. 427 deals with major topics of the Baroque period; 428, with the Enlightenment.

HTY 429, 430. EUROPE IN THE NINETEENTH AND TWENTIETH CENTURIES (4, 4)
PR: CI. A study with emphasis on comparative developments. 429 treats the Nineteenth Century; 430, the Twentieth Century.

HTY 431, 432. EUROPEAN SOCIAL AND INTELLECTUAL HISTORY (4,4)
PR: CI. Selected topics in the social and intellectual history of modern Europe. 431 treats the early modern period; 432, the Nineteenth and Twentieth centuries.

HTY 451. A HISTORY OF INTER-AMERICAN RELATIONS (4)
PR: CI. An examination of the mutual problems of the American nations since independence with emphasis upon the development of Pan-Americanism and the Organization of American States.

HTY 453. SOCIAL AND INTELLECTUAL HISTORY OF LATIN AMERICA (4)
PR: CI. A study of the origins and development of major intellectual and social trends affecting the histories of the Latin American people.

HTY 455. STUDIES IN TUDOR-STUART ENGLAND (4)
PR: CI. Selected topics in the history of Sixteenth and Seventeenth Century England.

HTY 461. REVOLUTION IN THE MODERN WORLD (4)
PR: CI. An analytical and comparative study of the nature of revolution in modern history leading to a development of a paradigm of the revolutionary process.

HTY 464. FASCIST AND OTHER TOTALITARIAN SYSTEMS (4)
PR: CI. A critical and comparative study of the growth of Fascist and other bureaucratic totalitarian movements in the 19th and 20th century western world: a socio-psychological analysis.

HTY 465. SCIENCE AND CIVILIZATION (4)
PR: CI. A comparative survey of the impact of science on Western civilization from the ancient Egyptians to the present, emphasizing the relationship of science to the socio-economic, political, and intellectual development.

HTY 485. DIRECTED READING (1-4)
PR: Arrangement with instructor prior to registration. Readings in special topics.

FOR SENIORS AND GRADUATE STUDENTS

HTY 587. THEORY OF HISTORY (4)
PR: to be taken during the senior year. An investigation of the philosophical problems of history, with emphasis on the evolution of the discipline.

HTY 591. PRO-SEMINAR IN HISTORY (4)
Advanced topics in the fields emphasizing readings, discussion, research, and writing. One pro-seminar is required of all history majors. Non-majors may enroll with the consent of the instructor. Topics vary within each field.

HTY 592. SENIOR SEMINAR IN HISTORY (4)
Introduction to the methods of historical research and writing, bibliography, and directed research in special topics designed to meet the particular needs and interests of individual students.

FOR GRADUATE STUDENTS ONLY

HTY 600. ANALYSIS OF HISTORICAL KNOWLEDGE (4)
PR: Graduate Standing. A study of History as a form of knowledge with emphasis on explanatory devices and models of the discipline and the application of Social Science theory to the problems of Historical thought.

HTY 601. THEORY AND INTERPRETATION (4)
A systematic examination and evaluation of various schools of historical interpretation.

HTY 680. COLOQUIUM IN HISTORY (4)
Reading and discussion of selected topics within the fields. Subject and scope to be determined by the instructor. May be repeated for credit.

HTY 685. READINGS IN HISTORY (1-4)
Arrangement with instructor prior to registration and CC. Individual reading and discussion of selected problems. May be repeated for credit.

HTY 691. SEMINAR IN HISTORY (4)
Research in selected problems within the fields. Subject and scope to be determined by the instructor. May be repeated for credit. The master's candidate is required to satisfactorily complete work in at least one graduate seminar to fulfill the requirement for the Master's degree in History.

HTY 699. THESIS IN HISTORY (1-8)
Required of all candidates for the Master's degree in History.

HISTORY OF IDEAS (HII)

Director: J. B. Camp.

UPPER LEVEL COURSES

HII 301, 302. INTRODUCTION TO THE HISTORY OF IDEAS, I & II (4, 4)
301: A study of the principal forces shaping Western thought before 1700, concentrating on the developments of the Hellenic philosophical ideas of Mind and the Christian idea of Will.
302: A study of principal forces shaping Western thought since 1700—especially Modern Science and its derivative ideas.

HII 305. THE IDEA OF PROGRESS (4)
A study of the ways in which the idea of progress has affected philosophical, social, political, and literary theory since the Enlightenment. Among major authors considered are: Bacon, Descartes, Kant, Hegel, Marx, Condorcet, Helvetius, Compte, Mill, Darwin and Huxley.
HUM 306. THE IDEA OF UTOPIA (4)
A study of the idea of utopia involving (1) an examination of various positive and negative examples of the utopian literary genre and (2) analysis of the idea in relation to the idea of historical progress. Among major authors considered are: Plato, More, Bellamy, Skinner, Huxley and Butler.

HUM 315. THE IDEA OF FREEDOM (3)
An analysis of the idea of freedom, both in general and particular. Various philosophical, literary, and journalistic aspects will be analyzed: metaphysical, ethical, political, social, religious and economic.

HUM 401. INTRODUCTION TO THE IDEA OF NATURE I (4)
An introduction to the study of nature, concentrating on the three major pre-twentieth century conceptions of nature in their logical and historical aspects—hierarchy, mechanism, organism.

HUM 402. INTRODUCTION TO THE IDEA OF NATURE II (4)
An introductory investigation of the impact of twentieth century scientific theory on the idea of nature, with special attention on the post-modern idea of nature as indeterminate (or ambiguous).

HUM 411. THE IDEA OF THE SELF (4)
An investigation of the idea of the self as revealed in the works of major writers, philosophers and psychologists of the nineteenth century, with emphasis on the impact of this idea on contemporary thought.

HUM 483. SELECTED TOPICS (2-5)
PR: CI. Course content determined by student's need and instructor's interest.

HUMANITIES (HUM)

UPPER LEVEL COURSES
HUM 308 THE HUMANITIES (4)
PR: Freshman English or equivalent and sophomore standing. The Arts. Analyses of selected works of film, literature, music, and visual arts, including a variety of periods, nationalities, and art forms, emphasizing artistic diversity. (Formerly CBS 308.)

HUM 311, 312, 313. HUMANITIES AND HUMANE VALUES (5, 5, 5)
PR: Freshman English or equivalent and sophomore standing. Masterpieces of music, visual arts, theater, literature, and philosophy in varying cultural and historical situations.

HUM 315. THE HUMANITIES (5)
PR: ENG 101-102 and sophomore standing. Studies in Culture: The classical and medieval periods. Analyses of selected works of classical and medieval architecture, drama, sculpture, intellectual prose, and other art forms. Typical course focus is on architecture, drama, and intellectual prose. Workshops for creative experience. (Formerly CBS 315.)

HUM 316. THE HUMANITIES (5)
PR: Freshman English or equivalent and sophomore standing. Studies in Culture: The Renaissance and the 19th Century. Analyses of selected fiction, drama, painting, architecture, music, and other art forms. Typical course focus is on painting and music. Workshops for creative experience. (Formerly CBS 316.)

HUM 317. THE HUMANITIES (5)
PR: Freshman English or equivalent and sophomore standing. Studies in Culture: The 20th Century. Analyses of selected works of 20th Century art, primarily emphasizing film, with secondary emphases on painting and fiction. Workshops for creative experience. (Formerly CBS 317.)

HUM 411, 412. TWENTIETH-CENTURY ARTS AND LETTERS (5, 5)
Case studies in the arts and letters of the twentieth century.

HUM 415, 416. ARTS AND LETTERS OF THE ROMANTIC PERIOD (4, 4)
Case studies in the arts and letters of the romantic period.

HUM 417, 418. NINETEENTH-CENTURY ARTS AND LETTERS (4, 4)
Case studies in the arts and letters of the nineteenth century.

HUM 419, 420. THE ENLIGHTENMENT (4, 4)
Case studies in the arts and letters of the Enlightenment.
HUM 681. DIRECTED STUDY (1-4)
Specialized independent study determined by the student's needs and interests.

HUM 683. SELECTED TOPICS IN HUMANITIES (1-4)
Each topic is a course of study in a subject not covered by a regular course. May be repeated for credit with change of content.

INTERDISCIPLINARY LANGUAGE—LITERATURE (LLI)

LOWER LEVEL COURSES

LLI 200. 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, particularly research resources for term papers. (S/U only.)

UPPER LEVEL COURSES

LLI 383. SELECTED TOPICS (3-5)
Course contents depend on student's need and instructor's interest. Agreement with instructor required prior to registration.

ITALIAN (ITA)—see Modern Languages

LINGUISTICS (LIN)

Director: R. W. Cole; Professor: A. M. Gessman; Associate Professors: R. C. O'Hara, S. I. Ritterman; Assistant Professors: J. C. Cafisch III, J. J. Smith.

UPPER LEVEL COURSES

LIN 301. INTRODUCTION TO LINGUISTICS (4)
Introduction to the basic principles of linguistic science: phonological and grammatical analysis and description; language change and genetic relationships. (Note: Sections numbered 011, 012, etc. are for Anthropology majors and require ANT 201 as a prerequisite.)

LIN 321. LANGUAGE AND MEANING (4)
A survey introduction for non-specialists to the basic principles of semantics and the way language conveys ideas.

LIN 401. DESCRIPTIVE LINGUISTICS (4)
PR: LIN 301, ENG 475, or CI. Introduction to the basic techniques of formalizing linguistic descriptions through elementary phonological, morphological, and syntactic data solution problems drawn from a variety of languages. Both taxonomic and generative analyses and descriptions will be developed and compared.

LIN 483. SELECTED TOPICS (3-5)
PR: CI. Course content depends upon students’ needs and instructor’s interest and may range over the entire field of linguistics.

FOR SENIORS AND GRADUATE STUDENTS

LIN 511. HISTORY OF LINGUISTIC THOUGHT (4)
Survey of the development of language study in the West from Antiquity to the present: Classical and medieval theories of language; origins of traditional grammar; rationalist linguistic theory and philosophical grammar, and an examination of the origin of contemporary linguistic controversies.

LIN 530. FIELD METHODS (4)
PR: LIN 401 and SPE 503. An introduction to the techniques of gathering language data in the field and to making an analysis of such data. Native informants are brought on campus to replicate the field experience: students will become familiar with equipment and tools used by linguists in the field.

LIN 540. SOCIOLINGUISTICS (4)
PR: LIN 301 or ENG 475. An analysis of the interrelation of a language and the structure of the society using it. The linguistic behavior patterns characteristic of particular social, political, economic, educational, and racial groups. Problems in communication between strata.

LIN 541. PSYCHOLINGUISTICS (4)
PR: LIN 301 or ENG 475. The nature of linguistic structure and its correlates in behavior and perception. Examination of the hypotheses of Whorf, Chomsky, and others.

LIN 543. SEMIOTICS (4)
PR: CI. Introduction to kinesics and paralinguistics: the linguistic structure of gesture, proxemics, and other significant areas of non-verbal communication and signaling behavior.

LIN 545. DEVELOPMENTAL PSYCHOLINGUISTICS (4)
PR: LIN 301, ENG 475, or CI. A survey of current research and theory in the processes of normal language acquisition and development.

LIN 551. STUDIES IN COMPARATIVE STRUCTURE (5)
PR: CI. An introduction to linguistic typology consisting in a systematic comparison of characteristic representatives of the various language types, such as Vietnamese, Malay, Hungarian, Swahili, Sanskrit, Hebrew, and others. No knowledge of any of these languages on the part of the student is presumed.

LIN 581. INDIVIDUAL RESEARCH (3-5)
PR: CI. Specialized individual work in area of student's interest.

LIN 583. SELECTED TOPICS (3-5)
PR: CI. Course content depends upon students' needs and instructor's interest and may range over the entire field of linguistics. Study of languages not otherwise offered, such as Japanese and Hindi. May be repeated.

LIN 585. DIRECTED READING (4)
PR: CI. Readings in special topics. Must be arranged prior to registration.

FOR GRADUATE STUDENTS ONLY

LIN 600. INTRODUCTION TO GRADUATE STUDY IN LINGUISTICS (2)
Required of all M.A. candidates. An introduction to the aims and methodology of linguistics as a graduate discipline: the field of linguistics and its relationship to adjacent arts and sciences; bibliographical resources; methods of research; and, a brief survey of the historical development of linguistics and current issues in the field.
LIN 601. SYNTACTIC DESCRIPTION (4)
Analysis of syntactic descriptions of various languages through data-solution problems in co-occurrence relations, agreement, permutation, conjoining, and embedding. Feature grammars and other models are discussed.

LIN 602. PHONOLOGICAL DESCRIPTION (4)
Analysis of the phonological component of a grammar, its role and formal structures. The generative model is compared to taxonomic descriptions. Theory and data-solution problems.

LIN 611. HISTORICAL LINGUISTICS (4)
An advanced survey of the principles and methodology of historical linguistics.

LIN 612. COMPARATIVE LINGUISTICS (4)
The principles and methodology of comparative linguistics, focusing upon a major Indo-European subfamily, such as Romance, Germanic, or Balto-Slavic.

LIN 621. STUDIES IN SEMANTICS (4)
Selected problems in the area meaning and the relationship between linguistic structure and cognition. Mappings of presupposition, kinship fields, emotive concepts, and other problems are surveyed. Theories such as Fodor-Katz-Chomsky, Ross-Lakoff-McCawley, and others are contrasted.

LIN 631. FORMAL STYLISTICS I (4)
Studies in the relationship between the development of language study and literary criticism: developments in modern linguistic theory and their application to problems of aesthetics, literary structure, and style.

LIN 641. PRINCIPLES OF ENGLISH AS A SECOND LANGUAGE (4)
Analysis of the phonological, morphological, and syntactic features of English as a basis for linguistic application to problems of English language acquisition by non-native speakers.

LIN 661. TOPICS IN THEORETICAL LINGUISTICS (4)
Offerings will include current issues in any area of linguistic theory.

LIN 671. TOPICS IN APPLIED LINGUISTICS (4)
Offerings may include topics in such fields as sociolinguistics, psycholinguistics, and stylistics.

LIN 683. SELECTED TOPICS (3-5)
Content will depend upon instructor's interests and student's needs. Such topics as computational and mathematical linguistics, biolinguistics, dialectology and linguistic geography, and pidgins and creoles may be treated, as well as the study of the structures of languages not ordinarily taught.

LIN 685. DIRECTED READING (3-5)
Readings in special topics and specialized individual work. Must be arranged prior to registration.

LIN 699. RESEARCH AND THESIS (1-8)
Required of all candidates for the M.A. degree in Linguistics. Registration may be repeated. but accumulated credit may not exceed eight hours.

**MANAGEMENT (MAN)**


**UPPER LEVEL COURSES**

**MAN 301. PRINCIPLES OF MANAGEMENT (5)**
Study of the fundamentals of management, integrating the classical, behavioral, and management science approaches into an organized system of concepts and practices.

**MAN 312. MANAGEMENT SCIENCE (4)**
PR: MAN 301 or CI. A survey of basic management science concepts with emphasis on decision systems, models, and quantitative methodology in organizational analysis.

**MAN 322. ORGANIZATIONAL BEHAVIOR ANALYSIS (4)**
PR: MAN 301 or CI. Organizational behavior theory and research findings integrated by means of a rigorous conceptual model. Emphasis on developing cause and effect relationships for explaining individual, intragroup, and intergroup behavior patterns in any organizational setting and supporting these hypotheses with empirical research evidence from organizational behavior literature.

**MAN 332. INDUSTRIAL RELATIONS (4)**
PR: MAN 301 or CI. A conceptualization of the administrative problems arising from unionization. Emphasis on the relationships between management and employee representatives in private and public employment, and on the historical and legal framework of industrial relations.

**MAN 341. PERSONNEL MANAGEMENT (3)**
PR: MAN 301 or CI. Systematic analysis of major functions in personnel, including manpower planning, recruiting, selection, job evaluation, performance appraisal, wage and salary, incentives, training and development, etc., emphasizing the role of the individual in the organization.

**MAN 421. OPERATIONS MANAGEMENT (3)**
PR: MAN 312 and ECN 331, or CI. Develops conceptual framework and principles applicable for any managerial decision process including proper utilization of organizational resources. Integrates previous courses into various analytical models.

**MAN 431. ADVANCED ORGANIZATIONAL BEHAVIOR ANALYSIS (3)**
PR: MAN 322 or CI. Advanced applications of behavioral model to analyze behavior in organizations. Emphasis is on empirical data and/or field research applications.

**MAN 451. INTERPERSONAL DYNAMICS LABORATORY (3)**
PR: MAN 322 or CI. Development of understanding and skills in interpersonal relationships by means of carefully planned classroom experiences, combined with selected readings.

**MAN 453. CHANGING ORGANIZATIONS (3)**
PR: MAN 322 or CI. Central unifying concept is the Change Agent. Student is exposed to total range of theory related to resistance to change and introduction of change, including whether locus should be in or out of organization.

**MAN 461. APPLICATION AND INTERPRETATION OF LABOR RELATIONS LAW (3)**
PR: MAN 332 or CI. Case analysis of legal constraints on managerial decision-making: FLSA; Workmen's Compensation; Anti-discrimination laws: Lie Detectors and Psycholinguistic Testing: NLRB rulings, court decisions, statutes.

**MAN 463. SEMINAR IN MANAGEMENT CONTRACT ADMINISTRATION AND SETTLEMENT (3)**
PR: MAN 332 or CI. Case exercises to test application of tools and theories pertaining to L.R. and other management functions involving conflicting interest groups that must integrate or co-exist, interact and cooperate.

**MAN 465. LABORATORY IN THE RESOLUTION OF CONFLICT (3)**
PR: MAN 322 or 332, or CI. Review of research pertaining to intergroup conflict and application of theories and techniques of dispute settlement to contemporary intergroup problems.

**MAN 471. MANAGEMENT SCIENCE—DETERMINISTIC (3)**
PR: MAN 312 or CI. Consideration of calculus, matrix algebra, review of linear programming, duality game theory, assignment, scheduling and sensitivity in linear programming.

**MAN 472. MANAGEMENT SCIENCE—NON-LINEAR (3)**
PR: MAN 312 or CI. Examination of mathematical
programming problem formulation, emphasizing integer, branch & bound, dynamic, separable, quadratic and geometric programming techniques and applications.

MAN 473. MANAGEMENT SCIENCE—PROBABILISTIC (3)
PR: MAN 312 or CI. Consideration of inventory models, queuing theory, markov processes, reliability and simulation. Heavily emphasis on simulation.

MAN 489. GUIDED RESEARCH IN MANAGEMENT (1-4)
PR: Graduating quarter or CC. Student engages in integrating field project, or other research in which special interests and as much course work as possible can be utilized. Only most general departmental supervision is exercised; management is by results.

MAN 499. INTEGRATIVE SEMINAR IN MANAGEMENT (3)
PR: MAN 312, 322, 332, two additional upper level MAN courses, and senior standing; or CI. A capstone course intended to integrate the concepts, generalizations, principles, and skills learned separately in previous, more specialized courses in Management and Administration. Emphasis on objectives, strategy, major policy, situation analysis, decision-making, action planning and implementation.

FOR SENIORS AND GRADUATE STUDENTS

MAN 501. SURVEY OF MANAGEMENT (3)
An analysis of the theory and practice of management, including study of the determination of goals and means, the functions of management, decision-making and the administrative process.

MAN 572. URBAN MANAGEMENT (3)
PR: CI. Urban environment identified and described as a management system of interest groups, organizational structure and institutional behavior constraints. Measurement and collection of data as system model input. Strategy and tactics of decision making and conflict resolution which urban managers need to control urban crisis.

FOR GRADUATE STUDENTS ONLY

MAN 601. HUMAN RESOURCE MANAGEMENT (3)
Investigates some of the complex factors important for a basic understanding of human behavior in formal organizations. Within a systems framework (the variables considered are mutually dependent) and using the case method approach, discussion topics include motivational aspects of individual, inter- and intra-group behavior.

MAN 602. ADMINISTRATIVE DECISION PROCESSES (3)
PR: GBA 603, GBA 605 (both may be concurrent). Analysis of the rational components of executive decision and action: objective functions, constraints, admissible courses of action, search, sequential learning and decision revision. Students build models of characteristic systems and use optimization techniques and heuristic simulation to investigate model properties.

MAN 603. ORGANIZATIONAL COMMUNICATIONS (3)
Analysis, organization, and presentation of research findings. Students learn through individual efforts and class discussion how to define a topic, determine appropriate research design, collect and organize data relevantly, and present written material in forms acceptable to industry and the academic community. Each student is expected to complete at least one research project and contribute to the efforts of his colleagues through group interaction in weekly "workshop" sessions which typify the class meetings.

MAN 604. SIMULATION AND ANALYSIS OF ADMINISTRATIVE SYSTEMS (3)
PR: GBA 603 or CI. To present a method of modeling problems which cannot be solved analytically, running the model through time, collecting statistical data on the models operation, and validating the results. Modified models are then tested and the process continues until the "optimum" model is achieved. Examples are considered from many functional areas and a project at a local business or government agency is "solved."

MAN 666. ADVANCED MANAGEMENT SCIENCE (3)
PR: GBA 603, MAN 602. Study of current operations research techniques and their applications in business.

MAN 670. SEMINAR IN INDUSTRIAL RELATIONS (3)
An in-depth study and analysis of critical and/or current problems in industrial relations.

MAN 680. SEMINAR IN OPERATIONS ANALYSIS (3)
PR: GBA 603, MAN 602. Analytical study of planning and control with particular stress on operational problems and decision-making. Basic analytical tools useful in operational situations will be examined. These tools are related to such areas as scheduling, budgeting, quality, as well as other selected topics.

MAN 699. ADVANCED INTERPERSONAL DYNAMICS (3)
PR: MAN 601 or equivalent. The study of personal and interpersonal behavior through experiencing the information via experiments, as well as a study of the relevant literature.

MAN 610. SEMINAR IN QUANTITATIVE METHODS I (3)
PR: GBA 603, GBA 605, MAN 606, MAN 608. Operational analysis of management measurements including: cost-benefit analysis, payoff-trees and tables, PERT/CPM, mathematical programming, heuristics, simulation, and the computer as a tool in managerial decisions. Stresses the functional use of quantitative methodology applied to a real problem.

MAN 611. SEMINAR IN ORGANIZATION THEORY (3)
PR: MAN 601. The study of the structure, functions, and dynamics of modern organizations. Theories of behavior are applied to an analysis of formal and informal organizations. Emphasis is placed on surveying the literature and developing a research design for an empirical test of a student-selected topic.

MAN 613. SEMINAR IN ORGANIZATIONAL CHANGE (3)
PR: MAN 601. The study of organizational change with special stress on adaptation of the firm, or sub-strata of the firm, to environmental alteration. Intra-firm analysis, and organizational development are also covered.

MAN 615. SEMINAR IN ADMINISTRATIVE POLICY (3)
PR: Final quarter of M.S. degree program or CC. A course designed to present an organized and integrated approach to the managerial decision-making process. This course should be taken in the final quarter of the program.

MAN 621. THE MANAGEMENT PROCESS (4)
PR: Post master level. Basic foundations in Psychology and Sociology and CI. Problem-solving to emphasize concepts and theories explaining organizational behavior of professional employees.

MAN 624. BEHAVIOR IN ORGANIZATIONS (3)
PR: MAN 601 or MAN 622 or CI. Topics will emphasize the role of a manager in either private or public sectors as discussed in the literature with special emphasis on applications of concepts. Attention will be concentrated on managerial situations other than blue collar workers in production, i.e. service of governmental organizations, especially staff positions.

MAN 683. SELECTED TOPICS IN MANAGEMENT (1-6)
The content and organization of this course will vary according to the current research interest of the faculty and needs of students.

MAN 699. FIELD RESEARCH OR THESIS (6)
PR: Consent of Chairman
MARINE SCIENCE (OGY)


UPPER LEVEL COURSES

OGY 311. INTRODUCTION TO OCEANOGRAPHY (3)
Topics in biological, chemical, geological and physical oceanography presented in lectures by a number of specialists in these fields.

FOR SENIORS AND GRADUATE STUDENTS

OGY 521. CHEMICAL OCEANOGRAPHY (4)
PR: CHM 213 and CI. 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.

OGY 531. GEOLOGICAL OCEANOGRAPHY (4)
PR: Graduate standing or CI. An introduction to the physical, historical sedimentary, and structural geology of the ocean basins and their borders. Lec-lab.

OGY 541. PHYSICAL OCEANOGRAPHY (4)
PR: Graduate standing or CI, PHY 305. The world ocean including its morphology, physical properties, currents, waves, tides, heat budget, and related topics. Lec-lab.

OGY 551. BIOLOGICAL OCEANOGRAPHY (4)
PR: Graduate standing or CI, BIO 201-203. The study of life in the sea with special reference to distribution, reproduction, adaptation, competition, and populations. Lec-lab. For students who have not majored in a biological science.

OGY 583. SELECTED TOPICS IN OCEANOGRAPHY (1-4)
PR: CI. Special topics in biological, chemical, geological, and physical oceanography.

FOR GRADUATE STUDENTS ONLY

OGY 610. SCIENTIST-IN-THE-SEA I, HYPERBARIC OPERATIONS (4)
PR: CI and diver certification (NAVI or equiv.). Basic principles, physiology, and psychology involved in submarine hyperbaric operations, inside and outside habitats. Lec-lab. (also listed as EGB 610.)

OGY 611. SCIENTIST-IN-THE-SEA II, MARINE SCIENCES (4)
PR: CI and diver certification (NAVI or equiv.). Research equipment and techniques for underwater work in oceanography presented by practicing research workers in the field. Lec-lab. (also listed as EGB 611.)

MARKETING (MKT)


UPPER LEVEL COURSES

MKT 301. BASIC MARKETING (5)
PR: EGN 201-202 or CI. Survey of the marketing of goods and services within the economy. The integration of functional, commodity, and institutional approaches from the consumer and managerial viewpoints.

MKT 311. PRINCIPLES OF SALESMSHIP AND SALES MANAGEMENT (3)
PR: MKT 301. Personal selling and sales management as basic elements in the marketing strategy of firms. Includes the scientific management of resources and the dynamics of interpersonal and small group behavior and decision processes.

MKT 312. PRINCIPLES OF ADVERTISING AND SALES PROMOTION (3)
PR: MKT 301. A comprehensive coverage of advertising, stressing purposes, techniques, organization, research, and media selection including relationships with other marketing mix components. Consideration given to economic and social aspects of advertising and total promotional strategies.

MKT 315. MARKETING INSTITUTIONS AND CHANNELS (4)
PR: MKT 301. A detailed study of marketing channels as a functional area of marketing management responsibility and as a part of marketing strategy. Attention given to wholesaling and retailing and their structural, dynamic interrelationships including distribution logistics.
MTK 316. MARKETING MODELS AND MARKETING SYSTEMS (3)
PR: ECN 331, MKT 315, and GBA 333. An investigation of the utility of formal, logical, mathematical, and other quantitative methods and models as these might be applied to marketing management.

MTK 401. MARKETING LOGISTICS (3)
PR: MTK 315, ECN 331, GBA 333, or CI. Analysis of the logistics of marketing systems for firms engaged in the marketing of goods and services. Component parts of each system are studied and analytical tools are presented for selecting those alternatives which will attain the goals of the firm.

MTK 403. PUBLIC RELATIONS AND THE MARKETING PROCESS (3)
PR: MTK 312 or CI. Principles, practices, and problems in public relations as an integrated part of and supplement to marketing management responsibilities and decisions.

MTK 405. INDUSTRIAL MARKETING (3)
PR: MTK 315. Problems of marketing industrial goods. Characteristics of markets, channels, industrial sales, promotional practices, research and marketing policies.

MTK 407. MANAGEMENT OF ADVERTISING AND SALES PROMOTION (3)
PR: MTK 312, MTK 315. Discussion and analysis of cases bearing on managerial aspects of advertising and sales promotion including research, budget determination, strategy, tactics, and evaluation of results.

MTK 409. INTERNATIONAL MARKETING (3)
PR: MTK 312, MTK 315, or CI. A study of the procedures and problems associated with establishing marketing operations in foreign countries. The institutions, principles and methods involved in the solution of these business problems will be treated as well as effects of national differences on business practices.

MTK 411. MARKETING RESEARCH (4)
PR: MTK 312, MTK 315, ECN 331 or MTH 345; or CI. A study of research methods applicable to problem-solving in the field of marketing.

MTK 413. CONSUMER BEHAVIOR (3)
PR: MTK 301 or CI. An investigation and application of the behavioral factors affecting consumer demand. Consideration given to industrial, governmental, and ultimate consumers.

MTK 414. SEMINAR IN MARKETING AND CONSUMER BEHAVIOR RESEARCH (3)
PR: MTK 312, MTK 315, MTK 411, MTK 413. Indepth discussion, formulation, application, and evaluation of advanced research techniques and practices as currently applied to facilitate marketing decisions.

MTK 417. RETAILING MANAGEMENT (3)
PR: MTK 301, MTK 315, MTK 413. A comprehensive analysis of the retailing structure, institutions and environment. To include pertinent management theories and practices of organizing, planning and controlling retail operations.

MTK 419. MARKETING MANAGEMENT PROBLEMS (4)
PR: MTK 411, MTK 413, and 3 other MTK courses, or CI. The integration of marketing knowledge applied to decision roles in managing the total marketing effort of firms, and coordination with other major functional areas on specific problems.

MTK 489. SPECIAL STUDIES IN MARKETING (3)
PR: MKT major and CI. Intensive independent research in marketing under the direction of a major professor; progress and final analysis reported in seminar.

FOR SENIORS AND GRADUATE STUDENTS

MTK 501. SURVEY OF MARKETING (3)
PR: ECN 501. A critical analysis of the field of marketing including aspects of marketing policies, institutions, research and trends. Special emphasis given to product development, pricing strategy, channel selection, and promotion as a basis for marketing management decisions. Assigned readings, discussions, and reports.

FOR GRADUATE STUDENTS ONLY

MTK 601. ADVANCED MARKETING PROBLEMS (3)
PR: MTK 301 or 501, ECN 605 or CI. A study of the marketing problems of the firm approached from a management point of view. Emphasis is placed upon the development of the student's ability to analyze marketing situations, identify problems, determine solutions, implement corrective action, and plan marketing strategy.

MTK 603. SEMINAR IN MARKETING (3)
PR: MTK 301 or 501; ECN 601, 605. The study of contemporary marketing thought, advanced marketing concepts, and recent developments in the field of marketing. Readings, discussions, and individual investigation.

MTK 605. BEHAVIORAL CONCEPTS IN MARKETING DECISION MAKING (3)
PR: MTK 601 or CI. The application and techniques of the behavioral sciences to the understanding and improvement of the marketing process and decision making concerning consumer behavior.

MTK 607. SEMINAR IN PROMOTIONAL POLICY AND STRATEGY (3)
PR: MTK 605 or CI. An analysis of theories and practices of advertising, selling and sales management, and sales promotion as they relate to the total marketing program of firms. Emphasis upon the coordination of promotional policy and strategy.

MTK 609. MARKETING CHANNELS AND PHYSICAL DISTRIBUTION MANAGEMENT (3)
PR: MTK 602, MTK 605, or CI. An analysis of the development of integrated distribution systems. Channel alternatives including the institutions involved and physical flow as a part of marketing strategy.

MTK 611. MARKETING RESEARCH AND INFORMATION SYSTEMS (3)
PR: MTK 602, GBA 603, GBA 605, or CI. A study of the marketing research process, methods and techniques and the need and applicability of information systems.

MTK 683. DIRECTED RESEARCH IN MARKETING (1-6)
PR: MTK 601, MTK 602, and CI. Intensive advanced independent research in marketing guided by a marketing professor.
in relation to current events; evaluation of the press through a study of its history.

COM 301. THE POPULAR ARTS IN AMERICA (4)
A survey of the growth of the popular arts (motion pictures, radio, television, art, best sellers, jazz and other forms of music, the theater, etc.) as creators, transformers and transformers of American cultural values.

COM 311. MEDIA ADVERTISING (4)
A study of the structures, functions, and persuasive language of advertising in mass media with attention to social, political, economic and legal aspects.

COM 313. ADVERTISING COPY (4)
PR: ECN 100 or ECN 201, Mkt 301, COM 311. Study and laboratory experience in preparation of advertising copy for newspapers, magazines, radio, television, direct mail, outdoor displays and special items.

COM 314. ADVERTISING DESIGN AND PRODUCTION (4)
PR: COM 313, COM 375. Design, layout and production of advertising for mass media with laboratory experience in procedures and techniques.

COM 321. MAGAZINE ARTICLE AND FEATURE WRITING (4)
PR: COM 330, ENG 321, ENG 325, or CI. Planning, researching, writing and marketing articles for general and special interest magazines and newspaper magazine supplements: experience in developing article ideas; inductive analysis of contemporary magazine articles.

COM 325. MAGAZINE EDITING (4)
PR: COM 321 or CI. Comparative study of types of magazines and business papers as to objectives and content: planning to meet magazine objectives and reader interest; article and photograph selection and preparation for printing; use of research methods in planning and evaluation; ethical and legal problems of the editor.

COM 330. BEGINNING REPORTING (4)
PR: ENG 102. Basic instruction in news judgment, sources of news, newsgathering and newswriting techniques. Typing ability is required.

COM 331. ADVANCED REPORTING (4)
PR: COM 330. Getting information and writing the more complex and specialized story, techniques of investigative and analytical reporting, including ethical and legal considerations.

COM 334. CRITICAL WRITING: EDITORIALS, REVIEWS, COLUMNS (4)
PR: Junior standing. Interpretive and opinion writing for the mass media. Analysis and discussion of current events as a basis for critical thinking and editorial writing; evaluation of editorial pages of leading newspapers. Study of journalistic techniques involved in writing art, drama, music and book reviews and satire, sports or personal columns.

COM 337. REPORTING PRACTICUM (2)
PR: COM 435 and CI. For selected News-Editorial Sequence majors. Practical experience outside the classroom in a live newspaper reporting situation where the student works for academic credit under the tutelage of a professional practitioner.

COM 338. NEWSPAPER MANAGEMENT (2)
PR: COM 330 or CI. A pre-seminar to discuss advertising, business, circulation, mechanical, personnel, promotional, and news-editorial operations of the press with editors and managers of leading daily and weekly newspapers.

COM 341. PRINCIPLES OF PUBLIC RELATIONS (4)
PR: Junior standing or CI. The functions of public relations within corporate and institutional structures; ethical standards of practice, and relationships of the practice to the public media and other modes of contemporary communication.

COM 351. LITERATURE AND THE FILM (3)
PR: ENG 102. A study of what happens when a novel is adapted for the movies; of the insights of modern writers and literary critics into the motion picture as an art form analogous to, yet distinct from, literature and of the impact of literature on film-making.

COM 352. PHILOSOPHY AND THE FILM (3)
PR: Junior standing. A study of the philosophical implications of the motion picture as an art form; esthetics in general versus film esthetics; the connections between the world views of such modern philosophers as Bergson, Whitehead, and Bradley, and the world view expressed through the motion picture; the connections between "pure ideas," the ideas in the documentary film, and the ideas in the fictional film.

COM 353. INTRODUCTION TO FILM WRITING (4)
PR: COM 354 or CI. An introduction to the techniques of writing for the film employing adaptations from fiction and examinations of scripts as models and as subjects for critical analysis. Special emphasis on learning the Language of the Camera.

COM 354. THE FILM AS MASS COMMUNICATION I: SYNTAX (4)
PR: Junior standing or CI. The language, conventions, elements and patterns of the film medium as related to current models of effective mass communication and new theories of non-verbal communication. Concurrent laboratory experiences in control of light and line.

COM 355. THE FILM AS MASS COMMUNICATION II: RHETORIC AND SYLLOGISTICS (4)
PR: COM 354 or CI. A continuation of COM 354 to include the effective arrangements of scenes and sequences in motion picture and television films. Concurrent laboratory experiences in sound and editing.

COM 356. THE FILM AS MASS COMMUNICATION III: WORKSHOP (4)

COM 357. CLASSICS OF THE SILENT FILM (4)
Examples of the silent film studied from social, intellectual, historical, and artistic points of view.

COM 358. CLASSICS OF THE SOUND FILM (4)
Examples of the sound film studied from social, intellectual, historical, and artistic points of view.

COM 361. INTRODUCTION TO BROADCASTING (3)
PR: Sophomore standing. A survey of the organization, structure, and function of the broadcasting industry. (Formerly SPE 241)

COM 362. BROADCAST NEWS (4)
PR: COM 330. The study and methods in gathering, writing and editing newscasts for radio and television. (Formerly COM 335)

COM 363. BROADCAST ANNOUNCING (4)
PR: COM 361. Development of skills required for effective announcing and other appearances before microphone and camera. (Formerly SPE 343)

COM 364. RADIO PRODUCTION AND DIRECTION (4)
PR: COM 361. Radio production and direction; laboratory and broadcast experiences. (Formerly SPE 347)

COM 367. RADIO PRACTICUM (2)
PR: COM 364 and CI. The study, rehearsal, and production of radio programs and materials. (Formerly SPE 348)

COM 368. WRITING FOR RADIO AND TV (4)
PR: COM 361. The writing of radio and television scripts such as documentaries, children's programs, commercials, dramas, talks and demonstrations. (Formerly SPE 349)

COM 371. PHOTOJOURNALISM I (4)
PR: COM 300 or CI. Camera operation, darkroom techniques, picture composition; editing, ethics, history and laws in connection with photojournalism.

COM 372. PHOTOJOURNALISM II (4)
PR: COM 371 or CI. Advanced process and practice of photography for publication. Content includes advanced camera and laboratory techniques, publication requirements and theory of photochemical color separation used in magazine and newspapers. Emphasis is placed on student production.

COM 375. TYPOGRAPHY I (4)
PR: ENG 102. The history and design of type, major
classifications of type faces, typographic nomenclature, printer’s measurements and the science of type design and identification. Laboratory work.

COM 376, TYPOGRAPHY II (4)
PR: COM 375 or CI. A study of the history of typesetting, the emergence of computers and cold-type composition; extensive study and use of copyfitting methods for body type, display, and headlines; principles of typography and photocomposition including readability and legibility. Laboratory work.

COM 383, SELECTED TOPICS IN MASS COMMUNICATION STUDIES (1-4)
Courses designed to meet current or specific topics of interest to the instructor and students.

COM 400, INTERNATIONAL COMMUNICATION (4)
Mass communications as internal and international systems: flow of the news; international news communications networks; satellite communication; overseas activities of American media interests; international propaganda; communication and national development; international media organizations and their activities.

COM 403, HISTORY AND PRINCIPLES OF COMMUNICATIONS LAW (4)
PR: Junior standing. Historic and Constitutional backgrounds of freedom and control of expression, statutory enactments, major Supreme Court cases, court decisions and administrative rulings which have shaped legal control of communications.

COM 405, GOVERNMENT AND THE MEDIA (4)
PR: COM 403. The relationships between government and the media, with emphasis on current activities of such regulatory agencies as the Federal Communications Commission, the Federal Trade Commission and other commissions; the courts, the Congress and the Executive; examination of media and industry codes and standards.

COM 417, ADVERTISING PRACTICUM (2)
PR: Senior standing and CI. For selected Advertising Sequence majors. Practical experience outside the classroom in a live advertising situation where the student works for academic credit under the tutelage of a professional practitioner.

COM 425, MAGAZINE PLANNING AND PRODUCTION (4)
PR: COM 325, 371, 375. Research in new magazine design and production techniques; training in the creative use of typography, photography, art work, text in the "area concept"; letterpress and offset production; financial management of magazines; preparation of a detailed dummy for a model magazine.

COM 427, MAGAZINE PRACTICUM (2)
PR: Senior standing and CI. For selected Magazine Sequence majors. Practical experience outside the classroom in a live magazine or industrial publication situation where the student works for academic credit under the tutelage of a professional practitioner.

COM 433, NEWS EDITING I (4)
PR: COM 330. Evaluating news and its display; editing and rewriting copy for the mass media, with emphasis on the daily newspaper; news judgment, headlines, makeup: ethical problems.

COM 434, NEWS EDITING II (4)
PR: COM 433. Continuation of COM 433, with more intensive practice on the copydesk in evaluating, processing, editing and headlining live wire copy and local copy; experimental makeup; managing the copy desk. Current events and analyses of selected daily newspapers.

COM 435, PUBLIC AFFAIRS REPORTING (4)
PR: COM 331 or COM 362. Covering city council meetings, courthouse, city hall, court, society, and other special assignments. Emphasis is on coverage of major governmental units of all levels of government, including examination and interpretation of public documents and records.

COM 437, EDITING PRACTICUM (2)
PR: Senior standing, COM 434, and CI. For selected News-Editorial Sequence majors. Practical experience outside the classroom on a daily newspaper copydesk, where the student works for academic credit under the tutelage of a professional news editor.

COM 441, WRITING FOR PUBLIC RELATIONS (4)
PR: COM 330, 341. Persuasive writing techniques unique to the practice of public relations; application of principles and ethical practices to problem-solving situations drawn from case studies; writing formats used in promotional and publicity literature.

COM 447, PUBLIC RELATIONS PRACTICUM (2)
PR: Senior standing and CI. For selected Public Relations Sequence majors. Practical experience outside the classroom in a professional public relations situation where the student works for academic credit under the tutelage of a professional practitioner.

COM 450, ADVANCED CAMERA TECHNIQUES (4)
PR: COM 354. Advanced camera technology, professional procedures, emulsion selection, color control, studio and location shooting, laboratory methods, matte shooting and special effects. Use of Arriflex, Mitchell, and Bell & Howell equipment.

COM 451, SOCIAL HISTORY OF THE FILM TO 1945 (4)
PR: Junior standing. The industrial, technological, philosophical and social factors bearing on the rise and development of the motion picture as a popular art. Intensive study of a series of films through screenings and readings.

COM 452, SOCIAL HISTORY OF THE FILM, 1945 TO THE PRESENT (4)
PR: Junior standing. A continuation of COM 451, covering the development of the film from 1945 to the present. (COM 451 is not a prerequisite.)

COM 453, THE DOCUMENTARY FILM (4)
PR: Sophomore standing. The development of the documentary movement: earliest newsreels; Flaherty, Grierson and the GPO Unit. U. S. Government-sponsored films, the Canadian Film Board. Cinema Verite; study of about 60 fact-films from some 20 countries. Stresses objective criteria, critical analysis.

COM 454, FILM CRITICISM (4)
PR: Junior standing and CI. The film as a mass medium, comparing and contrasting its mass communication aspect with other important aspects. Critical analyses of selected films and intensive readings in the theory of film. Literary, social, dramatic, philosophical and historical approaches to film criticism.

COM 455, ADVANCED FILM LIGHTING (4)
PR: COM 450 or CI. Advanced lighting of studio and location sets stressing professional procedures and standards from pre-production to post-production.

COM 456, SENSITOMETRY AND PHOTOMETRICS (4)
PR: COM 354. The materials and processes of cinema photo; response of materials to development and exposure.

COM 457, CINEMA DYNAMICS (4)

COM 458, FILM DIRECTING (4)
PR: CI. Introduction to the techniques of film direction.

COM 461, TV PRODUCTION AND DIRECTION (4)
PR: COM 361 and junior standing. A basic course in the techniques of producing and directing TV programs. (Formerly SPE 441.)

COM 462, ADVANCED TV PRODUCTION AND DIRECTION (4)
PR: COM 461 and junior standing. Intensive study and practice of the techniques of TV production and direction with emphasis on both creative and experimental aspects of TV programming. (Formerly SPE 442.)

COM 463, TV NEWS FILM (4)
PR: COM 362 or CI. Techniques in filming for television news.

COM 466, MEDIA CRITICISM: BROADCASTING (4)
PR: COM 361. A critical study of contemporary broadcast content. (Formerly COM 482.)
MTH 467. TV PRACTICUM (2)
PR: MTH 461 or CI. The study, rehearsal and production of television programs and materials. (Formerly SPE 443.)

MTH 468. THE BROADCAST PROGRAM (4)
PR: MTH 461. Program concepts, resources, costs, selection and scheduling. Analysis of programming in terms of structure, appeals and strengths.

MTH 481. INDIVIDUAL RESEARCH IN MASS COMMUNICATION (1-4)
PR: CC and CI. The course provides means for a student to do independent study in an area not covered by a numbered course.

MTH 483. SELECTED TOPICS IN MASS COMMUNICATION STUDIES (1-4)
PR: Junior standing. Courses designed to meet current or specific topics of interest to the instructor and students.

MTH 485. DIRECTED READINGS IN MASS COMMUNICATION STUDIES (1-4)
PR: Junior standing, CC and CI. Reading and directed study in special topics.

MTH 491. SENIOR SEMINAR: INTERCOMMUNICATION—THE MASS MEDIA IN PERSPECTIVE (4)
PR: Senior standing; open only to Mass Com. majors. The inter-relationships among the mass media and institutions; their effect upon each other and upon contemporary society.

FOR SENIORS AND GRADUATE STUDENTS

MTH 500. THEORY OF MASS COMMUNICATION (4)
PR: Senior standing. The nature of the mass communication process its effects on individuals and groups; the moral, ethical, social and political implications in influencing and directing behavior. Analyses of theories of mass communication.

MTH 530. JOURNALISM STUDIES (4)
PR: Senior standing. Not open for credit to COM majors. An intensive review of mass communication theory and practice as they relate to content in secondary school journalism courses, with some emphasis also on supervision of school publications.

MATHMATICS (MTH)

(See also the section entitled Natural Sciences)


LOWER LEVEL COURSES

MTH 109, 110. FUNCTIONAL MATHEMATICS I, II (4, 4)
Designed as a terminal course for general cultural purposes. Explores the language of mathematics through the study of logic and set theory. (Formerly CBS 109, 110.)

MTH 122. COLLEGE ALGEBRA (4)
Real numbers and their properties, algebraic expressions, equations and inequalities, functions, polynomials, exponential and logarithmic functions. (No credit for students with credit in MTH 101 or MTH 211.)

MTH 123. COLLEGE TRIGONOMETRY (3)
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 MTH 101.)

MTH 211. ELEMENTARY CALCULUS (1) (4)
PR: One year of secondary school mathematics or CC. Basic

Algebraic concepts, real numbers, functions, graphs. The sequence MTH 211-212-213 is primarily for students from Biological Sciences, Social Sciences, and Business. (No credit for math majors or students with credit in MTH 122.)

MTH 212. ELEMENTARY CALCULUS II (4)
PR: MTH 211 or CC. The derivative, techniques of differentiation, curve sketching, applications of the derivative. (No credit for Mathematics majors or students with credit in MTH 302.)

MTH 213. ELEMENTARY CALCULUS III (4)
PR: MTH 212. Antiderivatives, the definite integral, techniques of integration, logarithmic and exponential functions, applications. (No credit for Mathematics majors or students with credit in MTH 303.)

UPPER LEVEL COURSES

MTH 302. CALCULUS I (5)
PR: MTH 101 with a grade of "C" or better or CC. Limits derivatives applications, definite integral. (No credit for students with credit in MTH 212.)

MTH 303. CALCULUS II (4)
PR: MTH 302 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 MTH 213.)

MTH 304. CALCULUS III (4)
PR: MTH 303 with a grade of "C" or better or CC. Integration, polar coordinates, conic sections, vectors, interdeterminate forms and improper integrals.
MTH 305. CALCULUS IV (4)
PR: MTH 304 with a grade of "C" or better or CC. Vectors in 3-space, partial derivatives, multiple integrals, infinite series.

MTH 309. SET THEORY (3)
PR: MTH 302 or CC. Relations, functions, order, cardinal numbers.

MTH 310. ELEMENTARY PROBABILITY (4)
Permutation, combinations, the binomial and multinomial theorem, probability, Bernoulli trials, and the DeMoivre-Laplace limit theorem. (No credit for Mathematics majors.)

MTH 311. MATRICES AND APPLICATIONS (4)
Vectors, matrices together with their applications to linear programming, theory of games, graph theory, and selected topics in psychology and economics. (No credit for Mathematics majors.)

MTH 323. LINEAR ALGEBRA (4)
PR: MTH 302 or CC. Vectors, matrices, systems of linear equations, linear transformations.

MTH 331. NUMBER SYSTEMS (5)
The counting numbers, their properties and operations. The integers, their properties and operations. Prime numbers, modular arithmetic. Rational numbers, their properties and operations. (No credit for Mathematics majors.)

MTH 332. BASIC ALGEBRAIC CONCEPTS (4)
PR: MTH 331. Equations, systems of equations and inequalities. The real numbers as a complete ordered field. Complex numbers. (No credit for Mathematics majors.)

MTH 333. INFORMAL GEOMETRY (4)
Concepts of length, congruence, similarity, transformations in the plane. Ruler and compass constructions, impossible constructions coordinate systems, graphs, lines and curves. (No credit for Mathematics majors.)

MTH 345. INTRODUCTORY STATISTICS I (5)
Hypothesis testing, estimation; normal, Chi-square, t, F, binomial, multinomial, distributions; ANOV, CR, RCB designs; single df, regression, correlation, contingency tables. Students who successfully complete this course may not also receive credit for either ECN 331-431 Business and Economic Statistics or SSI 301 Social Science Statistics.

MTH 346. INTRODUCTORY STATISTICS II (5)
PR: MTH 345 or CC. Factorials, ANCOV; multiple curvilinear regression; response surfaces; Latin square, Split Plots, incomplete blocks designs; distribution free methods.

MTH 401. DIFFERENTIAL EQUATIONS (4)
PR: MTH 305. First order linear and nonlinear differential equations, higher order linear equations, applications.

MTH 405. ADVANCED CALCULUS I (3)
PR: MTH 305 with a grade of "C" or better. 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.

MTH 406. ADVANCED CALCULUS II (3)
PR: MTH 405. Continuation of MTH 406.

MTH 420. ELEMENTARY ABSTRACT ALGEBRA (3)
PR: MTH 309 or CC. Groups, rings integral domain, fields, integers, the rational, real and complex number systems.

MTH 423. GEOMETRY I (3)
PR: MTH 302. Emphasis on axiomatics, advanced Euclidean geometry, elements of projective geometry, non-Euclidean geometries.

MTH 424. GEOMETRY II (3)
PR: MTH 423. Continuation of MTH 423.

MTH 431. VECTOR ANALYSIS (3)
PR: MTH 305. The algebra and calculus of vectors, applications, general coordinates, introduction to tensor analysis.

MTH 445. INTRODUCTORY PROBABILITY THEORY I (3)
PR: MTH 305 and MTH 309 or CC. Probability spaces, discrete and continuous probability distributions, expectations.

MTH 446. INTRODUCTORY PROBABILITY THEORY II (3)
PR: MTH 445. Joint distributions, sums of random variables, weak and strong laws of large numbers, limit theorems.

MTH 447. NUMERICAL ANALYSIS I (4)
PR: MTH 401. Interpolation and quadrature, finite differences, numerical solution of algebraic and transcendental equations, numerical solutions of differential equations, computer techniques.

MTH 448. NUMERICAL ANALYSIS II (4)

MTH 471. THE SCOPE AND SIGNIFICANCE OF MATHEMATICS (4) (For non-science majors.)
PR: Senior or junior standing. Students having completed MTH 302 are not eligible to enter this course. The development of mathematical thought and its application to the physical world, the social sciences, and the fine arts, emphasizing the importance and meaning of mathematics in contemporary culture.

FOR SENIORS AND GRADUATE STUDENTS
MTH 501. ADVANCED DIFFERENTIAL EQUATIONS I (4)
PR: MTH 323. MTH 401 or CC. Existence and uniqueness of solutions, oscillation and comparison theorems, asymptotic behaviour of solutions, stability, perturbation theory, applications.

MTH 502. ADVANCED DIFFERENTIAL EQUATIONS II (4)

MTH 510. ELEMENTARY MATHEMATICAL LOGIC (3)
PR: CC. Truth tables, tautologies, quantifiers, rules of inference, informal proofs in mathematics.

MTH 511. ADVANCED LINEAR ALGEBRA (4)
PR: MTH 309, 323 or CC. Vector spaces, linear independence, dimension, matrices, linear transformations.

MTH 513. REAL ANALYSIS I (4)

MTH 514. REAL ANALYSIS II (4)
PR: MTH 513. Continuation of MTH 513.

MTH 515. CALCULUS ON MANIFOLDS (4)
PR: MTH 511 and 514. Calculus of several variables.

MTH 520. COMPLEX ANALYSIS I (4)
PR: MTH 405. Complex numbers, analytic functions and mappings, integrals.

MTH 521. COMPLEX ANALYSIS II (4)
PR: MTH 520. Power series, residues and poles, conformal mapping.

MTH 523. ALGEBRA I (4)
PR: MTH 305, 309, 511. Semi-groups and groups. Rings and ideals; homomorphisms.

MTH 524. ALGEBRA II (4)
PR: MTH 523. Polynomial rings, integral domains; factorization. Fields and field extensions; reducibility.

MTH 531. TOPOLOGY I (4)

MTH 532. TOPOLOGY II (4)
PR: MTH 531. Continuation of MTH 531.

MTH 535. TENSOR ANALYSIS (3)
PR: MTH 431 or CC. The calculus of tensors, applications to differential geometry and physics.

MTH 537. SPECIAL FUNCTIONS (3)
PR: MTH 401. Orthogonal functions, the gamma functions, Bessell functions, applications.

MTH 539. FOURIER ANALYSIS (3)
PR: MTH 305 or CC. Trigonometric Fourier series, orthogonal systems, convergence of trigonometric Fourier series, operations on Fourier series.
MTH 540. COMPLEX ANALYSIS AND APPLICATIONS (3) PR: MTH 305 or CC. Complex numbers, analytic and harmonic functions, power series, contour integrals, residues and poles with emphasis on applications.

MTH 541. PARTIAL DIFFERENTIAL EQUATIONS AND APPLICATIONS (3) PR: MTH 401 and CC. Separation of variables, the heat equation, wave equation, Laplace’s equation, classification, Green’s functions with emphasis on applications.


MTH 543. INTEGRAL TRANSFORMS I (4) PR: MTH 401, 405, or CC. Introduction to integral transforms with special emphasis on the Laplace and Fourier transforms, applications to differential equations.

MTH 544. INTEGRAL TRANSFORMS II (4) PR: MTH 543. Continuation of MTH 543.

MTH 545. STATISTICAL METHODS IN RESEARCH I (4) Primarily for graduate students with research problems. Distribution of sample statistics estimation, tests of hypotheses.

MTH 546. STATISTICAL METHODS IN RESEARCH II (4) PR: MTH 545 or CC. Randomized blocks, Latin squares, factorial designs, regression, correlation, split plots.

MTH 547. INTRODUCTORY THEORETICAL STATISTICS (5) PR: MTH 305 and either MTH 345 or equivalent. Frequency, sampling, limiting distributions and their moments; theory of point and interval estimation, hypothesis testing, ANOVA.

MTH 548. INTRODUCTORY THEORY OF LEAST SQUARES (5) PR: MTH 305 and either MTH 548 or CC. The general linear hypothesis, least squares for experimental design models, components of variance. Applications.

MTH 551. NUMBER THEORY (4) PR: CC. Congruences, quadratic residues, selected topics.

MTH 552. INTRODUCTION TO GRAPH THEORY (3) PR: CC. Brief introduction to classical graph theory (4-color conjecture, etc.), directed graphs, connected digraphs, condensations, incidence matrices, Polyá’s Theorem, networks.


MTH 560. ANALYSIS OF ALGORITHMS I (4) PR: MTH 448 or CC. Mathematical Theory associated with algorithms for computer information processing; expected time and space requirements of algorithms, comparison of algorithms, construction of polynomal algorithms, theory, underlying particular algorithms.

MTH 561. ANALYSIS OF ALGORITHMS II (4) PR: MTH 560. Continuation of MTH 560.


MTH 564. ANALYSIS OF NUMERICAL METHODS II (4) PR: MTH 563. Continuation of MTH 563.

MTH 571. GEOMETRY FROM AN ADVANCED STANDPOINT (3) PR: A bachelor’s degree or CC. Axiomatic development of geometry, with emphasis on Euclidean geometry, for teachers and others.

MTH 572. SET THEORY AND ALGEBRA FROM AN ADVANCED STANDPOINT (3) PR: A bachelor’s degree or CC. Basic concepts of the language of mathematics, including a study of relations, functions, algebraic structures, for teachers and others.

MTH 583. SELECTED TOPICS (1-6) PR: Senior or junior standing and CC. Each topic is a course of study. 01-History of Mathematics, 03-Logic and Foundations, 05-Number Theory, 07-Topics in Algebra, 09-Mathematics for Physics, 11-Topics in Probability and Statistics, 13-Topics in Analysis, 15-Topics in Topology.

FOR GRADUATE STUDENTS ONLY

MTH 601. PRO-SEMINAR I (3) PR: Graduate Standing. Selected topics suitable for seminar treatment, such as transfinte arithmetic, axiom of choice, inverse limit spaces.

MTH 602. PRO-SEMINAR II (3) PR: MTH 601. Continuation of MTH 601.

MTH 603. THEORY OF ORDINARY DIFFERENTIAL EQUATIONS I (4) PR: MTH 501 or CC. Existence theorems, topics in oscillation theory, asymptotic behavior, stability and boundedness of solutions of differential equations.

MTH 604. THEORY OF ORDINARY DIFFERENTIAL EQUATIONS II (4) PR: MTH 603. Continuation of MTH 603.

MTH 605. MEASURE AND INTEGRATION I (3) PR: MTH 514. Abstract measure and integration in sigma rings, applications to Euclidean spaces, Fubini’s Theorem, Radon Nikodym Theorem, Lp spaces.

MTH 606. MEASURE AND INTEGRATION II (3) PR: MTH 605. Continuation of MTH 605.

MTH 607. MEASURE AND INTEGRATION III (3) PR: MTH 606. Continuation of MTH 606.


MTH 612. COMPLEX ANALYSIS II (3) PR: MTH 611. Continuation of MTH 611.

MTH 613. COMPLEX ANALYSIS III (3) PR: MTH 612. Continuation of MTH 612.

MTH 614. INTRODUCTION TO FUNCTIONAL ANALYSIS I (4) PR: MTH 605. Linear Topological Spaces, normed linear spaces. Hahn-Banach Theorem, theorems on linear operators, dual spaces.

MTH 615. INTRODUCTION TO FUNCTIONAL ANALYSIS II (4) PR: MTH 614. Continuation of MTH 614.

MTH 617. BANACH ALGEBRAS I (4) PR: MTH 614. C* and W*-algebras.

MTH 618. BANACH ALGEBRAS II (4) PR: MTH 617. Continuation of MTH 617.

MTH 624. ABSTRACT ALGEBRA I (4) PR: CC. Structure theory of fields; ideals and modules.

MTH 625. ABSTRACT ALGEBRA II (4) PR: MTH 624. Noetherian rings; ideal theory.

MTH 627. HOMOLOGICAL ALGEBRA (3) PR: MTH 625. Categories and functors, homology of complexes, cohomology, spectral sequences.

MTH 629. LIE GROUPS AND LIE ALGEBRAS (3) PR: MTH 405, 523 and 531. Basic structure theory of semisimple Lie algebras, structure of compact Lie groups.

MTH 632. ADVANCED TOPOLOGY I (4) PR: MTH 532 and CC. Function spaces, compactifications, covering spaces, other topics.
MTH 633. ADVANCED TOPOLOGY II (4)  
PR: MTH 632. Continuation of MTH 632.  
MTH 635. ALGEBRAIC TOPOLOGY (3)  
PR: MTH 633 or CC. Homotopy, homology groups, local homology groups.  
MTH 636. TOPOLOGICAL ALGEBRA I (4)  
PR: MTH 633 and CC. Topological semigroups, topological groups, topological rings and fields, Haar measure.  
MTH 637. TOPOLOGICAL ALGEBRA II (4)  
PR: MTH 636. Continuation of MTH 636.  
MTH 639. DIFFERENTIAL GEOMETRY (3)  
PR: CC. Local differential geometry, curvature, evolutes and involutes, calculus of variations.  
MTH 641. TOPICS IN NUMBER THEORY I (3)  
PR: MTH 524 or CC. Continued fractions, approximation of irrational numbers, lattices, geometric theory, algebraic numbers, density of sequences of integers, analytic number theory, the prime number theorem.  
MTH 642. TOPICS IN NUMBER THEORY II (3)  
PR: MTH 641. Continuation of MTH 641.  
MTH 643. PARTIAL DIFFERENTIAL EQUATIONS I (4)  
PR: MTH 541 or CC. Classification of second order equations. Cauchy problems, Dirichlet and Neumann problems, mixed problems, properties of solutions.  
MTH 644. PARTIAL DIFFERENTIAL EQUATIONS II (4)  
PR: MTH 643. Continuation of MTH 643.  
MTH 645. PROBABILITY THEORY (4)  
MTH 651. LOGIC AND FOUNDATIONS I (4)  
PR: CC. Propositional calculus, Post's theorem, first order and equality calculi, models, completeness and consistency theorems, Godel's theorem, recursive functions.  
MTH 652. LOGIC AND FOUNDATIONS II (4)  
PR: MTH 651. Continuation of MTH 651.  
MTH 655. TRIGONOMETRIC SERIES I (3)  
PR: MTH 514. Selected Topics in Fourier Series and summability, orthogonal polynomials, almost periodic functions, completeness of sets of functions.  
MTH 656. TRIGONOMETRIC SERIES II (3)  
PR: MTH 655. Continuation of MTH 655.  
MTH 657. CALCULUS OF VARIATIONS (4)  
PR: MTH 514 and CC. Maxima and minima of functionals, problems of Lagrange, Bolza and Mayer and other topics.  
MTH 659. ALGEBRAIC NUMBER THEORY (4)  
PR: MTH 524 or CC. Algebraic number fields, algebraic integers, basis and discriminant of algebraic number fields, ideals, decomposition of ideals, Theorem of Minkowski, Applications of Galois Theory to the Theory of Ideals, Units.  
MTH 671. MATHEMATICAL OPTIMIZATION THEORY III (3)  
PR: MTH 558 or CC. MTH 615. Linear programming in abstract spaces; integer programming; stochastic programming. Recent research in mathematical programming and related areas.  
MTH 673. PARTIAL DIFFERENCES EQUATIONS (4)  
MTH 681. GRADUATE RESEARCH (1-15)  
PR: CC. (S/U only.)  
MTH 683. SELECTED TOPICS (1-6)  
PR: CC. 01-Topology, 02-Analysis, 03-Algebra, 04-Applied Mathematics, 05-Graph Theory, 06-Number Theory, 07-Mathematics for Physics, 08-Probability, 09-Statistics, 10-Complex Analysis.  
MTH 688. RECENT ADVANCES IN MATHEMATICS WITH EMPHASIS ON THEIR IMPACT ON COLLEGE-LEVEL COURSES (3-6)  
A course designed to consider and study the recent developments of mathematics especially those developments that have an effect on altering the basic concepts and ideas of mathematics and imply a change in the presentation of introductory material in the field. (Credit not applicable toward thesis degree requirements.) (S/U only.)  
MTH 689. DIRECTED TEACHING (3-9)  
Not applicable toward thesis degree requirements. Supervised teaching for graduate teaching assistants in elementary and/or laboratory courses. A formalized, structured activity wherein a faculty member, by discussion and assignments, considers the principles, rationale, and modus operandi of elementary college courses. Designed to train teaching assistants and to provide help and training to those graduate students who plan to follow a college teaching profession. (S/U only.)  
MTH 691. GRADUATE SEMINAR (1-6)  
Direction of this seminar is by a faculty member. Students are required to present research papers from the literature. (S/U only.)  
MTH 699. MASTER THESIS (1-9)  
May be taken more than once, but not more than a total of nine hours credit will be allowed. (S/U only.)  
MTH 799. PH.D. DISSERTATION (1-9)  
May be taken more than once. (S/U only.)

MEDICINE (MED)

Anatomy

MED 600. GROSS ANATOMY (7)  
PR: Admission to College of Medicine. A study of the gross structure of the human body. Lec-lab and discussion.  
MED 602. MICROSCOPIC ANATOMY (4)  
PR: Admission to College of Medicine. A study of the microscopic structure of normal tissues and organs with emphasis on human material. Lec-lab and discussion.  
MED 603. NEUROANATOMY (4)  
PR: Admission to College of Medicine. A study of the gross and microscopic structure and the functions of the human nervous system. Lec-lab and discussion.  
MED 604. ANATOMY SEMINAR (0)  
PR: Consent of Chairman, Department of Anatomy. A weekly discussion of anatomical topics of special interest. Lec and discussion.  
MED 622. BASIC SCIENCE REVIEW (11)  
PR: Admission to College of Medicine. An interdisciplinary course in which basic concepts of each science will be reviewed and additional work involving more advanced and sophisticated concepts will be presented. Lec-lab and discussion.  

Biochemistry

Professor: J. G. Cory.  
MED 605. BIOCHEMISTRY (9)  
PR: Admission to College of Medicine. A study of the chemistry and metabolism of biologically important compounds. The interrelationships of various metabolic pathways will be discussed with emphasis on the biochemical aspects of human diseases. Lec-lab and discussion.
MED 606. BIOCHEMISTRY SEMINAR (0)
PR: Consent of instructor. Current literature dealing with the biochemical basis of human disease will be discussed. Lec and discussion.

MED 622. BASIC SCIENCE REVIEW (11)
PR: Admission to College of Medicine. An interdisciplinary course in which basic concepts of each science will be reviewed and additional work involving more advanced and sophisticated concepts will be presented. Lec-lab and discussion.

Comprehensive Medicine
Associate Professor: D. W. MacCorquodale.

Medical Microbiology
Chairman: C. W. Fishel; Associate Professors: L. J. Paradise, D. G. Halikias; Assistant Professors: R. J. Grasso, G. J. Lanz; Instructor: T. W. Klein.

MED 607. MEDICAL MICROBIOLOGY (9)
PR: Admission to College of Medicine. A study of the role of bacteria, viruses, mycological agents, and parasitids as they are related to disease production. Host response to these agents is also an important aspect particularly as related to immune processes. Lec-lab and discussion.

MED 608. MEDICAL MICROBIOLOGY SEMINAR (0)
PR: Consent of Chairman, Department of Medical Microbiology. Presentation and discussion of current topics of interest in medical research. Lec and discussion.

MED 622. BASIC SCIENCE REVIEW (11)
PR: Admission to College of Medicine. An interdisciplinary course in which basic concepts of each science will be reviewed and additional work involving more advanced and sophisticated concepts will be presented. Lec-lab and discussion.

Medicine

MED 619. INTRODUCTION TO MEDICINE (14)
PR: Admission to College of Medicine. A course designed to provide the student with a comprehensive frame of reference for viewing health and disease as an interplay of biological, social and psychological factors. Lec, patient contact, and discussion. This course includes Physical Diagnosis and Tutorial Clerkships.

MED 621. PHYSICAL DIAGNOSIS (5)
PR: Admission to College of Medicine. The basic techniques of clinical evaluation are presented emphasizing history taking and the demonstration of normal and abnormal physical findings. Lec, patient contact, and discussion.

MED 624. MEDICINE CLERKSHIP (20)
PR: Admission to College of Medicine. Each student is assigned to a number of patients, all of whom he follows closely through the entire hospital course. This casework is the primary teaching device. Also, special conferences and clinics provide instruction in various medical and related subspecialties.

Obstetrics-Gynecology
Chairman: J. M. Ingram; Associate Professor: C. L. Lay; Assistant Professor: C. J. Hochberg.

MED 628. OBSTETRICS-GYNECOLOGY CLERKSHIP (13)
PR: Admission to College of Medicine. Consists of eight weeks of general clinical obstetrics and gynecology. Students are assigned patients, and share in patient care of the obstetric and gynecologic wards, delivery suite, operating rooms and outpatient clinics. The faculty and students participate in daily tutorial sessions, clinical conferences, and obstetric and gynecologic pathology seminars. Audiovisual learning aids and specialized study carrels are available to the student at all times.

Ophthalmology
Chairman: W. C. Edwards; Assistant Professor: S. J. Cantolino, W. E. Layden, R. J. Sever, H. M. Ramseur.

Pathology
Chairman: H. Sidransky; Professor: H. A. Azar; Assistant Professors: C. T. Garrett, L. R. Nelson, J. B. Edlow, J. K. Lynn, H. S. Wilks.

MED 617. PATHOLOGY (16)
PR: Admission to the College of Medicine. Course will consist of lectures and laboratory which will cover general and systemic pathology. Major emphasis will be given to the etiology and pathogenesis of disease states. Gross and microscopic appearance of organs and tissues in disease will be examined and studied. Students will participate in post-mortem examinations.

MED 618. PATHOLOGY SEMINAR (0)
PR: Consent of Chairman, Department of Pathology. Presentation and discussion of current topics of medical importance in general area of pathology. Lec and discussion.

MED 620. LABORATORY MEDICINE (4)
PR: Admission to College of Medicine. Course will deal with the fundamentals of laboratory procedures in relation to diagnosis and patient care. Didactic demonstrations and laboratory exercises will be conducted to acquaint the student with the significance of laboratory tests.

Pediatrics

MED 626. PEDIATRICS CLERKSHIP (13)
PR: Admission to College of Medicine. This is an 8 week course designed to present the core curriculum in pediatrics. It is an integrated course consisting of a one-week rotation in the newborn nursery and a 7-week rotation of a combined in-patient and out-patient experience. The course is designed to present the student with an opportunity to become proficient in obtaining a pediatric history, performing a pediatric physical examination, and determining normal and abnormal growth and development. Methods of approaching the patient and solving the problems related to differential diagnosis will be stressed. All histories, physicals, examinations and records will be done under the supervision of the senior house-staff and will be reviewed by the attending staff.
Clinical conferences will be presented for the student in addition to departmental conferences.

The student will present a one hour seminar at the conclusion of the course on a topic of his choice related to patients he has seen.

Pharmacology

MED 609. PHARMACOLOGY (9)
PR: Admission to College of Medicine. Studies of pharmacodynamics of drugs including mechanisms of action, side effects, and toxicities. Lec-lab and discussion.

MED 610. PHARMACOLOGY SEMINAR (0)
PR: Consent of Chairman, Department Pharmacology.
Presentation of current research investigations as related to medical problems. Lec and discussion.

**MED 622. BASIC SCIENCE REVIEW (11)**
PR: Admission to College of Medicine. An interdisciplinary course in which basic concepts of each science will be reviewed and additional work involving more advanced and sophisticated concepts will be presented. Lec-lab and discussion.

**Physiology**

Chairman: C. H. Baker; Associate Professor: D. L. Davis; Assistant Professors: J. M. Downey, R. P. Menninger, G. R. Nicolosi.

**MED 611. MEDICAL PHYSIOLOGY (9)**
PR: Admission to College of Medicine. A study of the functional aspects of components of the body and its organ systems and their integration into operational units. The physiology of homostasis and the central nervous system will be included. Lec-lab and discussion.

**MED 612. PHYSIOLOGY SEMINAR (0)**
PR: Consent of Chairman, Department of Physiology. Seminars in which current research areas of interest as related to medicine are discussed. Lec and discussion.

**MED 622. BASIC SCIENCE REVIEW (11)**
PR: Admission to College of Medicine. An interdisciplinary course in which basic concepts of each science will be reviewed and additional work involving more advanced and sophisticated concepts will be presented. Lec-lab and discussion.

**Psychiatry**


**MED 614. BIOSTATISTICS (1)**
PR: Admission to College of Medicine. Presentation of methods of collection, tabulation, graphic illustration, and analysis of numerical data encountered in medical research areas. Lecture.

**MED 615. INTRODUCTION TO PSYCHIATRY (3)**
PR: Admission to College of Medicine. Principles of human behavioral science will be presented from the standpoint of the developing organism reacting to its environment. Lec, patient contact, and discussion.

**MED 616. PSYCHIATRY SEMINAR (0)**
PR: Consent of Chairman, Department of Psychiatry. Current research surveys in Psychiatry. Lec and discussion.

**MED 627. PSYCHIATRY CLERKSHIP (13)**
PR: Admission to College of Medicine. Standard clinical clerkship is in the second year of the medical school curriculum. Didactic material is presented one day per week in conjunction with clinical casework conducted on the wards of the affiliated hospitals. The main points of emphasis will be: (1) evaluation and management of psychiatric emergencies; (2) practical psychopharmacology; and (3) introduction to the process of psychotherapy, again emphasizing short term intervention for individuals and their families.

**Radiology**


**Surgery**


**MED 625. SURGERY CLERKSHIP (20)**
PR: Admission to College of Medicine. Students actively participate in patient care on the Surgical Services. They are an integral part of the surgical team and are required to accomplish supervised clinical work-up, participate in performance of surgical procedures and in patient follow-up. Students attend conferences and seminars on a regularly scheduled basis during the Clerkship. Educational direction and patient care supervision are provided by the faculty of the Department of Surgery.

**MODERN LANGUAGES**

**Arabic (ARA)**

**UPPER LEVEL COURSES**

ARA 390. MODERN ARABIC I (1-4)
An intensive study of the basic grammar, syntax, pronunciation and development of reading and oral skills.

PR: ARA 390. A continuation of the study of the basic grammar, syntax, pronunciation and development of reading and oral skills.

**French (FRE)**

**LOWER LEVEL COURSES**

FRE 101. BEGINNING FRENCH I (5)
(Formerly CBS 111.)

FRE 102. BEGINNING FRENCH II (5)
(Formerly CBS 112.)

FRE 199. FRENCH FOR NON-LINGUISTS (3)
PR: CI. Provides the non-linguist with a limited active vocabulary in French, as well as a mastery of the linguistic structures necessary to pass a reading examination in French.

FRE 201. INTERMEDIATE FRENCH I (4)
PR: FRE 102. (Formerly CBS 211.)

FRE 202. INTERMEDIATE FRENCH II (4)
PR: FRE 201. (Formerly CBS 212.)
FRE 203. BEGINNING CONVERSATION (3)
PR: FRE 102.

UPPER LEVEL COURSES

FRE 301. CONTROLLED COMPOSITION (4)

FRE 303. ADVANCED CONVERSATION (3)
PR: FRE 203. Free conversation based upon the current French idiom.

FRE 305. INTRODUCTION TO FRENCH LITERATURE (4)

FRE 310. FRENCH CLASSICS IN TRANSLATION (4)
Song of Roland, Voltaire, Hugo, Stendhal, Flaubert, and others.

FRE 311. CONTEMPORARY FRENCH LITERATURE IN TRANSLATION (4)
Proust, Gide, Montherlant, Sartre, Camus, Anouilh, Beckett and others.

FRE 401. EXPOSITORY WRITING (4)
PR: FRE 301.

FRE 403. PHONETICS AND DICTION (4)
PR: FRE 303.

FRE 405. SURVEY OF FRENCH LITERATURE (4)
PR: FRE 305. Earliest monuments through 18th Century Enlightenment.

FRE 406. SURVEY OF FRENCH LITERATURE (4)
PR: FRE 305. Romanticism to present.

FRE 410. FRENCH CIVILIZATION (4)
France's contribution to world culture and civilization, particularly as such molded and molds the twentieth century. (In English)

FOR SENIORS AND GRADUATE STUDENTS

FRE 501. EARLY RENAISSANCE LITERATURE (4)
PR: FRE 405. Emphasis on Rabelais and his contemporaries.

FRE 502. LATER RENAISSANCE LITERATURE (4)
PRE: FRE 405. Emphasis on Montaigne and the Pléaïde.

FRE 516. MODERN USAGE (4)
PR: FRE 401. The various components of correct style together with practical training.

FRE 521. CLASSICAL PROSE AND POETRY (4)
PR: FRE 405. Emphasis on Malherbe, La Fontaine, Boileau, Descartes, and Pascal.

FRE 522. CLASSICAL DRAMA (4)
PR: FRE 405. Corneille, Molière, and Racine.

FRE 531. THE ENCYCLOPEDIANS (4)
PR: FRE 405. The classical tradition and the new currents of thought 1715-50.

FRE 532. ROUSSEAU AND PRE-ROMANTICISM (4)
PR: FRE 405.

FRE 541. ROMANTICISM (4)
PR: FRE 406.

FRE 542. 19TH CENTURY REALISM AND PARNASSIANISM (4)
PR: FRE 406.

FRE 543. LATER 19TH CENTURY LITERATURE (4)

FRE 551. 20TH CENTURY LITERATURE TO 1939 (4)
PR: FRE 406.

FRE 553. 20TH CENTURY LITERATURE 1939-PRESENT (4)
PR: FRE 406.

FRE 583. SELECTED TOPICS (1-4)
PR: Senior or graduate standing. CI.

FRE 585. DIRECTED STUDY (1-4)
PR: Senior or graduate standing. CI.

FOR GRADUATE STUDENTS ONLY

FRE 601. OLD FRENCH (4)
PR: FRE 403. Note: Required of all M.A. candidates.

FRE 612. MONTAIGNE (4)
PR: Graduate standing.

FRE 622. SEMINAR ON CLASSICAL DRAMA (4)
PR: Graduate standing. A study of the works of Corneille and Racine or the works of Moliere.

FRE 689. BIBLIOGRAPHY (2)
PR: Graduate standing. Research methods. Includes familiarity with major journals and bibliographies, and a practicum. (S/U grade) Note: Required of all M.A. candidates.

FRE 691. GRADUATE SEMINAR (4)

German (GER)

LOWER LEVEL COURSES

GER 101. BEGINNING GERMAN I (5)
(Formerly CBS 114.)

GER 102. BEGINNING GERMAN II (5)
(Formerly CBS 115.)

GER 199. GERMAN FOR NON-LINGUISTS (4)
PR: CI. Provides the non-linguist with a limited active vocabulary in German, as well as a mastery of the linguistic structures necessary to pass a reading examination in German.

GER 201. INTERMEDIATE GERMAN I (4)
PR: GER 102. (Formerly CBS 214.)

GER 202. INTERMEDIATE GERMAN II (4)
PR: GER 201. (Formerly CBS 215.)

GER 203. BEGINNING CONVERSATION (3)
PR: GER 102.

UPPER LEVEL COURSES

GER 301. CONTROLLED COMPOSITION (4)

GER 303. ADVANCED CONVERSATION (3)
PR: GER 203. Free conversation based upon the current German idiom.

GER 305. INTRODUCTION TO GERMAN LITERATURE (4)

GER 310. GERMAN CLASSICS IN TRANSLATION (4)
Goethe, Schiller, Kant, Schopenhauer, Büchner, Novalis, and others.

GER 311. CONTEMPORARY GERMAN LITERATURE IN TRANSLATION (4)
Mann, Hesse, Kafka, Grass, Boll, Brecht, Weiss, and others.

GER 401. EXPOSITORY WRITING (4)
PR: GER 301.

GER 405. SURVEY OF GERMAN LITERATURE (4)
PR: GER 305. Earliest monuments to Classicism.

GER 406. SURVEY OF GERMAN LITERATURE (4)
PR: GER 305. Romanticism to the present.

GER 410. GERMAN CIVILIZATION (4)
Germany's contribution to world culture and civilization, particularly as such molded and molds the twentieth century. (In English)

FOR SENIORS AND GRADUATE STUDENTS

GER 513. HISTORY OF THE GERMAN LANGUAGE (4)
PR: GER 401.

GER 516. MODERN USAGE (4)
PR: GER 401. The various components of correct style together with practical training.

GER 521. FAUST I (4)
PR: GER 405.

GER 531. GOETHE (4)
PR: GER 405.

GER 532. SCHILLER (4)
PR: GER 405.

GER 535. THE ENLIGHTENMENT (4)
PR: GER 405.

GER 543. ROMANTICISM (4)
PR: GER 406.

GER 544. REALISM (4)
PR: GER 406.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>ITA 552</td>
<td>20th Century Literature to 1945 (4)</td>
<td>PR: GER 406.</td>
</tr>
<tr>
<td>ITA 553</td>
<td>20th Century Literature 1945-Present (4)</td>
<td>PR: GER 406.</td>
</tr>
<tr>
<td>ITA 583</td>
<td>Selected Topics (1-4)</td>
<td>PR: Senior or graduate standing. C1.</td>
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<tr>
<td>ITA 585</td>
<td>Directed Study (1-4)</td>
<td>PR: Senior or graduate standing. C1.</td>
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<tbody>
<tr>
<td>ITA 601</td>
<td>Middle High German (4)</td>
<td>PR: GER 513.</td>
</tr>
<tr>
<td>ITA 631</td>
<td>Faust II (4)</td>
<td>PR: GER 521.</td>
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<tr>
<td>ITA 691</td>
<td>Graduate Seminar (4)</td>
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</table>

**Greek (GRE)**

**UPPER LEVEL COURSES**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>GRE 390</td>
<td>Modern Greek I (1-4)</td>
<td></td>
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<tr>
<td>GRE 391</td>
<td>Modern Greek II (1-4)</td>
<td>PR: GRE 390.</td>
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**Hebrew (HEB)**

**UPPER LEVEL COURSES**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>HEB 390</td>
<td>Modern Hebrew I (1-4)</td>
<td></td>
</tr>
<tr>
<td>HEB 391</td>
<td>Modern Hebrew II (1-4)</td>
<td>PR: HEB 390.</td>
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**Italian (ITA)**

**LOWER LEVEL COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>ITA 101</td>
<td>Beginning Italian I (5)</td>
<td>(Formerly CBS 123.)</td>
</tr>
<tr>
<td>ITA 102</td>
<td>Beginning Italian II (5)</td>
<td>(Formerly CBS 124.)</td>
</tr>
<tr>
<td>ITA 199</td>
<td>Italian for Non-Linguists (3)</td>
<td>PR: CI. Provides the non-linguist with a limited active vocabulary in Italian, as well as a mastery of the linguistic structures necessary to pass a reading examination in Italian.</td>
</tr>
<tr>
<td>ITA 201</td>
<td>Intermediate Italian I (4)</td>
<td>PR: ITA 102. (Formerly CBS 223.)</td>
</tr>
<tr>
<td>ITA 203</td>
<td>Beginning Conversation (3)</td>
<td>PR: ITA 102.</td>
</tr>
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**UPPER LEVEL COURSES**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ITA 301</td>
<td>Controlled Composition (4)</td>
<td>PR: ITA 201.</td>
</tr>
<tr>
<td>ITA 303</td>
<td>Advanced Conversation (3)</td>
<td>PR: ITA 203. Free conversation based upon the current Italian idiom.</td>
</tr>
<tr>
<td>ITA 305</td>
<td>Introduction to Italian Literature (4)</td>
<td>PR: ITA 201.</td>
</tr>
<tr>
<td>ITA 310</td>
<td>Italian Classics in Translation (4)</td>
<td>Dante, Petrarcha, Manzoni, Carducci, Poliziano, Castiglione, and others.</td>
</tr>
<tr>
<td>ITA 401</td>
<td>Expository Writing (4)</td>
<td>PR: ITA 301.</td>
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**PORTUGUESE (POR)**

**UPPER LEVEL COURSES**

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>POR 313</td>
<td>Brazilian Literature in Translation (4)</td>
<td>Machado de Assis, Graça Aranha, Da Cunha, Monteiro Lobato, Lins do Rêgo, Ramos, Amado, Guimarães Rosa and others.</td>
</tr>
<tr>
<td>POR 326</td>
<td>Beginning Accelerated Portuguese (4)</td>
<td>PR: Two years of another Romance Language or Latin.</td>
</tr>
<tr>
<td>POR 327</td>
<td>Intermediate Accelerated Portuguese (4)</td>
<td>PR: POR 326.</td>
</tr>
<tr>
<td>POR 401</td>
<td>Expository Writing (4)</td>
<td>PR: POR 327.</td>
</tr>
<tr>
<td>POR 405</td>
<td>Survey of Portuguese Literature (4)</td>
<td>PR: POR 327.</td>
</tr>
</tbody>
</table>

**RUSSIAN (RUS)**

**LOWER LEVEL COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUS 101</td>
<td>Beginning Russian I (5)</td>
<td>(Formerly CBS 117.)</td>
</tr>
<tr>
<td>RUS 102</td>
<td>Beginning Russian II (5)</td>
<td>(Formerly CBS 118.)</td>
</tr>
<tr>
<td>RUS 199</td>
<td>Russian for Non-Linguists (4)</td>
<td>PR: CI. Provides the non-linguist with a limited active vocabulary in Russian, as well as a mastery of the linguistic structures necessary to pass a reading examination in Russian.</td>
</tr>
<tr>
<td>RUS 201</td>
<td>Intermediate Russian I (4)</td>
<td>PR: RUS 102. (Formerly CBS 217.)</td>
</tr>
<tr>
<td>RUS 202</td>
<td>Intermediate Russian II (4)</td>
<td>PR: RUS 201. (Formerly CBS 218.)</td>
</tr>
</tbody>
</table>
RUS 203. BEGINNING CONVERSATION (3)
PR: RUS 102.

**UPPER LEVEL COURSES**

RUS 301. CONTROLLED COMPOSITION (4)
RUS 303. ADVANCED CONVERSATION (3)
PR: RUS 203. Free conversation based upon the current Russian idiom.
RUS 305. INTRODUCTION TO RUSSIAN LITERATURE (4)
RUS 310. RUSSIAN CLASSICS IN TRANSLATION (4)
Pushkin, Turgenev, Tolstoy, Dostoevsky, and others.
RUS 311. SOVIET LITERATURE IN TRANSLATION (4)
Gorky, Chekhov, Pasternak, Solzhenitsyn, and others.
RUS 401. EXPOSITORY WRITING (4)
PR: RUS 301.
RUS 405. SURVEY OF RUSSIAN LITERATURE (4)
PR: RUS 305. Earliest monuments to Classicism.
RUS 406. SURVEY OF RUSSIAN LITERATURE (4)
PR: RUS 305. Romanticism to present.
RUS 410. SLAVIC CIVILIZATION (4)
Slavic's contribution to world culture and civilization, particularly as such molded and molds the twentieth century. (In English)

**FOR SENIORS AND GRADUATE STUDENTS**

RUS 515. HISTORY OF THE RUSSIAN LANGUAGE I (4)
PR: RUS 401.
RUS 516. HISTORY OF THE RUSSIAN LANGUAGE II (4)
PR: RUS 515.
RUS 541. 19TH CENTURY DRAMA (4)
PR: RUS 405.
RUS 552. TOLSTOY (4)
PR: RUS 405.
RUS 553. DOSTOYEVSKY (4)
PR: RUS 405.
RUS 561. CHEKHOV AND GORKY (4)
PR: RUS 406.
RUS 563. SOVIET LITERATURE (4)
PR: RUS 406.
RUS 583. SELECTED TOPICS (1-4)
PR: Senior or graduate standing. CI.
RUS 585. DIRECTED STUDY (1-4)
PR: Senior or graduate standing. CI.

Spanish (SPA)

**LOWER LEVEL COURSES**

SPA 101. BEGINNING SPANISH I (5)
(Formerly CBS 120.)
SPA 102. BEGINNING SPANISH II (5)
(Formerly CBS 121.)
SPA 199. SPANISH FOR NON-LINGUIST S (3)
PR: CI. Provides the non-linguist with a limited active vocabulary in Spanish as well as mastery of the linguistic structures necessary to pass a reading examination in Spanish.
SPA 201. INTERMEDIATE SPANISH I (4)
PR: SPA 102. (Formerly CBS 220.)
SPA 202. INTERMEDIATE SPANISH II (4)
PR: SPA 201. (Formerly CBS 221.)
SPA 203. BEGINNING CONVERSATION (3)
PR: SPA 102.

**UPPER LEVEL COURSES**

SPA 301. CONTROLLED COMPOSITION (4)
SPA 303. ADVANCED CONVERSATION (3)
PR: SPA 203. Free conversation based upon the current Spanish idiom.
SPA 305. INTRODUCTION TO SPANISH LITERATURE (4)
SPA 310. SPANISH CLASSICS IN TRANSLATION (4)
The Cid, The Celestina. Lope de Vega, Cervantes, Quevedo, Pérez Galdós, and others.
SPA 311. CONTEMPORARY SPANISH LITERATURE IN TRANSLATION (4)
Pío Baroja, Unamuno, Valle-Inclan, Sender, Jimenez, and others.
SPA 313. SPANISH AMERICAN LITERATURE IN TRANSLATION (4)
Dario, Mistral, Guiraldes, Azuela, Borges, Asturias, and others.
SPA 401. EXPOSITORY WRITING (4)
PR: SPA 301.
SPA 403. PHONETICS AND PHONOLOGY (4)
PR: SPA 303.
SPA 405. SURVEY OF SPANISH LITERATURE (4)
PR: SPA 305. Earliest monuments to 18th Century Neo-Classicism.
SPA 406. SURVEY OF SPANISH LITERATURE (4)
PR: SPA 305. Romanticism to the present.
SPA 410. HISPANIC CIVILIZATION (4)
Spain's contribution to world culture and civilization, particularly as such molded and molds the twentieth century. (In English)

**FOR SENIORS AND GRADUATE STUDENTS**

SPA 516. MODERN USAGE (4)
PR: SPA 401. The various components of correct style together with practical training.
SPA 524. GOLDEN AGE DRAMA (4)
PR: SPA 405. Lope de Vega, Alarcón, Tirso, Calderón, and others.
SPA 525. GOLDEN AGE NON-DRAMATIC LITERATURE (4)
PR: SPA 405. Emphasis on lyric poetry and the mystics.
SPA 526. THE QUIXOTE (4)
PR: SPA 405.
SPA 540. ROMANTICISM (4)
PR: SPA 406.
SPA 542. 19TH CENTURY REALISM (4)
PR: SPA 406.
SPA 546. THE GENERATION OF 1898 (4)
PR: SPA 406.
SPA 552. 20TH CENTURY LITERATURE 1936-PRESENT (4)
PR: SPA 406.
SPA 561. SURVEY OF SPANISH AMERICAN LITERATURE I (4)
PR: SPA 406.
SPA 562. SURVEY OF SPANISH AMERICAN LITERATURE II (4)
PR: SPA 406.
SPA 570. MEXICAN LITERATURE (4)
PR: SPA 561, 562.
SPA 575. RIVER PLATE LITERATURE (4)
PR: SPA 561, 562.
SPA 583. SELECTED TOPICS (1-4)
PR: Senior or graduate standing. CI.
SPA 585. DIRECTED STUDY (1-4)
PR: Senior or graduate standing. CI.

**FOR GRADUATE STUDENTS ONLY**

SPA 601. OLD SPANISH (4)
PR: SPA 403. (Formerly CBS 120.)
SPA 624. SEMINAR ON GOLDEN AGE DRAMA (4)
PR: SPA 524.
SPA 625. THE PICARESQUE NOVEL (4)
PR: SPA 525.
SPA 689. BIBLIOGRAPHY (2)
PR: Graduate standing. Research methods. Includes familiarity with major journals and bibliographies, and a practicum. (S-U only) Note: Required of all M.A. candidates.
SPA 691. GRADUATE SEMINAR (4)

LOWER LEVEL COURSES

MUS 101. RUDIMENTS OF MUSIC (3)
Open only to non-music majors; development of skills in hearing and performing music and in basic notation.

MUS 102. MUSIC THEORY-LITERATURE SUPPLEMENT (2)
PR: CI. May be required of music majors upon examination, for supplemental study coordinated with MUS 201, 202, 203; may be repeated for credit.

MUS 201, 202, 203. MUSIC THEORY-LITERATURE (3,3,3)
PR: CI. Required of music majors; development of skills in sight-reading and aural and visual analysis of examples from all historical periods of music literature.

MUS 204. APPLIED MUSIC (3)
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 four quarters only.

Sec. 001 Violin
002 Viola
003 Violoncello
004 Double Bass
005 Flute
Sec. 011 Trumpet
012 Trombone/Baritone
013 Tuba
014 Percussion

Sec. 006 Oboe
007 Clarinet
008 Saxophone
009 Bassoon
Sec. 015-021 Voice
022-025 Piano
026 Harp

MUS 205. INTRODUCTION TO ELECTRONIC MUSIC (3)
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.

MUS 206. CLASS PIANO (2)
PR: CI. Class in 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.

Sec. 001 non-music majors
002 non-music majors
003 music major level I
004 music major level II
005 music major level II
006 non-music major level II
007 music major proficiency level III
008 music major proficiency level III
009 non-music major level III
010 music major level IV

MUS 207. SECONDARY APPLIED MUSIC (1)
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.

Sec. 001 Violin
002 Viola
003 Violoncello
004 Double Bass
005 Flute
006 Oboe
007 Clarinet
008 Saxophone
009 Bassoon
Sec. 010 French Horn
011 Trumpet
012 Trombone/Baritone
013 Tuba
014 Percussion
315-021 Voice
022-025 Piano
026 Harp

MUS 208. COMPOSITION (3)
PR: CI. Required of music majors with an area emphasis of Composition; class instruction in original composition; may be repeated for credit.

UPPER LEVEL COURSES

MUS 301, 302, 303. MUSIC THEORY-LITERATURE (3,3,3)
PR: MUS 203. Required of music majors; continuation of MUS 201-203.

MUS 304. APPLIED MUSIC (3)
PR: Necessary competency at MUS 204 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 four quarters only.

Sec. 001 Violin
002 Viola
003 Violoncello
004 Double Bass
005 Flute
006 Oboe
007 Clarinet
008 Saxophone
009 Bassoon
Sec. 010 French Horn
011 Trumpet
012 Trombone/Baritone
013 Tuba
014 Percussion
015-021 Voice
022-025 Piano
026 Harp

PR: MUS 205 and CI. Composition for tape medium with analog synthesizers; use of sound recording studio; repertory of analog music synthesis; technical basis of analog systems design and construction.

MUS 308. COMPOSITION (3)
PR: MUS 203 and MUS 205 and CI. Class instruction in original composition. Required of composition majors. May be repeated for credit four quarters only.

MUS 309, 310, 311. CONTEMPORARY TECHNIQUES OF COMPOSITION (3,3,3)
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.

MUS 371. 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. (S/U only)

MUS 372-373. 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; Section 001 of MUS 372 is for students who are majoring in dance, theatre arts, and visual arts.

MUS 374. MAJOR PERFORMING ORGANIZATIONS (1)
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.
Sec. 001 Repertory Orchestra/String Group
002 Repertory Orchestra/Wind Group
003 Repertory Chorus
004 Opera Workshop
005 Choral Union
006 University Band

MUS 375. CHAMBER MUSIC ENSEMBLES (1)
PR: CI. Open to all university 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.
Sec. 001 Chamber Singers
002 Chamber Singers
003 Chamber Singers
004 Chamber Singers
005 Chamber Singers
006 Piano Ensemble
007 String Quartet
008 Horn Quartet
009 Clarinet Choir
010 Clarinet Choir
011 Clarinet Choir
012 Flute Choir
013 New Music Ensemble
014 Madrigal Singers
015 Gospel Choir
016 Electronic Arts Ensemble

MUS 376. ROCK MUSIC SURVEY (2)
Open to non-major music only. Survey class covering all aspects of rock music with emphasis on its function as folk expression. May not be repeated for credit.

MUS 401, 402, 403. MUSIC HISTORY-LITERATURE (2,2,2)
PR: CI. Required of music majors; a study of the historical development of musical styles and of the music representative of those styles.

MUS 404. APPLIED MUSIC (3)
PR: Necessary competency at MUS 304 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 four quarters only.
Sec. 001 Violin Sec. 010 French Horn
002 Viola 011 Trumpet
003 Violoncello 012 Trombone/Bari-tone
004 Double Bass 013 Tuba
005 Flute 014 Percussion
006 Oboe 015-021 Voice
007 Clarinet 022-025 Piano
008 Saxophone 026 Harp
009 Bassoon

MUS 405, 406, 407. ELECTRONIC MUSIC — DIGITAL SYNTHESIS (3,3,3)
PR: MUS 205 and CI. Computer assisted composition for conventional instruments; composition for tape medium with computer controlled analog synthesizers; direct digital synthesis; digital systems design and construction.

MUS 408. COMPOSITION (3)
PR: Necessary competency at MUS 308 level determined by faculty jury examination. Required of music majors with an area emphasis of composition; private instruction in original composition; may be repeated for credit four quarters.

MUS 453. MUSIC SENIOR SEMINAR (3)
PR: CI. To aid majors to understand, appraise and perfect their own art through critical and aesthetic judgments of their colleagues.

MUS 481. DIRECTED STUDY (1-6)
PR: CC. Independent studies in the various areas of music; course of study and credits must be assigned prior to registration; may be repeated.

FOR SENIORS AND GRADUATE STUDENTS

MUS 504. APPLIED MUSIC (3)
PR: Necessary competency at MUS 404 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.
Sec. 001 Violin Sec. 009 Bassoon
002 Viola 010 French Horn
003 Violoncello 011 Trumpet
004 Double Bass 012 Trombone/Bari-tone
005 Flute 013 Tuba
006 Oboe 014 Percussion
007 Clarinet 015-021 Voice
008 Saxophone 022-025 Piano
009 Bassoon

MUS 505, 506, 507. ELECTRONIC MUSIC — REAL-TIME PERFORMANCE (3,3,3)
PR: MUS 307 and 407 or equivalent. Composition for analog and digital equipment for real-time performance applications; sound synthesis, interfacing electronics with conventional instruments, in-performance-directed composition, and design and construction of electronic composing/performing machines; use of scores, system flexibility and event-detail prediction.

MUS 508. COMPOSITION (3)
PR: Necessary competency at MUS 408 level determined by faculty jury examination. Required of music majors with an area emphasis of Composition; private instruction in original composition; may be repeated for credit.

MUS 509. SEMINAR IN NEW MUSICAL SYSTEMS (3)
PR: CI. Experimental sound sources and ensemble groupings; creation of new instruments; unfamiliar sonic materials and unique social contexts for music. May be repeated for credit.

MUS 510, 511. ORCHESTRATION (3,3)
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.

MUS 512. MUSIC STUDIO PEDAGOGY (3)
PR: CI. May be elected by undergraduate music majors; emphasis on the business management of the music studio, the musical responsibilities of the studio teacher, the techniques of private instruction. May be repeated for credit.
Sec. 001 Strings Sec. 003 Voice
Sec. 002 Winds & Percussion Sec. 004 Piano

MUS 561. MASTER CLASSES (2)
PR: CI. Study and performance of selected literature with special emphasis on style, form and techniques; especially designed for teachers, piano majors, and talented secondary school students.
Sec. 001 Piano Sec. 003 Strings
Sec. 002 Voice

MUS 562. MUSIC WORKSHOPS (2)
PR: CI. Intensive study in the specialized areas indicated below: open to teachers, University students, and secondary students; credit available to qualified students.
Sec. 001 Band Sec. 004 Orchestra
002 Chamber Music 005 String
003 Chorus

MUS 581. DIRECTED STUDY (1-6)
PR: CC. Independent studies in the various areas of music; course of study and credits must be assigned prior to registration; may be repeated.
FOR GRADUATE STUDENTS ONLY

MUS 601, 602, 603. CRITICAL ANALYSIS OF MUSIC REPERTORY (4,4,4)
PR: CI. Required of music theory majors; study of the development of musical styles in western civilization from Antiquity to the present; includes analysis and performance of representative works.

MUS 604. APPLIED MUSIC (2-4)
PR: Necessary competency determined by faculty jury audition. Required of all applied music majors. Private and class instruction.

MUS 605, 606, 607. ELECTRONIC MUSIC — ANALOG/DIGITAL SYSTEMS RESEARCH (4,4,4)
PR: CI. State-of-the-art compositional and performance applications; new concepts of electronic music synthesis; documentation and critical analysis of new repertory.

MUS 608. SEMINAR IN COMPOSITION (4)
PR: CI. Composition of music for any media; discussion of problems presented by the most current ideas in composition; evaluation of new music in seminar context. May be repeated for credit.

MUS 609, 610. MUSICAL ACOUSTICS (4,4)
PR: CI. Required of music theory majors; study of the nature and transmission of sound, the hearing process, tuning and temperament; includes principles of electronic sound producers and basic concepts of architectural acoustics.

MUS 611, 612, 613. KEYBOARD REPERTORY (3,3,3)
PR: CI. A study of style, history and performance practice in keyboard repertory including masterworks of all periods.

MUS 614, 615, 616. SONG LITERATURE (3,3,3)
PR: CI. Solo song literature from the 17th century through the contemporary with emphasis on German lied, French songs, and contemporary English and American songs; special emphasis on performance.

MUS 617. SOLO VOCAL LITERATURE IN ORATORIO (4)
CI. A survey of literature for the solo voice in oratorio from the 17th century to the present. Includes allied forms such as solo voice in cantatas and orchestra music.

MUS 618. SYMPHONIC LITERATURE (5)
PR: CI. A chronological study of the development of orchestral music; analysis and study of major works from a stylistic and biographical perspective.

MUS 619, 620. OPERA LITERATURE (4,4)
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.

MUS 621. TWENTIETH CENTURY MUSIC LITERATURE (5)
PR: CI. A study of the compositional techniques of composers from Debussy to the present; emphasis on counterpoint, harmonic structure, tonality, atonality, polytonality, texture, and serial technique.

MUS 622, 623, 624. CHORAL LITERATURE AND CONDUCTING (6,6,6)
PR: CI. Combination of seminar, classroom and laboratory types of experiences designed to provide depth in stylistic study of choral music literature and performance.

MUS 625. SEMINAR IN CONDUCTING (3)
PR: CI. Intensive study of conducting techniques with emphasis on interpretation of musical scores and application in laboratory sessions.

MUS 626, 627, 628. TEACHING OF MUSIC THEORY (4,4,4)
PR: Comparative study of teaching techniques, procedures, and materials used in teaching the individual student in music.

MUS 629. STUDIO TEACHING SEMINAR (3)
PR: Graduate standing in performance and CI; emphasis on techniques used in teaching the individual student in performance.

MUS 674. MAJOR ENSEMBLE PERFORMANCE (1)
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.

MUS 675. CHAMBER ENSEMBLE PERFORMANCE (1)
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; piano; may be repeated for credit.

MUS 681. DIRECITED STUDY (1-9)
PR: CC. Independent study. May be repeated.

MUS 691. GRADUATE SEMINAR (2)
PR: CC. May be repeated to a maximum of six credits.

MUS 698. GRADUATE RECITAL (3)
PR: CC.

MUS 699. GRADUATE THESIS (3)
PR: CC. May be repeated to a maximum of nine credits.

NATURAL SCIENCES (NAS)

UPPER LEVEL COURSES
NAS 409. SCIENCE AND HUMAN LIFE I (4)
The role of science in society. The manner in which science is organized, how it operates, its harmonious and conflicting relationships with other fields of knowledge. (For non-science majors.) (Formerly CBS 409.)

NAS 410. SCIENCE AND HUMAN LIFE II (4)
Continuation of NAS 409. (Formerly CBS 410.)

NURSING (NUR)

Dean: G. R. MacDonald; Professor: A. E. Keefe; Associate Professor: M. L. McCrea.

UPPER LEVEL COURSES
NUR 300. BASIC NURSING (4)
PR: Admission to College of Nursing and upper level nursing courses. Open to majors only. Development of concepts of health and comprehensive health care, including systems for delivery of health services. Includes nursing concepts and beginning skills relative to basic needs of patients. Selected related extra-classroom experiences. (3 hours lec.—2 hours lab.) Fall Quarter, 1973 (1).

Information on additional courses may be obtained from the College of Nursing.
OFF-CAMPUS TERM (OCT)

Director: D. K. Lupton.

UPPER LEVEL COURSES

The following courses are provided for students admitted in the Off-Campus Term Program to work on one of the types of projects indicated.

OCT 401. COMMUNITY INTERACTION (3-5)
A field course for students in the OCT Program utilizing the community as a learning laboratory to develop sensitivity to the problems of our society.

OCT 410. OFF CAMPUS TERM SOCIAL ACTION PROJECT (1-2)
OCT 411. OFF CAMPUS TERM INDEPENDENT STUDY (1-2)
OCT 412. OFF CAMPUS TERM INTERNATIONAL PROGRAM (1-2)
OCT 414. OFF CAMPUS TERM SPECIAL PROJECT (1 or 2)

PHILOSOPHY (PHI)

Chairman: J. A. Gould; Professor: C. H. Chen; Associate Professor: W. H. Truitt; Assistant Professors: P. A. Carpenter, S. Krimsky, B. Silver, R. Taylor, R. Weatherford.

LOWER LEVEL COURSES

PHI 111. GREAT PHILOSOPHERS OF THE WESTERN WORLD (2)
Lectures and discussions of the great philosophers since Plato, focusing on particular problems.

PHI 112. PHILOSOPHIC CONTROVERSIES (2)
A discussion of central controversies in philosophy such as the nature of love, violence, freedom, truth, morality, etc.

UPPER LEVEL COURSES

PHI 301. BASIC PHILOSOPHY I: GOD AND REALITY (4)
An introduction to the major philosophical problems in religion, metaphysics, and the philosophy of mind.

PHI 303. LOGIC (5)
Language analysis and classical and modern formal logic, including the logic of classes and propositions, and discussion of philosophical issues.

PHI 304. SCIENTIFIC METHOD (4)
Probability, inductive inference, the hypothetico-deductive method, experimentation, and selected topics in the philosophy of science.

PHI 311. BASIC PHILOSOPHY II: VALUE AND SOCIETY (4)
An introduction to the major philosophical problems in ethics, aesthetics, and social political philosophy.

PHI 317. BASIC PHILOSOPHY III: KNOWLEDGE AND SCIENCE (4)
An introduction to the major philosophical problems in methodology, epistemology, and the philosophy of science.

PHI 321. ETHICS (4)
An examination of the writing of the philosophers: Plato, Aristotle, Kant, Sartre, etc., about moral problems and principles.

PHI 333. ANCIENT AND MEDIEVAL PHILOSOPHY (4)
A survey of philosophy from Thales through the medieval writers.

PHI 334. RENAISSANCE AND MODERN PHILOSOPHY (4)
A survey of philosophy from the Renaissance through Kant.

PHI 335. RECENT PHILOSOPHY (4)
A survey of philosophy from Kant through nineteenth century philosophy.

PHI 377. SOCIAL PHILOSOPHY (4)
An analysis of rival theories of social order and their philosophical foundations.

PHI 381. DIRECTED STUDY (1-5)
PR: CI. Individual study directed by a faculty member. Approval slip from instructor required.

PHI 383. SELECTED TOPICS (1-5)
PR: CI. Selected topics according to the needs of the student. Approval slip from instructor required.

PHI 405. CONTEMPORARY PHILOSOPHY (4)
PR: 12 hours or CI. Selected schools of twentieth century thought such as idealism, positivism, pragmatism, realism, and existentialism.

PHI 406. ANALYTICAL PHILOSOPHY (4)
PR: 12 hours, PHI 303. A study of the method devoted to clarifying philosophical problems through analysis of the language in which these problems are stated.

PHI 407. EXISTENTIALISM (4)
PR: 12 hours or CI. A study of the religious and atheistic existentialists and the bearing of their views on religion, ethics, metaphysics, and theory of knowledge.

PHI 408. CURRENT PHILOSOPHICAL MATERIALISM (4)
PR: CI. A critical study of historical, dialectical, and scientific materialism and its importance in physical science, social science, theory of history, theory of knowledge, and metaphysics.

PHI 409. CLASSICAL CHINESE PHILOSOPHY (4)
PR: PHI 301 or 311 or 317 or CI. Examination of the major classical Chinese philosophers from the sixth century through the third century B.C.

PHI 410. CONTEMPORARY CHINESE PHILOSOPHY (4)
PR: PHI 301 or 311 or 317 or CI. A critical examination of the ideas of Lin Piao, Hu Shih, Mao Tse-Tung, Sun Yet-Sen, Chiang Kai-Shek, Lin Yu-Tang and other selected materials.

PHI 411. PHILOSOPHY OF RELIGION (4)
Analysis of religious experience and activity and examination of principal religious ideas in light of modern philosophy.

PHI 412. AMERICAN PHILOSOPHY (4)
Major traditions in American thought—Puritanism, the Enlightenment, Transcendentalism, Idealism, Pragmatism, and Analytic Philosophy—in relation to American culture.

PHI 415. PLATO (4)
PR: 8 hours of Philosophy or CI. The examination of Plato will include the dialogues Protagoras, Gorgias, Meno, Republic, etc.

PHI 416. ARISTOTLE (4)
PR: 8 hours of Philosophy or CI. Study of Aristotle’s philosophy.

PHI 425. KANT (4)
PR: 8 hours of Philosophy or CI. Lectures and discussions of Kant’s philosophy, especially The Critique of Pure Reason.

PHI 453. THEORY OF KNOWLEDGE (4)
PR: 8 hours of Philosophy, PHI 317, or CI. An examination of human knowledge, its scope and limits, and an evaluation of evidence, criteria of truth, the nature of belief, conditions for meaningfulness, theories of perception, and a study of memory and sense perception in the four major fields of nature, history, personal experience, and the a priori.

PHI 461. ANCIENT AND MEDIEVAL POLITICAL PHILOSOPHY (3)
A survey of political philosophy from 6 B.C. until 1600 A.D., including an examination of the ethical, metaphysical, and epistemological bases of these philosophies.

PHI 463. MODERN POLITICAL PHILOSOPHY (3)
A survey of political philosophy from 1600 A.D. until 1900 A.D., including an examination of the ethical, metaphysical, and epistemological bases of these philosophies.

PHI 465. CONTEMPORARY POLITICAL PHILOSOPHY (3)
A survey of political philosophy in the twentieth century, including an examination of the ethical, metaphysical, and epistemological bases of these philosophies.
STUDIES

PHI 481. DIRECTED STUDY (1-5)
PR: CI. Individual study directed by a faculty member. Approval slip from instructor required.

PHI 483. SELECTED TOPICS (1-5)
PR: CI. Selected topics according to the needs of the senior students. Approval slip from instructor required.

FOR SENIORS AND GRADUATE STUDENTS

PHI 507. PHILOSOPHY OF NATURAL SCIENCE (4)
PR: 8 hours or CI. The function of the course is to investigate (1) problems in the methodology of natural science such as the constructing and testing of hypotheses, confirmation and falsification of theories, explanations and the role of laws and models, (2) philosophical implications of the theories of natural science especially in the areas of space, time, and matter.

PHI 508. PHILOSOPHY OF THE SOCIAL SCIENCES (4)
PR: 8 hours or CI. Philosophic issues arising in the social sciences: value assumptions, laws and theories, models, etc.

PHI 509. SYMBOLIC LOGIC (4)
PR: PHI 303 or CI. Mathematical treatment of formal logic, including methods of proof, quantification, the logic of relations, and an introduction to properties of deductive systems.

PHI 511. PHILOSOPHY OF LAW (4)
PR: 8 hours or CI. The nature and function of law, relations between law, morality, and metaphysics, logic of legal reasoning, analysis of fundamental concepts and institutions.

PHI 521. CONTEMPORARY CONTROVERSY IN PHILOSOPHY OF RELIGION (4)
PR: PHI 411 or CI. A survey of contemporary philosophical problems in religion such as demythologizing, falsification, and the meaning and justification of key concepts, e.g., God, immortality, faith, etc.

PHI 522. AESTHETICS (4)
Consideration of the traditional problems of aesthetics from more contemporary perspectives including structural analysis, problems in historical analysis, the sociology of art, and the psychology of art.

PHI 531. PHILOSOPHY OF LANGUAGE (4)
PR: 8 hours of philosophy, major in linguistics, or CI. An examination of semantical, syntactical, and functional theories of language with special attention given to the problems of meaning, linguistic reference, syntactical form, and the relations between scientific languages and ordinary linguistic usage.

PHI 543. PHILOSOPHY OF HISTORY (4)
PR: 8 hours of philosophy, major in history, or CI. A systematic study of historical theories and of the methods of historical explanation. An examination of classical theories from Vico through Herder, Hegel, Marx down to Spengler and Toynbee, etc.

PHI 571. SEMINAR IN EPistemology I (3)
PR: Major in philosophy or psychology and CI. This course may be taken more than once for credit with CI and departmental approval.

PHI 572. SEMINAR IN EPistemology II (3)
PR: Major in philosophy or social science and CI. This course may be taken more than once for credit with CI and departmental approval.

PHI 573. SEMINAR IN METAPHYSICS I (3)
PR: Major in philosophy or CI. Cosmology. This course may be taken more than once for credit with CI and departmental approval.

PHI 574. SEMINAR IN METAPHYSICS II. (3)
PR: Major in philosophy or CI. A consideration of the theory of reality. This course may be taken more than once for credit with CI and departmental approval.

PHI 575. SEMINAR IN CONTEMPORARY ETHICS (3)
PR: CI. A study of the central figures and doctrines in Contemporary Ethics. This course may be taken more than once for credit with CI and departmental approval.

PHI 581. DIRECTED STUDY (1-5)
PR: CI. Individual study directed by a faculty member. Approval slip from instructor required.

PHI 583. SELECTED TOPICS (1-5)
PR: CI. Selected topics according to the needs of the student. Approval slip from instructor required.

PHI 585. RESEARCH (1-5)
PR: CI. Individual research supervised by a faculty member. Approval slip from instructor required.

PHI 591. SEMINAR IN THE HISTORY OF PHILOSOPHY (3)
PR: CI. A study of one or more of the central figures or movements in the history of philosophy. This course may be taken more than once for credit with CI and departmental approval.

FOR GRADUATE STUDENTS ONLY

PHI 607. STUDIES IN THE PHILOSOPHY OF SCIENCE (3)
PR: Graduate standing or CI. A study of the nature and status of physical theories, some basic problems associated with scientific methodology, and the philosophical implications of modern science. This course may be taken more than once for credit with CI and departmental approval.

PHI 609. STUDIES IN LOGIC (3)
PR: Graduate standing or CI. Foundations and basic problems of logic. This course may be taken more than once for credit with CI and departmental approval.

PHI 611. STUDIES IN THE PHILOSOPHY OF LAW (3)
PR: Graduate standing or CI. A study of the metaphysical, ethical, and epistemological bases of law. This course may be taken more than once for credit with CI and departmental approval.

PHI 615. STUDIES IN MAJOR PHILOSOPHICAL SYSTEMS (3)
PR: Graduate standing or CI. A detailed study of a metaphysical movement. This course may be taken more than once for credit with CI and departmental approval.

PHI 621. STUDIES IN PHILOSOPHY OF RELIGION (3)
PR: Graduate standing or CI. An analysis of fundamental religious concepts in terms of contemporary philosophy. This course may be taken more than once for credit with CI and departmental approval.

PHI 622. STUDIES IN AESTHETICS (3)
PR: Graduate standing or CI. An advanced inquiry into the special problems of aesthetics: value, perception, communication, technique, context. This course may be taken more than once for credit with CI and departmental approval.

PHI 631. STUDIES IN THE THEORY OF MEANING (3)
PR: Graduate standing or CI. Theory of meaning in relation to theory of truth, reference, modality, and analyticity; with bearings on problems in epistemology, metaphysics, and value. This course may be taken more than once for credit with CI and departmental approval.

PHI 643. STUDIES IN PHILOSOPHY OF HISTORY (3)
PR: Graduate standing or CI. The analysis of language and logic of historical explanation, historical idealism, historical materialism, positivism, and historical sociology. This course may be taken more than once for credit with CI and departmental approval.

PHI 677. STUDIES IN THE THEORY OF VALUE (3)
PR: Graduate standing or CI. An analysis and critique of traditional and contemporary theories of value, emphasizing those systems which deal with aesthetic, moral, social, economic, and political values. This course may be taken more than once for credit with CI and departmental approval.

PHI 679. STUDIES IN POLITICAL PHILOSOPHY (3)
PR: Graduate standing or CI. An examination of the main political philosophies. This course may be taken more than once for credit with CI and departmental approval.

PHI 680. STUDIES IN SOCIAL PHILOSOPHY (3)
PR: Graduate standing or CI. A detailed study of the
philosophical theories of society, class societies (Capitalism), advanced technocracy (all types). This course may be taken more than once for credit with CI and departmental approval. PHS 681. DIRECTED STUDY (1-5)
PR: Graduate standing and CI. Individual study directed by a faculty member. Approval slip from instructor required.

PHI 683. SELECTED TOPICS (1-5)
PR: Graduate standing and CI. Selected topics according to the needs of the student. Approval slip from instructor required.

PHI 691. GRADUATE SEMINAR (3)
PR: Graduate standing. A seminar in the history of philosophy. The instructor will determine the subject matter.

PHI 699. THESIS (3)
PR: Graduate standing. Supervision of the writing of the M.A. thesis.

PHYSICAL EDUCATION—ELECTIVE (PEB)


LOWER LEVEL COURSES

PEB 101. FUNCTIONAL PHYSICAL EDUCATION (1)
Study of the effect of regular activity on cardio-respiratory endurance, muscular endurance, strength, flexibility and body composition. Discussion and laboratory assessment.

PEB 102. FUNCTIONAL PHYSICAL EDUCATION (1)
Study of the psychological and sociological effect of sport and sport participation on the individual and his society. Discussion and laboratory experiences.

PEB 111. SOFTBALL AND VOLLEYBALL (1)
S/U only.

PEB 131. WATER SAFETY INSTRUCTION (1)
PR: PEB 236. Study of the various swimming strokes leading to identification of appropriate methods and techniques for instructing others. ARC certification offered. (S/U only.)

PEB 133. CANOEING AND SAILING (1)
PR: PEB 230 or equivalent. Development and refinement of the skills necessary for enjoying canoeing and sailing. Skills, safety techniques, rules and trips. (S/U only.)

PEB 151. ARCHERY (1)
Development and refinement of the essential skills and information necessary for enjoying the sport of Archery. (S/U only.)

PEB 153. BADMINTON (1)
Progressive experiences in Badminton, fundamental skills, strategy, information, and participation. (S/U only.)

PEB 161. FOLK AND SQUARE DANCING (1)
An opportunity for the development of fundamental skills and knowledge necessary for enjoyment of Folk and Square Dancing. (S/U only.)

PEB 163. SOCIAL DANCE (1)
(S/U only.)

PEB 171. FENCING (1)
Progressive experiences in the sport of Foil Fencing, Fundamental skills, strategy, information and participation. (S/U only.)

PEB 173. GOLF (1)
Progressive experiences in the sport of Golf. Fundamental skills, strategy, information and participation. (S/U only.)

PEB 175. GYMNASTICS (1)
Progressive experiences in the various gymnastics events.

LOWER LEVEL COURSES

PHS 208. PHYSICAL SCIENCE I (4)
Integrated course in the physical sciences for the non-science student with an emphasis in Astronomy-Physics. Qtr. I, II, III, IV. (Formerly CBS 208.)

PHS 209. PHYSICAL SCIENCE II (4)
Integrated course in the physical sciences for the non-science student with an emphasis in Chemistry-Geology. Qtr. I, II, III, IV. (Formerly CBS 209.)

PHS 210. EXPLORATIONS IN PHYSICAL SCIENCE (4)
This course is in several variants, each under a separate section listing. Each variant deals with a topic from one or more of the physical sciences: Astronomy, Physics, Chemistry, or Geology. (Formerly CBS 210.)
(See also the section entitled Physical Sciences and Natural Sciences)


LOWER LEVEL COURSES

PHYSICS (PHY)

PHY 201-202. GENERAL PHYSICS AND LABORATORY (4:1)
First quarter of 3-quarter sequence of general physics (mechanics, heat, electricity, wave motion, optics, atomic and nuclear physics) and laboratory for science students. Must be taken concurrently. Qtr. I, II, III, IV.

PHY 203-204. GENERAL PHYSICS AND LABORATORY (4:1)

PHY 205-206. GENERAL PHYSICS AND LABORATORY (4:1)

PHY 271. ENERGY AND HUMANITY (4)
A non-technical survey of energy forms, sources, present and projected needs, uses and abuses in modern civilization. (Not for Physics majors.) Qtrs. I, II, III, IV.

UPPER LEVEL COURSES

PHY 301-302. GENERAL PHYSICS AND LABORATORY (3:1)
CR: MTH 302. First quarter of 3-quarter 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. Qtr. I, II, III, IV.

PHY 303-304. GENERAL PHYSICS AND LABORATORY (3:1)

PHY 305-306. GENERAL PHYSICS AND LABORATORY (3:1)

PHY 307. MECHANICS I (3)

PHY 309. ELECTRICITY AND MAGNETISM I (4)
PR: MTH 305. Electromagnetic circuits; resistance, capacitance, inductance, direct- and alternating-current circuits, thermoelictricity and instrumentation. Laboratory. First quarter of sequence PHY 309-409-509. Qtr. II.

PHY 315. MATHEMATICAL ANALYSIS OF PROBLEMS IN MECHANICS AND ELECTRICITY (3)
PR: One year of non-calculus general physics. CR: MTH 305. 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. Qtr. I, II, III.

PHY 323. MODERN PHYSICS (4)

PHY 331. OPTICS (4)
PR: PHY 305 or PHY 315. CR: MTH 304. Reflection, refraction, dispersion, interference diffraction, polarization and laboratory. Qtr. II.

PHYSICS 341. INTERMEDIATE LABORATORY (2)
CR: PHY 205 or 305 or equivalent. Experiments in modern physics, including the area of atomic, nuclear, solid state and wave phenomena. Qtr. I, II, III.

PHY 371. CONTEMPORARY PHYSICS (5)
PR: Junior standing. A qualitative, non-mathematical investigation of physics, emphasizing its influence on life today. (Not for physics majors.) Qtr. I, II, III, IV.

PHY 405. STATISTICAL PHYSICS I (3)
PR: PHY 305 and either PR: PHY 305 or CR: PHY 315. Statistical approach to thermodynamics and kinetic theory and introduction to statistical mechanics. First quarter of the sequence PHY 405-505. Qtr. I.

PHY 407. MECHANICS II (3)
PR: PHY 307 and MTH 401. Continuation of PHY 307. Motion of a group of particles, coupled oscillators, normal modes, dynamics of rigid bodies, Lagrange's and Hamilton's equations, principle of least action. Qtr. II.

PHY 409. ELECTRICITY AND MAGNETISM II (3)

PHY 415. FUNDAMENTAL ACOUSTICS (4)
PR: PHY 307 or CJ. Vibrations of elastic media, sound generation and propagation. Acoustical, electrical and mechanical energy conversion. Underwater acoustics. Qtr. IV.

PHY 421. SOLID PHYSICS I (4)

PHY 437. QUANTUM MECHANICS I (3)
PR: PHY 407, MTH 401 or CJ. Wave-particle duality, uncertainty principle, Schrodinger's equation, postulates, angular momentum, and central forces. First quarter of sequence PHY 437-537. Qtr. II.

PHY 441. ADVANCED LABORATORY (2)
PR: PHY 341. Experimental work primarily related to nuclear physics. Emphasis on modern physical experimental techniques employing some of the new types of equipment. Qtr. I, III.

PHY 481. UNDERGRADUATE RESEARCH (1-6)
PR: Senior or advanced junior standing and CC. Individual experimental work under supervision of instructor. ($$U only.) Qtrs. I, II, III, IV.

PHY 491. PHYSICS SEMINAR (1)
PR: Senior or advanced junior standing or CC. May be repeated once. ($ \text{U only.}$) Qtrs. I, II, III, IV.

FOR SENIORS AND GRADUATE STUDENTS

PHY 501. NUCLEAR PHYSICS (4)
PR: PHY 437 or CJ. Systematics of stable nuclides, nuclear forces, nuclear models, reactions, radiation, and nuclear instrumentation. Qtr. I.

PHY 505. STATISTICAL PHYSICS II (3)
PR: PHY 405. Continuation of the sequence PHY 405-505. Qtr. II.

PHY 507. MECHANICS III (3)
PR: PHY 407. Continuation of PHY 407. Elastic media, the wave equation, transverse and longitudinal wave motion, the diffusion equation, boundary value problems and Fourier series, Fourier integral, fluid dynamics. Qtr. III.

PHY 509. ELECTRICITY AND MAGNETISM III (3)
PR: PHY 409. Method of images, Laplace's equation, radiation, transmission, reflection and refraction of elec-
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>PHY 517</td>
<td>PLASMA PHYSICS</td>
<td>Introduction to Boltzmann, magnetohydrodynamic and orbit approaches to plasmas. Longitudinal and electromagnetic waves in plasmas. Collisions and radiation. Instabilities. Qtr. IV.</td>
</tr>
<tr>
<td>PHY 522</td>
<td>ELECTRONICS FOR RESEARCH</td>
<td>PR: General Physics or CI. Direct and alternating current circuits, transients, rectification, amplification, feedback, pulse circuits, and integrated circuits, laboratory. (Not for physics majors.)</td>
</tr>
<tr>
<td>PHY 523</td>
<td>ELECTRONICS</td>
<td>PR: PHY 409 and PHY 341. Vacuum and gas-discharge tubes, semiconductors, transistors, electronic circuit analysis and laboratory. Qtr. III.</td>
</tr>
<tr>
<td>PHY 537</td>
<td>QUANTUM MECHANICS II</td>
<td>PR: PHY 437 or CI. Matrix mechanics, approximation methods, transformations, scattering and identical particles. Qtr. III.</td>
</tr>
<tr>
<td>PHY 541</td>
<td>METHODS OF THEORETICAL PHYSICS I</td>
<td>PR: MTH 401 or CI. Applications of mathematical techniques to classical and modern physics. Vector spaces including Hilbert space and Dirac notation, elements of vector and tensor analysis, matrices, group representations, eigenvalue problems, and variational calculus. Qtr. I.</td>
</tr>
<tr>
<td>PHY 542</td>
<td>METHODS OF THEORETICAL PHYSICS II</td>
<td>PR: MTH 401 or CI. Applications of mathematical techniques to classical and modern physics. Elements of complex analysis including conformal mapping and calculus of residues, Fourier analysis, and transform calculus. Qtr. II.</td>
</tr>
<tr>
<td>PHY 543</td>
<td>METHODS OF THEORETICAL PHYSICS III</td>
<td>PR: MTH 401 or CI. Applications of mathematical techniques to classical and modern physics. Orthogonal and special functions, integral equations, Green’s functions, methods of data analysis, and approximation techniques. Qtr. III.</td>
</tr>
<tr>
<td>PHY 583</td>
<td>SELECTED TOPICS IN PHYSICS (1-6)</td>
<td>PR: Senior or advanced standing and CC. Each topic is a course in directed study under the supervision of a faculty member. Among the courses contemplated are Physics of Waves, Space Physics, Elementary Particle Physics, Relativity, Nuclear Structure.</td>
</tr>
<tr>
<td>PHY 601</td>
<td>ATOMIC AND MOLECULAR SPECTRA</td>
<td>PR: PHY 437 or CI. Quantitative study of atomic and molecular structure and spectra. Qtr. IV.</td>
</tr>
<tr>
<td>PHY 605</td>
<td>STATISTICAL MECHANICS</td>
<td>PR: PHY 505 or CI. Kinetic theory, configuration and phase space, Boltzmann theorem, Liouville theorem, ensemble theory, quantum statistics. Qtr. III.</td>
</tr>
<tr>
<td>PHY 607</td>
<td>CLASSICAL MECHANICS I</td>
<td>PR: PHY 507 or CI. Dynamics of particles and systems of particles, variational techniques. Lagrange’s equations, central forces. First quarter of sequence PHY 607-608-609. Qtr. II.</td>
</tr>
<tr>
<td>PHY 608</td>
<td>CLASSICAL MECHANICS II</td>
<td>PR: PHY 607 or CI. Rigid body dynamics, tensors and dyadics, special relativity, Lorentz transformation, covariance, Hamilton’s equations, least action principle. Second quarter of sequence PHY 607-608-609. Qtr. III.</td>
</tr>
<tr>
<td>PHY 617</td>
<td>PLASMA PHYSICS II</td>
<td>PR: PHY 517, or CI. 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. Qtr. I.</td>
</tr>
<tr>
<td>PHY 621</td>
<td>SOLID STATE PHYSICS III</td>
<td>PR: PHY 521 or CI. Advanced course on Solid State Physics covering material of current interest. Qtr. III.</td>
</tr>
<tr>
<td>PHY 631</td>
<td>ELECTROMAGNETIC THEORY</td>
<td>PR: PHY 509 or CI. Electrodynamics, magnetostatics, potential and boundary value problems Maxwell’s equations. First quarter of sequence PHY 631-632-633. Qtr. I.</td>
</tr>
<tr>
<td>PHY 632</td>
<td>ELECTROMAGNETIC THEORY II</td>
<td>PR: PHY 631 or CI. Electromagnetic waves, wave guides and resonant cavities, diffraction, relativistic-particle kinematics and dynamics, plasmas and magnetohydrodynamics. Qtr. II.</td>
</tr>
<tr>
<td>PHY 633</td>
<td>ELECTROMAGNETIC THEORY III</td>
<td>PR: PHY 632 or CI. Scattering, radiation, multipole fields, radiation damping, and self-fields. Qtr. III.</td>
</tr>
<tr>
<td>PHY 637</td>
<td>QUANTUM MECHANICS III</td>
<td>PR: PHY 537 or CI. Dirac equation, quantized fields, collision theory, symmetry and invariance. Qtr. I.</td>
</tr>
<tr>
<td>PHY 641</td>
<td>EXPERIMENTAL PHYSICS</td>
<td>PR: Graduate standing. Laboratory techniques frequently required in experimental research. Includes manipulation of glass, production and measurement of vacua, production and measurement of thin films, and use of various machine tools. Qtr. I.</td>
</tr>
<tr>
<td>PHY 651</td>
<td>PHYSICAL APPLICATIONS OF GROUP THEORY</td>
<td>PR: PHY 542 or CI. Introduction to the theory of Lie Groups and Lie Algebras; applications to atomic and molecular physics, solid state physics, nuclear physics, classical physics and elementary particle physics. (Offered alternate years.)</td>
</tr>
<tr>
<td>PHY 657</td>
<td>THEORY OF RELATIVITY</td>
<td>PR: PHY 541 or CI. 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.)</td>
</tr>
<tr>
<td>PHY 681</td>
<td>GRADUATE RESEARCH (1-15)</td>
<td>PR: CC. (S/U only.) Qtr. I, II, III, IV.</td>
</tr>
<tr>
<td>PHY 683</td>
<td>SELECTED TOPICS IN PHYSICS (1-15)</td>
<td>PR: CC. Each topic is a course in directed study under the supervision of a faculty member.</td>
</tr>
<tr>
<td>PHY 688</td>
<td>RECENT ADVANCES IN PHYSICS WITH EMPHASIS ON THEIR IMPACT ON COLLEGE-LEVEL COURSES (3-6)</td>
<td>PR: Graduate Standing. A course designed to consider and study the recent developments in the field of physics especially those developments that have an effect on altering the basic concepts and ideas of the field and imply a change in the presentation of introductory material in physics. (Credit not applicable toward thesis degree requirements). (S/U only.)</td>
</tr>
<tr>
<td>PHY 689</td>
<td>DIRECTED TEACHING (3-9)</td>
<td>Not applicable toward thesis degree requirements. Supervised teaching for graduate teaching assistants in elementary and/or laboratory courses. A formalized, structured activity wherein a faculty member, by discussion and assignments, considers the principles, rationale, and modus operandi of elementary college courses. Designed to train teaching assistants and to provide help and training to those graduate students who plan to follow a college teaching profession. (S/U only.) Qtr. I, II, III, IV.</td>
</tr>
<tr>
<td>PHY 691</td>
<td>GRADUATE SEMINAR</td>
<td>(S/U only.) Qtr. I, II, III, IV.</td>
</tr>
<tr>
<td>PHY 699</td>
<td>MASTER’S THESIS</td>
<td>PR: PHY 641. (S/U only.) Qtr. I, II, III, IV.</td>
</tr>
</tbody>
</table>
POLITICAL SCIENCE (POL)


LOWER LEVEL COURSES

POL 199. INTRODUCTION TO POLITICAL SCIENCE (4)
A survey of the basic concepts in government and politics, theories and methods of political science and the American political system as well as materials.

POL 201. AMERICAN NATIONAL GOVERNMENT (4)
Basic principles and procedures of the American governmental system with emphasis on current issues and trends.

POL 203. STATE AND LOCAL GOVERNMENT (4)
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.

UPPER LEVEL COURSES

POL 311. COMPARATIVE POLITICS (4)
Analysis of political systems using the concepts and methods of comparative politics. Studies of selected countries will be included.

POL 331. INTERNATIONAL RELATIONS (4)
Contemporary international affairs, including analysis of policies among nations; control of national foreign policies, sovereignty, nationalism and diplomacy; technology, public opinion and war in international relations.

POL 333. INTERNATIONAL ORGANIZATION (4)
The problems of achieving peace through existing international structures, both within and outside the United Nations. The background, achievement and organizational problems of these agencies.

POL 338. CONTEMPORARY AMERICAN FOREIGN POLICY (4)
Analysis of the development and scope of United States foreign policy focusing upon our aims, decision-making, application of policies, and alternatives for specified problem areas in foreign affairs.

POL 341. POLITICAL PARTIES (4)
PR: POL 201 or CI. The development, structure, operation and significance of political parties in the American system of government.

POL 343. EMPIRICAL POLITICAL ANALYSIS (4)
An introduction to the conduct of empirical political inquiry and to research methods. Techniques of data generation, collection, and analysis will be emphasized. Laboratory exercises required.

POL 345. PRIVATE GROUPS AND PUBLIC POLICY (4)
Role of non-party groups in the American society and their impact on public policy; growth of interest groups, internal politics, and formation of public policy.

POL 347. CONTEMPORARY SOUTHERN POLITICS (4)
Comparative study of selected political patterns and trends in the eleven southern states since 1950. Analysis of such topics as massive resistance, the civil rights movement, black political participation, factional division within the Democratic Party and the growth of presidential and gubernatorial Republicanism.

POL 351. INTRODUCTION TO PUBLIC ADMINISTRATION (4)
PR: Upper level standing. An examination of the administrative principles and processes by which public policies are implemented in a democratic society.

POL 405. POLITICS OF THE SOVIET UNION (4)
Development of the Soviet political system since the Revolution. Theory and practice of Communism in the contemporary Soviet Union.

POL 410. POLITICAL SYSTEMS OF SOUTHEAST ASIA (4)
PR: Upper level standing. Comparative analysis of political systems and practices in Southeast Asian countries with emphasis on the nature of nationalism, political development and revolutionary processes in the region.

POL 415. MILITARY POWER IN INTERNATIONAL POLITICS (4)
PR: POL 331. Upper Level Standing or CI. A study of the role of military power affecting war and peace in modern international politics. Among the issues covered are, limited war, nuclear deterrence, balance of power, conventional war, guerrilla warfare, disarmament and nuclear proliferation.

POL 421. GOVERNMENT AND POLITICS OF THE FAR EAST (4)
Development of political ideas and institutions of Japan and China with emphasis on 20th century issues.

POL 425. POLITICS OF LATIN AMERICA (4)
Comparative analysis of political systems of Latin America, with emphasis on modernization, the role of the military, revolutionary processes, and inter-American relations.

POL 428. POLITICS OF AFRICA (4)
Development and growth of emerging African political systems and their relations with each other and with states outside of Africa.

POL 431-432. CONSTITUTIONAL LAW (4, 4)

POL 434. JUDICIAL POLITICS (4)
Consideration of selected theories of judicial decision-making. Examination and application of social science methodology to the study of court systems PR: POL 431 or POL 432.

POL 436. INTERNATIONAL LAW AND DIPLOMACY (4)
Contemporary international norms, agreements and negotiations. Influence on, and response to, a changing international system.

POL 438. COMPARATIVE FOREIGN POLICY (4)
Comparative study of foreign policy behavior of nations. Analysis of formulation and objectives of foreign policies.

POL 441. THE AMERICAN PRESIDENCY (4)
The presidency as an institution of American democracy; constitutional status and powers, administrative responsibilities, legislative and political leadership, decision-making process.

POL 443. POLITICAL BEHAVIOR (4)
PR: Upper level standing or CI. Economic, psychological and social dimensions of political behavior; political participation, leadership and elites; political attitudes; voting behavior and decision-making processes.

POL 453. URBAN GOVERNMENT (4)
An introduction to the theory of urbanism, formal and informal structures that govern urban areas, new patterns and policy emphasis of urban government.

POL 454. URBAN POLITICS (4)
PR: Upper level standing. POL 203 or equivalent. An examination of the political processes and systems in urban and suburban communities in America.

POL 455. THE AMERICAN LEGISLATIVE PROCESS (4)
Intensive analysis of the nature of the legislative process in the United States; organization, procedure, leadership, relation with other governmental agencies, group tactics, decision-making process in the formation of policy.

POL 457. PROBLEMS OF PUBLIC FISCAL ADMINISTRATION (4)
PR: POL 351 or CI. Analysis of problems in the growth and development of public budgets with emphasis on principal techniques and theories of fiscal administration.

POL 461. CLASSICAL POLITICAL IDEAS (4)
PR: POL 199 or CI. Basic political ideas from the works of Plato, Aristotle, Cicero, St. Augustine, St. Thomas Aquinas.
and other leading Greek, Roman, and Medieval-Christian political philosophers.

**POL 462. CLASSICAL POLITICAL IDEAS (4)**
Pr: POL 199 or CI. Basic political ideas from the works of Machiavelli, Bodin, Hobbes, Locke, Montesquieu, Rousseau, Burke, Bentham and other leading modern political philosophers.

**POL 463. AMERICAN POLITICAL THOUGHT (4)**
Pr: Upper level standing. American political thought from the Colonial period to the present with emphasis on recent contributions.

**POL 464. MODERN POLITICAL THOUGHT (4)**
Pr: Upper level standing. Basic political ideas from the works of 19th and 20th century political philosophers.

**POL 481. INDIVIDUAL RESEARCH (1-8)**
Pr: 3.0 average in Political Science and CI. Investigation of some aspect of political science culminating in the preparation of an original research paper.

**POL 491. SENIOR SEMINAR (4)**
Pr: Senior standing. Designed to give the student an opportunity to examine and apply various concepts and methods in the field of political science to some integrated problem area.

**FOR SENIORS AND GRADUATE STUDENTS**

**POL 520. ADMINISTRATION OF URBAN AFFAIRS (4)**
An analysis of the role of the administrator at the municipal level stressing the division of functions, policy formation, alternative governmental structures and their effect on administrative processes.

**POL 525. PROBLEMS OF PUBLIC PERSONNEL ADMINISTRATION (4)**
An analysis of recruitment, testing, training, employee and human relations in the public service.

**POL 527. COMPARATIVE PUBLIC ADMINISTRATION (4)**
Comparison of certain aspects of public administrative systems of various governments, emphasizing such writers as Sifftin, Hadiari, Appleby, Hu, Simon and Riggs.

**POL 530. LEGAL AND REGULATORY PROCESSES (4)**
Systematic study of the political-judicial factors in the regulatory process of administrative agencies.

**POL 550. METHODOLOGICAL AND CONCEPTUAL PROBLEMS IN COMPARATIVE AND INTERNATIONAL POLITICS (4)**
Examination of problems and concepts in the study of comparative and international politics, emphasizing theoretical and empirical relations and relative advantages of different levels and units of analysis. May be repeated for credit.

**POL 561. POLITICS OF THE DEVELOPING AREAS (4)**
An analysis of the ideologies, governmental structures, and political processes of selected nations of the non-Western world.

**POL 571. FIELD WORK (4)**
Pr: 3.0 average in Political Science and CI. Application of research models now employed in governmental agencies; including developing a structured research proposal. Designed to give the student practical experience in the administrative and political processes.

**FOR GRADUATE STUDENTS ONLY**

**POL 600. SCOPE AND METHODS OF POLITICAL SCIENCE (4)**
Advanced study of the scope and methodologies of political science, including their applications to different research areas.

**POL 620. URBAN POLICY ANALYSIS (4)**
Systematic examination of the organizational and administrative characteristics of planning, program development and reporting activities conducted at local levels by various state, regional and federal agencies.

**POL 623. URBAN FINANCIAL ADMINISTRATION (4)**
Examination of organizational structure and administrative processes of urban fiscal agencies, sources of revenue, expenditures and indebtedness, and current problems in budgeting.

**POL 625. PROBLEMS IN URBAN POLITICS (4)**
Analysis in depth of pressure group behavior and its role in municipal policy formulation, including the study of community power approaches advanced by Rossi, Sofen, Kammerer, Martin and others.

**POL 627. ADMINISTRATIVE BEHAVIOR AND PUBLIC POLICY FORMATION (4)**
Analysis of the formal, informal and societal characteristics of public bureaucracies and their impact on public policy.

**POL 640. POLITICAL SOCIALIZATION (4)**
Seminar in selected phases of the political socialization process.

**POL 643. CONTEMPORARY POLITICAL IDEAS AND BEHAVIOR (4)**
Study of certain phases of political philosophy and theories of modern political analysis.

**POL 645. SEMINAR IN STATE POLITICS (4)**
Analysis of selected topics in American state politics. May be repeated for credit as topics vary.

**POL 650. SEMINAR IN POLITICAL REVOLUTION AND CHANGE (4)**
Analysis of selected contemporary problems relating to political revolution and change.

**POL 662. SEMINAR IN COMPARATIVE POLITICS (4)**
Comparative analysis of political systems in terms of processes, institutions, and behavior. May be repeated for credit.

**POL 665. SEMINAR IN INTERNATIONAL ORGANIZATIONS AND ADMINISTRATION (4)**
Analysis of various phases of international organizations and their administrative systems.

**POL 667. SEMINAR IN INTERNATIONAL RELATIONS (4)**
Investigation of selected phases of international relations in world politics. May be repeated for credit as topics vary.

**POL 670. SEMINAR IN AMERICAN GOVERNMENT AND POLITICS (4)**
Analysis of selected current problems in American government and politics. May be repeated for credit as topics vary.

**POL 675. SEMINAR IN URBAN PROBLEMS (4)**
Systematic analysis and evaluation of various problem areas of contemporary urban governments.

**POL 677. SEMINAR IN ADMINISTRATIVE PROCESS (4)**
Analysis of various administrative processes emphasizing policy formulation, implementation, programming, new concepts of management in a public service environment.

**POL 680. INDIVIDUAL RESEARCH (4)**
Study in depth of a special problem in political science.

**POL 690. MASTER'S THESIS (1-9)**

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**PORTUGUESE (POR)—see Modern Languages**

**PSYCHOLOGY (PSY)**

LOWER LEVEL COURSES

PSY 201. INTRODUCTION TO PSYCHOLOGY (5)
A survey of major topics in psychology (learning, perception, thinking, intelligence, etc.), and an introduction to methods used in psychological investigation. Lecture and discussion, taken concurrently.

UPPER LEVEL COURSES

PSY 311-312. RESEARCH METHODS IN PSYCHOLOGY (4-1)
PR: PSY 201 and SSI 301. Scientific research methods and their applications for psychology. Topics include experimental planning, control procedures, and interpretive principles. Lecture plus two-hour lab. Must be taken concurrently.

PSY 313. APPLIED PSYCHOLOGY (4)
PR: PSY 201 or CI. The application of psychological principles and the functions of psychologists in education, government, industry, and clinical practice. Not for major credit.

PSY 335. PSYCHOLOGY OF ADJUSTMENT (4)
PR: PSY 201 or CI. Genetic, organic and learned factors involved in the processes of personal adjustment: applications of mental health principles to everyday living. Not for major credit.

PSY 341. CHILD PSYCHOLOGY (4)
PR: PSY 201 or CI. Developmental and psychosocial aspects of childhood, including hereditary, maturational, psychological, and social determinants of child behavior. Not for major credit.

PSY 401. GENERAL PSYCHOLOGY (4)
PR: Upper-division standing. Designed to give the advanced undergraduate non-major an opportunity to acquire concepts within the field of psychology and relate these to other areas of study. Not for major credit.

PSY 402. PSYCHOLOGY OF LEARNING (4)
PR: PSY 201, SSI 301, PSY 311-312. Survey of methods, empirical findings and theoretical interpretations in conditioning and instrumental learning. Lec-lab.

PSY 403. DEVELOPMENTAL PSYCHOLOGY (4)
PR: PSY 201, SSI 301, PSY 311-312. Survey of methods, empirical findings and theoretical interpretations in the study of human and animal development.

PSY 404. SOCIAL PSYCHOLOGY (4)
PR: PSY 201, SSI 301, PSY 311-312. Survey of methods, empirical findings and theoretical interpretations in the study of an individual's behavior as it is affected by others.

PSY 405. NEUROPSYCHOLOGY (4)

PSY 411. EXPERIMENTAL DESIGN AND ANALYSIS (4)
PR: PSY 201, SSI 301, PSY 311-312. Detailed coverage of those research designs and statistical techniques having the greatest utility for research problems in psychology. Emphasis on topics from analysis of variance.

PSY 415. SYSTEMATIC PSYCHOLOGY (4)
PR: PSY 201, SSI 301, PSY 311-312. The historical roots of modern psychological theories. Investigation of the various schools of psychology such as behaviorism, Gestalt psychology, psychoanalysis, and phenomenological psychology.

PSY 421. MOTIVATION (4)
PR: PSY 201, SSI 301, PSY 311-312, 402. An examination of human and animal motivations from both physiological and psychological viewpoints.

PSY 425. COMPARATIVE PSYCHOLOGY (4)
PR: PSY 201, SSI 301, PSY 311-312, 402, 405. The study of the evolution of behavior, similarities and differences in capacities for environmental adjustment and for behavioral organization among the important types of living beings from plants and unicellular organisms to the primates including man.

PSY 432. INDUSTRIAL PSYCHOLOGY (4)
PR: PSY 201, SSI 301, PSY 311-312. Application of psychological principles to industry. Topics include: selection and placement, testing, criterion development, performance appraisal, training, motivation, job attitudes and satisfaction, supervision, decision-making, organizational structure and theory, accidents and safety, human engineering.

PSY 436. PSYCHOLOGICAL ASSESSMENT (4)
PR: PSY 201, SSI 301, PSY 311-312. A consideration of the instruments for intellectual achievement, and personality assessment including their applications, development, and potential abuses. Students may not receive credit for both PSY 436 and EDF 303, Introduction to Measurement and Evaluation.

PSY 441. HUMAN MEMORY (4)
PR: PSY 201, SSI 301, PSY 311-312. Survey of methods, empirical findings, and theoretical interpretations of human learning and retention, including concept learning, information processing, and verbal learning. Lec-lab.

PSY 445. PERCEPTION (4)
PR: PSY 201, SSI 301, PSY 311-312. How man perceives his environment. Topics include sensory bases of perception, physical correlates of perceptual phenomena, and the effects of individual and social factors on perception. Primary emphasis on vision and audition. Lec-lab.

PSY 450. PSYCHOLOGY OF WOMEN (4)
(Also Listed as WSP 401.)

PSY 451. HUMAN SEXUAL BEHAVIOR (4)
(Also Listed as WSP 405.)

PSY 452. PERSONALITY (4)
PR: PSY 201, SSI 301, PSY 311-312. Methods and findings of personality theories and evaluation of constitutional, biobehavioral, and psychological determinants of personality.

PSY 455. PSYCHOPATHOLOGY (4)
PR: PSY 201, SSI 301, PSY 311-312. Descriptions, theoretical explanations, research evidence and treatment of maladaptive behavior.

PSY 481. SELECTED TOPICS; RESEARCH (1-4)
PR: Upper division standing and CI. The student plans and conducts an individual research project under the supervision of a psychology faculty member. May be repeated with a maximum of eight hours credit.

PSY 485. SELECTED TOPICS; READING (1-4)
PR: Upper division standing and CI. A reading program of topics in psychology is conducted under the supervision of a psychology faculty member. May be repeated with a maximum of eight hours credit.

PSY 491. SELECTED TOPICS; SEMINAR (4-8)
PR: Upper division standing and CI. Graduate-type seminar designed to provide the advanced undergraduate student with the opportunity to interact with the faculty and other students for the purpose of developing an in-depth understanding of a selected sub-area within psychology. May be repeated with a maximum of eight hours credit.

FOR GRADUATE STUDENTS ONLY

PSY 608. EXPERIMENTAL SOCIAL PSYCHOLOGY (5)
PR: CI. Analysis and laboratory experience in research methods of social psychology, with particular consideration of attitude measurement, systematic observational methods, sociometrics, stimulation of social behavior, interviewing, and content analysis.

PSY 609. MOTIVATION AND EMOTION (5)
PR: CI. A detailed examination of human motivation and emotion from both the physiological and psychological viewpoints. M. A. core course.

PSY 610. OPERANT BEHAVIOR (5)
PR: CI. Review of the basic literature of operant conditioning and major areas of research and application. Supervised laboratory experience in programming basic schedules of reinforcement.
PSY 612. PERSONALITY (5)  
PR: Admission to M.A. program in psychology or CI. Analysis of traditional and current theory and research in the area of personality. M.A. core course.

PSY 613. BEHAVIORAL DISORDERS OF CHILDREN (5)  
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. Students may not receive credit for both PSY 613 and EDS 531, Behavior Disorders in the Schools.

PSY 614. PSYCHOPATHOLOGY (5)  
PR: Admission to M.A. 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. M.A. core course.

PSY 615. PERSONALITY ASSESSMENT (5)  
PR: PSY 617. Interview, case history, objectives and projective tests are surveyed together with a critical review of the history and theory of assessment. Special consideration is given to study of interrelations between research, diagnostic data, and personality theory.

PSY 617. INDIVIDUAL INTELLIGENCE TESTING (5)  
PR: CI. History and objectives of intelligence testing. Methods used in the construction of individual intelligence tests. Intensive experience in the administrative and interpretation of the Wechsler tests, Stanford-Binet, and other tests. Students may not receive credit for both PSY 617 and EDF 617, Measurement of Individual Intelligence.

PSY 620. SUPERVISED RESEARCH (1-5)  
PR: CI. May be repeated for credit. The student works in close collaboration with a faculty member in designing, conducting and interpreting experiments.

PSY 621. APPLICATIONS OF LEARNING PRINCIPLES & PROCEDURES (5)  
PR: Prior course in learning, or CI. Application of various learning principles and procedures to problems in specialized settings. Co-listed Rehabilitation Counseling (REH 621.)

PSY 631, 632, 633. RESEARCH METHODS AND MEASUREMENT I, II, & III (5,5,5)  
PR: Admission to M.A. program in psychology or CI. Three-quarter sequence designed to cover research methods and their application to psychology. Topics include logic and purpose of experimentation in psychology, measurement theory, design and analysis of experiments, probability, statistical inference, analysis of variance, correlational methods, interpretation of experimental findings. M. A. core courses.

PSY 634. PHYSIOLOGICAL PSYCHOLOGY (5)  
PR: Admission to M.A. program in psychology or CI. Neural and physiological foundations of behavior. Structure and function of the central nervous system and autonomic nervous system. Physiological basis of learning, motivation in sub-humans and humans. M.A. core course.

PSY 635. DEVELOPMENTAL PSYCHOLOGY (5)  
PR: Admission to M.A. program in psychology or CI. Detailed study of the development of human and animal behavior aimed toward an understanding of ontogenetic contributions to later behaviors. Effects of early experience on later behavior. M.A. core course.

PSY 636. LEARNING (5)  
PR: Admission to M.A. program in psychology or CI. Habituation, sensitization, classical and instrumental conditioning, generalization, discrimination, trial and error learning, problem solving. M. A. core course.

PSY 638. PERCEPTION (5)  
PR: Admission to M.A. program in psychology or CI. Current data and theory of perceptual processes. Consideration of physiological and psychological variables in perception, and applications of information theory and signal detection theory. M.A. core course.

PSY 639. SOCIAL PSYCHOLOGY (5)  
PR: Admission to M.A. program in psychology or CI. Overview of theory and research in social psychology. Attitudes, values, group processes, leadership, conformity, social learning and motivation. M.A. core course.

PSY 641. HUMAN MEMORY (5)  
PR: Admission to M.A. program in psychology or CI. Review of methods, findings and theoretical interpretations associated with the study of acquisition and retention of information. M.A. core course.

PSY 650. ELECTROPHYSIOLOGICAL METHODS (5)  
PR: PSY 634 or CI. Introduction to the use of electrophysiological methods in psychological research. This will involve actual experience in use of oscilloscopes, polygraphs, EEG techniques, stereotaxic procedure, stimulation and lesioning techniques, use of microtome, and staining and mounting of tissue sections. Lec-lab.

PSY 660. COMMUNITY PSYCHOLOGY (5)  

PSY 682. PRACTICUM IN PSYCHOLOGY (1-5)  
PR: CI. Supervised observation and training in various community and university clinic, research and/or industrial settings. May be repeated for credit.

PSY 687. GRADUATE SEMINAR IN PSYCHOPATHOLOGY (5)  
May be repeated for credit.

PSY 688. GRADUATE SEMINAR IN COMMUNITY PSYCHOLOGY (5)  
May be repeated for credit.

PSY 689. GRADUATE SEMINAR IN LEARNING (5)  
May be repeated for credit.

PSY 690. GRADUATE SEMINAR IN PERCEPTION (5)  
May be repeated for credit.

PSY 691. GRADUATE SEMINAR IN PHYSIOLOGICAL PSYCHOLOGY (5)  
May be repeated for credit.

PSY 692. GRADUATE SEMINAR IN SOCIAL PSYCHOLOGY (5)  
May be repeated for credit.

PSY 693. GRADUATE SEMINAR ON ISSUES IN CLINICAL PSYCHOLOGY (5)  
May be repeated for credit.

PSY 694. GRADUATE SEMINAR IN DEVELOPMENTAL PSYCHOLOGY (5)  
May be repeated for credit.

PSY 695. GRADUATE SEMINAR IN PERSONALITY (5)  
May be repeated for credit.

PSY 696. GRADUATE SEMINAR IN COGNITIVE PROCESSES (5)  
May be repeated for credit.

PSY 697. GRADUATE SEMINAR IN QUANTITATIVE METHODS (5)  
May be repeated for credit.

PSY 698. GRADUATE SEMINAR IN INDUSTRIAL PSYCHOLOGY (5)  
May be repeated for credit.

PSY 699. THESIS (5)  
A study in depth of a problem in psychology approved by a thesis committee. Student stands an oral examination on the thesis.

PSY 701, 702. INDUSTRIAL PSYCHOLOGY, I, II (5,5)  
PR: Admission to Ph.D. program in psychology or CI. Examination of theories and developments in the major areas of industrial psychology.

PSY 709. FUNDAMENTALS OF CLINICAL NEUROPSYCHOLOGY (5)  
PR: Admission to Ph.D. program in psychology, PSY 617, 634, or CI. Current data and theory of organic brain damage-behavioral disorder relationships. Human central nervous system pathology.
PSY 711. TESTING IN INDUSTRY (5)
PR: Admission to Ph.D. program in psychology or CI.
A look at the historical origin, development, and current understanding of the philosophy of rehabilitation. The rehabilitation process is viewed as an integration of concepts and procedures from the medical, social-psychological, and legal disciplines.


FOR SENIORS AND GRADUATE STUDENTS
REH 501. REHABILITATION: CONCEPTS AND THEORETICAL ISSUES (5)
A look at the historical origin, development, and current understanding of the philosophy of rehabilitation. The rehabilitation process is viewed as an integration of concepts and procedures from the medical, social-psychological, and legal disciplines.

REH 502. INTERPERSONAL ASPECTS OF REHABILITATION COUNSELING I (5)
PR: CI. Focuses on the effective utilization of one's self in the various counseling and coordinating relationships of the rehabilitation process. An introduction to encounter, body awareness, Gestalt counseling techniques, and related approaches.

REH 503. MEDICAL ASPECTS OF DISABILITY (5)
Study of medical information needed by the counselor in integrating medical services into the total rehabilitation process from referral to placement. Examines the effect of a client's physical condition on various areas of adjustment. Includes appraisal of physical capacities in terms of functional limitations and individual differences.

REH 507. SEMINAR IN PRINCIPLES AND PRACTICES OF REHABILITATION COUNSELING I (4)
PR: CI. Procedures appropriate in meeting the needs of handicapped individuals in the rehabilitation process. Must be taken concurrently with REH 508. (S/U only.)

REH 508. PRACTICUM I (2)
PR: CI. Supervised observation experience and participation in counseling services in various rehabilitation agencies. Must be taken concurrently with REH 507. (S/U only.)

REH 509. DIRECTED STUDIES (2-5)
PR: CI. Study in rehabilitation counseling area under the direct supervision of a faculty member. May be repeated for a maximum of 10 hours credit.

with man-machine interactions and on equipment design as it pertains to these demands.

PSY 743. ORGANIZATIONAL PSYCHOLOGY AND GROUP PROCESSES (5)
PR: Admission to Ph.D. program in psychology, PSY 701, or CI. Examination of the social foundations of industrial psychology, and the interactions between organizational structure and individual cognitive and motivational variables. Topics include decision-making and communication in both large and small industrial groups.

PSY 764, 765, 766. PSYCHOTHERAPY AND BEHAVIOR CHANGE I, II, III (5,5,5)
PR: Admission to Ph.D. program in psychology or CI. Sequence to cover the theoretical and empirical foundations of various systems of psychotherapy. Traditional relationship therapy, client-centered approaches, operant techniques, and other varieties of therapeutic intervention.

PSY 790. SEMINAR IN ETHICS AND PROFESSIONAL PROBLEMS (5)
PR: Second year in Ph.D. psychology program or CI. Ethical issues and professional problems in the practice of psychology.

REH 602. INTERPERSONAL ASPECTS OF REHABILITATION COUNSELING II (5)

REH 603. PSYCHO-SOCIAL DISABILITY IN REHABILITATION COUNSELING (5)
PR: REH 502. Personal, social, and vocational consequences of emotional and social disabilities.

REH 604. RESEARCH METHODOLOGY IN REHABILITATION (5)
PR: CI. The aim of this course is to help students evaluate and utilize available research studies as well as to develop their own research skills. An individual research project is required.

REH 606. VOCATI ONAL PLACEMENT AND ADJUSTMENT OF THE DISABLED (5)
A study of occupations, vocational theories, pre-placement counseling, vocational placement techniques, follow-up procedures, and the psycho-social aspects of work as they pertain to rehabilitating disabled and disadvantaged persons.

REH 607. SELECTED TOPICS IN REHABILITATION (2-5)
PR: CI. Designed to give the student an opportunity to study in depth some concept, procedure, or body of data in the rehabilitation field. May be repeated for a maximum of 10 hours credit.

REH 608. EVALUATION IN THE REHABILITATION PROCESS (5)
PR: REH 502. Examine the evaluation procedure from the point of view of providing reliable and valid information for use in the counseling process. (Formerly REH 506.)

REH 609. SEMINAR IN REHABILITATION COUNSELING (5)
PR: CI. Seminar in selected issues and problems in rehabilitation counseling. Subject and scope to be determined by instructor. May be repeated for credit with different content.

REH 610. SEMINAR IN PRINCIPLES AND PRACTICES OF REHABILITATION COUNSELING II (4)
PR: REH 507 and 508. Continuation of REH 507. Must be taken concurrently with REH 611. (S/U only.)
REL 611. PRACTICUM II (2)
PR: REH 507 and 508. Continuation of REH 508. Must be taken concurrently with REH 610. (S/U only.)

REL 612. GROUP WORK IN REHABILITATION COUNSELING (5)
PR: CI. Examination of group processes as applicable to rehabilitation counseling.

REL 613. ADVANCED GROUP WORK IN REHABILITATION COUNSELING (5)
PR: CI. Extension of REH 612 with emphasis on field work.

REPRESENTING RELIGIOUS STUDIES (REL)


UPPER LEVEL COURSES

REL 300. INTRODUCTION TO RELIGION (4)
An examination of the phenomenon of religion, which will include (1) an examination of why people do religion; (2) an examination of the character of theology, with special attention to certain basic theological concepts such as God, sin, salvation, liberation, reincarnation, immortality, theism, atheism; (3) an analysis of the character of religious ritual in its metatechnological, sacramental and experimental form; and (4) an examination of the place and character of moral systems in religion.

REL 310. OLD TESTAMENT SURVEY (4)
An introduction to the critical study of the Hebrew Scriptures against the background of the ancient Near East, with attention to the history and religion of the Hebrew people. REL 310 and REL 410 may not both be credited toward the major.

REL 315. NEW TESTAMENT SURVEY (4)
An introduction to the critical study of the New Testament in context of Christian beginnings in the first century A.D. REL 315 and 415 may not both be credited toward the major.

REL 316. NEW TESTAMENT GREEK I (4)

REL 317. NEW TESTAMENT GREEK II (4)

REL 325. HISTORY OF JUDAISM (4)
The historical development of Judaism and Jewish concepts from biblical times to the modern era with emphasis on the formative years from the Prophets to the close of the Talmud.

REL 326. MODERN JUDAISM (3)
A study of Jewish life in the West since 1789, emphasizing Jewish beliefs, practices and institutions.

REL 327. HISTORY OF CHRISTIANITY I (4)
The historical development of Christianity, its ideas and institutions, from the first century to the sixteenth century.

REL 328. HISTORY OF CHRISTIANITY II (4)
The historical development of Christianity, its ideas and institutions from the work of John Wycliffe to the rise of "religious modernism" in the 19th century.

REL 329. RELIGION IN AMERICA (4)
To examine the movement from state church to pluralism in American religious institutions; the religious results of non-Protestant immigration; the Jewish factor; the effect of home missions and social concern programs upon American life; political entanglements and the concept of church/state separation.

REL 330. BLACK RELIGIOUS EXPERIENCE IN AMERICA (4)
A course designed to stimulate interest in the religious history, experience, and thinking of American Blacks.

REL 331. THE BLACK CHURCH (4)
A critical examination of the Black Church will be made in this course. The significance of religious development and the present condition of Black religious institutions and their relationships to modern movements will be examined. Denominational, interdenominational, and international caucuses will also be examined for their particular religious, political, economic, social, and ideological significance.

REL 340. LAND OF THE BIBLE (4)
A survey of the natural features, historical forces, and cultural movements of the Holy Land that shaped its peculiar role in history with respect to the ancient Hebrews. Particular attention will be paid to the period from the Hebrew Conquest to the time of Jesus.

REL 341. BIBLICAL ARCHAEOLOGY (4)
An examination in depth of the archaeological data relating to the background and content of the Bible, including ancient customs. Biblical sites and cities. Biblical history, and material culture of the Biblical period. Special attention will also be given to excavation methods and interpretation of archaeological evidence.

REL 350. WORLD RELIGIONS—EASTERN (5)
An introduction to and a comparison of the ideas, the literature, the institutions of the major religions of the Eastern World, especially Buddhism (Theravada, Mahayana, Zen), Hinduism, Jainism, Taoism, Confucianism, Shinto.

REL 351. WORLD RELIGIONS—WESTERN (5)
An introduction to and a comparison of the ideas, the literature, the institutions of the major religions of the Western (Near Eastern origin) World—Judaism, Zoroastrianism, Christianity, and Islam. And a general comparison of Western religious ideas with Eastern religious ideas.

REL 360. DIALOGUES IN RELIGION (4)
A course designed to place in dialogic encounter various aspects of contemporary religious beliefs and practices for the purpose of enabling students to hear and participate in discussions concerning the claims and procedures of existing religions.

REL 370. CONTEMPORARY RELIGIOUS THOUGHT (4)
An examination of the central ideas of recent theological thinkers: such men as Barth, Brunner,ultmann, Bonhoeffer, Rahner, Tillich, Cox, Altizer, Buber, Niebuhr.

REL 383. SELECTED TOPICS (1-5)
PR: CI. Course contents depend on students’ needs.

REL 385. DIRECTED READINGS (1-5)
PR: CI. Individual guidance in concentrated reading on a selected topic.

REL 400. COMPARATIVE MYSTICISM (4)
A course designed to acquaint the student with the nature of mystical experience, and some of the varieties of mystical experience recorded in the writings of the mystics.

REL 401. RELIGIOUS BEHAVIOR AND INSTITUTIONS (4)
PR: One course in Sociology or Social Psychology or CI. The sources of religious social thought, an understanding of the historical evolution of religious thought about society, and an analytical grasp of the way in which religious insights and values relate to human societal life are the three main objectives of this course.

REL 402. DYNAMICS OF RELIGION (4)
PR: One Psychology course or CI. This course is designed to enhance the student’s understanding of human existence by
investigating the interrelationships between human dynamics and religion.

REL 403. JESUS' LIFE AND TEACHINGS (4)
PR: 60. An examination of the various historical studies made in the quest of identifying Jesus as an historical figure. The concern is to make a reasonable assessment of who Jesus was and what he was saying to the Jews in Palestine at the beginning of the common era.

REL 410. OLD TESTAMENT STUDIES I (Torah) (4)
An examination of the Pentateuch or Torah from the point of view of its literary development, internal traditions, historical background, Law, covenant theology, and Hebrew religion.

REL 411. OLD TESTAMENT STUDIES II (Prophets) (4)
PR: REL 410 or REL 315 or CI. An investigation of the Prophetic literature of the Hebrew Scriptures including the emergence of mantic prophecy in Elijah and Elishah, classical prophecy in Jeremiah, Micah, Amos, and Isaiah, the later twelve prophets, and the role of Samuel and the Book of Kings.

REL 412. OLD TESTAMENT STUDIES III (Writings) (4)
PR: REL 410 or REL 315 or CI. An exploration of the poetic and historical writings in the Hebrew canon including the Psalms, Wisdom Literature, Job and the problem of evil, the Five Scrolls, Daniel and apocalypticism, and the religious views of the Chronicler.

REL 415. NEW TESTAMENT STUDIES (Gospels) (4)

REL 416. NEW TESTAMENT STUDIES II (Pauline Letters) (4)
An investigation of earliest Christianity in its Jewish and Gentile forms, the historical Paul, his proclamation, and his letters as preserved in the New Testament.

REL 417. NEW TESTAMENT STUDIES III (Later Letters and Revelation) (4)
An examination of the emergence of institutional Christianity in the New Testament, particularly in churchly theology, the Pastoral Epistles, the catholic Epistles, the letters of James and John, and finally Christian apocalypticism in the book of Revelation (Apocalypse).

REL 481. UNDERGRADUATE RESEARCH (1-5)
PR: Junior standing and CI. Individual investigations with faculty supervision.

REL 483. SELECTED TOPICS (1-5)
PR: Junior standing and CI. Course contents depend on students’ needs.

REL 491. SEMINAR IN RELIGION (4)
A course designed for persons, especially Religious Studies majors, whose prior religious studies have prepared them for a cooperative creative and/or research effort in the area of religion.

FOR SENIORS AND GRADUATE STUDENTS
REL 583. SELECTED TOPICS (1-5)
PR: Senior standing and CI. Course contents depend on students’ needs.

RUSSIAN (RUS)—see Modern Languages

SOCIAL SCIENCES (INTERDISCIPLINARY) (SSI)
Chairman: M. T. Orr; Director: M. Kaplan (Leisure Studies);

LOWER LEVEL COURSES
SSI 100. WORLD PERSPECTIVE (4)
Application of the interdisciplinary approach to the study of the international system, major world regions and problems.

SSI 201, 202. BEHAVIORAL SCIENCE (4,4)
Draws on information from behavioral sciences (human biology, psychology, anthropology, sociology, and philosophy) to demonstrate how human behavior develops and means by which personal, social, and ethical problems are dealt with. Students desiring to pursue their interest in behavioral science may also take SSI 383 (formerly CBS 203) in which selected topics are studied in depth. (Formerly CBS 201, 202.)

UPPER LEVEL COURSES
SSI 300. AMERICA'S ROLE IN THE WORLD (4)
Application of the interdisciplinary approach to the study of America's relations with other nations through analysis of political, socio-economic, cultural, and military problems, conflicting national interests and the formulation of foreign policy and its implementation. Upper level standing or CI.

SSI 301. SOCIAL SCIENCE STATISTICS (4)
Topics selected from the following: measures of central tendency and variability probability and the normal curve, correlations, curve fitting, scale and index number theory, polling, interview and survey techniques, content analysis. Students who successfully complete this course may not also receive credit for either ECN 231 Business and Economic Statistics I or MTH 345 Introductory Statistics.

SSI 311. COMMUNICATION (4)
Topics selected from the following: the language of structure, general semantics, communication networks, language and social perception, diffusion of information, communication and social gamesmanship, Aesopian language and Nu-Think in politics, normative language of clinical psychology, communication and pseudo-events, non-verbal communication.

SSI 315. PUBLIC OPINION AND PRESSURE MECHANISM (4)
The content and form of public opinion, properties of opinions and attitudes, and the principles and mechanisms of their formation and change.

SSI 321. HUMAN RELATIONS AND PRODUCTIVITY (4)
Topics to be selected from the following: the relation of science, technology, resources, energy, and population change to social, economic, cultural and political change; social implications of research findings from the social, behavioral and management sciences.

SSI 325. PSYCHOLOGY AND THE SOCIAL ORDER (4)
Topics to be selected from the following: the quest for personal identity in modern mass society, the problems of mass culture and mass education, the problems of alienation and anomie in the 20th century, psychological factors in political and industrial conflict, man versus the machine in modern life.
Area Studies

The following five courses (SSI 339, 341, 343, 345 and 347), dealing with one or more countries of a given region, will select and emphasize subject matter from the following topics: its history, its people and their cultures, its social psychology and national characteristics, its economic and industrial characteristics, its literature, religion and dominant values, its political framework and outlook, its social structure, and its current problems.

Each course may be repeated when countries of concentration vary, but the same country may not be repeated for credit.

SSI 339. EUROPE (4)
SSI 341. LATIN AMERICA (4)
SSI 343. ASIA (4)
SSI 345. AFRICA (4)
SSI 347. THE MIDDLE EAST (4)

SSI 361. COMMUNISM IN THE MODERN WORLD (4)
An interdisciplinary approach to the nature of Communism, its philosophic biases, its anti-religious bias, its economic, social and political theories and practices, the arts and sciences under Communist ideology, its conduct of foreign affairs and associated programs and techniques. Emphasis will be on Soviet and Chinese Communism.

SSI 383. SELECTED TOPICS IN THE SOCIAL SCIENCES (2-5)
Course content depends on student demand and instructors' interest. Topics will have clear interdisciplinary nature. Course may be repeated as topics vary, but the same topic may not be repeated. (Formerly CBS 203.)

SSI 395. OVERSEAS STUDY (1-9)
A program of individual or group research in a foreign country. Selection of the student, his preparation for the study, and subsequent evaluation to be supervised by a faculty committee. (Formerly CBS 395.)

SSI 403-404. THE UNIVERSE OF MAN (3, 3)
A search for the universals of human life today; the nature of man, the world community, human needs and values, available instruments of science and technology, and the limiting facts and forces. (Formerly CBS 403, 404.)

SSI 405-406-407. BEHAVIORAL SCIENCE (3, 3, 3)
A comprehensive analysis and evaluation of man's behavior. Emphasis on understanding of mechanisms involved in individual and social behavior, along with consideration of social and ethical problems related to means for controlling behavior. Laboratory experience will be provided on special research topics. (Formerly CBS 405, 406, 407.)

SSI 411. SOCIAL ISSUES OF OUR TIME (4)
Topics to be selected from the following: automation and cybernation and the social problems they generate; special problems of a technological civilization; the implications of changing social patterns of Western culture and opportunities for social re-construction.

SSI 413. LEISURE IN SOCIETY (4)
Facts and trends of changing leisure-time patterns in the USA and other countries; various conceptualizations of leisure; relationships of non-work time to work attitudes, personality, family, community, sub-cultures, religion, value systems, social class, and the functions of government.

SSI 415. THE CITY AND MAN (4)
Topics to be selected from the following: the city and its ills; proposed new types of community formation; planning and community; the social ecology of the city; conventional versus innovative approaches to the problems of the community.

SSI 449, 450. THE EMERGING NATIONS (4, 4)
PR: Upper division standing or CI. CI required to take SSI 450 out of sequence. This course examines the processes and problems involved when an underdeveloped country seeks to develop a modern industrial civilization.

SSI 481. DIRECTED RESEARCH (1-4)
PR: CI plus upper division standing. May be repeated. To provide advanced students with interdisciplinary research experience in areas of specific interest.

SSI 485. DIRECTED READINGS (1-4)
PR: CI plus upper division standing. May be repeated. To provide advanced students with intensive reading of interdisciplinary nature in areas of specific interest.

SSI 491. SENIOR SEMINAR (4)
PR: Senior standing and CI. To provide an integrating seminar experience for International Studies' majors.

FOR SENIORS AND GRADUATE STUDENTS

SSI 503. CONTEMPORARY AMERICAN CULTURE (4)
A social analysis of the leading characteristics, ideals, and values of American life. An effort will be made to deal with a variety of contexts in which American cultural themes, standards and practices receive expression.

SSI 505. SOCIAL VALUES AND SOCIAL ORDER (4)
Topics to be selected from the following: the value-patterns of modern societies; social bases for a world order; the aims and functions of social planning; international transformation created by science and technology.

SSI 583. SELECTED TOPICS (1-4)
PR: CI plus senior standing or graduate status. May be repeated. To provide advanced students with interdisciplinary study of selected topics.

FOR GRADUATE STUDENTS ONLY

SSI 601. SOCIAL PATHOLOGY (4)
An examination of the variety of social criticism which has been leveled at Western society and of some of the defenses which have been made in its behalf. Materials will be chosen from several of the social sciences.

SSI 681. DIRECTED RESEARCH (1-4)
PR: CI and graduate standing. May be repeated. To provide graduate students with interdisciplinary research experience in areas of specific interest.

SSI 685. DIRECTED READINGS (1-4)
PR: CI and graduate standing. May be repeated. To provide graduate students with an intensive reading of interdisciplinary nature in areas of specific interest.

SOCIOLOGY (SOC)


LOWER LEVEL COURSES

SOC 181. CONTEMPORARY SOCIAL PROBLEMS (4)
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. (Formerly SOC 261.)

SOC 201. INTRODUCTION TO SOCIOLOGY (4)
Nature and application of sociological concepts, theories and methods; analysis of societies, associations and groups; social processes and social change.

SOC 251. MARRIAGE (4)
Study of pre-marital and marital relations. Social, cultural and personal factors related to success and failure in mate selection and marriage. Does not count for sociology major credit.
UPPER LEVEL COURSES

SOC 301. INTRODUCTION TO SOCIAL WELFARE (4)
PR: SOC 201 or CI. The historical and contemporary development of organized social services and institutions to meet human needs.

SOC 315. FOUNDATIONS OF THEORY (4)
PR: SOC 201 or CI. Consideration of selected theories in sociology and procedures of systematic theory construction.

SOC 321. SOCIAL INVESTIGATION (4)
PR: SOC 201, SS1 301. Methods and techniques of social research. Design of sociological studies, collection of data, and interpretation of results.

SOC 331. SOCIAL PSYCHOLOGY (4)
PR: PSY 201 or SOC 201. Behavior of the individual human being as affected by social and cultural influences of modern society.

SOC 341. SOCIAL ORGANIZATION (4)
PR: SOC 201 or CI. Social organization in the broadest sense, including institutions and associations, as well as variations in role and status.

SOC 345. SOCIAL STRATIFICATION (4)
PR: SOC 201 or CI. Social status and social stratification, social class as a factor in behavior, social mobility.

SOC 351. THE FAMILY (4)
PR: SOC 201 or CI. Principles of family organization, social adjustment and control. Maturation, socialization and stability of the family.

SOC 371. RACIAL AND ETHNIC RELATIONS (4)
PR: SOC 201 or CI. Comparative study of interracial relations, social tensions, attitudes, and modes of adjustment in various areas of the world.

SOC 373. SOCIOLOGY OF RELIGION (4)
PR: SOC 201 or CI. Types, sources, and functions of religious behavior. Religious behavior in relation to other aspects of personality and culture.

SOC 401. SOCIETY IN TRANSITION (4)
PR: Upper level standing. An analysis of the forces for change in contemporary society, utilizing a sociological perspective. Does not count for sociology major credit.

SOC 447. SOCIOLOGICAL IMPLICATIONS OF INDUSTRIALIZATION (4)
PR: SOC 201 or CI. Socio-cultural elements which define and accompany the process of industrialization as observed in mature industrial nations.

SOC 449. POLITICAL SOCIOLOGY (4)
PR: SOC 201 or CI. An examination of the social factors that affect government, politics, and political behavior.

SOC 481. INDIVIDUAL RESEARCH (1-4)
PR: Four courses in sociology, including SOC 321, upper division standing or CI. Content dependent upon interests and competence of the student. Does not count for sociology major credit.

SOC 491. SENIOR SEMINAR (4)
For seniors majoring in sociology or other social sciences. Major issues in sociology, stressing theory and research.

FOR SENIORS AND GRADUATE STUDENTS

SOC 505. COMMUNITY WELFARE RESOURCES (4)
PR: SOC 301 or CI; upper division standing. Emphasis upon voluntary programs and their development, planning, and coordination. Does not count for sociology major credit.

SOC 531. SOCIAL INTERACTION (4)
PR: SOC 331, or CI; upper division standing. Interpersonal influence—complex behavior, role, conflict, and social situational factors.

SOC 533. COLLECTIVE BEHAVIOR (4)
PR: SOC 201 or CI; upper division standing. Study of the development of group and mass behavior—crowds, social movements.

SOC 535. SOCIOLOGY OF SMALL GROUPS (4)
PR: SOC 201 or CI; upper division standing. Theory of small group structure, mechanics of interaction, observation of small groups.

SOC 541. SOCIAL CHANGE (4)
PR: SOC 201 or CI; upper division standing. Major theories of social and cultural change, and mechanisms of change in various societies.

SOC 543. URBAN SOCIOLOGY (4)
PR: SOC 201 or CI; upper division standing. The social structure of the community in modern industrial societies. Analysis of community change.

SOC 553. SOCIOLOGY OF THE ARTS (4)
PR: SOC 201 or CI; upper division standing. The creation, distribution, and use of arts from a sociological perspective: the social roles involved.

SOC 561. CRIMINOLOGY (4)
PR: SOC 201 or CI; upper division standing. Etiology of criminal behavior; law enforcement, crime in the United States; penology and prevention.

SOC 563. JUVENILE DELINQUENCY (4)
PR: SOC 201 or CI; upper division standing. Theories of delinquency, patterns of delinquent behavior, methods of control and treatment.

SOC 571. POPULATION (4)
PR: SOC 201 or CI; upper division standing. Sociological determinants of fertility, mortality, and migration; theories of population change.

SOC 575. INDUSTRIAL SOCIOLOGY (4)
PR: SOC 201 or CI; upper division standing. Interaction, communication and authority in economic organizations; the factory as a social system.

SOC 583. TOPICS IN SOCIOLOGY (4)
PR: 16 quarter hours in Sociology and prior consent of instructor. May be repeated for credit. See class schedule for content.

FOR GRADUATE STUDENTS ONLY

SOC 611. CONTEMPORARY SOCIOLOGICAL THEORY (4)
PR: Undergraduate course in sociological theory or CI. Emphasizes logical and conceptual dimensions of theory and theory construction.

SOC 621. METHODS OF RESEARCH (4)
PR: Course in Social Investigation or CI. Logic and practice of research; problems of observation and data collection, data processing, and evaluation.

SOC 623. SOCIOLOGICAL STATISTICS (5)
PR: SS1 301 or CI. Logic and application of parametric and nonparametric statistical analysis for sociological data.

SOC 631. SOCIAL PSYCHOLOGY SEMINAR (4)
PR: Course in Social Psychology or CI. Stresses contemporary developments in social psychological theory and empirical research.

SOC 641. COMMUNITY ANALYSIS (4)
PR: Course in Urban Sociology or CI. Theories of community and community organization. Methods of community study; problems of urban areas.

SOC 643. COMPLEX ORGANIZATIONS (4)
PR: Course in Social Organization or CI. Organizational theory, bureaucratic models, authority, power legitimation, and types of formal organization.

SOC 651. FAMILY ANALYSIS (4)
PR: Course in Family or CI. Theory of interpersonal relations and interaction in the modern family. Analysis of functions and roles.

SOC 661. SOCIAL CONTROL (4)
PR: Course in criminology or juvenile delinquency or CI. Theories of control and deviance with research application in problem areas.

SOC 681. GRADUATE RESEARCH (1-4)
PR: CI. Content and method dependent upon interest and competence of student.

SOC 683. SPECIAL TOPICS-SOCIOLOGY (4)
PR: CI. Content varies according to interests of students and instructor. May be repeated for credit.
SOC 691. THESIS AND THESIS SEMINAR (5)
PR: Equivalent of 16 quarter hours in the student's graduate program, SOC 611, 621, 623.

SOC 692. THESIS AND THESIS SEMINAR (5)
PR: Equivalent of 16 quarter hours in the student's graduate program, SOC 611, 621, 623. May be taken concurrently with SOC 691.

SPANISH (SPA)—see Modern Languages

SPEECH COMMUNICATION (SPE)


LOWER LEVEL COURSES

SPE 103. SPEECH COMMUNICATION FOR FOREIGN STUDENTS I (5)
A special course for students learning English as a second language. Intensive study and drill in American English pronunciation and listening comprehension. May be taken in conjunction with ENG 100—English for Foreign Students.

SPE 104. SPEECH COMMUNICATION FOR FOREIGN STUDENTS II (5)
PR: SPE 103 or CI. Intensive study and drill in American English pronunciation and listening comprehension. Emphasis on diction and speaking skills.

SPE 201. FUNDAMENTALS OF SPEECH COMMUNICATION (5)
The nature and basic principles of speech; emphasis on improving speaking and listening skills common to all forms of oral communication through a variety of experiences in public discourse.

SPE 203. SPEECH IMPROVEMENT AND PHONETICS (5)
Designed to improve vocal quality and expressiveness, articulation, and pronunciation, and to give instruction and practice in using the International Phonetic Alphabet for speech improvement.

UPPER LEVEL COURSES

SPE 311. INTRODUCTION TO SPEECH SCIENCE (5)
PR: SPE 203 or CI. Communication models are broken down and each portion analyzed. Emphasis on quantifiable parameters of effective speaking.

SPE 320. ISSUES AND INTERPRETATION (2)
The study of literature through analyses of printed textual materials and of the visual-aural textual performance of them. May be repeated.

SPE 321. FUNDAMENTALS OF ORAL READING (5)
PR: SPE 201 or 203. Designed to develop proficiency in the understanding and oral communication of literary and other written materials.

SPE 322. ORAL INTERPRETATION PERFORMANCE (2)
PR: SPE 321 or CI. The study, rehearsal, and performance of literature for Readers Theatre and Chamber Theatre productions. May be repeated (maximum total 6 hours).

SPE 360. CURRENT ISSUES AND RHETORIC (2)
An analysis of significant current speakers and issues. May be repeated.

SPE 361. GROUP DISCUSSION AND CONFERENCE METHODS (5)
PR: SPE 201 or CI. Principles and methods of leading and participating in various types of group discussion and conference. Emphasis on reflective thinking and group dynamics.

SPE 362. TECHNICAL COMMUNICATION (5)
Investigation and application of methodology and effective technical communication for effective oral presentation of technical reports.

SPE 363. PUBLIC SPEAKING (5)
PR: SPE 201 or CI. Study of selected public addresses as aids in speaking extemporaneously and from manuscript. The relationship between public speaking and public policy formulation.

SPE 365. ARGUMENTATION AND DEBATE (5)

SPE 366. FORENSICS (2)
PR: SPE 365 or CI. The study, library research and investigation, and practice in forensics. Application of the principles of rhetoric to the current debate and discussion topics. May be repeated (maximum of 6 hours).

SPE 367. FORMS OF PUBLIC ADDRESS (5)
PR: SPE 363 or 365. An advanced course emphasizing arrangement and style in informative, persuasive and ceremonial public address.

SPE 369. PARLIAMENTARY SPEAKING (3)
Principles of parliamentary procedure and practice in conducting and participating in meetings governed by parliamentary rules.

SPE 381. UNDERGRADUATE RESEARCH (1-5)
PR: Junior standing and CI. Individual investigations & faculty supervision.

SPE 383. SELECTED TOPICS (1-5)
PR: Junior standing and CI.

SPE 385. DIRECTED READINGS (1-5)
PR: Junior standing and CI.

SPE 411. SPEECH BEHAVIOR AND PROCESSES (5)
PR: SPE 203 or CI. Study of the theories of the simple and complex acoustical phenomenon of speech; intensive analysis of the stimulus-feedback variables of speech.

SPE 481. UNDERGRADUATE RESEARCH (1-5)
PR: Senior standing and CI. Individual investigations with faculty supervision.

SPE 483. SELECTED TOPICS (1-5)
PR: Senior standing and CI.

SPE 485. DIRECTED READINGS (1-5)
PR: Senior standing and CI.

SPE 491. SENIOR SEMINAR: PROBLEMS IN ORAL COMMUNICATION I (2)
PR: Senior standing. Exploration of problems in all aspects of speaking and listening with emphasis upon an overview of the arts and sciences of oral communication.

SPE 492. SENIOR SEMINAR: PROBLEMS IN ORAL COMMUNICATION II (3)
PR: SPE 491. Intensive analysis of the complexities of scholarly investigation in special areas of the arts and sciences of oral communication.

FOR SENIORS AND GRADUATE STUDENTS

SPE 501. SPEECH BEHAVIOR AND PROCESSES (5)
PR: Upperclass standing. Study of the theories of the simple and complex acoustical phenomenon of speech; intensive analysis of the stimulus-feedback variables of speech.
SPE 503. APPLIED PHONETIC TRANSCRIPTION (5)

SPE 511. EXPERIMENTAL PHONETICS (5)
PR: SPE 203 or CI. Intensified training in auditory discrimination of the sounds of American English. Detailed use of research findings, instruments and methodologies in the laboratory study of normal speech. Development of phonetic skills of discrimination and reproduction of speech sounds.

SPE 521. ORAL INTERPRETATION OF DRAMATIC LITERATURE (5)
PR: SPE 321 or CI. Critical appreciation and Oral Interpretation of special textual materials which are inherently dramatic in nature and poetry, narrative prose, drama, biography, and history.

SPE 522. ORAL INTERPRETATION OF POETRY (5)
PR: SPE 321 or CI. Critical appreciation of lyric and narrative poetry and communication of that appreciation to audience. Study of poetic theory and prosodic techniques.

SPE 523. LITERARY ADAPTATION AND ORAL INTERPRETATION (5)
PR: SPE 521. Practice in composition and adaptation of literary materials for oral presentation; an investigation of the more advanced problems in oral interpretation as in Choral Speaking and Chamber Theatre.

SPE 524. ORAL INTERPRETATION OF DRAMATIC LITERATURE II (5)
PR: SPE 521. A study of selected pre-modern dramas with special emphasis on problems of interpretation for oral performance.

SPE 525. ORAL INTERPRETATION OF CHILDREN'S LITERATURE (5)
PR: SPE 321 or CI. A study of the theories and practice in the oral interpretation of poetry and narrative fiction for children with special emphasis on classical and modern literature for children.

SPE 526. ORAL INTERPRETATION OF BIBLICAL LITERATURE (5)
PR: SPE 321 or CI. A critical interpretation and oral presentation of selected Books of the Old and New Testaments.

SPE 561. THEORY AND RESEARCH IN SMALL-GROUP COMMUNICATION (5)
PR: SPE 361. Advanced study of theories and research in communicative interaction in group discussion and conference.

SPE 565. HISTORY AND CRITICISM OF PUBLIC ADDRESS (5)
PR: SPE 363 or CI. The principles of rhetorical criticism applied to selected great speeches of Western Civilization.

SPE 567. PERSUASION (5)

SPE 581. RESEARCH (1-5)
PR: Senior or graduate standing and CI.

SPE 583. SELECTED TOPICS (1-5)
PR: Senior or graduate standing and CI.

SPE 585. DIRECTED READINGS (1-5)
PR: Senior or graduate standing and CI.

SPE 593. LANGUAGE AND SPEECH FOR CHILDREN (5)
PR: SPE 203 or CI. A diagnostic study of language development; the analysis of speech behavior and oral language needs of children; techniques of speech improvement for children.

FOR GRADUATE STUDENTS ONLY

SPE 603. ADVANCED PHONETICS (5)
PR: SPE 503 or equivalent. Intensified training in close phonetic transcription. Work on dialects, intonation, distinctive feature theory and acoustic phonetics.

SPE 611. COMMUNICATION: ANALYSIS AND MEASUREMENT (5)
A study of selected modes of communication. Includes analysis of communication symbols, and presents the theory and application of selected instruments for measuring and producing speech.

SPE 612. SEMINAR IN SPEECH SCIENCE (5)
PR: SPE 511. To provide graduate students with an opportunity to interact with faculty and other students for the purpose of developing an in-depth understanding of a selected sub-area of Speech Science.

SPE 621. HISTORY AND THEORIES OF ORAL INTERPRETATION (5)
A study of the history, critical writings, uses, and developments of the art of oral interpretation, with analysis of the principles and practices.

SPE 661. CLASSICAL RHETORIC (5)
Greek and Roman theory and practice; emphasis on Aristotle, Plato, Cicero, and Quintilian, selected other readings.

SPE 662. MODERN RHETORICAL THEORY (5)
Studies of Eighteenth and Nineteenth Century theorists and the historical and cultural forces influencing them; relationship to contemporary theory and practice.

SPE 665. HISTORY AND CRITICISM OF AMERICAN PUBLIC ADDRESS (5)
Criticism of selected speeches and speakers of American public address, studied against a background of political, social, and intellectual issues.

SPE 666. THEORIES OF ARGUMENT (5)
An examination of argumentative theory through the medium of selected reading in the works of major theorists past and present. In addition, selected examples from the argumentative persuasion of each historical period will be examined and analyzed for the purpose of correlating theory with practice.

SPE 667. CONTEMPORARY RHETORICAL THEORY (5)
Studies in Speech and language; Speech as symbol, theories of meaning, the relation of language, thought, and action.

SPE 668. EXPERIMENTAL RESEARCH IN ORAL COMMUNICATION (5)
Critical examination of research design, procedures, and reporting of experimental studies in small group communication and persuasive discourse.

SPE 681. GRADUATE RESEARCH (1-5)
Directed study in special projects. Recommended only when material cannot be studied in scheduled courses.

SPE 683. SELECTED TOPICS IN SPEECH (1-5)
SPE 685. DIRECTED READINGS (1-5)
SPE 691. GRADUATE SEMINAR IN ORAL COMMUNICATION (5)
SPE 694. SUPERVISED COLLEGE SPEECH INSTRUCTION (3)
PR: Graduate standing and CI. Instruction and experience in teaching the University's basic Speech Communication courses. Credit not applicable toward the graduate degree in Speech Communication. May be repeated.

SPEECH PATHOLOGY AND AUDIOLOGY (SAI)

LOWER LEVEL COURSES

SAI 201. SURVEY OF COMMUNICATION DISORDERS (3)
A general survey course concerning the nature and prevention of disorders of communication.

UPPER LEVEL COURSES

SAI 301. SPEECH PATHOLOGY (6)
PR: SAI 201 or Cl. 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.

SAI 302. AUDIOLOGY (6)
PR: SAI 201 or Cl. 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.

SAI 311. THE SCIENCE OF COMMUNICATION DISORDERS I (6)
PR: SAI 201 or Cl. The neurological and anatomical basis of communication disorders. Comparisons of normal and pathological organic structures and their functional dynamics. Separate sections concentrating on normal and abnormal aural physiology are scheduled for those students with a primary emphasis in audiology.

SAI 312. THE SCIENCE OF COMMUNICATION DISORDERS II (6)
PR: SAI 201 or Cl. Perspectives on research in speech pathology and audiology. Introduction to multivariate design considerations as they apply to research speech and hearing laboratory and clinical settings. Analysis of basic hypothesis testing.

SAI 313. THE SCIENCE OF COMMUNICATION DISORDERS III (6)
PR: SAI 201 or Cl. An examination of phoneme systems and the distinctive features of their allophonic variants with particular emphasis upon those superfixes and suprasegmental modifiers necessary to the understanding and recording of early developmental and deviant speech patterns.

SAI 482. NATURE AND NEEDS OF THE HEARING IMPAIRED (6)
PR: SAI 301, 302 or Cl. A study of the effects of auditory disorders upon the organization and expression of behavioral patterns as they relate to motivation, adjustment and personality.

SAI 483. SELECTED TOPICS (4)
PR: Cl. A reading program of topics in speech pathology and/or audiology conducted under the supervision of a faculty member. May be repeated three times.

SAI 498. INTRODUCTION TO SPEECH PATHOLOGY AND AUDIOLOGY PRACTICUM (1-12)
PR: SAI 301 or 302. Observation and participation in speech pathology and audiology practicum in the University clinical laboratory.

FOR SENIORS AND GRADUATE STUDENTS

SAI 511. INSTRUMENTATION I (6)
PR: SAI 301. Calibration, usage and specific applications of specialized instruments available in dealing with speech and language disorders. Includes: recording, sonograph, audiofeedback, video equipment, behavior measuring devices.

SAI 512. INSTRUMENTATION II (6)
PR: SAI 302. Calibration, usage and specific applications of specialized instruments available in dealing with the identification and measurement of hearing disorders. Includes: sound level recorders, audiometers, and the electrophysiological measurement devices.

SAI 513. THE SCIENCE OF COMMUNICATION DISORDERS (6)
PR: SAI 301 or 302 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.

SAI 571. EVALUATION OF ORAL COMMUNICATION DISORDERS (6)
PR: Admission to the Program or Cl. The administration, evaluation, and reporting of diagnostic tests and procedures used in the assessment of speech and language disorders.

SAI 572. AUDIOLOGY II (6)
PR: SAI 572 or Cl. Advanced study of psychoacoustical phenomenon as it relates to the measurement of hearing. Overview of principles and methods of determining hearing acuity through the use of speech stimuli. Management of hearing impaired individuals including counseling.

SAI 574. METHODS FOR ORAL COMMUNICATION DISORDERS (6)
PR: SAI 571 or Cl. An in-depth analysis of classic and contemporary methods employed in the management of communicatively impaired individuals. Experimental approaches are reviewed through current medical, psychological, speech, language and hearing journals.

SAI 575. MANAGEMENT OF COMMUNICATION DISORDERS (4)
PR: SAI 573, 574, or Cl. The planning of programs for individuals with speech, language, and hearing impairments. Includes administration of programs in public schools, clinics, and private practice.

SAI 576. COMMUNICATION DISORDERS: VOICE (4)
PR: SAI 574 or Cl. A comprehensive study of the medical and physical aspects of voice disorders. Primary emphasis is on therapeutic management.

SAI 577. COMMUNICATION DISORDERS: ARTICULATION (4)
PR: SAI 574 or Cl. An examination of normal and deviant articulatory acquisition and behavior. Presentation of major theoretical orientations and the therapeutic principles based upon them.

SAI 578. COMMUNICATION DISORDERS: STUTTERING (4)
PR: SAI 574 or Cl. A comprehensive study of the diagnosis and modification of stuttering based on a two-factor model. Other major theories are considered and evaluated.

SAI 579. TECHNIQUES OF AUDITORY TRAINING (4)
PR: SAI 574 or Cl. An analysis of theories of auditory reception and amplification. A study of the methods and techniques employed in the development and habilitation of auditory skills for the hearing impaired.

SAI 580. COMMUNICATION DISORDERS: LANGUAGE (4)
PR: SAI 574 or Cl. Examination of research and clinical literature presenting major theoretical orientations pertaining to the etiology, evaluations, and treatment of those factors that hinder or interrupt normal language acquisition or function.

SAI 581. SUPERVISED RESEARCH (1-12)
PR: Cl. Individualized programs of student research approved and supervised by a faculty member.

SAI 583. SELECTED TOPICS (4)
PR: Cl. A reading program of topics in speech pathology and/or audiology conducted under the supervision of a faculty member. May be repeated three times.
SAI 598. SPEECH PATHOLOGY AND AUDIOLOGY PRACTICUM (1-12)
PR: CI. Participation in speech pathology and audiology practicum in the University clinical laboratory and selected field settings.

FOR GRADUATE STUDENTS ONLY

SAI 620. CLEFT PALATE (4)
PR: CI. 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.

SAI 621. APHASIA (4)
PR: CI. A consideration of the neurological and psychological aspects of aphasia as they relate to communication disorders. Specific language therapy approaches are discussed and evaluated.

SAI 622. CEREBRAL PALSY (4)
PR: CI. A study of the medical, physical, occupational, speech, language, and hearing problems of the cerebral palsey. Therapy techniques are reviewed and evaluated.

SAI 623. DIALECT AS A COMMUNICATION DISORDER (4)
PR: CI. Research and clinical literature on dialect as a communication disorder.

SAI 673. CHILD AUDIOLOGY (4)

SAI 674. SPECIAL AUDITORY TESTS (4)
PR: SAI 573 or CI. History, development, rationale and techniques for administering hearing tests to determine site of lesion, including those requiring special instrumentation. The detection and clinical management of pseudohypopituitarism including the use of objective audiometry.

SAI 675. TECHNIQUES OF SPEECH READING (4)
PR: CI. Speech reading as a language skill for the deaf and hard of hearing child and adult. Analysis of theories, methods, and systems.

SAI 676. HEARING DISORDERS (4)
PR: SAI 674 or CI. The compilation and interpretation of hearing test data for diagnosing hearing impairment. Investigation of medical and surgical techniques for the treatment of hearing loss, coordinating information for planning the treatment and rehabilitation of the hearing impaired, including the involvement of other professionals.

SAI 677. HEARING CONSERVATION (4)
PR: SAI 573 or CI. A comprehensive study of all aspects of hearing conservation, specially those relating to the detection and prevention of hearing loss in both children and adult populations. Special attention is given to problems encountered by industry.

SAI 680. RESEARCH PROCEDURES IN SPEECH PATHOLOGY AND AUDIOLOGY (4)
PR: CI. Advanced research and experimental design techniques employed in clinical and laboratory settings in speech pathology and audiology. Introduction to research technologies; review of stylistic considerations in research writing.

SAI 681. GRADUATE RESEARCH (1-12)
PR: CI. The student plans and conducts an individual research project under the supervision of a speech pathology or audiology faculty member.

SAI 683. SELECTED TOPICS (4)
PR: CI. A reading program of topics in speech pathology and/or audiology conducted under the supervision of a faculty member. May be repeated three times.

SAI 684. LANGUAGE FOR THE HEARING IMPAIRED (6)
PR: SAI 301, 302, 482 or CI. Techniques and materials of teaching language to children with auditory disorders. Evaluation and analysis of contemporary methods.

SAI 685. COMMUNICATIVE SKILLS FOR THE HEARING IMPAIRED (6)
PR: SAI 301, 302, 482. Application and evaluation of techniques for teaching symbolic functioning to children with hearing impairments. Consideration of developmental and remedial aspects of reading.

SAI 698. PRACTICUM (1-12)
PR: CI. Participation in speech pathology and audiology practicum in the University clinical laboratory and selected field settings.

SAI 699. THESIS (1-9)

THEATRE ARTS (TAR)


LOWER LEVEL COURSES

TAR 201. BASIC SEMINAR (2)
An introduction to the concepts of Total Theatre. The elements of theatre art and their synthesis. Theatre and society. The development of theatre as a career. This course is open to non-majors.

TAR 211, 212, 213. THEATRE I, II, III (6, 6, 6)
A seminar laboratory workshop course involving approaches to theatre in specific cultures and eras, staging and dramaturgy, acting—with an emphasis upon movement and voice production, design and on-the-job training in stagecraft and production. All three quarters of this course plus the Basic Seminar are required of a Theatre major. Open to non-majors. Non-majors may terminate their enrollment in this course at the end of any quarter.

UPPER LEVEL COURSES

TAR 303. MODERN THEATRE PRACTICE (5)
Initial readings and exercises in theatre; play analysis, performance, and technical theatre for non-theatre majors.

TAR 311. ACTING I (3)
PR: TAR 212, or CI. Intermediate principles and methods of stage performance with emphasis on scene study.

TAR 313. DIRECTING I (3)
PR: TAR 411. Staging the play, including script analysis, composition, movement and rhythm; rehearsal procedures and general organization. Lecture-laboratory using illustrative exercises and scene work.

TAR 322. STAGE PROPERTIES (3)
An investigation of historic architecture, decor, and furnishings for the theatre designer and director with practical exercises in duplication for the stage.

TAR 339. HISTORY OF THE THEATRE (5)
An historical survey of world theatre. Open to non-majors.

TAR 352. PERFORMANCE (1)
The study, rehearsal, and performance of major theatrical works. Open to all University students by audition on a credit or non-credit basis. May be repeated.

TAR 361. INTRODUCTION TO PUPPETRY (3)
Principles and methods of puppetry with an historical survey of major forms and practical problems with laboratory production.

TAR 411. ACTING II (3)
PR: TAR 311 and juried audition or CI. Intermediate exercises in stage performance with special emphasis on problems on genre, style, and interpretation.
TAR 413. DIRECTING II (3)
PR: TAR 313. Problems in directing, script interpretation, composition and movement for genre and period, coaching the actor, designing the mise en scene.

TAR 421. SCENE DESIGN I (3)
PR: TAR 221 or CI. Aesthetics and theories of stage design with an historical study of the development of the physical theatre and scenery. Practical design problems.

TAR 422. SCENE DESIGN II (3)
PR: TAR 421 and acceptance of juried portfolio or CI. Continuation of Scene Design.

TAR 423. COSTUME DESIGN I (3)
PR: TAR 422. A history of clothing and stage costume.

TAR 424. COSTUME DESIGN II (3)
PR: TAR 423 and acceptance of juried portfolio or CI. Aesthetics, design, and technique of stage costuming.

TAR 425. STAGE LIGHTING I (3)
PR: TAR 221. Theories and techniques of lighting as they relate to theatrical productions. Emphasis on lighting, electronics and optics.

TAR 426. STAGE LIGHTING II (3)
PR: TAR 425 and acceptance of juried portfolio or CI. Continuation of Stage Lighting I, with emphasis on lighting design and theory.

TAR 429. TECHNICAL DIRECTING (3)
PR: TAR 421, 423, 425 and one of 422, 424 or 426. Mounting the physical production. Lecture-lab using selected readings and practical problems in planning, organizing and executing the technical elements of production.

TAR 431. THEATRE LITERATURE OF MYTH AND RITUAL: CLASSIC (3)
PR: TAR 339 or CI. The study of the development of dramatic form out of early religious rites and its full flowering in the works of Aeschylus, Sophocles, Euripides, Aristophanes and Menander. Open to non-majors who fulfill the prerequisite requirements.

TAR 432. THEATRE LITERATURE OF MYTH AND RITUAL: MEDIEVAL (3)
PR: TAR 339 or CI. The rebirth of drama in the ancient Christian Church and a study of the theatre literature which grew out of these early beginnings. Related developments in oriental theatre are also studied. Open to non-majors who fulfill the prerequisite requirements.

TAR 433. LITERATURE OF THE RENAISSANCE AND BAROQUE THEATRE (3)
PR: TAR 339 or CI. Historical study of 16th and 17th Century theatrical literature. Open to non-majors who fulfill the prerequisite requirements.

TAR 435. LITERATURE OF THE EIGHTEENTH CENTURY THEATRE (3)
PR: TAR 339 or CI. A study of English and Continental theatre literature of the late 17th and 18th century. Open to non-majors who fulfill the prerequisite requirements.

TAR 436. LITERATURE OF THE NINETEENTH CENTURY THEATRE (3)
PR: TAR 339 or CI. A study of theatre literature from Schiller to Chekov. Open to non-majors who fulfill the prerequisite requirements.

TAR 437. LITERATURE OF THE MODERN AND CONTEMPORARY THEATRE (3)
PR: TAR 339 or CI. Readings of contemporary American, British, and Continental drama from Appolonoire to the present. Open to non-majors who fulfill the prerequisite requirements.

TAR 443. PLAYWRITING I (3)
PR: TAR 303 or equivalent, 3 hours of creative writing, and CI. Basic dramatic writing practices and conventions. Evaluation of student work in conferences. Study of selected readings. May be repeated.

TAR 444. PLAYWRITING II (3)
PR: TAR 443. Continuation of Playwriting I. Writing a one act play or portion of a longer work. May be repeated.

TAR 453. THEATRE SENIOR SEMINAR (3)
PR: Senior Standing. 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.

TAR 454. EXPERIMENTAL THEATRE PERFORMANCE (2)
PR: TAR 211, 212, 352, or CI. The study, rehearsal, and laboratory performance of new and experimental works for the theatre. May be repeated to a total of 6 credits.

TAR 471. THEATRE MANAGEMENT (3)
A study of commercial, community, and educational theatre operation with special emphasis on box office management, production costs, contracts, publicity, and public relations.

TAR 473. ADVANCED THEATRE MANAGEMENT (3)
PR: TAR 471 or CI. A study of production company organization and operation and of program selection and schedule.

TAR 481. 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.

TAR 483. THEATRE FOR NEW REPERTORY (1-9)
PR: CC. Advanced performance, theory and practice, with practical examination. All course work is by directed study and must relate to Department Productions.

FOR SENIORS AND GRADUATE STUDENTS

TAR 501. DRAMATIC THEORY AND CRITICISM I (3)
PR: TAR 339 and any 2 from TAR 431, 432, 433, 435, 436, 437, or CI. A study of basic critical writings on the theatre from Plato and Aristotle to the present.

TAR 502. DRAMATIC THEORY AND CRITICISM II (3)
PR: TAR 501 or CI. Continuation of Dramatic Theory and Criticism I.

TAR 511. STYLES OF ACTING (3)
PR: TAR 411 or CI. Exercises in the stylistic performance problems of the actor. The emphasis changes from quarter to quarter. May be repeated for a total of 9 hours.

TAR 515. PERFORMANCE PRODUCTION (3)
PR: TAR 413, majors only, CI. Actual production work in which the student class prepared a play for project performance, or other faculty approved project.

TAR 529. TECHNICAL PRODUCTION (3)
PR: TAR 429, majors only, CI. Actual production work in which the student designs and executes scenery, costumes, properties, and lighting for a performance, or other faculty approved project.

TAR 543. ADVANCED PLAYWRITING (3)
PR: TAR 444, and CI. Concentration on the writing of the full length play form, with selected readings and analysis of dramatic structure. May be repeated.

TAR 544. WRITING FOR THE SCREEN (3)
PR: TAR 444, and CI. Planning and writing of the film short and feature film from rough scenario to finished screenplay. Selected readings and critical analysis of screenplays by Agee, Bergman, Kiturosawa, Hitchcock, etc. May be repeated.

TAR 552. ADVANCED PERFORMANCE (1)
PR: TAR 353 or CI. The study, rehearsal, and performance of major theatrical works. Admission by audition. May be repeated.

TAR 554. ADVANCED EXPERIMENTAL THEATRE PERFORMANCE (2)
PR: TAR 454 or CI. The study, rehearsal, and laboratory performance of new and experimental works for the theatre. Admission by audition. May be repeated to a total of 6 hours.

TAR 565. THEATRE FOR CHILDREN (4)
TAR 567. INFORMAL THEATRE WITH CHILDREN (4)
PR: CI. Theories and techniques of informal theatre with children. Focus is on the creative development of the child through the process of improvised theatre.

WOMEN'S STUDIES PROGRAM (WSP)

Lower Level Courses

WSP 201. INTRODUCTION TO WOMEN’S STUDIES (4)
A survey of the major issues relevant to the female experience; psychological, sociological, and anthropological perspectives. Interdisciplinary faculty.

Upper Level Courses

WSP 309, 310, 311. IMAGE OF WOMEN IN WESTERN CIVILIZATION (4, 4, 4)
PR: WSP 201 or CI. Interdisciplinary and comparative study of women in Western civilization, with particular emphasis on the historical sources and evolution of anti-feminist attitudes in selected societies. WSP 309: Pre-Biblical period through the Middle Ages. WSP 310: Renaissance through the eighteenth century. WAP 311: Nineteenth and twentieth centuries.

WSP 315. CONTEMPORARY WOMAN IN THE UNITED STATES (4)

WSP 321. WOMEN IN CROSS-CULTURAL PERSPECTIVE (4)
PR: WSP 201, ANT 201, or CI. Roles of women in selected cultures, with emphasis on Third World and primitive societies. Examples from least to most differentiated cultures. Influence of family models, kinship systems, economic patterns, political structure, and belief systems. (Also offered as ANT 431.)

WSP 329. WOMEN AND SOCIAL CHANGE (4)
PR: WSP 201 or CI. The history of the feminist movement in the U.S. and Britain. Women in the rank-and-file of reform in America, including abolitionism, the settlement house movement, labor unions, political revolution in Western society, and Third World liberation. Sources and issues of the women’s liberation movement.

WSP 401. PSYCHOLOGY OF WOMEN (4)
PR: WSP 201 or CI. An examination of theories of female personality. Concepts of personality theory regarding sex differences, differential socialization, and sex-typed behavior. Particular attention to research on achievement motivation, cognitive, perceptual, and motor performance differences, and to developmental tasks of women in our society. (Also offered as PSY 450.)

WSP 405. HUMAN SEXUAL BEHAVIOR (4)
The dynamics of human sexuality including biological, constitutional, cultural, and psychological aspects. Exploration of the range of sexual behavior across groups. Sources of beliefs and attitudes about sex, especially female sexuality, current status. Interdisciplinary faculty. (Also offered as PSY 451.)

WSP 483. SELECTED TOPICS (4)
PR: WSP 201 or CI. Study in special areas such as Women and the Law, The Aging Woman, Women and the Professions, Women in the Arts.

WSP 491. SEMINAR IN WOMEN’S STUDIES (4)
PR: WSP 201, WSP 301, or CI. In-Depth study of research in one or more areas of topical interest to students and staff. Research involvement by students required.

ZOOGY (ZOO)

Upper Level Courses

ZOO 311. COMPARATIVE VERTEBRATE ANATOMY (6)
PR: BIO 201-203. Anatomy of selected vertebrate types emphasizing evolutionary trends. Lec-lab. Qtr. I, III.

ZOO 313. INTRODUCTORY VERTEBRATE ZOOLOGY (5)
PR: BIO 201-203. An introduction to the major invertebrate groups, with emphasis on local forms. Field work will be required. Lec-lab. Qtr. II.

ZOO 321. INTRODUCTORY ANIMAL PHYSIOLOGY (5)
PR: BIO 201-203. Functional histology and the primary functions of the organ systems will be stressed and related to the survival of the whole animal. The approach will be comparative and evolutionary and the emphasis will be on the vertebrates. Lec-lab-disc. Qtr. III.

ZOO 411. HISTOLOGY (4)
PR: ZOO 311 and/or ZOO 422. Comparative approach to the study of tissues and the relation of their structure and function. Lec-lab. Qtr. I.

ZOO 415. INTRODUCTION TO ENTOMOLOGY (4)
PR: BIO 201-203. An introduction to general aspects of insect morphology, development, and classification. The identification of local forms will be emphasized. Lec-lab. Qtr. IV.

ZOO 421. CELL BIOLOGY (5)
PR: BIO 331 and CHM 351 or 335. Physico-chemical properties of cells, enzyme function, intermediary metabolism, photosynthesis, function of nerves and muscles. Lec-lab. Qtr. II, III.

ZOO 422. DEVELOPMENTAL BIOLOGY (5)
PR: ZOO 421 or BOT 510. Structural and functional events involved in differentiation and morphogenesis. Lec-lab. Qtr. III, IV.

ZOO 460. WILDLIFE AND FISH MANAGEMENT (3)
PR: BIO 201-203, BIO 445. 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. Qtr. II (odd numbered years).

ZOO 461. ANIMAL SOCIAL BEHAVIOR (5)
PR: CI. An introduction to comparative ethology, with emphasis on social behavior and the evolution of behavior. Lec-lab. Qtr. I (odd numbered years).

ZOO 481. UNDERGRADUATE RESEARCH (1-9)
PR: CI. Individual investigation with faculty supervision. (S/U only.)
FOR SENIORS AND GRADUATE STUDENTS

ZOO 483. SELECTED TOPICS IN ZOOLOGY (1-6)
PR: CI. Each topic is a program in directed study under supervision of a faculty member.

ZOO 491. SEMINAR IN ZOOLOGY (1)
PR: Upper level. May be repeated once. (S/U only.)

ZOO 513. PARASITOLOGY (5)
PR: BIO 201-203. Fundamentals of animal parasitology and parasitism; the biology of selected animal parasites, including those of major importance to man. Lee-lab. Qtr. II.

ZOO 514. AQUATIC ENTOMOLOGY (4)
PR: ZOO 415. Taxonomy, development, and ecology of aquatic insects with emphasis on local forms. Lee-lab. Qtr. II (odd numbered years).

ZOO 515. LIMNOLOGY (5)
PR: CI. An introduction to the physical, chemical, and biological nature of fresh-water environments. Lee-lab. Qtr. II.

ZOO 517. ORNITHOLOGY (4)
PR: BIO 445, ZOO 311, and CI. The biology of birds. Field trips emphasize the local avifauna. Lee-lab. Qtr. II.

ZOO 518. MAMMALOLOGY (5)
PR: BIO 201-203 and CI. The biology of mammals, including systematics, ecology, natural history, and geographical distribution. Lee-lab. Qtr. I.

ZOO 519. ICHTHYOLOGY (5)
PR: ZOO 311. Systematics of fishes, including major classification, comparative anatomy, embryology, and general distribution. Lee-lab. Qtr. IV.

ZOO 520. BIOLOGY OF ECHINODERMATA (5)
PR: ZOO 313, ZOO 421. A study of the anatomy, physiology, and ecology of echinoderms. Lee-lab. Qtr. I (even numbered years).

ZOO 521. COMPARATIVE PHYSIOLOGY (5)

ZOO 525. BIOLOGY OF THE AMPHIBIA (5)
PR: ZOO 311, BIO 445, and CI. Major aspects of amphibian biology emphasizing fossil history, evolutionary morphology, sensory physiology, life history, and reproductive behavior. Lee-lab. Qtr. III (even numbered years).

ZOO 526. BIOLOGY OF THE REPTILIA (5)
PR: ZOO 311, BIO 445, and CI. Major aspects of reptilian biology emphasizing fossil history, evolutionary morphology, sensory physiology, life history, and reproductive behavior. Lee-lab. Qtr. III (odd numbered years).

ZOO 545. ZOOGEOGRAPHY (3)

ZOO 546. MARINE INVERTEBRATE ZOOLOGY I (5)
PR: BIO 201 and CI. The lower invertebrate phyla. Field trips to local intertidal and subtidal habitats required. Lee-lab. Qtr. IV.

ZOO 547. MARINE INVERTEBRATE ZOOLOGY II (5)
PR: BIO 201 and CI. The higher invertebrate phyla. Field trips to local intertidal and subtidal habitats required. Lee-lab. Qtr. IV.

ZOO 556. TERRESTRIAL ANIMAL ECOLOGY (4)
PR: BIO 445. Field and laboratory investigations of the basic principles of ecology as applied to terrestrial animals. Lee-lab. Qtr. III.

ZOO 557. MARINE ANIMAL ECOLOGY (5)
PR: BIO 445 and ZOO 313. Investigations of energy flow, biogeochemical cycles and community structure in marine environments. Lee-lab. Qtr. III.

ZOO 562. MECHANISMS OF ANIMAL BEHAVIOR (5)
PR: BIO 201-203, CHEM 331-333, and CI. A comparative approach to communication and orientation in animals including homing behavior and biological clocks. Lee-lab. Qtr. I.

FOR GRADUATE STUDENTS ONLY

ZOO 609. BIOCHEMICAL SYSTEMATICS (4)
PR: CI. A research oriented course on the acquisition and use of biochemical information in animal systematics. Lee-lab.

ZOO 611. EXPERIMENTAL EMBRYOLOGY (4)
PR: ZOO 421-422 and CI. Lectures, laboratories, readings and discussions relating to contemporary advances in the area of biochemistry of development. Experimental techniques will be studied.

ZOO 616. BIOMETRY (4)
PR: MTH 211-213 or CI. An introduction to statistical procedures for research in the biological sciences. Experimental design, analysis of data and presentation of results are emphasized.

ZOO 618. ADVANCED MAMMALOLOGY (4)
PR: ZOO 518. Important literature and developments in mammalogy. Students will undertake individual research problems. Lee-lab.

ZOO 621. PHYSIOLOGICAL ECOLOGY (5)
PR: CI. Effect of environmental factors on animal function at the cellular and organ system level with emphasis on control and mechanisms. Lee-lab.

ZOO 623. PHYSIOLOGY OF MARINE ANIMALS (5)

ZOO 624. COMPARATIVE ENDOCRINOLOGY (5)
PR: BIO 521 or CI. An analysis of the similarities and differences between the hormonal mechanisms of mammals, other vertebrates, and invertebrates. Lee-lab.

ZOO 630. INVERTEBRATE REPRODUCTION AND DEVELOPMENT (5)
PR: ZOO 313 and CI. An analysis of modes of reproduction and patterns of larval development in major invertebrate phyla. Emphasis is on classical descriptive embryology, modern marine advance techniques, and larval ecology. Lee-lab.

ZOO 633. PHYSIOLOGY OF FISHES (4)
PR: ZOO 521 or CI. An analysis of the physiological mechanisms of metabolism and integration in fishes with emphasis on marine forms. Lee-lab.

ZOO 661. ADVANCED ANIMAL BEHAVIOR (4)
PR: ZOO 461 and CI. Recent advances in comparative animal behavior (ethology). Lee-lab.

ZOO 681. GRADUATE RESEARCH (1-9)
PR: CI. Directed research on selected topics. May be repeated. (S/U only.)

ZOO 683. SELECTED TOPICS IN ZOOLOGY (1-6)
PR: CI.

ZOO 691. GRADUATE SEMINAR IN ZOOLOGY (1)
PR: Graduate standing. May be repeated. (S/U only.)

ZOO 699. M.A. THESIS (1-9)
PR: CI. May be repeated to a maximum of 9 credits. (S/U only.)
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Psychiatry ...................................... WALTER E. AFIELD
Surgery ........................................... ROGER T. SHERMAN

COLLEGE OF NURSING

Dean ........................................... GWENDOLINE MACDONALD

ADMINISTRATIVE AFFAIRS

Vice President .............................. ALBERT C. HARTLEY
Assistant Vice President ........................ KENNETH W. THOMPSON
Special Assistant for Equal Opportunity  .......... PHYLLIS E. HAMM
Budget Officer ............................... RICKARD C. FENDER
Center Administrator, St. Petersburg Campus .............. HERMAN J. BRAMES
Comptroller ................................. ROBERT E. WALLACE
Director, Program Planning and Analysis  .......... DONALD J. ANDERSON
Director, Auxiliary Services ........................ TOMMY R. BERRY
Director, Regional Data Center .............. HOWARD E. STEELE
Director, Facilities Planning and Operation .............. CLYDE B. HILL
Director, Internal Control ........................ RAYMOND ZUREICH
FACULTY AND ADMINISTRATIVE STAFF

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 December 31, 1972.

ABBEY, WALTER R...............Lecturer (Engineering), 1966
B.S.M.E., Tri-State College, Indiana, 1938

ABRAM, JACQUES..................Professor (Music), 1963
Diploma with Distinction, Juilliard School of Music, 1938

ACHENBACH, KARLE E........Assistant Professor (Psychology), 1968
B.A.; Ph.D., University of Florida, 1966

ACKERMAN, DORIS J.............Assistant University Librarian (Libraries), 1969
B.A.: M.L.S., Rutgers, 1969

ADAMS, PATRICIA..................Assistant Professor (Accounting), 1970
B.S., M.S., Ph.D., University of Illinois, 1967, C.P.A.

ADAMS, KATHY L..................Lecturer (Protocol Materials), 1972
B.A., University of Washington, 1969

ADAMS, PATRICIA..................Lecturer/Counselor/Adviser (University Studies), 1965

AFIELD, WALTER E.............Chairman and Professor (Psychiatry), 1970
A.B., M.D., Johns Hopkins University, 1960

AHLUWALIA, DALIT S..............Professor (Mathematics), 1972
B.A., M.A.: M.S., Indiana University, 1965

AKINS, DANIEL L..................Assistant Professor (Chemistry), 1970
B.S.: Ph.D., University of California, Berkeley, 1968

AKINTOYE, STEPHEN A...........Visiting Associate Professor (Amero-American Studies), 1972
B.A., Ph.D., University of Ibadan, Nigeria, 1966

ALEXANDER, LUELLA K.............Interim Lecturer (Sociology), 1972
B.A.: M.A., Ohio State University, 1966

ALLEN, EDMUND E..............Director and Adjunct Professor (University Counseling Center; Interdisciplinary), 1964
B.S.: M.S.; Ed.D., University of Florida, 1964

ALLEN, HAROLD C..............Assistant Professor (Management), 1967
B.A.: M.B.A.; Ph.D., University of Florida, 1969

ALLEN, JAMES L..............Associate Professor (Engineering), 1972
B.E.E., M.S.E.E., Ph.D., Georgia Institute of Technology, 1966

ALLEN, RUTH S...........Teaching Associate (Education), 1968
(Part time)
B.A.: M.A., University of South Florida, 1967

ALVAREZ, MARVIN R............Associate Professor (Biology), 1966
B.S., M.S., Ph.D., University of Florida, 1964

ANDERSON, CELIA L.............Assistant Professor (Education), 1967
A.B., M.S., Florida State University, 1953

ANDERSON, DONALD J...............Director (University Administrative Planning) Lecturer (Computer Research Center), 1967
B.S.: M.A., University of South Florida, 1971

ANDERSON, E. CHRISTIAN ............Professor (Education), 1964
B.S., M.A., Ph.D., University of Michigan, 1964

ANDERSON, EVERTT S..............Professor (Music), 1963
B.M., M.M., Illinois Wesleyan University, 1957

ANDERSON, JOHN A.............Assistant Professor (Economics), 1967
B.A., M.A., University of Florida, 1967

ANDERSON, LOUIS V............Associate Professor (Education), 1963
B.A., M.A., Ph.D., George Peabody College, 1966

ANDERSON, MELVIN W...........Professor (SMF—Engineering), 1969
B.S.: M.S.; Ph.D., Carnegie—Mellon University, 1967, P.E.

ANDERSON, ROBERT L...........Assistant Professor (Marketing), 1971
B.S., M.S.: Ph.D., North Texas State University, 1971

ANGROSINO, MICHAEL V............Assistant Professor (Anthropology), 1972
B.A.; Ph.D., University of North Carolina, 1972

ANTON, JEAN L........Counselor to Students and Instructor (Student Affairs), 1970
B.S., M.Ed., Ohio University, 1970

Semicolon between degrees indicates different institutions.
<table>
<thead>
<tr>
<th>Name</th>
<th>Position and Affiliation</th>
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<tbody>
<tr>
<td>BARRON, R. NEIL</td>
<td>Assistant Director (Libraries), 1972</td>
</tr>
<tr>
<td>A.B.: M.L.S., University of California, Berkeley, 1964</td>
<td></td>
</tr>
<tr>
<td>BARTLETT, ALTON C.</td>
<td>Chairman and Professor (Management), 1967</td>
</tr>
<tr>
<td>B.S.: Ph.D., University of Wisconsin, 1964</td>
<td></td>
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<tr>
<td>BASTBERG, LINDA J.</td>
<td>Research Associate (Criminal Justice Program), 1972</td>
</tr>
<tr>
<td>B.A.: University of South Florida, 1970</td>
<td></td>
</tr>
<tr>
<td>BATTLE, JEAN A.</td>
<td>Professor (Education), 1959</td>
</tr>
<tr>
<td>B.A., M.A., Ed.D., University of Florida, 1953</td>
<td></td>
</tr>
<tr>
<td>BEAN, CHARLES F.</td>
<td>Assistant Professor (Engineering), 1968</td>
</tr>
<tr>
<td>B.S., M.E., University of South Florida, 1968</td>
<td></td>
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<tr>
<td>BEASLY, BOE</td>
<td>Assistant University Librarian (Libraries), 1972</td>
</tr>
<tr>
<td>B.S., M.Ed.; Ph.D., Florida State University, 1968</td>
<td></td>
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<tr>
<td>BEASLEY, BOB L.</td>
<td>Assistant Professor (Physical Education), 1970</td>
</tr>
<tr>
<td>B.S., M.Ed.; Ph.D., Florida State University, 1968</td>
<td></td>
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<tr>
<td>BEASLEY, W. WAYNE</td>
<td>Associate Professor (Education), 1969</td>
</tr>
<tr>
<td>B.S.: M.S., Ed.D., Indiana University, 1964</td>
<td></td>
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<tr>
<td>BEDICS, RICHARD A.</td>
<td>Assistant Professor (Education), 1970</td>
</tr>
<tr>
<td>B.S., M.Ed., Ed.D., University of Alabama, 1971</td>
<td></td>
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<tr>
<td>BEHNKE, ROY H.</td>
<td>Chairman and Professor (Internal Medicine), 1972</td>
</tr>
<tr>
<td>A.B.: M.D., Indiana University School of Medicine, 1946</td>
<td></td>
</tr>
<tr>
<td>BELL, JOHN O.</td>
<td>Assistant Professor (American Idea), 1969</td>
</tr>
<tr>
<td>B.S., J.D., George Washington University, 1939</td>
<td></td>
</tr>
<tr>
<td>BELOHLAVEK, JOHN M.</td>
<td>Assistant Professor (History), 1970</td>
</tr>
<tr>
<td>B.A., M.A., Ph.D., University of Nebraska, 1967</td>
<td></td>
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<tr>
<td>BELT, JAC W.</td>
<td>Associate Professor (Theatre Arts), 1966</td>
</tr>
<tr>
<td>BENJAMIN, WILLIAM F.</td>
<td>Director and Professor (Education), 1968</td>
</tr>
<tr>
<td>B.A., M.A., Ph.D., George Peabody College, 1961</td>
<td></td>
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<tr>
<td>BENTLEY, JOSEPH G.</td>
<td>Professor (English), 1961</td>
</tr>
<tr>
<td>B.A., Ph.D., Ohio State University, 1961</td>
<td></td>
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<tr>
<td>BERKLEY, RICHARD J.</td>
<td>Assistant Professor (Physics), 1963</td>
</tr>
<tr>
<td>B.A., M.S., New Mexico Institute of Mining &amp; Technology, 1955</td>
<td></td>
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<tr>
<td>BERNER, WESLEY M.</td>
<td>Assistant Professor (Physical Education), 1967</td>
</tr>
<tr>
<td>B.S., M.S., Stetson University, 1950</td>
<td></td>
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<tr>
<td>BERRY, TOMMY R.</td>
<td>Director (Auxiliary Services), 1968</td>
</tr>
<tr>
<td>B.A., University of South Florida, 1968</td>
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<tr>
<td>BERTOSSI, WALTER G.</td>
<td>University Physical Plant Consultant (Physical Plant), 1969</td>
</tr>
<tr>
<td>B.Arch., University of Florida, 1962</td>
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<tr>
<td>BEST, GAIL G.</td>
<td>Counselor to Students and Instructor (Student Affairs), 1969</td>
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<tr>
<td>M.S., Illinois State University, 1969</td>
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<tr>
<td>BETZ, JOHN V.</td>
<td>Associate Professor (Biology), 1963</td>
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<tr>
<td>B.S.C.; Ph.D., St. Bonaventure University, 1963</td>
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<td>BETZER, PETER</td>
<td>Assistant Professor (Marine Science Program), 1971, St. Petersburg Campus</td>
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<td>B.A.: Ph.D., University of Rhode Island, 1971</td>
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<td>BHATT, L. J.</td>
<td>Visiting Professor (International Studies), 1972</td>
</tr>
<tr>
<td>B.A., B.T.; M.A., University of Leeds, 1952</td>
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<td>BIGGS, MARYANNE M.</td>
<td>Instructor (Management), 1971, St. Petersburg Campus</td>
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<tr>
<td>B.A., Syracuse University, 1961</td>
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<td>BILLINGSLEY, EDWARD B.</td>
<td>Associate Professor (History), 1967</td>
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<td>B.S.; M.A., Ph.D., University of North Carolina, 1964</td>
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<td>BINFORD, JESSE S., JR.</td>
<td>Professor (Chemistry), 1961</td>
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<tr>
<td>B.A., M.A., Ph.D., University of Utah, 1955</td>
<td></td>
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<td>BIRKE, RONALD L.</td>
<td>Associate Professor (Chemistry), 1969</td>
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<td>B.S.; Ph.D., Massachusetts Institute of Technology, 1965</td>
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<td>BIRKIN, STANLEY J.</td>
<td>Assistant Professor (Management), 1969</td>
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<td>B.S.C., M.S.C.; Ph.D., University of Alabama, 1969</td>
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<td>BLACK, FREDERICK M.</td>
<td>Assistant Professor (Music), 1971</td>
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<td>B.M., M.M., University of Illinois, 1971</td>
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<td>BLACK, R. EARL.</td>
<td>Assistant Professor (Political Science), 1968</td>
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<td>B.A.: Ph.D., Harvard University, 1968</td>
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<td>BLAIR, JOHN M.</td>
<td>Chairman and Professor (Economics), 1971</td>
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<td>B.A., Ph.D., American University, 1941</td>
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<td>BLAKE, NORMAN J.</td>
<td>Assistant Professor (Oceanography), 1972, St. Petersburg Campus</td>
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<td>B.S.: M.S., Ph.D., University of Rhode Island, 1972</td>
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<td>BLAU, LIL R.</td>
<td>University Counseling Psychologist, Lecturer (Counseling Center), 1967</td>
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<td>B.S., M.S., Pennsylvania State University, 1951</td>
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<td>BLAU, THEODORE H.</td>
<td>Interim Professor (Behavioral Science), 1971 (Part time)</td>
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<td>B.S., M.S., Ph.D., Pennsylvania State University, 1951</td>
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<td>BLOCH, SYLVAN C.</td>
<td>Professor (Physics), 1963</td>
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<td>B.S., M.S., Ph.D., Florida State University, 1962</td>
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<td>BLOUNT, WILLIAM R.</td>
<td>Associate Professor (Criminal Justice Program), 1968</td>
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<td>BOLER, R. KEITH.</td>
<td>Assistant Professor (Anatomy), 1970</td>
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<td>B.A.: M.S.: Ph.D., University of Mississippi, 1966</td>
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<td>BOLivar, JUAN C.</td>
<td>Associate Professor (Surgery), 1972</td>
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<td>B.S., M.D., University of Havana, 1941</td>
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<td>BONDI, JOSEPH C., JR.</td>
<td>Associate Professor (Education), 1965</td>
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<td>BORG, JEAN M.</td>
<td>Lecturer (Education), 1972</td>
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<td>B.S.: M.A., University of Illinois, 1962</td>
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<td>BORNSTEIN, IRVING D.</td>
<td>Assistant Professor (Psychiatry), 1972</td>
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<td>B.A., M.D., University of Virginia Medical School, 1956</td>
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<td>BOSSELMAN, C. PHILIP.</td>
<td>Professor (Sociology), 1967</td>
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<td>A.B.: S.T.B.; Ph.D., Boston University, 1963</td>
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<td>BOSTOW, DARRELL E.</td>
<td>Assistant Professor (Education), 1970</td>
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<td>B.A., M.A., Ph.D., Southern Illinois University, 1970</td>
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<td>BOTT, WILLIAM K.</td>
<td>Professor (Education), 1960</td>
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<td>BOULWARE, JOE W.</td>
<td>Lecturer (Geology), 1961</td>
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<td>B.S., M.S., University of Florida, 1963</td>
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<td>BOVER, ADA M.</td>
<td>University Librarian (Health Science Library), 1965</td>
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<td>B.S., M.S., M.A., University of South Florida, 1971</td>
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<td>BOWERS, JAMES C.</td>
<td>Associate Professor (Electrical Engineering), 1965</td>
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<td>B.E.: M.S.; Sc.D., Washington University, 1964</td>
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<td>BOWERS, LOUIS E.</td>
<td>Associate Professor (Physical Education), 1967</td>
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<td>B.S.: M.A., Ph.D., Louisiana State University, 1964</td>
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<td>BOWERS, RICHARD T.</td>
<td>Director and Professor (Physical Education), 1963</td>
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<td>B.S., M.S., Ed.D., George Peabody College, 1961</td>
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<td>BOYD, HERBERT F.</td>
<td>Professor (Education), 1965</td>
</tr>
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<td>B.S., M.S., Ph.D., University of Illinois, 1958</td>
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<td>BRADLEY, ROBERT V.</td>
<td>University Catalog Librarian (Libraries), 1959</td>
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<td>B.A., M.A., Florida State University, 1957</td>
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<td>BRADY, HENRY G.</td>
<td>Assistant Professor (Education), 1969</td>
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<td>B.S.; M.Ed.; Ph.D., Florida State University, 1969</td>
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<td>BRADY, WILLIAM M.</td>
<td>Instructor (Speech), 1963 (Part time)</td>
</tr>
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<td>B.S., M.S., University of Illinois, 1967</td>
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<td>BRAMAN, ROBERT S.</td>
<td>Associate Professor (Chemistry), 1967</td>
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<td>B.S.; Ph.D., Northwestern University, 1966</td>
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<tr>
<td>BRAMES, HERMAN J.</td>
<td>Continuing Education Center Administrator, 1964, St. Petersburg Campus</td>
</tr>
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<td>B.S., M.S., Indiana State University, 1964</td>
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<td>BRANDMEYER, GERARD A.</td>
<td>Associate Professor (Sociology), 1969</td>
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<td>B.S., M.A., Ph.D., University of California, Los Angeles, 1962</td>
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</table>
BRANTLEY, BETTY C........Assistant Professor (Education), 1968
B.S.; M.Ed.; Ph.D., Florida State University, 1970
BRAUN, BEN-AMI........ Assistant Professor (Mathematics), 1970
B.S., M.S., Ph. D., Purdue University, 1970
BREIT, FRANK D............ Assistant Professor (Education), 1968
B.A., M.Ed., Ph.D., University of Texas, 1968
BRIDGES, VIRGINIA A........ Associate Professor (Education), 1964
B.M.Ed., M.A., Ph.D., Ohio State University, 1965
BRIDGES, WINSTON T., Jr......Assistant Professor (Education), 1970, St. Petersburg Campus
BRIGGS, JOHN C............. Director (Graduate Studies); Professor (Biology), 1964
B.S., M.A., Ph.D., Stanford University, 1952
BRIGHTWELL, J. RICHARD...... Director (Continuing Education), 1964
B.S., M.A., Ohio State University, 1947
BRIGHTWELL, RUTH G...........Teaching Associate (Education), 1969 (Part time)
B.S., Ohio State University, 1948
BRISARD, FRED D., III....... Systems Coordinator (Computer Research Center), 1970
B.S.E., University of South Florida, 1971
BRITTON, JACK R............... Professor (Mathematics), 1967
B.A., Ph.D., University of Colorado, 1936
BROER, LAWRENCE R.......... Assistant Professor (English), 1965
B.S., M.A., Ph.D., Bowling Green State University, 1968
BROOKER, H. RALPH............ Assistant Professor (Physics), 1964
B.S., M.S., Ph.D., University of Florida, 1962
BROST, MARY A................. Instructor (Education), 1969
B.S., M.S., University of South Florida, 1969
BROWN, CURTIS J............... Counselor/Adviser (Business), 1972
B.S., Florida A & M University, 1963
BROWN, LARRY N.............. Associate Professor (Biology), 1967
B.S.; M.A., Ph.D., University of Missouri, 1962
BROWN, ROBERTA S.......... Assistant Professor (Behavioral Science), 1965
B.S., M.A., Ed.D., Indiana University, 1964
BRYCE, RITA G............... Assistant Professor (Physical Education), 1970
B.S.; M.S., Ed.D., West Virginia University, 1965
BRUNHILD GORDON............. Professor (Finance), 1960
B.S., M.B.A., Ph.D., University of Southern California, 1957
BRUSCA, DONALD E........... University Physician (Student Health Service), 1965
B.S., M.D., Medical College of Virginia, 1936
BRYANT, ALMA G.............. Assistant Professor (English), 1972
B.S., M.A., Columbia University, 1965
BRYANT, FRED D.............. Director (Health Science Library), 1971
A.B.; M.S.L.S., Emory University, 1947
BRYANT, HAYDEN C., Jr........ Assistant Professor (Education), 1967
B.A., M.A., George Peabody College, 1957
BUKANTZ, SAMUEL C............ Professor (Medicine), 1972
B.S.; M.D., New York University, 1934
BULOCK, JOHN T.............. Assistant Professor (Education), 1966
BURCH, DEREK G.............. Associate Professor (Biology), Director (Botanical Gardens), 1967
B.S., M.Sc., Ph.D., University of Florida, 1965
BURDICK, GLENN A............. Professor (Electrical Engineering), 1965
B.S., Ph.D., Massachusetts Institute of Technology, 1961
BURGELT, AUGUST L............ Assistant Professor (Energy Conversion Engineering), 1968
B.M.E.; M.S.E., Ph.D., University of Michigan, 1968
BURLEY, W. WADE............ Associate Professor (Education), 1966
B.A.; M.Ed., Ph.D., University of North Carolina, 1970
BURNS, THOMAS J.............. Assistant Professor (Religious Studies), 1969
BURTON, ROBERT H............. Associate Professor (Economics), 1963
B.B.A., M.B.A., Ph.D., Louisiana State University, 1967
BUSHELL, JOHN J.............. Systems Coordinator (Planning & Analysis), 1960
BUSHOT, J. CARLOS............ Assistant Professor (Chemical Engineering), 1970
B.S., M.S., Ph.D., University of Florida, 1970
BUSTA, JOSEPH F., Jr........ Assistant Dean (Student Affairs), 1971
B.S.; M.S., University of Tennessee, 1972
BUTLER, CHARLES W......... Director (Physical Plant), 1965
B.A., Lincoln Memorial, 1942
BUTLER, K. NELSON.......... Assistant Professor (Leisure Studies), 1968
CADEFNA, GUILLERMO M......... Instructor (Medicine), 1972
M.D., Universidad Nacional, Bogota, Colombia, 1965
CAFLISCH, JACOB C., III..... Assistant Professor (Linguistics), 1970
A.B., A.M., Indiana University, 1967
CALKWELL, EDWARD............ Director and Lecturer (Testing & Evaluation), 1965
B.S., M.S., Ed.D., Florida State University, 1958
CALER, ROSA M.............. Counselor to Students and Instructor (Student Affairs), 1970
B.A.; M.A., Michigan State University, 1969
CAMERON, WM. BRUCE.......... Professor (Sociology), 1964
B.A., M.A., Ph.D., University of Wisconsin, 1952
CAMP, JOHN B................. Associate Professor (Language-Literature), 1964
B.M., M.M., Ph.D., Florida State University, 1964
CAMP, PAUL E., Jr........... Assistant University Librarian (Libraries), 1972
B.A.; M.S.L.S., Florida State University, 1972
CAMPBELL, LEONARD, JR........ Assistant Professor (Education), 1972
B.S., M.Ed.; Ph.D., Florida State University, 1971
CANO, CARLOS J............. Instructor (Modern Languages), 1970
B.A.; M.A., Indiana University, 1966
CAPSAS, CLEON W............. Chairman and Professor (Modern Languages), 1970
B.A., M.A., Ph.D., University of New Mexico, 1964
CARD, GEORGE R............. Lecturer (Student Career & Employment Center), 1970
B.S.; M.A., University of South Florida, 1971
CARDER, KENDALL L........... Assistant Professor (Marine Science Program), 1969, St. Petersburg Campus
B.S., M.S., Ph.D., Oregon State, 1970
CARLSON, REBEKAH L.......... Instructor (Education), 1968
B.S.; M.S., University of South Florida, 1970
CARLSON, ZOE A.............. Assistant Professor (Education), 1967
B.S.; M.A., University of South Florida, 1966
CARLTON, EDWARD O........... Systems Coordinator (Computer Research Center), 1967
B.S., M.B.A., New York University, 1957
CARMICHAEL, JOHN D........... Assistant Professor (Marketing), 1967
B.S., M.B.A., Georgia State University, 1965
CARPENTER, PETER A........... Assistant Professor (Philosophy), 1969, St. Petersburg Campus
B.A.; B.D., S.T.M., Ph.D., McGill University, 1969
CARPER, WILLIAM R.......... Visiting Professor (Chemistry), 1972
B.S.; Ph.D., University of Mississippi, 1963
CARR, DAVID R............. Assistant Professor (History), 1971, St. Petersburg Campus
B.A.; M.A., Ph.D., University of Nebraska, 1971
CARR, JOSEPH A............. Associate Curator (Planetarium), 1960
CARR, ROBERT S.............. Interim Lecturer (English), 1968
CARR, ROBERT L., DELOS L., Jr....... Assistant Professor (Education), 1969
B.S.; M.Ed.; Ed.D., University of Florida, 1969
CAREVALHO, JOSÉ M........... Professor (Biology), Director (Planetarium), 1960
CASHON, JOSEPH A........... Assistant Professor (Music), 1972
B.A., Washington University, 1968
CASLON, JAMES R............. Assistant Professor (Modern Languages), 1970
B.A., M.Ed., Ohio University, 1970
Catterall, John E., Assistant Professor (Art), 1971  

Ceconi, Isabelle F., Lecturer (English), 1960  
B.A., Wells College, 1940

Chaffin, Charles G., Instructor (Accounting), 1972  
B.B.A.: M.A., University of South Florida, 1972, C.P.A.

Chambers, James A., Chairman and Associate Professor (Education), 1964  
A.B.: M.A., Ed.D., University of Tennessee, 1963

Cheatham, Mary J., Assistant Professor (Physical Education), 1967

Chen, Chung Hwan, Professor, 1970  
B.S., M.S., Ph.D., University of Minnesota, 1964

Cheynell, Robert E., Associate Professor (English), 1967  
B.A., M.A.: Ph.D., Auburn University, 1971

Clapp, Roger W., Jr., Associate Professor (Physics), 1963  
B.S.; M.S., Ph.D., University of Virginia, 1954

Clark, William E., Professor (Mathematics), 1970  
B.A.; Ph.D., Tulane University, 1964

Clayton, Glenndon E., Budget Officer (Budget Office), 1966  
B.S., Indiana University, 1955

Cleary, Lynn P., Assistant Professor (Education), 1970  
B.A., M.S., Ph.D., Florida State University, 1970

Cleaver, Frank L., Professor (Mathematics), 1960  
B.S.; M.S.; Ph.D., Tulane University, 1960

Clement, David E., Acting Chairman, Professor (Psychology), 1965  
B.S.; Ph.D., Johns Hopkins University, 1963

Cliffe, Ralph, Assistant Professor (Education), 1971, St. Petersburg Campus


Clinton, Philip A., Assistant Professor (Arts), 1971  
B.A., Oregon State University, 1968

Cloninger, Dale O., Assistant Professor (Economics), 1965  
B.S.; M.B.A., Emory University, 1965

Cohen, Stephen L., Assistant Professor (Psychology), 1971  
B.S.; M.S.; Ph.D., University of Tennessee, 1971

Coker, Dan C., Assistant Professor (Education), 1968  

Coker, John W., Acting Director and Lecturer (Florida Center for the Arts), 1969  
B.S., M.M., College-Conservatory of Music, Cincinnati, 1956

Colby, Donald S., Director (Student Career & Employment Center), 1963  
B.B.A., M.S., University of Michigan, 1962

Colby, Joan W., Teaching Associate (Education), 1969  
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B.S., Eastern Michigan University, 1953

Cole, Robert L., Lecturer (Education), 1970 (Part time)

Cole, Roger W., Director and Associate Professor (Linguistics), 1969  
B.A., M.A.; Ph.D., Auburn University, 1968

Coller, Clarence H., Assistant Professor (Economics), 1968  
B.S., M.E., University of Georgia, 1965

Coller, Troy, Assistant to Vice President (Student Affairs), 1971  
B.S.; M.L.A., Southern Methodist University, 1971

Collins, Paschal J., Assistant Professor (English), 1969  
B.S., M.A., University of Denver, 1968

Conley, Teresa J., Assistant Professor (Sociology), 1971  
B.A.; M.A., University of Notre Dame, 1969

Conway, Charles E., Assistant Professor (American Studies), 1970  
B.S., Temple University, 1961

Cook, Doris C., University Reference Librarian (Extension Library), 1968, St. Petersburg Campus  
B.A.; M.S.L.S., Florida State University, 1966

Cooke, John P., Associate Professor (Economics), 1968  
B.S.; M.B.A.; Ph.D., University of Colorado, 1967

Cooke, Nelson R., Acting Chairman, Associate Professor (Music), 1970  
A.M.E.B., A.M.U.S.A., Performers Diploma, Conservatory of Music, Sidney, Australia, 1937

Cooper, Clara B., Assistant Professor (Humanities), 1969  
B.A., M.A., Ph.D., Florida State University, 1969

Cooper, Russell M., Professor and Assistant to the Vice President (Academic Affairs), 1959  
B.A.; M.A., Ph.D., Columbia University, 1934, LL.D.

Cory, Joseph G., Professor (Medical Microbiology), 1966  
B.S.; Ph.D., Florida State University, 1963

Cotton, Larry J., Assistant Professor (Education), 1970  
B.B.E., M.B.E., University of Florida, 1969

Covington, Harrison W., Professor (Art), 1961  

Covington, Kate R., Assistant Professor (Music), 1971  
B.M.E., M.M., Indiana University, 1971

Cowell, Bruce C., Assistant Professor (Biology), 1967  
B.A., M.A., Ph.D., Cornell University, 1963

Cox, Ernest L., III, Chairman and Associate Professor (Art), 1962  
B.A.: M.F.A., Cranbrook Academy of Art, 1961

Cox, Ronald D., Research Associate (Social and Behavioral Sciences), 1972  
B.A., University of South Florida, 1971

Craig, Calvert J., Associate Professor (Education), 1967  
B.S., M.S., University of Illinois, 1951

Craig, Charles P., Associate Professor (Medicine), 1972  
B.A.; M.D., University of Pittsburgh School of Medicine, 1961

Crickenberger, Margaret E., Professor (Physical Education), 1961  
B.S.; M.S., Ed.D., University of Florida, 1970

Crittenden, Jerry, Assistant Professor (Speech Pathology and Audiology), 1971  
B.S.; M.A., Ph.D., Michigan State University, 1969

Croft, James E., Assistant Professor (Music), 1972  
B.M.E.; M.A.; D.M.E., University of Oklahoma, 1970

Csiszmadia, Stephen D., Instructor (Counseling Center), 1972, 1970  
A.D.; M.U.V., M.S.W., Boston College, 1957

Cunningham, William K., Associate Professor (Marketing), 1971  
B.B.A., M.B.A., Ph.D., University of Texas, 1970

Curran, John S., Assistant Professor (Pediatrics), 1972  
A.B.; M.D., University of Pennsylvania, 1966

Currey, Cecil B., Professor (History), 1967  
A.B., M.Sc., Ph.D., University of Kansas, 1964

DANENBURG, WILLIAM P., Associate Professor (Education), 1964  
A.B.; M.Ed.; Ed.D., University of Tennessee, 1970

Daugherty, George G., Lecturer (Mass Communications), 1972  
B.S., University of Houston, 1958

Davey, Kenneth W., Assistant Professor (Economics), Coordinator of Advising, Upper Level (Business Administration), 1966  
B.A.; M.A., St. Mary's University, 1965

Davis, Darrell L., Associate Professor (Psychology), 1971  
B.S., M.A.; Ph.D., St. Louis University, 1956

Davis, Jefferson C., Assistant Professor (Chemistry), 1965  
B.S.; M.S.; Ph.D., University of California, Berkeley, 1959

Davis, John H., Research Associate (Marine Science), 1970  
(Part time)

B.E.E., M.E., University of Florida, 1964

Davis, Wesley F., Professor (English), 1960  
A.B.; M.A.; Ph.D., Stanford University, 1970
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<tr>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
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<tr>
<td>FAGGION, Arthur</td>
<td>Assistant Professor (Finance)</td>
<td>University of Kansas</td>
<td>1971</td>
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<tr>
<td>FERGUSON, Donald</td>
<td>Professor (Education)</td>
<td>Western Reserve University</td>
<td>1970</td>
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<td>FERNANDEZ, Jack</td>
<td>Professor (Chemistry)</td>
<td>University of Florida</td>
<td>1954</td>
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<td>FERNELIUS, John</td>
<td>Distinguished Professor (Chemistry)</td>
<td>University of Florida</td>
<td>1970</td>
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<td>FISCHER-GALATI,</td>
<td>Associate Professor (Libraries)</td>
<td>St. Petersburg Campus</td>
<td>1971</td>
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<td>FISHEL, Charles W.</td>
<td>Chairman and Professor (Medical Microbiology), Associate Dean (Pre-Clinical Affairs), Adjunct Professor (Interdisciplinary), Assistant Professor (Accounting/Law)</td>
<td>University of Virginia</td>
<td>1965</td>
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<td>FISHER, Arthur W.</td>
<td>Assistant Professor (Accounting/Law)</td>
<td>State University of Florida</td>
<td>1970</td>
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<td>FISHER, Harold M.</td>
<td>Research Associate (Criminal Justice Program)</td>
<td>Florida State University, 1966</td>
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<td>FISHER, Margaret B.</td>
<td>Assistant to the Vice President (Student Affairs), Adjunct Professor (Interdisciplinary), Assistant Professor (Pharmacology)</td>
<td>Florida State University, 1966</td>
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<td>FOLLMAN, John C.</td>
<td>Associate Professor (Education)</td>
<td>Indiana University</td>
<td>1969</td>
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<td>FORBES, Edward J.</td>
<td>Assistant Professor (Economics)</td>
<td>Boston College</td>
<td>1971</td>
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<td>FORBES, Joseph</td>
<td>Director (University Purchasing)</td>
<td>University of South Florida</td>
<td>1972</td>
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<td>FORSETH, Sondra D.</td>
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<td>St. Petersburg Campus</td>
<td>1971</td>
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<td>FORSETH, John</td>
<td>Assistant Project Director (Criminal Justice Program), Assistant Professor (Education)</td>
<td>University of Minnesota, 1970</td>
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<tr>
<td>FOUTZ, Lucille C.</td>
<td>Lecturer (Counseling Center)</td>
<td>University of Iowa, 1930</td>
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<td>FOWLER, Robert L.</td>
<td>Assistant Professor (Psychology)</td>
<td>St. Petersburg Campus</td>
<td>1969</td>
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<td>FRAKES, John T.</td>
<td>Interim Assistant Professor (Engineering)</td>
<td>University of Tennessee, 1963</td>
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<td>Frazier, Henry S.</td>
<td>Lecturer (Engineering)</td>
<td>Louisiana State University, 1971, 1972</td>
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<td>FRAZIER, Edgar G.</td>
<td>Assistant Professor (Anthropology)</td>
<td>Indiana University, 1963</td>
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<td>FRELLO, Tom D.</td>
<td>Assistant Professor (Education)</td>
<td>University of Florida, 1962</td>
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<td>FRESHOUR, Frank W.</td>
<td>Assistant Professor (Education)</td>
<td>University of Florida, 1970</td>
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<td>FRIEDL, Frank E.</td>
<td>Professor (Psychology)</td>
<td>University of Minnesota, 1958</td>
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<td>FUGATE, Richard G.</td>
<td>Lecturer (Budget)</td>
<td>University of South Florida, 1969</td>
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<td>FULHAM, B. A., M.A.</td>
<td>Visiting Professor (History), Visiting Professor (History)</td>
<td>Brooklyn College, 1949</td>
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<td>FURST, Charles W.</td>
<td>Assistant Professor (Behavioral Sciences), Assistant Professor (Criminal Justice Program)</td>
<td>University of South Carolina, 1968</td>
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<td>GAGGI, Arthur M.</td>
<td>Associate Professor (English)</td>
<td>University of Florida</td>
<td>1955</td>
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<td>GAGGI, Silvio L.</td>
<td>Interim Professor (Humanities), Lecturer (Counseling Center), Assistant Professor (Psychology), Assistant Professor (Education)</td>
<td>University of Maryland, 1972</td>
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<td>GARCIA, Jorge J.</td>
<td>University Psychiatricist (Student Health Service, Counseling Center)</td>
<td>Florida State University, 1969</td>
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<td>GARCIA, Oscar N.</td>
<td>Associate Professor (Electrical Engineering), Assistant Professor (Electrical Engineering), Assistant Professor (Electrical Engineering)</td>
<td>Temple University, 1944</td>
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<td>GARD, James R.</td>
<td>Assistant Professor (Mathematics)</td>
<td>University of Maryland, 1969</td>
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<td>GARDNER, Melvin J.</td>
<td>University Psychiatricist (Student Health Service)</td>
<td>Florida State University, 1970</td>
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<td>GARRITT, Samuel J.</td>
<td>Associate Professor (Electrical Engineering)</td>
<td>University of South Florida, 1965</td>
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<td>GASS, Norma N.</td>
<td>Interim Instructor (English)</td>
<td>University of Florida, 1969</td>
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<td>GAVIN, Albert M.</td>
<td>Chairman and Professor (Classics and Ancient Studies)</td>
<td>University of South Florida, 1969</td>
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<td>GILMORE, Robert S.</td>
<td>Associate Professor (Behavioral Sciences), Associate Professor (Psychology)</td>
<td>University of Alabama, 1958</td>
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<td>GILMORE, Robert S.</td>
<td>Associate Professor (Psychology)</td>
<td>University of Alabama, 1958</td>
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<td>GLASS, Harvey</td>
<td>Associate Professor (Systems Engineering)</td>
<td>University of California, 1969</td>
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<td>GLENN, O.</td>
<td>Assistant Professor (Education), Assistant Professor (Behavioral Sciences), Associate Professor (Psychology)</td>
<td>University of South Carolina, 1968</td>
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<td>GOEHR, Donald J.</td>
<td>Chairman and Professor (Classics and Ancient Studies)</td>
<td>University of South Florida, 1969</td>
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<td>GOMES, P. E.</td>
<td>Instructor (Education)</td>
<td>University of South Florida, 1969</td>
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<td>GOLDSMITH, James</td>
<td>Associate Professor (Psychology)</td>
<td>Massachusetts Institute of Technology, 1968</td>
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<td>FRIEDLANDER, John</td>
<td>Associate Professor (Psychology)</td>
<td>Washington University, 1965</td>
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<td>GREGG, Robert L.</td>
<td>Assistant Professor (Psychology)</td>
<td>Washington University, 1965</td>
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</table>
Glenisson, Emile G., Associate Professor (Modern Languages), 1967
M.A., Ph.D., University of Illinois, 1966

Glover, Kofi A., Assistant Professor (Afro-American Studies), 1972
B.A.: M.A., University of Iowa, 1967

Glosman, Mark, Research Associate (Education), 1971
B.A., M.A., University of South Florida, 1972

Goforth, Frances S., Assistant Professor (Education), 1967
B.S., M.Ed., Ed.D., Indiana University, 1966
Golding, Alfred S., Associate Professor (Theatre Arts), 1967

Golding, Lois A., Associate Professor (Music), 1962

Goldsmith, George H., Director (Financial Aids), 1969
B.A.: M.Ed., Tulane University, 1968

Gomez, Osborne L., University Librarian (Extension Library), 1965, St. Petersburg Campus
A.B., M.A., M.S.L.S., Florida State University, 1969

Gonzalez, Juan O., Associate Professor (Energy Conversion Systems), 1965
B.S., M.S., Virginia Polytechnic Institute, 1950

Goodman, Adolph W., Distinguished Professor (Mathematics), 1964
B.Sc., M.A., Ph.D., Columbia University, 1947

Goodwin, Dennis H., Research Associate/Coordinator, Student Studies (Academic Planning and Analysis), 1970
B.S. M.A.C.T., Auburn University, 1969

Gordon, Charles A., Assistant Professor (Education), 1968
B.A., M.S., Kansas State Teachers College, 1959

Gould, James A., Chairman and Professor (Philosophy), 1964
B.S., M.A., Ph.D., University of Michigan, 1953

Gould, Joseph C., Lecturer (Geology), 1968 (Part time)
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Gowen, Howard B., Associate Professor (Humanities), 1963
Ph.B., B.S., M.A.: Ph.D., Florida State University, 1961

Gowen, Jean W., Research Associate (Education), 1971
B.M.Ed.: M.A., University of South Florida, 1972

Graff, Barry D., Clinical Psychologist (Counseling Center), Lecturer (Student Affairs), 1969
B.A.: M.A., Ph.D., Michigan State University, 1969

Graham, Arthur D., Professor (Radiology), 1972
M.D., University of Colorado, 1958, D.A.B.R.

Granato, Leonard A., Assistant Professor (Mass Communications), 1972
B.A.: M.A., Southern Illinois University, 1965

Grange, Roger T., Professor (Anthropology), 1964
Ph.B., M.A., Ph.D., University of Arizona, 1962

Grasso, Robert J., Assistant Professor (Medical Microbiology), 1971
B.S., Ph.D., State University of New York at Buffalo, 1968

Gray, Gregory O., Assistant Professor (Business Law), 1972
A.B., J.D., University of Miami, Florida, 1972

Grebel, Leon C., Jr., Assistant Professor (Education), 1970
B.S., M.S., Ed.D., Syracuse University, 1969

Grieffith, John E., Chairman and Professor (SMF-Engineering), 1964
B.S., M.S., Ph.D., Pennsylvania State University, 1955

Grimes, Maxyne M., University Librarian (Medical Library), 1972
B.A.: B.S., Louisiana State University, 1947

Grindley, Robert J., Assistant Professor (Physical Education), 1964
B.A.: M.S., University of New Mexico, 1961

Griscti, Walter E., Associate Professor (Mass Communications), 1967
B.S., M.A., University of Florida, 1959

Gronhovd, K. Dale, Assistant Professor (Speech Pathology), 1972
B.S., M.S.: Ph.D., University of Oregon, 1972

Gross, Pinchas, Associate Professor (Rehabilitations Studies Program), 1971
B.A., M.A., Ph.D., University of Florida, 1967

Grossman, Marvin I., Assistant Professor (Education), 1969
B.A., M.Ed., Ed.D., University of Georgia, 1969

Grothmann, Wilhelm H., Assistant Professor (Modern Languages), 1966
B.A., M.A., Ph.D., University of Kansas, 1968

Grove, Stanley, Visiting Assistant Professor (Biology), 1972
B.A.: Ph.D., Purdue University, 1970

Guest, Lester P., Lecturer (Behavioral Science), 1967 (Part time)
B.A., M.A., Ph.D., University of Maryland, 1941

Guertelzoe, Eleanor C., Instructor (Education), 1968
B.S., M.A., University of South Florida, 1968

Gunter, Billy G., Assistant Professor (Sociology), 1968
A.B.: Ph.D., University of Tennessee, 1964

Gunter, Maynard, Assistant Professor (Education), 1970

Guerr, Theodore M., Instructor (Geology), 1972
B.A., M.A., University of South Florida, 1972

Halder, Narayan C., Associate Professor (Physics), 1972
B.S., M.S.: Ph.D., Indian Institute of Technology, 1963, F.A.P.S.

Halfeter, Jory, Instructor (Philosophy), 1971
B.A.: M.A., Ph.D., Stanford University, 1972

Halkias, Demetrios G., Associate Professor (Medical Microbiology), 1972
B.S., M.S., Ph.D., Loyola University, Chicago, 1964

Hall, Bruce W., Assistant Professor (Education), 1969
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Hall, Robert E., Assistant Professor (English), 1970, St. Petersburg Campus
B.A., M.A., John Carroll University, 1958

Hall, Sallie J., Assistant Professor (English), 1963
B.A., M.A., Ph.D., University of Florida, 1971

Halllock, James A., Assistant Professor (Pediatrics), 1972
A.B.: M.D., Georgetown University, 1967

Hamblin, Ellen N., Instructor (Modern Languages), 1971 (Part time)
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Hampton, Warren R., Assistant Professor (Modern Languages), 1969
B.A., M.A., Ph.D., Tulane University, 1968

Hann, Elo A., Assistant Professor and Director (Academic Budget), 1970
B.A.: M.A., Ph.D., Yale University, 1970

Hansen, Odille S., Research Associate/Coordinator (Academic Planning and Analysis), 1969 A.
B.A., University of California, Los Angeles, 1959

Hansen, Roy A., Associate Professor (Pediatrics), 1969
B.A., M.A., Ph.D., University of Los Angeles, 1967

Hardy, Miles W., Director and Professor (Behavioral Science), 1960
B.S., M.S., Ph.D., Florida State University, 1960

Harkness, Donald R., Associate Professor (American Studies), 1960
B.A., M.A., Ph.D., University of Minnesota, 1954

Harkness, Mary Lou, Director (University Libraries), 1958
B.A., A.B.L.S., M.S., Columbia University, 1958

Harlow, Dorothy N., Associate Professor (Management), 1969
B.A., M.S., Ph.D., University of Kansas, 1970

Harmon, Mary Helen C., Assistant Professor (English), 1964
A.B., M.A.T., University of Florida, 1963

Harper, Elsie S., Lecturer (Education), 1972 (Part time)
B.A., M.A., University of South Florida, 1971
HARRIS, LERBONE C. .... Assistant Professor (Accounting), 1970
B.S., M.Acc., D.B.A., Florida State University, 1970, C.P.A.

HARRISON, WILLIAM F. .... Associate University Catalog Librarian (Libraries), 1964
B.A., M.A.L.S., George Peabody College, 1957

HART, CARLTON N. ....... Instructor (Mathematics), 1966
B.A., M.S., University of Miami, Florida, 1966

HARTLEY, ALBERT C. ....... Vice President (Administration), 1971
B.S., M.B.A., Florida State University, 1968

HATCHER, JOHN S. ....... Assistant Professor (English), 1968
B.A., M.A., Ph.D., University of Georgia, 1968

HAVEN, JULIA M. ............. Professor (Education), 1969
B.E.: M.A., Ph.D., Northwestern University, 1954

HAWKINS, ANNIE L. ....... Assistant Professor (Music), 1969
B.A., M.A., University of South Florida, 1970

HAWKINS, HAROLD L. .... Associate Professor (Psychology), 1967
A.B., M.A., Ph.D., University of Oregon, 1967

HAWKINS, HERBERT H. .... Reading Clinician (Counseling Center), Lecturer (Student Affairs), 1971
B.S., M.A., Ed.D., George Washington University, 1964

HEARN, THOMAS K. .... Assistant Professor (Education), 1967,
St. Petersburg Campus
A.B., M.A., Ed.D., University of Alabama, 1965

HECHICHE, ABDELWAHAB .... Assistant Professor (International Studies), 1970
M.A., D.U., Sorbonne, 1966

HECHICHE, ANAÏS J. .... Instructor (Modern Languages), 1972
B.A.: M.A., University of South Florida, 1972

HEESCHEN, RICHARD E. .... Associate Professor (Physical Education), 1962

B.S.: M.S., Florida State University, 1961

HEIM, WILLIAM J. .... Assistant Professor and Director (English), 1970
A.B.: M.A., Indiana University, 1967

HENLEY, ELTON F. ....... Associate Professor (English), 1963
B.A., M.A., Ph.D., Florida State University, 1962

HENNING, RUDOLPH E. ....... Assistant Dean, Associate Professor (Engineering), 1971

B.S.E.E., M.S.E.E., Sc.D., Columbia University, 1954

HERMAN, WALTER J. .... Associate Professor (Economics), 1960
B.S., M.B.A., Ph.D., University of Florida, 1965

HERTZ, GILMAN W. ....... Professor (Physical Education), 1960
B.S., M.S., P.E.D., University of Indiana, 1956

HEWITT, CHARLES F. ....... Assistant to the Vice President (Student Affairs), 1972
B.S.: M.A., Ed.D., Western Michigan University, 1972

HICKMAN, JACK W. ....... Associate Professor (Internal Medicine), Associate Dean (House Staff Affairs), 1970
B.S., M.D., Indiana University, 1955

HILL, CLYDE B. .... Director (University Physical Planning), 1958
B.S.C.E., University of Kentucky, 1946, P.E.

HILL, RAYMOND ............... Instructor (Education), 1971
B.S.; M.A., University of Alabama, 1967

HILKEY, MICHAEL E. ....... Assistant Professor (SMF-Engineering), 1968
B.S.M.E., M.S.M.E., Clemson College, 1964

HINDLE, WILL M. ....... Associate Professor (Fine Arts), 1972
B.A., M.A., Ph.D., Yale University, 1951

HIRSCHBERG, EDGAR W. ....... Professor (English), 1960
B.A., M.A., Ph.D., University of Florida, 1967

HIRSHORN, RAYMOND D. ....... Instructor (Education), 1968
B.A., University of Florida, 1967

HOCHBERG, CHARLES J. ....... Assistant Professor (Obstetrics and Gynecology), 1972
B.S.: M.D., The Chicago Medical School, 1967

HOFFMAN, HUBERT A. ....... Associate Professor and Chairman (Physical Education), 1966
B.S., M.Ed., P.E.D., Indiana University, 1969

HOFFMAN, THEODORE B. ....... Professor (Humanities), 1962
A.B., M.A., Ph.D., University of the Pacific, 1959

HOFFMANN, WAYNE W. ....... Director (Student Affairs), 1970,
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HOLCOMB, DAN L. ....... Assistant Professor (Physical Education), 1965
B.Ed., M.S., Florida State University, 1962

HOLLAND, MARGARET S. .... Assistant Professor (Education), 1966
B.A., M.A.T., Duke University, 1961

HOLLEY, JOHN W. ....... Assistant Professor (Sociology), 1971
B.A., M.S., Ph.D., Florida State University, 1971

HOLLINGSWORTH, JAMES L. ....... Interim Assistant Professor (American Idea), 1971
B.A., M.A., University of South Florida, 1968, C.P.A.

HONKER, H. ANDREW ....... Assistant Professor (Physical Education), 1969
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HOPKINS, THOMAS L. ....... Assistant Professor (Oceanography), 1967,
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HOPPER, ALAN T. ....... Interim Lecturer (Music), 1972
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HORRIGAN, FREDERICK J. ....... Associate Professor (Political Science), 1968
B.A., M.A., Ph.D., Indiana University, 1958

HORSMAN, DAVID A. E. ....... Assistant Professor (Mass Communications), 1970
B.A.: M.A., Ph.D., New York University, 1970

HOUK, C. WESLEY ....... Coordinator of Advising and Graduate Studies and Associate Professor (Fine Arts), 1961
B.A.: M.F.A., University of Iowa, 1950

Hovinga, Lavinia N. ....... Assistant Professor (Dance), 1970
B.S., University of Wisconsin, 1937

HOWELL, JOE A. ....... Vice President (Student Affairs), Professor (Education), 1971

HOWELL, LARRY G. ....... Assistant Professor (Chemistry), 1970
B.A.: Ph.D., Duke University, 1968

HOWELL, PAUL N. ....... Assistant Professor (Energy Conversion Engineering), 1969
B.S., M.S., Ph.D., Oklahoma State University, 1969, P.E.

HUANG, WEN H. ....... Assistant Professor (Geology), 1970
B.S.: M.A.: Ph.D., University of Missouri, 1970

HUBBARD, CONRAD E. ....... Assistant Professor (Accounting), 1962
B.S., M.B.A., University of Kentucky, 1957, C.P.A.

HUG, WILLIAM G. ....... Chairman and Associate Professor (Dance), 1969
B.S., M.A., University of Illinois, 1960

HUMMEL, HAROLD J. ....... Chairman and Professor (Oceanography), 1966,
St. Petersburg Campus
B.S.: M.S., Ph.D., Duke University, 1945

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B.S., M.A., Ed.D., Stanford University, 1942

HUNTER, JAMES H., JR. ....... Professor (Astronomy), 1970
B.A., Ph.D., University of California, Los Angeles, 1964

Hurd, Robert L. ....... Lecturer (Accounting), 1971,
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HUTCHINSON, HAROLD E. ....... Assistant University Reference Librarian (Libraries), 1969
B.A., M.S.L., Syracuse University, 1969

IARDOZO, DOMENICO ....... Instructor (Modern Languages), 1970

ILES, MALLORY W. ....... Assistant Professor (Speech), 1972

ILLINGWORTH, JUDITH A. .... Research Associate (Biology), 1972
B.A., University of South Florida, 1971

INGRAM, JAMES M. ....... Chairman and Professor (Obstetrics and Gynecology), 1971
M.D., Duke University, 1943

Iorio, John J. ....... Associate Professor (English), 1963
B.A., M.A., Columbia University, 1951
Kerns, Robert L. —— Associate Professor (Mass Communications), 1972
B.A.: M.A., Syracuse University, 1969
Kessler, Evelyn S. —— Assistant Professor (Anthropology), 1967
B.S.: M.A., Ph.D., Columbia University, 1970
Kibbey, Ray A. —— Assistant University Reference Librarian (Libraries), 1970
B.A., M.A., J.L.S., University of Michigan, 1970
Keifer, H. Christian —— Professor (English), 1960
A.B.; M.A., Ph.D., Columbia University, 1961
Kimmel, Ellen B. —— Director (University Studies), Associate Professor (Education), 1968
B.A.; M.A., Ph.D., University of Florida, 1965
Kimmel, Herbert D. —— Professor (Psychology), 1968
B.S., M.A., Ph.D., University of Southern California, 1958
Kincaid, George H. —— Associate Professor (Education), 1967
A.B., M.R.C., Ed.D., University of Florida, 1965
Kinne, Stewart W. —— Associate Professor and Director (Speech Pathology and Audiology), 1965
B.S., M.A., Ph.D., Michigan State University, 1972
King, Arline T. —— Assistant University Catalog Librarian (Libraries), 1969
B.A., M.A.; M.S.L.S., Florida State University, 1970
King, Carl D. —— Assistant Professor (Education), 1972
B.A., B.S.M.; B.S., M.S.; Ph.D., Ohio State University, 1972
King, Charles E. —— Associate Professor (Biology), 1972
A.B.; M.S.; Ph.D., University of Washington, 1965
King, Raymond C. —— Director (University Housing), Lecturer (Student Affairs), 1963
B.S.; M.A., Columbia University, 1961, Prof. Diploma
Kinsey, Samuel —— Lecturer and Assistant Director (Education), 1970
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Klausewitz, Ronald H. —— Research Associate (Marine Science), 1971, St. Petersburg Campus
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Kleg, Milton —— Assistant Professor (Education), 1970
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Kleine, George-Helmuth —— Assistant Professor (History), 1968
Ph.D., University Erlangen-Nürnberg, 1967
Klesius, Stephen E. —— Assistant Professor (Physical Education), 1969
B.S., M.S.; Ph.D., Louisiana State University, 1968
Klukken, Philip G. —— Clinical Psychologist (Counseling Center), Lecturer (Student Affairs), 1971
B.A., M.A., Ph.D., University of Florida, 1971
Kneeburg, Don W. —— Assistant Professor (Music), 1968
B.A.; M.M., Indiana University, 1962
Knippen, J. T. —— Assistant Professor (Management), 1970
Kopp, Edgar W. —— Dean and Professor (Engineering), 1964
B.S.N., B.I.E., M.S.I.E., Georgia Institute of Technology, 1947, P.E.
Kory, Ross C. —— Professor (Medicine), Assistant Dean (Veterans Administration Affairs), 1972
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Kosmala, Jerzy S. —— Associate Professor (Music), 1971
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Kramer, Ernest F. —— Associate Professor (Psychiatry), 1970
B.A.; M.A., Ph.D., University of Michigan, 1963
Krank, Stanley C. —— Assistant Professor (Engineering), 1972
B.S.E.E., Ph.D., Northwestern University, 1967
Kraus, Allan D. —— Lecturer (Technology Engineering), 1971
B.E., M.S.M., M.E.E., Brooklyn Polytechnical Institute, 1958
Kaminsky, Sheldon —— Assistant Professor (Philosophy), 1970
B.S., M.S., A.M., Ph.D., Boston University, 1970
Krivaneck, Jerome O. —— Professor (Aging Studies Program), 1960
B.S., M.S.; Ph.D., University of Florida, 1955
Kronsoble, Jeffrey M. —— Associate Professor (Art), 1963
B.S.: M.F.A., University of Michigan, 1963
Kruchwitz, Walter H. —— Associate Professor (Physics), 1967
A.B.; M.A.; Ph.D., University of Michigan, 1961
Krzanowski, Joseph ——— Assistant Professor (Pharmacology), 1971
B.S.; M.S., Ph.D., University of Tennessee, 1968
Kushner, George I. —— Assistant Professor (Education), 1969
B.S., M.S., Ed.D., Colorado State University, 1969
Kuffel, Constance F. —— Instructor (Speech Pathology & Audiology), 1969
B.A., M.A., University of South Florida, 1968, C.C.C.
Kuhl, Mary Jane —— University Special Collections Librarian (Libraries), 1967
A.B., M.S.L.S., University of North Carolina, 1967
Kusnierz, Gilbert —— Chairman and Associate Professor (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
Kwapinski, J. B. George —— Visiting Professor ( Biology), 1972
M.B., M.D., Ph.D., University of Warsaw, 1955
Labarba, Richard C. —— Associate Professor (Psychology), 1966
B.A.; Ph.D., University of Tennessee, 1965
Lacey, Donald R. —— Assistant to the Dean and Instructor (Social & Behavioral Sciences), 1972
B.A., Wayne State University, 1970
Lagodna, Martin M. —— Assistant Professor (American Ideal), 1970
B.A., M.A., Ph.D., University of Florida, 1970
Lake, Duane E. —— Director (University Union), 1960
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Lamachia, Mariano J. —— Lecturer (Theatre Arts), 1972
Lancz, Gerald J. —— Assistant Professor (Medical Microbiology), 1971
A.B., M.S., Ph.D., Northwestern University, 1970
Landry, Charles W. —— Assistant Professor (Finance), 1969
B.S.; M.S.; Ph.D., University of Arkansas, 1971
Landman, Murray J. —— Associate Professor (Rehabilitation Studies Program), 1969
B.S., M.A., Ph.D., University of Florida, 1964
Lane, James H. —— Associate Professor (SMF-Engineering), 1966
B.S., M.S., Ph.D., North Carolina State University, 1965
Lang, Jovian P. —— Assistant Professor (Education), 1971
A.B.; M.S.L.S., M.A., Case Western Reserve University, 1955
Langford, Neal G. —— Lecturer (Geology), 1972
B.S., M.S., University of Florida, 1962
Lantz, Donald L. —— Assistant Professor (Education), 1961
A.B., M.A., Ph.D., University of Minnesota, 1961
Lasseter, James Jr. —— Assistant Professor (Accounting), 1966
B.S.; M.B.A., University of Chicago, 1964, C.P.A.
Latina, Albert A. —— Assistant Professor (Biology), 1960
B.A.; M.S., Florida State University, 1960
Laughlin, Thomas C. —— Assistant Professor (Political Science), 1969
B.A.E., M.A.; Ph.D., Florida State University, 1966
Lavelly, Carolyn D. —— Associate Professor (Education), 1970
B.A., M.A., Ph.D., Syracuse University, 1968
Lawrence, John M. —— Associate Professor (Biology), 1965
B.S., A.M., Ph.D., Stanford University, 1966
Lawson, Steven F. —— Instructor (History), 1972
B.A.; M.A., Columbia University, 1967
Lex, Bernard —— Assistant Professor (Education), 1969
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Layden, William E. —— Assistant Professor (Ophthalmology), 1972
B.A.; M.D., University of Vermont, 1963
Lentz, Glenda F. —— Assistant Director and Lecturer (Student Career & Employment Center), 1968
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Mellish, G. Hartley .. Associate
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Mace, Penelope L .. Assistant Professor (Sociology), 1972
Mach, M. A. .... Ohio State University, 1970
Mazur, Joseph L .......... Professor (Education), 1970
MCCLELLAN, Leslie L .... Associate Professor (Education), 1964
McClelland, Dennis E. Director (Information Services), 1968
McClendon, Paul E. .. Associate Professor (Education), 1969
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McCullough, Norvel M. .. Professor (Biology), 1966
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McCormick, Marjory K .. Associate Professor (Behavioral Science), 1965
McCranken, Willard E., Jr. .. Assistant Dean and Associate Professor (Fine Arts), 1964
B.S., M.A., Columbia University, 1954
McCrea, Miriam L .... Associate Professor (Nursing), 1969
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McCullough, Phillip N ... Counselor to Students/Instructor (Student Affairs), 1972
B.A.: M.Ed., Ohio University, 1972
McDiarmid, Roy W ...... Assistant Professor (Biology), 1969
A.B., M.S., Ph.D., University of Southern California, 1969
McElhatten, Thomas P .... Assistant Professor (Economics), 1969
B.A., M.A., University of Florida, 1966
McLean, Edward F .. Professor (Modern Languages), 1960
M.A., Ph.D., Duke University, 1961
McNair, A. Jeanne ... Associate University Catalog Librarian, (Libraries), 1965
B.A.: M.S.L.S., Indiana University, 1965
McWaters, Marcus M., Jr .. Associate Professor (Mathematics), 1966
B.S., Ph.D., University of Florida, 1966
Meade, Robert C ......... Professor (Medicine), 1972
B.S.; M.S.; M.D., University of Minnesota, 1950
Mecham, Eldon J .... Assistant Professor (Theatre Arts), 1967
Meleardi, John C ....... Business Manager (Medical Center), 1964
B.S., Florida Southern College, 1959
Mellish, G. Hartley .. Associate Professor (Economics), 1965
B.A.; Ph.D., University of Virginia, 1965
Menardiere, Christian De La ...... Associate Professor (Modern Languages) 1963
B.A.; M.A., D.U., Sorbonne, 1964
Menninger, Richard F ... Assistant Professor (Psychology), 1971
B.Sc.: Ph.D., University of Kentucky, 1971
Merica, John A .......... Assistant Professor (Education), 1968
B.A., M.A., Ph.D., Syracuse University, 1971
Merner, Diane T .. .... Associate Professor (Biology), 1967
B.S.: M.A., Duke University, 1963
Merriman, Harland C .......... Professor (Education), 1969
B.S.: M.Ed., Ed.D., Harvard University, 1959
Merriman, Kemper W ...... Acting Dean and Professor (Business Administration), 1967
Merrimans, Nancy B ........... Instructor (Education), 1970
B.S., M.A., Western Michigan University, 1969
Meyer, Richard I ... Assistant Professor (Finance), 1970
B.S., M.B.A., Ph.D., University of Wisconsin, 1971
Meyernick, Andrew J .. Associate Professor (Biology), 1961
A.B.: Ph.D., Harvard University, 1958
Michael, Lois I ... Assistant Professor (Education), 1966
A.B.; B.S.; M.S., Ed.D., Auburn University, 1966
Michaelides, George J ... .. Assistant Professor (Mathematics), 1961
B.S., M.S., Virginia Polytechnic Institute, 1954
Michaelides, Theresa B ....... Instructor (Biology), 1971
B.S., Lamar State College, 1960
Milani, Virgil I ....... Associate Professor (Modern Languages), 1963
B.S.; M.A., Ph.D., Catholic University of America, 1962
Miller, George H ... Special Assistant (University Relations), 1960
B.S.; M.J.S., University of Illinois, 1948
Miller, Margaret A ....... Instructor (Art), 1970
B.A.; M.A., University of Hawaii, 1970
Miller, Robert L .. Interim Lecturer (Industrial Systems Engineering), 1971
B.S., University of South Florida, 1970
Minnar, Andrew .. .. Lecturer (Student Career & Employment Center), 1970
B.S.; M.A., Western Kentucky State College, 1959
Mitchell, John R .. .. Assistant Professor (Management), 1970
B.S.I.M.: M.A., Ph.D., University of Illinois, 1972
Mitchell, Richard W ...... Associate Professor (Physics), 1962
B.S.; M.S., Ph.D., Texas A & M University, 1969
Modrow, William G .. Assistant Professor (Finance), 1963
B.A., M.S., Texas A & M University, 1963
McDonald, Laurence E ........ Professor (Education), 1960
B.S.; M.S.; Ph.D., University of Florida, 1956
Moody, Judith W ...... Interim Instructor (English), 1972 (Part time)
Moon, James E ....... Assistant Professor (Accounting), 1970
B.S., M.A., Ph.D., University of Alabama, 1970
Moore, Jack B ......... Professor (English), 1962
B.A.; M.A., Ph.D., University of North Carolina, 1963
Moore, Norman A .. Assistant Professor (Anatomy), 1971
B.S.; Ph.D., University of Texas, 1971
Morehead, Olivia F ...... Lecturer and Community Coordinator (Education), 1972
Morgan, James B ........... Counselor to Students/Instructor (Student Affairs), 1972
Morgan, Wesley E ............ Instructor (Fine Arts), 1972
B.A., M.A., San Jose State College, 1972
Morgan, William T ....... Assistant Professor (American Studies), 1970
B.A.; M.A., Ph.D., University of Minnesota, 1971
Morris, William E ....... Professor and Director of Graduate Study (English), 1964
B.A., M.A.; Ph.D., University of North Carolina, 1957
MOURER, STEPHEN A.......Associate Professor (Psychiatry), 1967
B.A.; M.A.; Ph.D., Southern Illinois University, 1966

MOYSE, WILLIAM F.......Instructor (Mass Communications), 1971

MUKHERJEE, ARUNAVA........Associate Professor (Mathematics), 1969
B.Sc., M.Sc., Ph.D., Wayne State University, 1967

MUMME, ROY I..............Assistant Professor (Education), 1966
A.B.; A.M.; M.Ed., University of North Carolina, 1953

MUNIZ, AMADO L............Instructor (Psychiatry), 1972
B.S.; M.D., Havana University, 1960

MUNTYAN, BOZIDAR..........Chairman and Professor (Education), 1966
B.A., M.A., University of Illinois, 1946

MURPHY, ROBERT J...........Associate Professor and Director (Graduate Studies; Business Administration), 1966
B.A.; M.A., Ph.D., Fordham University, 1964

MURTY, CHALLAKONDA N........Research Associate (Pathology), 1972
B.S.; M.S.; Ph.D., University of Sydney, Australia, 1969

MUSGROVE, WALTER J.......Associate Professor (Education), 1964, St. Petersburg Campus
A.B., M.A., Ed.D., University of Maryland, 1965

NAEHRING, DOUGLAS C. E.......Assistant Professor (Systems Engineering), 1970, St. Petersburg Campus
B.E.; M.Sc., Ohio State University, 1949, P.E.

NELSEN, HARVEY W.......Assistant Professor (International Studies), 1972
B.A.; M.A.; Ph.D., George Washington University, 1972

NELSON, CARNOT E.......Associate Professor (Psychology), 1971
B.S.; Ph.D., Columbia University, 1966

NELSON, DOUGLAS L.......Associate Professor (Psychology), 1967
B.A.; M.A., Ph.D., University of Wisconsin, 1967

NELSON, GID E., Jr...........Professor (Biology), 1960
A.B.; M.S.; Ph.D., University of Florida, 1964

NELSON, LOUIS R..........Director and Assistant Professor (Vivarium), 1971
B.S.; M.S.; D.V.M., Auburn University, 1955

NESMAN, EDGAR G...........Assistant Professor (Sociology), 1968
B.S.; M.S.; Ph.D., University of Florida, 1969

NESMAN, MARJORIE P.........Teaching Associate (Education), 1969 (Part time)
B.S., Michigan State University, 1952

NESS, THOMAS E.............Associate Professor (Marketing), 1974
A.B.; B.S.E.; M.S.I.A., Ph.D., Purdue University, 1968

NEUBERGER, HANS H...........Visiting Professor (Geography), 1971
D.Sci., Hanseatische University, 1936

NEUGAARD, EDWARD J.......Associate Professor (Modern Languages), 1964
B.A.; M.A., Ph.D., University of North Carolina, 1964

NEVILLE, DONALD D...........Professor (Education), 1972

NEWCOMB, JOAN I............Lecturer (Behavioral Science), 1966
B.S.; M.A., Ohio State University, 1964

NEWCOMBE, P. JUDSON........Associate Professor (Education), 1970
B.A.; M.A., Ph.D., Northwestern University, 1963

NEWFIELD, KENNETH P.......Associate Professor (Aging Studies Program), 1972
A.B.; M.S.; Ph.D., Florence Heller Graduate School, Brandeis University, 1971

NEWTON, VIRGIL M............Associate Professor (Education), 1969
B.A.; B.D., Princeton Theological Seminar, 1963

NICHOLS, NICHOLAS L.......Assistant Professor (Marketing), 1969
B.A.; M.B.A., University of California, Berkeley, 1964

NICHOLS, ROGER M............Associate Professor (Education), 1965
A.B.; M.A.; Ph.D., Florida State University, 1965

NICKELS, BRADLEY J.........Assistant Professor (Art), 1970
B.D.; M.A., Ph.D., University of Indiana, 1966

NICOLOSI, GREGORY R........Assistant Professor (Physiology), 1972
B.S.; Ph.D., Ohio State University, 1971

NIENHAUS, HARRY A...........Assistant Professor (Electrical Engineering), 1967
B.S., M.S., University of St. Louis, 1964

NOER, RUDOLF J...............Professor (Surgery), 1970 (Part time)
A.B.; M.D., University of Pennsylvania, 1927

NORTHCUIT, TRAVIS J., JR.....Professor and Director (Social & Behavioral Sciences), 1972
B.S., M.S.; Ph.D.; M.P.H., University of North Carolina, 1959

OBER, RICHARD L............Associate Professor (Education), 1969
B.S.; M.A.T.; Ph.D., Ohio State University, 1966

OCHSHORN, JUDITH............Assistant Professor (Women’s Studies Program), 1969
B.A.; M.A., New York University, 1956

OCHSHORN, MYRON G..........Associate Professor (English), 1963
B.A.; M.A., Ph.D., University of New Mexico, 1963

O’DONNELL, EDWARD...........Assistant Professor (Geology), 1968
B.S.; M.S.; Ph.D., University of Cincinnati, 1967

O’DONNELL, MAURICE E.......Chairman and Associate Professor (Political Science), 1966
B.S.; M.S., Ph.D., University of Wisconsin, 1954

OESCHER, JACK W.........Instructor (Marketing), 1968
B.S.; M.A., University of South Florida, 1968

OHAEGBULAM, FESTUS U.......Associate Professor (Afro-American Studies), 1972
B.A.; M.A.; Ph.D., University of Denver, 1967

O’HARA, ROBERT C...........Associate Professor (Linguistics), 1961
B.A.; M.A., University of Louisville, 1953

OLESON, NORMAN L.........Chairman and Professor (Physics), 1969
B.S., M.S., Ph.D., University of Michigan, 1940

OLINE, LARRY W..............Associate Professor (SFME-Engineering), 1967
B.A.; B.S.; M.S.; Ph.D., Georgia Institute of Technology, 1968

Olsen, Eugene D...........Associate Professor (Biochemistry), 1964
B.S., Ph.D., University of Wisconsin, 1960

OLSON, JOHN A..............Assistant Professor (Education), 1970
B.A.; M.A., Ph.D., University of Oregon, 1970

ORLOSKY, DONALD E...........Professor (Education), 1969
A.B.; M.S.; Ed.D., Indiana University, 1969

Orr, Mark T..............Associate Professor and Chairman (Interdisciplinary Social Science), 1966
A.B., Ph.D., University of North Carolina, 1954

ORTWEIN, PHILLIP G........Assistant Professor (Physical Education), 1966
A.B.; M.S., Indiana University, 1948

O’SULLIVAN, PETER B........Associate Professor (Theatre Arts), 1964
B.A.; M.A., University of North Carolina, 1957

OWEN, TERENCE C............Professor (Chemistry), 1964
B.S.; Ph.D., University of Manchester, England, 1964

OWEN, WILLIAM D...........Associate Professor (Music), 1964
B.M.; M.M., North Texas State University, 1960

PACKER, WILLIAM E.........Lecturer (Electrical Engineering), 1970
B.S., University of South Florida, 1970

Palm, John W...........Instructor (International Studies), 1970 (Part time)

PALMER, BARBARA M..........Lecturer (Aging Studies Program), 1971
B.S.; M.A., University of South Florida, 1970, R.D.

PALMER, CECIL E............Assistant Professor (Geography), 1969
B.S.; M.A., University of Georgia, 1960

PALMER, JAMES N............Assistant Professor (English), 1966
B.A.; M.A., University of North Carolina, 1958

PALMER, ROBERT E., Sr......Associate Professor (Education), 1970
B.S., M.S., Ph.D., Florida State University, 1969

PANTHER, EDWARD E........Assistant Professor (Education), 1969
B.S.; M.S.; Ed.D., State University of New York at Buffalo, 1969
PAPAGOUNOS, GEORGE I......Instructor (Modern Languages), 1972 (Part time)
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PAPPAS, GEORGE......Chairman and Professor (Education), 1966
B.S., M.A., Ed.D., Pennsylvania State University, 1957
PARADISE, LOIS J......Associate Professor (Medical Microbiology), 1973
A.B.: M.S., Ph.D., University of Michigan, 1960
PARDO, SARAH J.......Instructor (Accounting), 1971, St. Petersburg Campus
PARKER, JOHN W., JR....Associate Professor (English), 1963
PARKER, KEITH A........Assistant Professor (History), 1966
B.A.: M.A., Ph.D., University of Maryland, 1965
PARKER, WOODROW M.....University Counseling Psychologist (Student Affairs), 1971
B.S.: M.S., University of South Florida, 1971
PARK, DENNIS H. Associate Professor (SMF-Engineering), 1970
B.S.: M.S., St.C.D., New Mexico State University, 1968, P.E.
PARRADO, ADRIANA A......Assistant Professor (Counseling Center), 1969
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PARRISH, JAMES A., JR......Chairman and Professor (English), 1960
B.S.; M.A., Ph.D., Florida State University, 1955
PARGETER, GERALD D....Assistant Professor (Speech), 1970
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PATOUILLET, RAYMOND A.....Chairman and Professor (Education), 1967
A.B., M.A., Ed.D., Columbia University, 1951
PATTERSON, GERALD E.....Associate Professor (Education), 1971
B.S.: M.A., Ph.D., Ohio State University, 1970
PAULUS, MARGARET I.....Assistant Professor (Education), 1969
Ph.B: M.S.L.S., University of Wisconsin, 1969, S.P.L.S.
PAYNE, CHARLES E.......Associate Professor (Engineering Technology), 1965, St. Petersburg Campus
B.E., M.S.E., University of Florida, 1965, P.E.
PEARCY, WALTER E., JR.......Instructor (Education), 1972
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PENNER, LOUIS A.........Assistant Professor (Psychology), 1969
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PEREZ, LOUIS A., JR.........Assistant Professor (History), 1970
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PETERSON, DONOVAN D.......Associate Professor (Education), 1968
B.S.: M.A., Ph.D., University of Pittsburgh, 1970
PEVNNICK, STEPHEN H......Instructor (Fine Arts), 1972
PEW, HOWARD P..........Acting Assistant Dean and Associate Professor (Education), 1967
PHILLIPS, ERNEST R.......Assistant Professor (Education), 1971
B.S.; M.A.: Ph.D., Purdue University, 1971
PHILLIPS, I. VAN KEITH......Assistant Professor (Theatre Arts), 1969
Pierce, CARMEL J.......Lecturer/Adviser (Education), 1970
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B.S., University of South Carolina, 1945
PINKARD, CALVIN M......Director and Associate Professor (Rehabilitation Studies Program), 1964
POSIOT, JAMES ADRIAN A.......Assistant Professor (Pharmacology), 1971
B.A., M.S., Ph.D., University of Missouri, 1968
POPE, JAMES S............Assistant Professor (Education), 1966
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POPOVICH, HELEN H.......Assistant Professor (English), 1965
B.A., M.A.; Ph.D., University of Kansas, 1965
POPOVICH, JAMES E........Professor (Speech), 1962
B.A., M.A.: Ph.D., Northwestern University, 1955
POTHoven, Kenneth L........Assistant Professor (Mathematics), 1970
A.B.: M.A.; Sp.A., Ph.D., Western Michigan University, 1969
POWELL, ROBERT W........Associate Professor (Psychology), 1966
B.A.: M.A.; Ph.D., Florida State University, 1966
POWER, FRED B...............Assistant Professor (Finance), 1964
B.S., M.Ed., University of Florida, 1964
PRAH, SAM W...............Associate Professor (Physical Education), 1962
B.S.; M.S., Florida State University, 1953
PREHLE, JOHN.............Director of Public Safety and Security (Office of the President), 1969
PREEDOR, EDERW............Professor (Music), 1960
B.M., M.M. Eastman School of Music, 1937
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B.S., M.S., Ph.D., Rensselaer Polytechnic Institute, 1970
PRICE, WILLIAM O..........Assistant Professor (Modern Languages), 1963
B.A.: M.A., Ph.D., Rutgers University, 1970
PRICE, RICHARD F......Assistant Professor and Director (Education), 1969
B.A.: M.A., Columbia University, 1951
PRICE, FRED L............Assistant Professor (Education), 1971
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PUGLISI, DICK J.............Instructor (Education), 1969
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PUKATZKI, DIETER H........Lecturer (Mathematics), 1972
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PULIN, ALFRED B............Curator (Chemistry), 1969
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PURDOM, DANIEL M........Associate Professor (Education), 1968
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PYLE, THOMAS E...........Assistant Professor (Oceanography), 1969, St. Petersburg Campus
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B.Pharm.: M.A., St. Louis University, 1970
RABER, DOUGLAS J...........Assistant Professor (Chemistry), 1970
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RABER, JANIS C..............Instructor (International Studies), 1971
B.A., Alma College, 1965
RADLOFF, JOHN E............Instructor (Education), 1966
B.A., University of South Florida, 1965
RAGAN, WENDELL J..........Chairman and Professor (Geology), 1960
B.S., M.S., Ph.D., University of Missouri, 1969
RAHNE, JOY M..............Assistant Professor (Psychology), 1970, St. Petersburg Campus
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RANDOLPH, GEORGE R.......Instructor (Speech), 1972
B.A., M.A., University of South Florida, 1972
RAO, A. N. V.............Assistant Professor (Mathematics), 1972
B.S.: M.S.; M.S., Ph.D.; Ph.D., Virginia Polytechnic Institute & State University, 1972
RATLIEF, JOHN L...........Associate Professor (SMF-Engineering), 1969
B.S.; M.S.: Ph.D., Ohio State University, 1969
RATTI, JOYNOBAR S........Professor (Mathematics), 1967
B.S.: M.S.; Ph.D., Wayne State University, 1966
RAY, JAMES D., JR.........Professor (Biology), 1959
B.S., M.S.; Ph.D., University of Illinois, 1951
READER, WILLIE D. ........Associate Professor (English), 1963
A.B., M.A.; Ph.D., University of Florida, 1962

 REARICK, MARTHA N. ........Associate Professor (Music), 1963
B.S., M.M., University of Michigan, 1961

 REECE, DONNA Y. ........University Documents Librarian
 (Libraries), 1963
B.A.; M.S.L.S., Florida State University, 1963

 REED, JAMES H. ........Associate Professor (Mathematics), 1963
B.A.; M.A.; Ph.D., University of Maryland, 1969

 REED, JANE G. ........Lecturer (Mathematics), 1969
A.B.; M.A., University of Maryland, 1962

 REIFSNYDER, DX, RO N ........Assistant Professor (Medicine), 1972
A.B.; M.D., M.B.A., Columbia University, 1969

 REILLY, J. TIM ........Assistant Professor (Criminal Justice
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B.A.; M.A.; J.D., Stetson University, 1958

 REYNOLDS, JERALD M. ....Associate Professor (Music), 1966
B.A.; M.A., University of Oregon, 1963

 RICE, PHILIP M. ........Dean and Professor (Language-
Literature), 1972
A.B.; M.A., Ph.D., University of North Carolina, 1948

 RICH, THOMAS A. .......Dean and Professor (Social Science), 1961

 RICHARDSON, GARY L. Associate Professor (Management), 1969
B.S.; M.S.; Ph.D., North Texas State University, 1970, P.E.

 RICHEY, JOYCE A. .........Systems Coordinator (Computer Re-
search Center), 1960
B.S., University of Kentucky, 1955

 RICKER, LAWRENCE H. ....Professor (Behavioral Science), 1966
B.S., M.A., Ph.D., University of Florida, 1962

 RIGGS, CARL D. ............Vice President (Academic Affairs),
Professor (Zoology), 1971
B.S., M.S., Ph.D., University of Michigan, 1953

 RIMBEY, DONALD H. .......Associate Professor (Energy Conver-
sion Engineering), 1967
B.S., M.S., Ph.D., University of Illinois, 1967, P.E.

 RINGNESS, CHARLES O. ....Assistant Professor (Art), 1970
B.S., St. Cloud State College, 1968

 RITTERMAN, STUART I. ........Associate Professor (Speech
Pathology & Audiology), 1969
B.A.; Ph.D., Case Western Reserve University, 1968, C.C.C.

 ROACH, DONALD W. ........Assistant Professor (Education), 1970

 ROBERSON, BRUCE W. .......Assistant Professor (Accounting), 1966
B.B.A., M.B.A., University of Texas, 1965, C.P.A.

 ROBERTS, LOREN G. .........Assistant Professor (Education), 1968
B.S., M.S., Emporia State Teachers College, 1963

 ROBERTSON, HENRY M. ....Professor and Director (American
Studies), 1961
B.A.; M.A., Ph.D., University of Minnesota, 1966

 ROBERTSON, PHYLLIS M. ....Teaching Associate (Education),
1968 (Part time)
B.A., University of Minnesota, 1941

 ROBINSON, CHASE ............Assistant Professor (Dance), 1971
B.S., Florida State University, 1939

 ROBINSON, GERALD G. ......Associate Professor (Biology), 1960
B.S., Ph.D., University of Minnesota, 1960

 ROBINSON, JACK H. .........Professor (Education), 1963, St.
Petersburg Campus
B.S.; M.A.; Ed.D., Harvard University, 1960

 ROBINSON, LAWRENCE J. ....University Attorney (Office of the
President), 1971
A.B., LL.B., University of Miami, Florida, 1952

 ROBISON, DENNIS E. .......Assistant Director/Public Services
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B.S.; M.A.; M.S.L.S., Florida State University, 1962

 RODERO, RHONDA W. .......Instructor (Modern Languages), 1971
B.A.E., Arizona State University, 1971

 RODRIGUEZ, CHARLES F. .......Lecturer (Community College
Relations), 1968
B.A.; M.A., University of South Florida, 1970

 ROGIER, DON L. ............Associate Professor (Management), 1970
A.B.; M.S.; B.S., Washington University, St. Louis, 1971

 ROLLINS, JOHN W. ...........Assistant Professor (History), 1967
B.S., M.S., University of Wisconsin, 1961

 ROMERO, PATRICIA W. .......Visiting Lecturer (History), 1972
B.A.; M.A.; Ph.D., Ohio State University, 1971

 ROMIG, LARRY G. .........Lecturer (Continuing Education), 1966
B.S.; M.A., University of South Florida, 1970

 ROSE, DALE A. J. ...........Lecturer (Florida Center for the Arts),
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B.A., M.A., Michigan State University, 1968

 ROSE, DONALD C. ............Professor (Mathematics), 1960
A.B.; M.A., Ph.D., University of Kentucky, 1954

 ROSE, MICHAEL P. .........Interim Assistant Professor
(Humanities), 1972
B.A.; M.A., Ph.D., University of Michigan, 1971

 ROSNER, JEFFREY R. .......Assistant Professor (Political Sci-
ence), 1969
B.A.; Ph.D., Johns Hopkins University, 1967

 ROSS, RICHARD E. .........Professor (SMF-Engineering), 1965
B.S.M.E., M.S.A.E.; M.S.E.M., Ph.D., University
of Florida, 1964, P.E.

 ROSS, JACOB S. ..............Associate Professor (Psychiatry), 1972
B.S.; M.D., University of Michigan, 1944

 ROSS, WILLIAM T. .........Assistant Professor (English), 1970
B.A.; M.A., Ph.D., University of Virginia, 1970

 ROTHWELL, STUART C. ........Professor (Geochemistry), 1965
B.A.; M.A., Ph.D., Syracuse University, 1964

 ROUDAD, THIRUMAL M. .......Assistant Professor (Accounting), 1970
B.S.; M.B.A., Sierra College, 1967

 RUBIN, STEVEN J. ...........Assistant Professor (English), 1969
B.A.; M.A., Ph.D., University of Michigan, 1969

 RUNDUS, DEWEY J. .........Assistant Professor (Psychology), 1972
B.S.; Ph.D., Stanford University, 1970

 RUTENBERG, DANIEL .........Associate Professor and Chairman
(Humanities), 1964
A.B.; M.A.; Ph.D., University of Florida, 1967

 RYAN, LEO R. ...............Assistant Professor (Psychiatry), 1972
B.A.; M.A., Ph.D., University of Colorado, 1960

 SAFF, DONALD J. ...........Dean and Professor (Fine Arts), 1965
B.A.; M.A.; M.F.A.; Ed.D., Columbia University, 1964

 SAFF, EDWARD B. ..........Associate Professor (Mathematics), 1969
B.S.; Ph.D., University of Maryland, 1968

 SALTER, E. GEORGE .........Assistant Professor (Anatomy), 1972
B.S.; M.S., Ph.D., University of Alabama, 1970

 SANBORN, JUDITH A. ......Assistant University Acquisitions
Librarian (Libraries), 1970
B.A.; M.A.; University of Michigan, 1970

 SANDERS, CATHERINE M. ....Lecturer and Coordinator of
Advising (Language-Literature), 1970
M.A., University of South Florida, 1970

 SANDERS, THOMAS E. .......Assistant Professor (English), 1968
B.A., M.A., University of Denver, 1951

 SANDERSON, ARTHUR M. .......Assistant Professor (Mass Commu-
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B.A.; M.A.; Ph.D., University of Iowa, 1963

 SANDLER, JACK ..............Associate Professor (Psychology), 1969
B.A.; M.S.; Ph.D., Florida State University, 1969

 SANKOVSKY, RAYMOND J. .......Associate Professor (Education),
1972
B.S., M.Ed.; Ph.D., University of Pittsburgh, 1970

 Saxon, Sue V. ..............Professor (Aging Studies Program), 1963
B.S., M.S., Ph.D., Florida State University, 1963

 SCHALEMAN, HARRY J. JR. .......Assistant Professor
(Geography), 1969, St. Petersburg Campus
B.A.; M.S., University of Cincinnati, 1963

 SCHEIB, MARLIN E. ...........Professor (Speech), 1971
B.A.; M.A.; Ph.D., University of Kansas, 1965

 SCHEUERLE, JANE W. .......Speech and Hearing Clinician
(Counseling Center), Lecturer (Student Affairs), 1971
B.S., B.A.; M.S.; M.A., University of South Florida, 1968
Scheuerle, William H. Assistant Vice President (Academic Affairs), Professor (English), 1964
B.A.; M.A.; Ph.D., Syracuse University, 1964

Schmidt, C. Elizabeth. Research Associate (Education), 1962

B.S.; Park College, 1941

Schneider, Raymond J. Associate Professor (Speech), 1968
A.B.; Ph.L.; M.A.; S.T.L.; Ph.D., University of Michigan, 1965

Schneller, Aina N. Interim Instructor (English), 1971
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Schneller, Stewart W. Assistant Professor (Chemistry), 1971
B.S.; M.S.; Ph.D., Indiana University, 1968

Schulte, C. Ronald Instructor (Theatre Arts), 1971
B.A.; M.A., Miskimming State University, 1971

Schultz, Ronald J. Instructor (Sociology), 1970
B.A., M.A., University of South Florida, 1967

Schwartz, Carole J. Instructor (Education), 1970
B.A., M.A., University of Wisconsin, 1969

Schwartz, Julia L. Associate University Catalog Librarian (Libraries), 1962
B.S.; M.S.L.S., Case Western Reserve University, 1955

Scott, Linus A. Chairman and Professor (Energy Conversion Engineering), 1964
B.S.M.E., M.S.E.; Ph.D., Case Institute of Technology, 1960, P.E.

Scott, Richard A. Assistant Professor (Education), 1972
B.S., M.Ed., Auburn University, 1962

Scruggs, Charles E. Associate Professor (Modern Languages), 1972
B.A.; M.A., Ph.D., University of Kentucky, 1968

Seligsohn, Harriet C. Lecturer (Advising), 1960
B.S.; M.A., University of South Florida, 1969

Sellers, E. Guy, Jr. Associate Professor (Education), 1962
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Selman, James Associate Professor (Education), 1971
B.S., M.S., Ed.D., Florida State University, 1967

Seminar, Lee Anne Instructor (Modern Languages), 1972
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Senior, Blondel E. Assistant Professor (Sociology), 1971
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Senzik, Sharon L. Counselor to Students and Lecturer (Student Affairs), 1972
B.S.; M.S., Indiana University, 1972

Sepanik, Mary A. University Reference Librarian (Libraries), 1969
B.S.; M.A.L.S., Rosary College, 1965

Sergent, Jerry E. Assistant Professor (Electrical Engineering), 1970
B.S.E.E., M.S.E.E., Ph.D., University of Cincinnati, 1970

Sexton, Irene M. Assistant Professor (Education), 1969

Shackson, L. Lee Professor (Humanities), 1964
B.S., M.A., Ph.D., Ohio State University, 1969

Shannon, Robert F. Associate Professor (Economics), 1966
B.S.; M.B.A., University of Illinois, 1966

Shannon, Robert L. Professor (Education), 1960
A.B.; B.S.; M.A.; Ed.D., Florida State University, 1960

Shepard, David C. Professor (Speech Pathology and Audiology), 1972
B.A., M.A.; Ph.D., Syracuse University, 1962

Sherman, James J. Professor (Management), 1967
B.S.; J.D.; Ph.D., State University of New York at Buffalo, 1966

Sherman, Rodney C. Assistant Professor (Management), 1969
B.S.; M.B.A.; Ph.D., Georgia State University, 1972

Sherman, Roger T. Chairman and Professor (Surgery), 1972
A.B.; M.D., University of Cincinnati, 1948

Shiver, Robert H. Assistant Professor (Physical Education), 1969
B.S., University of Florida, 1961

Shore, Herbert L. Chairman and Professor (Theatre Arts), 1972
B.A.; A.M.; M.A., Stanford University, 1958

Show, E. Warren Associate Professor (Economics), 1964
B.B.A.; M.B.A., Ph.D., Georgia State University, 1968

Simon, John M. Associate Professor (Political Science), 1969
A.B.: M.P.A., Ph.D., University of Pittsburgh, 1969

Sidowski, Joseph B. Professor (Psychology), 1969
B.A.; M.S., Ph.D., University of Wisconsin, 1956

Sidransky, Herschel Chairman and Professor (Pathology), 1972
B.S.; M.S.: M.D.; M.S., Tulane University Graduate School, 1958

Siebel, Jerry D. Associate Professor (Accounting), 1972
B.B.A.; M.S., Ph.D., University of Iowa, 1967, C.P.A.

Silbert, Edward M. Associate Professor (History), 1965
B.S.; M.A.; Ph.D., University of Florida, 1966

Silver, Bruce S. Assistant Professor (Philosophy), 1971
B.A.; M.A., Ph.D., University of Colorado, 1971

Silver, James W. Professor (History), 1969
A.B.; M.A.; Ph.D.; Vanderbilt University, 1935

Silver, Warren S. Professor (Biology), 1970
B.S., M.S.; Ph.D., Johns Hopkins University, 1953

Silverman, Alan Professor (Criminal Justice Program), 1972
B.A.; M.A., Ph.D., Ohio State University, 1970

Silverman, Mitchell Director and Associate Professor (Criminal Justice Program), 1968
B.A.; M.S., Ph.D., Ohio State University, 1968

Silverman, Stuart H. Assistant Professor (Education), 1970
B.B.A.; M.S., Ph.D., Yeshiva University, 1971

Simone, Joseph L. Assistant Professor (Biology), 1963
B.S.; M.S., Ph.D., University of New Hampshire, 1963

Singh, Surendra P. Associate Professor (Education), 1967
B.A.; M.A.S.; Ed.D., University of California, Los Angeles, 1967

Sisco, John I. Associate Professor (Speech and Education), 1968
B.S.; M.A.; Ph.D., University of Minnesota, 1966

Sisk, Dorothy D. Associate Professor (Education), 1966
B.S.; M.A., Ed.D., University of California, Los Angeles, 1966

Sistrunk, Francis Professor (Psychology), 1965
B.A.; M.S., Ph.D., University of Miami, Florida, 1963

Skelton, William H. Assistant Professor (SMF-Engineering), 1971
B.S.; M.S., Ph.D., Iowa State University, 1971

Sleep, David C. Chairman and Professor (Marketing), 1964
B.B.A.; M.B.A.; Ph.D., Ohio State University, 1965

Small, Leslie W. Assistant Professor (Economics), 1966
B.A.; M.A., Indiana University, 1960

Small, Norman C. Professor (SMF-Engineering), 1969
B.M.E.; M.M.E.; Ph.D., Brown University, 1960

Smith, Alice G. Chairman and Professor (Education), 1965
B.A.; M.S., Ed.D., Wayne State University, 1965

Smith, B. Othman Professor (Education), 1969
B.S.; M.A.; Ph.D., Columbia University, 1937

Smith, Carlos A. Assistant Professor (Energy Conversion and Mechanical Design), 1972
B.S.; M.S., Louisiana State University, 1970

Smith, Charles D. Associate Professor (Physical Education), 1967
B.S.; M.A.; Ed.D., Temple University, 1967

Shannon, Robert F. Associate Professor (Economics), 1966
B.A.; M.B.A., University of Illinois, 1966

Shepard, David C. Professor (Speech Pathology and Audiology), 1972
B.A., M.A.; Ph.D., Syracuse University, 1962

Sherman, James J. Professor (Management), 1967
B.S.; J.D.; Ph.D., State University of New York at Buffalo, 1966

Sherman, Rodney C. Assistant Professor (Management), 1969
B.S.; M.B.A.; Ph.D., Georgia State University, 1972
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<tr>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
<th>Degrees</th>
</tr>
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<tbody>
<tr>
<td>Smith, Dan F.</td>
<td>Assistant Professor (Education)</td>
<td>B.S.: M.A.: Ed.D.</td>
<td>University of Miami, Florida, 1970</td>
</tr>
<tr>
<td>Smith, Donald L.</td>
<td>Director (Medical Center), Dean and Professor (College of Medicine)</td>
<td>B.A., M.S.: Ph.D.</td>
<td>University of Colorado, 1958</td>
</tr>
<tr>
<td>Smith, Elton E.</td>
<td>Professor (English)</td>
<td>B.S.: M.A.: B.D.: Ph.D.</td>
<td>Syracuse University, 1961, D.D. (Hon.)</td>
</tr>
<tr>
<td>Smith, Haywood C.</td>
<td>Visiting Assistant Professor (Astronomy)</td>
<td>B.A.: M.A.: Ph.D.</td>
<td>University of Virginia, 1972</td>
</tr>
<tr>
<td>Smith, Jack L.</td>
<td>Associate Professor (Accounting)</td>
<td>B.B.A.: M.S., Ph.D.</td>
<td>University of Mississippi, 1969, C.P.A.</td>
</tr>
<tr>
<td>Smith, James J.</td>
<td>Assistant Professor (Anthropology)</td>
<td>B.A.: M.A.</td>
<td>University of Arizona, 1969</td>
</tr>
<tr>
<td>Smith, John L.</td>
<td>Assistant Professor (Music)</td>
<td>B.M.E.: M.M.E.</td>
<td>Indiana University, 1961</td>
</tr>
<tr>
<td>Smith, Norman V.</td>
<td>Lecturer (Engineering)</td>
<td>B.S.Ch.E.: M.S.E., M.Ed.</td>
<td>University of Michigan, 1927</td>
</tr>
<tr>
<td>Smith, Richard A.</td>
<td>Assistant Professor (Sociology)</td>
<td>B.A.: M.A.</td>
<td>Vanderbilt University, 1968</td>
</tr>
<tr>
<td>Smith, William A.</td>
<td>Assistant Professor (Afro-American Studies)</td>
<td>B.S.: M.Th.: M.A.</td>
<td>University of South Dakota, 1946, B.D.</td>
</tr>
<tr>
<td>Smith, William A.</td>
<td>Associate Professor (Energy Conversion Engineering)</td>
<td>B.S.M.E.: M.S.: Ph.D.</td>
<td>University of Florida, 1966</td>
</tr>
<tr>
<td>Smith, Wilma A.</td>
<td>Lecturer (Industrial Systems Engineering)</td>
<td>B.I.E.: University of Florida</td>
<td>1959</td>
</tr>
<tr>
<td>Smitzes, Melpomene</td>
<td>Assistant Professor (Education)</td>
<td>B.A.: M.A.</td>
<td>University of Florida, 1957</td>
</tr>
<tr>
<td>Snider, Arthur D.</td>
<td>Assistant Professor (Mathematics)</td>
<td>B.S.: M.A.: Ph.D.</td>
<td>New York University, 1971</td>
</tr>
<tr>
<td>Snook, Janice B.</td>
<td>Assistant Professor (Political Science)</td>
<td>A.B.: M.S.: Ph.D.</td>
<td>University of Maryland, 1969</td>
</tr>
<tr>
<td>Sofia, Sabatino</td>
<td>Professor (Astronomy)</td>
<td>B.S., M.S., Ph.D.</td>
<td>Yale University, 1966</td>
</tr>
<tr>
<td>Solomon, T. W.</td>
<td>Associate Professor (Chemistry)</td>
<td>B.S.: Ph.D. Duke University</td>
<td>1959</td>
</tr>
<tr>
<td>Soniat, Leonard E.</td>
<td>Assistant Professor (Mathematics)</td>
<td>B.S.: Ph.D. Duke University</td>
<td>1967</td>
</tr>
<tr>
<td>Sortor, Marvin E.</td>
<td>Assistant Professor (Industrial Systems Engineering)</td>
<td>B.S.: M.S. University of Florida, 1964</td>
<td></td>
</tr>
<tr>
<td>Spain, Frank H.</td>
<td>Director and Lecturer (Community College Relations)</td>
<td>B.A.: M.S.: Ed.D. University of Florida, 1954</td>
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</tr>
<tr>
<td>Spangler, Daniel P.</td>
<td>Assistant Professor (Geology)</td>
<td>B.A., M.S.: Ph.D.</td>
<td>University of Arizona, 1969</td>
</tr>
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<td>Sparks, Amy J.</td>
<td>Associate Professor (Modern Languages)</td>
<td>B.A., M.A.: Ph.D.</td>
<td>Louisiana State University, 1964</td>
</tr>
<tr>
<td>Spear, Frank E.</td>
<td>Director, Publications (University Relations)</td>
<td>B.A.: M.A.</td>
<td>University of Iowa, 1960</td>
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<tr>
<td>Spielberger, Charles D.</td>
<td>Professor (Psychology)</td>
<td>B.S.: B.A., M.A., Ph.D.</td>
<td>University of Iowa, 1954</td>
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<tr>
<td>Spillane, James R.</td>
<td>Assistant Professor (Theatre Arts)</td>
<td>B.S.: M.A.</td>
<td>University of Iowa, 1966</td>
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<td>Sproles, H. Allan</td>
<td>Assistant Professor (Education)</td>
<td>B.S.: M.Ed. University of Georgia, 1968</td>
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<tr>
<td>Stafford, John W.</td>
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</tr>
<tr>
<td>Stalnaker, Leo J.</td>
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<tr>
<td>Stanley, William O.</td>
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<td>A.B.: M.A.: Ph.D.</td>
<td>Columbia University, 1951</td>
</tr>
<tr>
<td>Stanton, Edgar E.</td>
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<td>B.A.: M.A.: Ph.D. Florida State University, 1959</td>
<td></td>
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<tr>
<td>Stanton, Kenneth D.</td>
<td>Lecturer and Associate University Librarian (Educational Resources)</td>
<td>B.A.: M.A., University of South Florida, 1968</td>
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<tr>
<td>Steele, Howard R.</td>
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<td>B.S.M.E.: M.B.A. University of Miami, Florida, 1960</td>
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<tr>
<td>Stein, Donald K.</td>
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<td>A.B.: M.A., Ph.D. University of Connecticut, 1970</td>
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<td>Steiner, H. Edwin</td>
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<td>B.S., M.A.: Ph.D. University of Texas, 1970</td>
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<td>Steineke, George C.</td>
<td>Associate Professor (Economics)</td>
<td>B.S.: Ph.D. University of California, Berkeley, 1963</td>
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<tr>
<td>Steitzmann, Rainulf A.</td>
<td>Professor (Modern Languages)</td>
<td>Dip. J: Dip. II, Dr. Phil., University of Freiburg, Germany, 1953</td>
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<tr>
<td>Stenberg, Patricia J.</td>
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<td>B.M., M.M., University of Michigan, 1959</td>
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<tr>
<td>Stephens, William L.</td>
<td>Assistant Professor (Accounting)</td>
<td>B.S., M.Acc., D.B.A. Florida State University, 1971, C.P.A.</td>
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<tr>
<td>Stevens, Brian</td>
<td>Professor (Chemistry)</td>
<td>A.B., M.A., Ph.D. Oxford University, England, 1960</td>
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<tr>
<td>Stevens, Larry E.</td>
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<td>Stevens, Noel S.</td>
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<td>B.M., M.M., D.M.A., Eastman School of Music, 1959, Artist’s Diploma</td>
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<tr>
<td>Stevens, William D.</td>
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<td>A.B.: Ph.D. Harvard University, 1950</td>
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<tr>
<td>Stevenson, Ralph G.</td>
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<td>B.S., M.S.: Ph.D. Florida State University, 1965</td>
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</tr>
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<td>Stewart, Lawrence R.</td>
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<td>B.S., M.A.; Ed.D. George Peabody College, 1956</td>
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<tr>
<td>Stein, Tom Y.</td>
<td>Interim Lecturer (Sociology)</td>
<td>B.A.: M.S.L.S., University of North Carolina, 1965</td>
<td></td>
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<tr>
<td>Stirling, Hamilton W.</td>
<td>Instructor (Management)</td>
<td>B.S.: Ph.B.: Ph.M. University of North Dakota, 1944</td>
<td></td>
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<tr>
<td>Stone, Douglas E.</td>
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<td>B.A., M.A., Ph.D. University of Chicago, 1962</td>
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<tr>
<td>Stoner, Kenneth L.</td>
<td>Counselor to Students and Instructor (Student Affairs)</td>
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<td>Stoner, Ruth A.</td>
<td>Counselor/Advisor (University Studies)</td>
<td>B.A.: M.S., Iowa State University, 1970</td>
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<tr>
<td>Story, Coleen M.</td>
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<td>B.A.: M.S., Florida State University, 1951</td>
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<td>Stovall, Jack C.</td>
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